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The Field.

Grafting Potatoes.

The idea of grafting potatoes for the purpose of uniting the good qualities of two different varieties, was introduced to my notice through the columns of the *Rural New Yorker* about two years ago. I must confess I had but little faith, but concluded the best way to determine the value of the idea was by actual test. I commenced by selecting a specimen of the Early Rose and another called the Cherry Blow, a potato of dark red color, and but very little earlier than the Peach-blow. I removed the eyes from the Cherry Blow by cutting out a piece of oblong shape running to a point. In these cavities I inserted the eyes of the Early Rose, cut out in the same shape, fitting them in nicely and binding them with bass strings. The first year I succeeded in saving but one tuber. The following spring I cut this one in single eyes, planted in good soil, gave ordinary cultivation, and about the 1st of September harvested nearly a peck of good sized potatoes, possessing the characteristics of both the original varieties in this, that they were earlier than the Cherry Blow and later than the Early Rose, and color about a medium between the two. I think by selecting for seed each year those partaking of the nature of both varieties, I will have a potato superior to the Peach-blow in one respect—it will be earlier.

J. R. SCOTT

We cut the above from the *Rural New Yorker*, and would ask, can it be true? If so, our ideas of the bud's controlling the fruit must be considerably modified. It has long been contended by some that the stock affects the fruit to some extent, intensifying or moderating its characteristics, but we never before heard it claimed that it would change varieties. We think it will require further experiments to establish the principle.—*Am. Rural Home.*

The Red Chaff Wheat.

(To the Editor of the CANADA FARMER.)

Sir,—“A bad variety of spring wheat” is the heading of an article in the *CANADA FARMER* of May 1st. Holding somewhat different views from those set forth in the above-named article, I hope you will excuse my offering a few remarks respecting the variety of spring wheat named the Red Chaff Spring Wheat. My next neighbor procured a few bushels of this wheat last year from the county of Wellington, and sowed it beside some Fyfe wheat. The result was that it yielded more than double the quantity per acre, and having noticed your article upon it, he took a bushel to the mill, had it ground separately, and his wife made some bread from it. The miller who ground it pronounced it good flour, and the bread was also good, although darker in color than

that made from flour of white winter wheat. A number of farmers in this county sowed this wheat last year, the yield varying according to circumstances from 16 to 24 bushels per acre. I do not think it should be condemned because one or two millers happened to say that it will not make as good flour as the Fyfe Wheat. About 10 or 12 years ago, when the midge made its appearance, and threatened the total destruction of the better varieties of white winter wheat, one or two varieties of red wheat were introduced, namely, the Mediterranean and the Midge Proof, which to appearance were both exceedingly coarse, inferior samples, and I recollect very well that the millers pronounced them very inferior, and distinctly said that they would not make good flour, and that a farmer had better have half a crop of good wheat than a whole crop of inferior stuff, which was so mean that even the midge would not eat it. Now, sir, what was the result? They proved useful and profitable wheats to grow under the circumstances, and became very generally cultivated for four or five years, and are yet grown to some extent. The millers learned how to grind them so as to make good flour, and the longer they were cultivated the samples apparently improved. They became, as it were, acclimated. Now, I think this red chaff spring wheat may possibly improve in quality, and that the millers will perhaps learn how to grind it to make good flour, and I entertain hopes that it may yet become a desirable wheat to grow, and prove a valuable acquisition to the agricultural community, for I do assure you that although the Fyfe wheat makes good flour, it is no longer a desirable or profitable variety of wheat to raise in this section of the country. I am, &c.,

A WENTWORTH FARMER.

Culture of Beans.

Relative to the culture of beans, we give the following practical remarks from a correspondent of the *New York Tribune* in Central Indiana:—

The first requisite for a bean crop is thorough preparation of the ground. Beans cannot be successfully raised among clods or weeds. The ground should be made very mellow by repeated rolling and harrowing. My own plan has been to run light furrows about twenty inches apart, and follow in these with a corn drill, planting the beans three or four inches apart in the row. (The brush must be taken out of the drill box, and the iron where the brush is fastened must be cut or filed out, in order to plant them so thick.) This will require between three and four pecks to the acre, varying according to the size of the beans. Immediately after planting the ground should be harrowed again. Beans will usually come up in three to five days from the time of planting. The after-culture which I have practised is ploughing twice between the rows with a steady horse, a careful ploughman, and a very narrow single-shovel plough. The cultivation should cease as soon as the beans begin to blossom. I have found from the 1st to the 5th of June to be a very good time for planting; they will then ripen about the last of August, and the ground can be easily made ready for a wheat crop. The yield varies greatly, according to the season,

fifteen bushels per acre is considered by many as a fair yield, but from twenty to thirty bushels can be raised in a favorable year by proper care and attention. Navy beans usually command from twenty-five to fifty cents more per bushel in market than the ordinary kinds, but they are not so easily raised, and they ripen much later, frequently too late for the ground to be sown in wheat. Beans require a good soil, which must be well drained. They can be raised on very poor ground, but the yield will be correspondingly small. Seed beans purchased from the stores should be tested by sprouting a few before planting the crop, as they sometimes heat in bulk and will not grow.—*Country Gentleman.*

Harvesting, Shocking and Stacking.

Wheat and barley are the two varieties of small grains from which farmers expect to realize cash returns, and this for the simple reason that their selling prices in our principal markets are such as to warrant their transportation to comparatively long distances. Rye and oats are next in importance, but rye is not generally raised in the West, and oats do not generally bear price sufficient to warrant long shipments. Much grain is lost annually by bad shocking, and since there may be much rain during the present harvest, a few hints on this matter may not be out of place.

Now-a-days there are so many really good reapers in the hands of the farmers, that the binding of grain is very much simplified, the gavels being laid at regular intervals, out of the way of the reaper, and with the butts reasonably square for binding. All that is necessary to be done is for the binder to form the band, tie, and the grain is ready for shocking. This labor may be facilitated, if the binder will toss the grain into convenient piles, from which they are carried to the place for shocking.

In setting the sheaves together it is quite common to see the bundles of rye, barley, and oats simply leaned against each other in long lines, and without covering from the rain, and in too many cases the grain is often injured to a greater or less extent thereby. This should never be done, except perhaps in the case of rye which does not readily absorb moisture, and the length of the straw of which makes it somewhat difficult to be placed in shocks for covering. Nevertheless we have always practised covering the shocks of rye.

Barley we should never bind, but should always take the gavels directly to the barn as soon as dry, for, if wet with rain, the grain is thereby seriously injured; indeed every time the grain is wet with dew, after being cut, it is more or less discolored, and once wet, after binding, the grain can no longer be sold as first-class in the market.

There are various ways of shocking, but the one most in use, and, all things considered, the best, is to set two sheaves upright, placing, against these, two other sheaves at two of the sides, making six sheaves compactly together. Against these, leaning slightly, the butts set firmly on the ground, put a sheaf at each end and one side. Your shock now contains ten sheaves. Press the heads together and it is ready for the caps. These are made by selecting medium sized sheaves for the purpose. Break the tops above the band, so that the straw and heads may spread, and, opening the butts, set it on the shock, so that the heads may cover the sides, and the butts the end of the shock. Bend another sheaf as before directed, for the opposite end of the shock, lapping enough to partially cover the first cap sheaf. If this be carefully done, the shock is safe from or

many harvest storms, although, sometimes, long continued spells of wet weather will cause the inside of the sheaves to take water, but this is the exception.

In stacking when the dew lies on the sheaves, it is well to place the cap sheaves near outside of the stack. Commence the stack by setting up sheaves around a central one. Continue this until the bottom is large enough, being careful that it is not so large as to prevent the stack being properly laid out. When finished, the stack should present a true egg shape, the end down. A little observation and practice will enable you to do this. One course having been laid, commence the next on the outside layer, about even with the outside butts; lay the next row with the butts about six inches over the bands of the preceding layer, and so proceed, circle within circle until you get to the centre. Keep the stack well crowned to the middle, also, when the stack commences to settle, the sheaves point downward to the centre, and let it be in the water. Place each sheaf firmly and compactly next its neighbor, and when the stack has reached a height of two or three feet, according to the size of the stack, commence laying out, placing each succeeding outside course from two to four inches over the edge until you reach the proper height when it may be carried up square to the point whence it becomes necessary to commence drawing it.

From the point where the stack is to be drawn increase in size, keeping the middle very full; and the sharper the top, the fuller the middle requires to be kept. An important point to be observed is that the sheaves be not all pitched to the stack from one side, since this will cause the stack to settle unevenly; and in passing over the stack, if soft places be observed, keep them filled to correspond with the other portions of the stack; and in stacking do not walk further towards the outside of the sheaves than is necessary, since this is apt to cause the outer bundles to slide. If the middle of the stack from any cause becomes low, commence at the centre and lay out near the outside, and then work as before directed; for if the sheaves near the outside be not quite slanting the stack will, in settling, let in water, and this must be specially guarded against as the top is drawn to an apex.

To finish the stack, stand in the centre and place the bundles so the butts will always be lowest, and when you have the stack to as sharp a peak as possible, force a long, smooth, sharply-pointed stake down into the stack, leaving only about eight or ten inches projecting, which should be covered with a large long sheaf, butt upward, with the heads carefully spread over the stack, and the end of the butt of the sheaf tied tightly over the stake. If these directions are carefully followed, there is no reason why the stack should not preserve its contents intact, without thatching or further care.—Farmers' Union.

Overlooked Wheat Fields.

Spring has at it made its appearance, and our farmers are very busy just now in preparing their grounds for crops. The past has been a peculiar winter for this region—frequent thaws, high water, and all its attendant evils, much mud, wheat exposure, &c., &c. Yet our wheat looks quite as well as could be expected, fully an average with former years.

I noticed an article in this week's Telegraph, over the signature of S. J. Woolley, Franklin county, O., stating that the wheat crop in his section, on all lands that hold water, is badly frozen out. The land in Franklin county may not hold water, but I hardly think Mr. Woolley's will, for this reason:—I now have a field of fifteen acres of wheat on my farm that have been under water from one inch to six feet, within the past five months, five or six times, and I never saw finer prospects for a crop. There is not a rod on the whole piece but bids fair to be unusually heavy. I might farther state that I have fifteen acres of wheat on other land, a portion of which has frequently been submerged, and at times for weeks together, still I fail to discover that it is frozen out any more than other portions that were not overflowed. Wheat will stand an unlimited amount of water during late fall, winter and early spring, without injury if sowed early; and I repeat what I have written before, that no one need fear to sow wheat on land subject to inundation, if it will not wash.

Last year I contested the right of possession with a patch of Canada thistles. The soil was a sandy loam, and rich. It was about an even thing for a long time. They held me level until late in the summer. My practice was to pull them once a week by shoving a stick down by the side of them and pulling them up. But a thing would do, for they came to time regularly. At last I struck on a new plan. I treated them with a small allowance of kerosene oil,

about a spoonful each, stuck a stick by them, and that was the last I saw of them. They were black in fifteen minutes. I afterwards dug up some of the roots and found them killed in sections. Will some one else try the experiment?—Cor. Germantown Telegraph.

Corn and Cut Worms.

A correspondent of the Country Gentleman says:—Your valuable preventive—one and one-half pounds of copperas to one bushel of corn—I tried as follows, with great ease, cheapness and certainty, and most marked and astonishing results to all my hands:—I pulverized two pounds copperas at night, and the next morning put in soak, and I put one and a half bushels of corn in soak in a separate vessel at night. After soaking twelve hours I poured off the water from the corn into a tub; I then added as much water as covered the corn, and added to it the copperas water, and thoroughly mixed and poured over the corn, and let it remain in copperas water twelve hours; I then poured off the copperas water from the corn and rolled the seed corn in plaster. I early for planting I open deep furrows, say four or five inches, and cover light with corn coverer, but I late I cover deeper. I tried this experiment on a soil rich of three years standing, ploughed in March and April of 1873. I ploughed with a three-horse plough seven inches deep on the average; the ground was nicely pulverized. Planted on the 1st of May, three and a half by three and a half each way. Two days planting (ten acres.) I dampened the corn and rolled it in the plaster.

The third day I had the corn prepared with copperas and ready to plant. I planted the corn across a forty-four acre field, by the side of the second day's planting, and there were between two and four days planting; all treated alike, except the application of copperas on the two bushels of seed corn. To the surprise and satisfaction of myself and hands, it came up regular, green and vigorous, and grew rapidly. I soon found it necessary to replant. I found on examination not a mill cut nor a worm to be found where the copperas was used, and the entire field, except the two bushels of seed thus treated, was cut from two to three hills out of five, and I often found from one to fifteen cut worms in a hill. I was so worried I could not determine which plan was the best—replant, plough and wait over, or check off between rows. I made a note of such being done, but never tried it. I have ordered 150 pounds, and I am urging all my friends to give it a trial. One bushel of corn will plant five acres, and one and one-half pounds of copperas will prepare the bushel of corn. Copperas can be bought in quantities to suit farmers at six or seven cents per pound. It would cost 12 cents per acre. It is cheap, simple and certain with me and others who tried it last year, and I regard this a valuable preventive.

Improving Wheat for Seed.

Sow none but the largest and most perfect kernels. It has been my practice for the last sixteen or eighteen years to run my wheat for seed over a very coarse seed screen, so as to sow none but the very largest kernels. By so doing I have improved my wheat so that I have sold nearly all my wheat at home for seed. But in 1871 I hit upon a new plan. I had a piece of Treadwell wheat that was injured by insects in the previous fall, and killed by freezing in the winter, so that there were spots not worth cutting. After harvest I observed a few scattering heads of unusual size. It occurred to me that there was wheat that had withstood the ravages of insects and the rigor of the winter. I gathered enough to sow one rod square, from which I realized twenty pounds of wheat, of unusually large, even berry, which was at the ratio of over fifty bushels per acre; last harvest had twenty bushels, which weighed sixty-six pounds per bushel. It is my opinion that we realize the best crops from the best and most perfect seed in the vegetable as well as the animal kingdom.—Cor. Rural New Yorker.

SALTS VS BEETS.—Do they agree to join hands harmoniously and jog on together, in all soils, toward a full bin in the fall, as desirable, or do they not? I sowed my main crop of mangolds and sugar beets last year with salt sowed in the winter, 1 1/2 bushels only to the acre, or with stable manure cut up in March with the salt and lime mixture, and ploughed in 30 tons to the acre, in May. The foliage was blackened and crop crippled for the season—I shall not do this again on clay loam soil. Some rows that grew between currant rows, without salt or any manure at all, but in good ground, gave me 30 tons to the acre. If you try salt, friends, try it easy, say a quart to the acre for beets.—Cor. Maine Farmer.

Grasses and Forage Plants.

Questions about Lucerne.

S P M., of Holloway, sends the following queries about lucerne:—

- 1. Is lucerne liable to winter-kill, like clover?
2. Can it be cured and stored like other hay?
3. Where can the seed be procured, and what is the price per bushel?

1. We do not think it is so liable to winter-kill as ordinary clover, but it cannot be said to be wholly free from the tendency. It is less likely to suffer in light sandy soil than it is in stiff tenacious land. We could answer this question better a week or two hence, when we see how an experimental field turns out. If lucerne will stand such a winter as that just over, it will do.

2. Yes. In order to the best success in growing it for hay, the seed must be sown thickly, so that the plants may be forced to grow thin and spindling. The greatest care must also be taken in curing, lest it become too dry and strawy. It is a good plan to sprinkle it with salt pretty liberally when stacked or put in the barn mow.

3. At any good seedsmen's. The price is variable according to the market, like all the grasses. The present spring it is quoted at thirty cents per pound.

Couch versus Squitch.

BY PROFESSOR J. DUCKMAN.

Going over a new farm which has just been taken by a friend, we found the case much as it usually is when the old tenant is going off, namely, wedding had not been so carefully attended to as it ought to have been, and Couch had run its long arms in every direction. Our friend, however, consoled himself with the idea contained in the following words—"There," said he, "that's the right sort of Couch; I can easily manage that!" Now, on carefully examining our friend's new acquisition, and pondering over his remark, I found that he was practically right; but as there should be, as there always will be when sought after, some principles leading to practical results, what are the principles in this case? They are as follows:—

- 1st. Couch grasses are of different species and habits.
2nd. As different species affect different soils, our farming results will also differ.
1. What, then, is the "right sort of Couch?" The Triticum repens, common Couch, with its two-rowed spike or "ear" of wheat-like flowers and seeds, with long, but strong, jointed, underground, creeping stems. This is the Couch of strong, generous soils. The wrong sort is the one with very diffuse racemose, not spicate, flowers, and underground stems thinner in bulk, but more tufted. This, then, is not the "strong, healthy Couch," but the "wiry Squitch." If we place the differences in parallel columns they will be all the more distinguishable.

THE TWO COMMON SORTS OF COUCH AND SQUITCH, OR CREEPING GRASSES.

Table with 2 columns: Triticum repens and Agrostis stolonifera. Rows describe characteristics like spike, flowers, stems, and growth habits.

Our friend, then, can the more readily get rid of the first-named pest—the right sort—as its underground wires are longer and stronger, and therefore they hold together more pertinaciously, and when its "creeps" are done away with there is usually an end of the matter, as the seeds are very shy of perfecting themselves, and if so, the seeds of each stem are comparatively few.

Not so with the second—not the right sort of Couch, but the "Squitch." It more readily breaks up into little bits, each joint of which will grow; but it seeds readily and most abundantly, the difference being:—

Triticum repens seeds 20 x 3 = 60
Agrostis stolonifera " 300 x 2 = 600

These two sums represent the fecundating powers of both plants, with this difference, that the seeds of the former seldom ripen, while those of the latter always do so, and hence, however careful we may have been to pick up the stems, new plants are certain to come from seed. We have at this moment a plantation of seedling *Agrostis*, or *Perispa*, where the thrashing machines stood; the fact being that the seeds ripened in the barley crop, where *Triticum* seldom ripens, and these would be quite enough to stock a farm.

2. There is another reason why our friend was able to felicitate himself upon his pest being the "right sort."

This stronger kind usually affects the stronger and better sorts of soil. The land in which this occurred, on the occasion referred to, was a strong loam lightened by chalk flints. The *Agrostis* prefers lighter soils with a limestone brash, among which it can creep and crawl, and about which it can dive, so that it is next to impossible to get at it in its entirety. It may, then, as a rule, be taken for granted that where *Triticum* ripens is the natural Couch grass, the land will be worth more than when the *Agrostis stolonifera* prevails—worth more, as it will be in better heart, and capable of producing better crops, and worth more, in that however badly the former may prevail, £1 an acre, ranging over four years, may suffice to get it under; but the latter will be better represented by £5, ranging over seven years. How often have we exclaimed, in an agony of mind, "for which of our sins were we placed on a Squitch farm? We plough, we drag, we chain-harrow over and over again, but it keeps its place in spite of us!" Oh! how we join in our friend's self-gratulation when he has "the right sort of Couch;" "but then," say our friends, "what nice land! How easy to work! You can always get on soil!" "Yes, yes, dear friends," we respond, "all true; but you are never off it!" Don't, then, let our farmer friends conclude, after all, that this is a mere difference of sort, as one would speak of a different sort of wheat—white and red for instance—as this is not all. It is a real difference of genus and species, differing more than a turnip and a cabbage, as they are only different species of the genus *Brassica*. It is a difference great as that of wheat and oats; and we have found that in practice it is after all a matter of great importance to know the natural history of the weeds we have to deal with, and in no matter is this more so than in having to do with the *Triticum ripens*—the right sort of Couch,—and the *Agrostis stolonifera*—"the wiry, creeping, crawling, benty Squitch."—*Bell's Weekly Messenger*.

ALFALFA AND THE POTATO BUG.—The question was raised some months ago as to the identity of alfalfa and lucerne. It was said that Mr. Edward Stabler, of Montgomery county, after seeing the alfalfa pastures of California, thought it was a different plant from lucerne, and the hope was raised that it might be introduced here as a pasture grass, which the lucerne is not. A correspondent of the *Farmers' Home Journal*, of Kentucky, disappoints us of this hope, by stating that the alfalfa is greedily devoured by the Colorado potato bug. The bug has not found its way to California, but it has reached us. The writer, speaking of the introduction of alfalfa into Montana Territory says: "To my surprise I found the plants covered with potato bugs, which were devouring it with as much greediness as they would their own peculiar plant. The potato bug is only limited by the quantity of feed a country affords for its subsistence. With broad fields of alfalfa to feed on, it would in a few years become as numerous as the grasshoppers of the Western plains."—*Maryland Farmer*.

RYE GRASS.—A correspondent of the *Willamett Farmer* says: I have tried it on three different kinds of soil, and it has done well. My opinion is that it is the best grass for dry ground that we have on this coast. I sowed one piece on a high ridge that was very ferny, and the grass grew four or five feet high, completely smothering the fern down. It is of a quick growth and starts early in the spring. I have one piece in my field that is over six feet high at present. I have some timothy alongside of it, that is not over one foot high. I have not tasted it to any great extent for hay, but so far as I have done so I am satisfied it will make fair hay, but for grazing I think it will excel any grasses we have.

"In my fertile country," said a Leicestershire man, "you could turn a horse into a field new mown, and the next morning the grass would be grown above his hoofs." "Pooh! that's nothing," cried a Yorkshireman; "you may turn a horse into a field in Yorkshire, and not be able to find him next morning."

Agricultural Implements.

An Improvement only in Name.

In a recent number of the *American Agriculturist* we observe an illustrated notice of a new plough-attachment, which is claimed to be a great improvement, but we are rather inclined to think that the improvement is one only in name. The novelty is something after the shape of a round-pointed steel shovel-blade, and this is attached by means of a Shank to a jointed and curved arm. The whole apparatus is then attached to the right or off handle of the plough, near the ground, by the same bolts as keep the mouldboard in its place, and so adjusted that the shovel, coming in rear of the mouldboard, cuts or scuffs off the fresh earth from the newly turned furrow, and causes it to drop on the furrow sole, thus, as it were, laying a fresh and mellow coating over the packed bottom. Now we utterly fail to see the point gained by any such appliance. In usual ploughing, fact it is, and the fact is to be lamented, that the furrow sole is in a measure packed down much more tightly than it was when in its natural state, undisturbed; but how is this "improvement" going to help matters? True, the hard, packed, smooth sole cannot be observed after the use of the new invention, but why? Simply because it has been covered over and is hidden. But does that affect it in any way? Does it render the packed portion a degree less firm? We trow not. Does it not instead add to the injury by throwing fresh pulverized earth in the ridge for no other purpose than to be stamped down upon the hard bottom, thereby adding injury to injury. The sole alone is surely enough to be packed without adding anything more to it. But when the earth, as mentioned, fresh and pulverized, is scattered into it, then it is plain that this latter addition serves only as a carpet over its stiffened sub-ponents for the feet of the ploughman, and that instead of its being or inducing a further pulverization, it in reality necessitates the packing of more than if it had not been there at all. When it is remembered that pulverization is one of the grand aims which must always be kept in view in cultivation, and that the deeper the pulverization is the better, unless it be on soil too heavily impregnated with magnesian limestone or other such injurious elements, the force of our remarks will be appreciated. As a general rule, we believe our ploughs are just about as perfect in respect of pulverization as ploughs can be made, and that no additional contrivance by way of attachment will be very much of an improvement. We incline strongly, however, to an opinion which is speedily gaining ground, and which in many places has been practically adopted—to do away altogether with the plough on good cleared land, and use instead the 6 or 8-horse deep tamped cultivator. It will give the soil a much more thorough and deeper stirring up than can ever be effected by means of a plough.

Agricultural Machinery.

Prof Fawcett, in his able paper on Wealth and Wages in Great Britain, says:—Numerous instances may also be given of the extent to which employers are induced to economize labor by the introduction of improved industrial processes when trade is unfavorably affected by any such circumstances as a deficiency of raw material or a scarcity of labor. Thus it is said: "In their gallant struggles in the difficult times following the war in America, our manufacturers developed the resources of machinery to a greater extent than had ever been attempted before, and they succeeded in making a considerable reduction in the amount of labor employed." In consequence of the extremely high wages which are prevalent in the United States, Americans are far more interested than Englishmen in applying machinery with the view of saving labor. Machinery is not only far more largely used in agriculture in the United States

than it is in England, but many of the improvements which we have introduced into agricultural implements have been obtained from America. I find it stated that in the United States the application of labor-saving machinery to agricultural operations is increasing every year. The number of patents issued for agricultural implements was, in 1847, 43; in 1863, 390; in 1864, 503; in 1865, 1,778, and in 1867, 1,800. It can scarcely be doubted that even the comparatively small rise which has taken place in the wages of English agricultural laborers since the formation of agricultural unions, has already acted as a stimulus to many farmers to adopt various means of economizing labor, such as the employment of more machinery. If the supply of agricultural labor should be diminished, as seems not improbable, by a large emigration of agricultural laborers, it cannot be doubted that the farmers would be prompted to make still greater efforts to economize labor, and thus the rise in wages, which would naturally result from a diminution in the supply of labor, would be to a considerable extent counteracted.

Character of a Good Plough.

Every good plough should possess two important qualifications. The first relates to its working. It should be easily drawn through the soil, and run with uniform depth and steadiness. The second refers to the character of the work when completed. The inversion of the sod, especially if encumbered with vegetable growth, should be complete and perfect; and the mass of earth thus inverted should be left as thoroughly pulverized as practicable, instead of being laid over in a solid unmoved mass. This is of the greatest importance on heavy soils, and is highly useful on those of a lighter character, except, it may be, clear sand or the lightest gravel. The harrow at best is an imperfect loosener; it pulverizes the surface, but its weight and that of the team press down the mass below. Whatever loosening can therefore be accomplished in ploughing is a gain of vital importance. The ploughshare or point should in the first place be kept sharp, and where stones or other obstructions exist in the soil, the line of the cutting edge should form an acute angle with the land-side; in other words, it should form a sharp wedge. The point of the mouldboard should be long and acute, so shaped as to begin to raise the left side of the sod the moment it is cut, and before the right side is yet reached by the cutting edge. The various qualities may be summed up thus: 1st, Pulverizing power; 2nd, Non-liability to choke in stubble; 3rd, Lightness of draught considered in connection with pulverizing power; 4th, Ease of holding; 5th, Durability; 6th, Cheapness; 7th, Excellence of mechanical work; 8th, Excellence of material; 9th, Thorough inversion and burial of weeds; 10th, Even distribution of wear; and 11th, Regularity or truthness of turning and carrying the furrow-slice in soil.

Chilled Iron Mould Boards.

An excellent judge on all subjects connected with agriculture and agricultural mechanics, Mr. James Giddes, of Onondaga, has called our attention to a new process of chilling iron for plough castings and other purposes, lately patented by John S. Robinson, of Canadawaga. The object of course is to secure the advantages of a steel plough at a greatly reduced cost. An account of the invention, handed us by Mr. G., together with a sample of the chilled iron it produces, contains the following:

The particles of molten iron are susceptible to the most delicate external influences, and if turned upon a piece of cold metal, or "chiller," the process of chilling or hardening instantly takes place, and the surface coming in contact with the chiller becomes as the best cast steel. But this process—heretofore of little practical benefit from the tendency of chilled castings to warp and crack by the rapid contraction of the chilled side of the casting—is utilized by this invention, and this difficulty overcome by the improved process of manufacture secured by this patent.

The fact is established beyond question, that this process of chilling and carbonizing cast iron imparts to the mould board or other parts of a plough all the desirable qualities of hardness, flexibility, strength and durability combined, possessed by the best steel ploughs, and at a price but little in advance of the ordinary cast iron plough.—*Rural Home*.

Rural Architecture.

Health and Comfort in House Building.

BY DR. JOHN HAYWARD,
Vice-President of the Liverpool Architectural and
Archaeological Society.

There are eighteen conditions in house building absolutely necessary in a sanitary and medical point of view. Some of the more important are: Due exposure to fresh air and sunlight, positive freedom from damp, a large cubic space for air, and abundant means for the escape of the foul and the admission of fresh air. It is essential that the air should be warmed previous to admission. Indeed, ventilation is the great and main necessity of house building, whatever is left undone that should be specially attended to as to the temperature of the admitted air, no contrivance that communicates directly with out-of-door air can possibly answer in winter. This is especially the case as respects bed-rooms, which are often very improperly constructed and arranged, so that the sick occupant has to be in a current of air passing between the doorway and the fireplace, from 25° to 35° in temperature, while the temperature of his body is 98° or 99°. To this, in many cases, patients are exposed, and the result is intensified when the bed has to stand between the fire and window, and the beating draught is with the out-door air. To these unpropitious bed-rooms may be traced many cases of consumption, bronchitis and asthma. In fever cases much fresh air is required, and sometimes an endeavor is made to obtain it even by opening the doors and windows, so that many typhus fever patients die of pneumonia, and many rheumatic fever cases are prolonged and complicated; and with all their knowledge and care medical men cannot prevent these evils, because of the defective construction of bedrooms. And it is not only patients in acute diseases who suffer from these imperfect architectural arrangements. Most persons occasionally take cold, and in the majority of instances the cold falls on the respiratory organs, as influenza, sore throat, or bronchitis, when the temperature of the air respired affects very materially the progress of the case, whether it shall be mild or severe, whether it shall be curable or fatal. In acute bronchitis the temperature of the air respired should never be lower than 65°; but how is it possible to obtain this temperature in ordinary bedrooms in winter, when bronchitis is most prevalent? And even when it is obtained by well fitting windows and doors and large fires, matters are not much better, for the very means taken to obtain warmth exclude fresh air, and subject the patient and his attendants to the evils of foul air. And draughts are equally pernicious in sitting-rooms, where persons may be roasted on one side and frozen on the other, resulting in neuralgia, rheumatism, colic, coughs, asthma, consumption, and a long train of cognate human ills; and the chilly lobby contributes materially to these evil results.

In some cases the supply of fresh air to a house is obtained principally through the water-closet. This is one of the evils that certain improved architecture and building have increased. The water-closet opens into the lobby, the front door is made to fit as tightly as possible to prevent cold draughts, and this prevents fresh air coming from the front; while, with well-fitting intermediate doors to shut off kitchen smells, the admission of fresh air from the back of the house is prevented. These arrangements make the lobby into a chamber, with the termination of the main drain opening into it through the water-closet. In winter time the fires in the living rooms suck in the poisonous gases and disease germs through the closet-pan out of the drains.

The general and complete remedy for the evils enumerated is ventilation with warm air by self-acting suction power. The first requirement of a healthy and comfortable house is an ample supply of fresh and greaceable warm air in the lobbies, corridors, or other central spaces out of which the rooms of the house open or draw their supply. This is provided for by a tubular pipe at the entrance opening, or somewhere in the lobby. The next thing is the admission of this air into the room, for which special outlets are provided, controlled by valves to accommodate the supply to the partial occupation of the room. The abstraction of the vitiated air is managed by a separate flue from the ceiling of every room and water-closet, and from every gas-holder in the house, terminating in a common chamber permanently heated, and communicating with a shaft, which may be let into the kitchen flue, and must be so proportioned to the size of the house as to empty it of air three times every hour, and as often will the whole house be replenished with fresh air. This plan has been tried, proved completely successful, and very

cheap. It is the warmest house in winter and the coolest in summer; the most airy and fresh, and at the same time the house that is the most free from cold draughts in the world; and from personal experience of the comfort and advantage of living in a house built to live in, and of the discomfort of living in houses built for gain, I do not hesitate, in reference to ordinary houses, to vary the well-known epigram and say that, "Knaves build houses, and fools live in them."—*Manufacturer and Builder.*

A Cement Cistern.

I have had a little experience at cistern making the past fall, which some of your readers may like to know about. I first made a light curb, five feet in diameter and one foot deep. I then dug a hole straight down, five feet and eight inches across, and six feet deep. The curb was then placed at the bottom. Of course there was a space outside of four inches, which I now proceeded to fill with small cobble-stones—which were raked from the highway—and hydraulic cement mortar.

The curb was made one-half of an inch smaller at the bottom than at the top. After filling completely up, I raised it a few inches with a short lever, and placed in more stones, and covered them as before. The material soon "set," and I was encouraged at once by finding that I was building a firm wall very conveniently. I did not carry the wall fully up the first day, thinking it well to let it harden. I use common lime mortar for the upper foot of the wall as it is less liable to crack if it should happen to freeze and as it was not important to have the wall watertight above the outlet drain.

After taking out the curb, I mixed cement mortar on the bottom of the cistern, and plastered the side half an inch thick, finishing by spreading a thick coat over the sandy bottom. I did this a second time, and have a tight cistern. I have covered the work with a double floor of chestnut board and oak timber, with a small pitch, and over all placed a sufficient depth of shavings to prevent any injury from frost.

This cistern is near the back door of my house, and receives the water from the roof. In building it, I inserted a two-inch tile in the wall half way down through which I put the pump pipe after it was about completed.

It took a little more than two barrels of cement which cost six dollars. In addition, fifteen cent worth of lime. A smart lad of eleven years assisted me. I enjoyed the job better than I should "going to Boston." The increased serenity produced in the kitchen by "enough good, soft water," may be justified at. I estimate the cistern to hold about twenty-two barrels.

I have since made another cistern at the corner of my barn, where a long gutter delivers a copious stream of water. The grade of the barn-yard allowed me to draw water from the bottom of the cistern into a tub set partly in the ground at the lowest spot.—*Cor. New England Farmer.*

Improved Method of Plastering.

Messrs. Stuart & Co., of Edinburgh, have introduced to the notice of Glasgow architects and tradesmen a new method of plastering, for which they claim numerous important advantages. The material employed is "scientific cement," and consists of a particular preparation of lime containing a ferruginous clay, to which is added a certain portion of calcic sulphate, the whole being ground to a fine power. This is conveyed to the building in sacks, and after it has received a due proportion of water, from four to six parts of sharp sand are added, and the cement is ready for use. The tedious process of slacking the lime is altogether dispensed with; but a still more important advantage is that the cement sets so rapidly in consequence of the formation of hydrated calcic and aluminic silicates, that a building can be finished—receiving first, second, and third coatings—within 48 hours. A further recommendation, on sanitary grounds, is that hair is used only in first coating. The work produced appears to be of excellent quality, and the expense is said to be but little, if at all, in excess of that of plastering by the ordinary method. The process is very simple, and could be readily learnt by any workman of ordinary intelligence. The scientific cement, we are informed, has been successfully employed in several extensive buildings in Edinburgh, and is at present being applied at a warehouse in course of alteration at 160 St Vincent Street, Glasgow. The new material has been found in many cases to serve the same purpose as Portland cement; and as it can be produced at about half the cost, it may ultimately in various ways supersede that substance.

Wire Netting as a Building Material.

Wire netting for plastering as a substitute for lath has been proposed, and is now being introduced. It takes less labor to place on the walls, is more continuous and will not burn. Coarse netting with one inch mesh, and made of strong wire, is found to answer best. For ornamental cornice work it is especially valuable, as it can be bent into any desired form. Secured to iron studding in a brick building, our greatest danger on account of fire would be removed. A still further application of this plan is to make round bags of wire resembling barrels and to coat them inside and out with cement. When it hardens they resemble stone barrels. Filled with sand and sunk in rows and masses they make excellent material for breakwaters. Another extension of the idea has been tried with success in England. It consists in making iron framed buildings, covering them with wire netting, and spreading concrete on both sides. It is claimed that a house—walls, floors, roofs, doors, partitions and all—has been built that is strong, firm and absolutely incombustible. Another application of the use of wire netting, and plaster or cement, has been patented by Col. Freeman, of New York city, in the United States and Europe. It consists of making cubes of wire netting, and filling them with concrete. In this way artificial building stones of any size and shape are easily obtained, and when in place, they are covered with cement or plaster. Already school-houses have been built in this way in Germany, and the method is declared a great success.—*Manufacturer and Builder.*

Preserving Brick-Work.

A contemporary says:—The exclusion of damp from brick-work has long been an important problem with builders. It is stated that one of the most effective methods of accomplishing this object is the following: Three-quarters of mottled soap are dissolved in one gallon of boiling water, and the hot solution spread steadily with a flat brush over the outer surface of the brick-work, care being taken that it does not lather; this is allowed to dry for twenty-four hours, when a solution, formed of a quarter of a pound of alum dissolved in two gallons of water, is applied in a similar manner over the coating of soap. The soap and alum form an insoluble varnish, which the rain is unable to penetrate, and this cause of dampness is thus said to be effectually removed. The operation should be performed in dry, settled weather.

Another method is to use eight parts of linseed oil and one part of sulphur, heated together to 278° in an iron vessel.

Oiling Shingles.

In 1848 I built a shed from the house to the barn with two roofs; shingled it with sapling pine shingles. One roof or one side I oiled with bank oil, which is the cheapest oil in market—then worth about forty cents per gallon, worth about sixty cents now—and it has proved an experiment worth being made known to others. The roof or side not oiled had to be shingled over eight or ten years ago. The side which I oiled is yet good. I oiled it over again last fall, and how much longer it will last I don't know; but I do know it has lasted twenty-five years without repairing and without leaking.

Last fall I oiled other roofs besides the one which was oiled in 1848, and I think sapling pine shingles, well oiled when first laid, if they are dry, and well oiled once in ten years, would last an age.

N.B.—The shingles should be perfectly dry when oiled, and as much oil put on as will strike it.—*Cor. Mirror and Farmer.*

Engineering Spiders.

In the house of a scientific gentleman in Newcastle-on-Tyne, England, there is exhibited a glass tumbler enclosing the triumphing of engineering of a little spider, as remarkable in its way as that of Robert Stephenson or Roebing. A young lady noticing a beautiful little scarlet spider with its bright yellow nest on a sprig of laurestins, plucked the twig and placed it on the mantle-piece under a glass. In a very short time the ingenious engineer had almost filled the tumbler with its minute and almost invisible threads, and actually raised the sprig with the nest nearly to the top of the glass. The twig weighed several hundred times more than the spider; and yet without peg, beam or nail on which to hang its cords, it had lifted its nest to something like its natural position clear of the ground. The dead body of the spider may be seen hanging from a silken thread attached to the glass, with the nest swinging in the cords by which it was raised.

Horticulture.

EDITOR—D. W. BEADLE, CORRESPONDING MEMBER OF THE
ROYAL HORTICULTURAL SOCIETY, ENGLAND.

Cultivation of Cranberries.

(To the Editor of the CANADA FARMER.)

SIR:—I saw in your paper of last month an article on cranberries. I have a piece of ground I think suitable for them, being six or eight acres of beaver meadow, with a spring brook running through it. I tried in various quarters to obtain information about them, but have received no answers to my inquiries. You would confer a great favor on me, and no doubt on many of your other subscribers, by giving an article telling where the plants can be got, the best kind, and the proper modes of culture.—
F. H.

There is no reason why cranberries should not be successfully cultivated among us. They grow wild in many places; in truth, there are many acres now lying wholly neglected—covered with rushes, coarse grasses, stunted bushes, and these often intermingled with vines of the cranberry—which are well suited to its cultivation, and which, by a proper expenditure of labor and capital, might be made to yield a handsome revenue.

Cranberry plantations have been found to yield an average crop of one hundred bushels to the acre, taking one year with another, though it is no uncommon thing to gather two hundred and three hundred bushels to the acre. At present the fruit brings high prices in all the cities of this Continent, selling readily at from eight to ten dollars per barrel. Should it happen that the supply exceeds the American demand, the fruit could be put up in barrels and shipped with perfect safety across the Atlantic.

The cranberry is one of our most hardy fruit-bearing vines, very prolific, and requiring but little care after being once fully established. It will remain without renewal on the same ground, and continue to bear abundantly for an indefinite length of time. The fruit is much esteemed, always finding a ready sale, when properly handled, it will keep fresh for a twelvemonth, and bear transportation without injury.

In selecting a location for a cranberry plantation it is very important to avoid those places where the water is stagnant. Such soil is sodden and cold, and the roots will rot in it. If it cannot be so drained that the water will be at least one foot below the surface of the soil, it is unfit for cranberry culture. Yet we have no confidence in an upland plantation. The cranberry is a semi-aquatic plant, requiring a constant supply of water; hence it is necessary to select a place where it can be abundantly furnished.

It is also very desirable in our climate that the beds should be well sheltered from cold, raw winds; and if they can have a southern exposure, so much the better. It will also be of great advantage to secure, if possible, a piece of ground that can be overflowed at pleasure, having in reserve a sufficient body of water at a higher elevation that can be used for this purpose. Such a body of water may be often secured by erecting two dams, one above the cranberry beds, the other below. By means of the upper dam a body of water may be kept always at hand, which can be let on to the cranberry plants at pleasure; and by means of the lower dam, with properly arranged gates, the water can be kept on the beds at any desired level. Having these appliances, the plants can be protected from late spring frosts that would kill the blossoms, or from very early autumn frosts that would injure the fruit before it is fully ripe.

During the winter the water should be kept so deep that it will not be frozen through to the ground, and thus protect the plants from too great a degree of cold. During the summer the water should be drawn off to about one foot below the surface of the

beds, thus enabling the roots to find moisture all through the summer, while yet the soil above is not filled with stagnant water. The water also should not be too cold. Some locations that are in many respects favorable to the growth of this plant are rendered unsuitable by reason of springs of very cold water which furnish the chief source of supply. This difficulty may sometimes be remedied by cutting a ditch along the border, and draining off the cold, icy spring water, or gathering it into a reservoir, where it will be warmed by the sun and air before it reaches the plantation.

The soil must not be too rich. The vines may grow in rich alluvial soils, but they will not bear fruit. Clay and marl are wholly unsuitable, and heavy soils in general are not adapted to the growth of this plant. Air, water and pure sand supply it with food, and where these can be had in suitable combination it will thrive best. Cranberry cultivators say that the best soil is *beach sand*. This is the soil of the celebrated Cape Cod cranberry plantations, either naturally or supplied artificially. The sand is light and porous, admitting air and moisture freely to the roots of the vines, while weeds and grasses which would choke them, cannot grow in it. Where beach sand cannot be had, any clean sand—the more free from all mixture of vegetable matter the better—may be used. Some have found pure gravel—the cleanest is the best—to be a good substitute for sand. Next to beach sand is *peat*, and this is almost always present in wet grounds. The peat requires some preparation before it is fitted for cranberry culture. The top turf requires to be taken off to a depth sufficient to remove all roots of grass and weeds, and the bare surface left exposed to the action of the frost and weather for a whole year. This treatment will make it light and porous, preventing that caking and cracking which is sure death to the cranberry. Where the soil is not naturally in the sand or peat, and the location seems otherwise to be well suited to the cultivation of the cranberry, it may be possible to supply pure sand, or, as the next best, pure gravel. After taking the turf off from the beds to a depth that will remove all the roots of grass and weeds, the bare surface may be covered with sand to the depth of four or five inches, or with gravel to about half that depth.

Overflowing the beds can be very easily effected, if the arrangements in the way of dams already suggested have been provided. About the end of October is the proper time to let on sufficient water to overflow the plantation to such a depth that the water will not be frozen through to the ground at any time during the winter. The water should be allowed to remain until such time in the spring, usually in May, as the weather becomes mild and vegetation commences, when it should be drawn off just to the tops of the vines. This will give the plants the benefit of the increased warmth of the weather, yet at the same time protect them from frosts. The water can be allowed to remain at this point until the season has become so far advanced that the danger from frosts is passed, and then it should be drawn off entirely. The necessity for this arises from the extreme sensitiveness of the blossoms—and the same is true of the unripe fruit—to frosts. If it be possible to have a reservoir of water retained by a dam above the beds with which to flood the plantation at will, the water may be drawn off earlier in the spring, and a longer season be thereby secured than would be safe without such an arrangement; for if a frosty night threatened after the water had been drawn off, the plants could be again covered with water from the reservoir, and thus kept safe from the frost. Again in autumn the unripe fruit could be protected from premature frosts, and sometimes the entire crop preserved by letting on the water whenever frost was apprehended at night, and afterwards drawing it off in the morning. In this way also the plants may sometimes be preserved from the ravages

of insects. They are liable to attacks from two kinds of worms; one of these destroys the vines, the other the fruit. By submerging the vines for a few days as soon as they begin to appear, they will be drowned out and the plantation preserved.

Planting the cranberry can be best done in the latter part of May or the beginning of June. The roots are placed in the soil, the vines spread out and covered so as to leave only the tips of the branches out; when set in this way, each branch will form a plant. The closer they can be set the sooner they will cover the ground. The cranberry will also grow from cuttings. Some planters run the vines through a straw-cutter set to cut them in length of about two inches, and then sow these pieces broadcast over the ground. These are then well harrowed in, when many of them soon root, spring up and speedily cover the ground. Others plant in drills, but the method pursued is of little consequence if the ground has been so thoroughly prepared before planting that there will be but few weeds to contend against. If the ground is likely to be full of weeds and grasses, it will be necessary to plant the vines in such a way that they may be thoroughly weeded out, for the cranberry plants are not able during the first years to choke them, but, on the other hand, are in great danger of being choked by them.

The cultivation is confined chiefly to the three years immediately after planting, and consists in keeping all grass and weeds from getting a foothold. The best method of doing this is not by hoeing, but by pulling up the grass and weeds with the hand, loosening the ground in necessary with a digging fork, so that the roots of the weeds may be wholly drawn out. After the third summer the vines should have so fully covered the ground as to choke out all grass and weeds, and require but little attention.

In selecting plants to set care must be taken to procure fruitful plants, for there are plants which are very fine-looking and vigorous but which yield little or no fruit. In gathering plants from our marshes some attention must be paid to this matter by noting during the previous autumn those which were fruitful, or labor and time will be both lost and great disappointment follow. There are many varieties of the cranberry, the difference being chiefly in the size and shape of the berry. Those that are usually cultivated have received the names of Cherry, Bugle and Bell cranberries, from the peculiar form of the fruit, but the flavor is much the same in all.

Shade Trees—Apples for Shipping—Pears for Marketing.

(To the Editor of the CANADA FARMER.)

SIR:—Will you or some of your numerous readers be kind enough to give me some information about trees. 1. Is there any law to protect shade or other trees when planted on our road-sides. 2. What is the proper distance apart for standard apple trees. 3. What six varieties of winter apples are the best for packing. 4. What six kinds of pears are best for fall marketing. 5. What four sorts of winter pears are best for packing and shipping. 6. What kind of a hedge would you recommend as a farm hedge.—I am, &c. YOUNG SUBSCRIBER.

[1. SHADE TREES.—There is no law applicable to the whole Province for protecting shade-trees when planted on the road-sides, but each township council is empowered to enact by-laws for the protection of such trees. Some township councils have enacted such by-laws. Our correspondent can ascertain from the township clerk whether any such by-law exists in his own township.

2. DISTANCE BETWEEN APPLE TREES IN AN ORCHARD.—The usual distance is thirty-three feet apart each way. In very rich soils, where the trees will attain a very large size, they should be set forty feet apart each way. In the more northern parts of the Province observing cultivators think that something is gained in the way of mutual protection by setting the trees closer together and training them

low. It will be found profitable after planting an orchard at thirty-three feet each way to set a tree in the centre of each square formed by four trees. These will yield enough fruit to pay for themselves many times before they will become too crowded, and when that time arrives they can be removed.

3. BEST SIX VARIETIES OF WINTER APPLES FOR A DISTANT MARKET.—The first on the list, all things considered, is the *Golden Russet*, next is the *Baldwin*, then the *Sweetie Pomme Grise* and *Roxbury Russet*. Perhaps some of our readers who have had experience in shipping apples can supply the other two.

4. BEST SIX VARIETIES OF PEARS FOR FALL MARKETING.—First of all is the *Bartlett*, which is probably the most profitable of them all; then the *Burrer Bosc*, *Beurre Clairgeau*, *Beurre d'Anjou*, *Duchesse d'Angouleme*, if they do well in your locality, and *Louise Bonne de Jersey*.

5. BEST FOUR VARIETIES OF WINTER PEARS FOR PACKING AND SHIPPING.—We suggest the *Lawrence* and *Winter Nelis* for trial, but have very little confidence in the pecuniary advantages to be derived from growing and marketing winter pears.

6. BEST MATERIAL FOR A FARM HEDGE.—This is yet an open question. Many are now giving the *Osage Orange* a trial. We believe it will prove a failure. Others are trying the *English Hawthorn*. In some parts of Ontario this has done well. Some are making a trial of the *Berberis*. This plant has many good qualities for a hedge. It is very hardy, it is not eaten by mice nor by cattle, it grows thicker with age, and flourishes on every soil.]

How to Grow a Thoroughly Successful Lettuce.

The first thing to consider in preparing to sow a crop of this much esteemed vegetable is the manure, it should be good, and there should be plenty of it. The best is well decomposed frame manure; or any such as well rotted as that is at the end of nine or twelve months or so. The winter crop—that sown in August or September—does not require so much manure as the summer crops; a very rich condition of the soil for sowings made at those times leads to much damping and loss of plants during the winter. In wet districts and ill-drained soil, there is always more or less destruction of crop from too much damp, so that anything tending to that evil must be avoided as far as possible, and every means that may be employed to prevent it adopted. The best way to prevent damping is to plant the winter crops in frames, or hand-glasses; but as these are not always available, other ways should be considered and adopted according to convenience. The driest situation should be chosen for them to water in a border at the base of a wall with a south or south-west aspect being preferable to any other. But if shelter of this description is not obtainable, the best plan is to throw the ground into ridges and to plant the lettuce on the higher parts, while the lower or wetter parts may be occupied with cabbage for the earliest crop. If the ridges are three feet wide let the centre or highest part be raised six inches above the lowest part, the declivity thus obtained will be sufficient to throw the rain off the side towards the base and so keep the young plants comfortably dry about the roots. They can be protected when planted in this way easily by throwing a little litter over them when the weather is frosty or by arching a few boughs over the ridges when there is a likelihood of a heavy fall of snow. Planted thickly, say a few inches apart, in this manner a large number may be wintered in little space, the superfluous ones may be thinned out and planted elsewhere. But the difficulty in wintering lettuce safely is as nothing compared with the difficulty in producing a crop fit to eat during the hot summer months. Sowings in June and July should be made in a shady spot, where the fierce mid-day sun may not light directly. If the weather is dry at the time of sowing and afterwards, germination will be facilitated if the ground is lightly strewn over with dry litter and then watered. Deep digging and plenty of manure are the best preparatives for the crop, and plenty of stirring with the hoe afterwards conduces to its healthy, steady development. The plants should be tied up some time before they approach a size fit for use, in order to keep the inner leaves succulent and tender.—*N. B. Agriculturist*.

The Lawn and Home Grounds.

Those of our readers who have a lawn shaded with trees about their house—and those who have not should have—ought not to neglect raking away the leaves and other trash that may have accumulated during the winter. Those who have neglected to keep the grass cut short in the fall, will find their spring raking an onerous job. Besides the greater difficulty in getting together the leaves and other trash that are sure to accumulate, there is the added objection that the greenness of the grass will not show until it has acquired sufficient height to overtop the dead foliage remaining.

When the lawn is of considerable extent, it will pay to buy a one-horse lawn mower, for with this, the lawn can easily be gone over early in the morning while yet the dew is on. If small, the hand machine will answer as well. When the lawn is of large extent, those portions remote from the house may be mown with an ordinary mowing machine if set to cut close. This cutting should be done at not longer intervals than two weeks. In raking up the accumulated trash of winter, it is best performed when the leaves, &c., are somewhat damp; at all events it should be done when the weather is mild.

It used to be considered necessary, in order to have a good lawn, that the surface should be kept sheared close to the earth, but, under this system, it is impossible to keep a permanent turf unless there are facilities for artificial waterings. From one to two inches is close enough to mow, and this can be easily accomplished with any of the ordinary mowing machines where the surface is large enough and open enough to allow its work. This may easily be accomplished on a lawn of an acre in extent, if not too much occupied with shrubbery and trees.

One of the great mistakes made in ornamenting both suburban and farm houses, is the planting of an excessive number of trees, which, as they acquire age, not only shut out the view entirely, but also often render the place absolutely unhealthy. Trees on the lawn should be used only for ornament and necessary shade. Shrubby may be planted at the turns of the roadways and walks, to increase and heighten the effect, but, in doing all this, a full view of the house and other salient points of the country beyond should not be obstructed. To secure these requisites of light and shade, there should be ample space between the trees and clumps for air and sunlight. If this be attended to, each tree or clump will have ample space for development, and thus not only create a grateful shade, but enhance the beauty of the surroundings. Therefore, if you have planted too thickly, see to it that the thinning be done in such season as to secure ample foliage, and, at the same time, a fair view beyond.—*Western Rural*.

Knots on Cherry and Plum Trees.

It often happens that trees, for years healthy, will become covered with unsightly knots, which in many cases injure and often wholly destroy the tree. It was at one time supposed that this was the work of an insect, many believing that the curculio, which so fatally attacks the plum and other stone fruits, was the insect which caused the appearances. The young insect has indeed been found in them, but this came about by the curculio laying its eggs in the soft knot when young, just as it deposits it in the fruit. It is now known that the protuberances are caused by fungoid action; how the fungus works is not known. Some believe that the seeds—spores they are scientifically called—are taken into the roots with the moisture from the soil, and that, drawn into the plant system, they vegetate and develop. Others believe the spores are taken in through the bark, and grow in that way. It would be worth a good deal to know this positively, as if the latter were true, one might prevent the disease by lime and sulphur washes over the stems, as this wash is usually fatal to fungi, without injuring the bark of an ordinary tree.

Not being sure that the disease is caused in that way, no one takes the trouble to try it as a preventive on any large scale. We have seen trees in farm gardens, among the Germans of Southern and Central Pennsylvania whitewashed every year, which seemed very healthy and free from the knot, but of course one cannot say that it was on this account that the disease was prevented. It is certain that no bad results came from the practice.

We believe that after a tree becomes attacked with the knot the best practice is to cut them off and burn them as fast as they appear, and while still young. We have seen trees—old trees—so thoroughly disfigured by knots that the owner thought nothing could be done but cut them down for firewood—thoroughly renovated by a severe pruning—cutting

the tree all in heavily to the main branches. The young growth which followed was clean and free from knots for years afterwards; and no one would know how near the tree came being sent to the wood pile.—*Maryland Farmer*.

A Bit of Rock-Work.

There is many a shady nook and corner in the vicinity of country homes which might be beautified with very little expense—northern exposures, where the sun seldom shines, and which are left bleak and bare because grass and flowers refuse to grow. Any time through the winter harness the old horse and start for the woods to hunt up suitable material for what our English friends term "a pleasing bit of rock-work." An unusually rough stone, all over angles and uncouth projections, is a prize; let such form a load to begin with. Next collect a supply of the unctuous leaf-mold which has lain buried beneath its covering for many years, until it has become as dark and as firm as the most fastidious plant can require. These things, with the addition of some good sharp sand from the creek's margin, supply the ground-work for the structure. In arranging the stones upon the heap of soil do not attempt any mathematical precision; endeavor to imitate some shelving mass of rock, such as may be found in nature; the wilder and more irregular in outline the more effective and appropriate it will prove. With the advent of spring, repair to the woods again, and wherever little curling fronds of the ferns are just peeping above the leaves, with the aid of a strong trowel, carefully pry out a good ball of earth, roots and all, and transfer them to their artificial home. There are also many other pretty and modest native plants which will thrive luxuriantly amid just such surroundings; watch for these during summer and mark them, so that when the dormant season arrives they may be removed with safety. An occasional trailing vine, clambering over and festooning the surrounding shrubs, will add a dainty grace to the hitherto unattractive corner. The appropriateness of rockeries has been frequently called into question, but this, we presume, is in allusion to the practice of placing them upon the open, well-kept lawn—a custom which would seem to be in direct opposition to all the acknowledged rules of taste, but in such out-of-the-way nooks as we have suggested, nothing could be more appropriate or attractive.—*N. Y. Tribune*.

Budding Lemon Trees.

Lemon trees may be whip or splice grafted at any time before the active circulation of the sap. If budded it should be when the wood of the buds is sufficiently hard for working. This will depend upon the manner in which the tree has been wintered.

Lemon trees will of course bear fruit without being grafted or budded, but the operation of grafting or budding will hasten the fruiting just as it does that of any other fruit. The age at which the trees will fruit without budding is a more difficult question to answer. It might be ten or even fifteen years, or fruit might be produced in five or six years. As you cannot expect to want a lemon or orange tree in the North except for ornament, we should advise you to buy a tree already budded of some one of the commercial greenhouse men, although you can undoubtedly get grafts or buds of them if you prefer to work the trees yourself.

AGE OF TREES.—Mr. Nailor requests me to inform him whether I had ever counted the rings in the growth of timbers, in order to test whether each ring represents only a year's growth. I most cordially comply with this request, and will say that I have, and am satisfied of its correctness. But in order to be more fully assured (as I am about to make a record of my faith), I went to my grove this afternoon, where I had ordered some trees cut, and first counted a chestnut stump cut in 1872, and found by counting the heart stem (a mere pipe stem) as one year, the rings counted 31, and by adding the bark would make 32, which would correspond with the age of the tree. I then counted two trees cut to-day, which numbered 33, adding the bark, makes 34; these also correspond with the age of the trees. I therefore conclude that with this variety of timber, the rule holds good, and presume it holds equally good with most or all other varieties. There is no tradition about the time of planting these trees, for I know the year that I bought the property (1838), and I know the seed was planted in (1840) the following spring.—*T. B. COUNSEY, Kent Co., Del., in the N. Y. Tribune*.

The Dairy.

Opening of Cheese Factories in Ontario.

The following returns—for which we are indebted to several of our country exchanges—contain particulars of forty factories now in active operation; and although these represent scarcely one-tenth of the number actually in existence throughout the country, the figures given furnish the data by means of which we are enabled to arrive at a pretty fair average of the whole.

Moria Factory

Commenced operations April 6, with 200 cows, expect during the season the milk of from 600 to 700 cows. Last year began making April 6, and had during the season the milk of about 600 cows, from which 173,365 lbs. of cheese were made. Joint Stock Co. Francis W. Brenton, Moria, Huntington.

Windmill.

Commenced operations April 13, with 50 cows, expect during the season to have the milk of 650 cows. Last year began making April 21, and had during the season the milk of 500 cows, from which 112,829 lbs. of cheese were made. J. & S. Smith, Norwich

Sager's.

Commenced operations April 13, with 50 cows; expect during the season to have the milk of about 400 cows. Last year began making April 14, and had during the season the milk of about 300 cows, from which 93,383 lbs. of cheese were made. James Sager, Troy.

Holbrook.

Commenced operations April 14, with 70 cows; expect during the season to have the milk of 350 cows. This is our first year. Atwood & Pullen, Holbrook.

Harrietsville.

Commenced operations April 18, with about 300 cows; expect during the season to have the milk of about 1,200 cows. Last year began making April 15, and had during the season the milk of 1,000 cows, from which 151 tons 11 lbs. of cheese were made. Will have an increase of the milk of about 250 cows during the coming season. Canada Cheese Co. Robert Facey, Manager, Harrietsville.

Middleton & Bayham.

Commenced operations April 20, with 185 cows; expect during the season to have the milk of about 300 cows. Last year began making April 23, and had during the season the milk of about 200 cows, from which 30 tons of cheese were made. Joint Stock Co. Wm. M. Hallett, Courtland.

East Zorra and Blandford.

Commenced operations April 20, with 350 cows; expect during the season to have the milk of 1,000 cows. Last year began making April 21, and had during the season the milk of 900 cows, from which 136½ tons of cheese were made. James Lockhart, Innerkip.

Lyons.

Commenced operations April 22, with about 1,000 lbs. of milk per day; expect during the season to make 75 tons. Last year began making May 1, and made during the season 70 tons. Lyons Cheese Co. M. Fullerton, Lyons.

Sheffield.

Commenced operations April 26, with about 70 cows; expect during the season to have the milk of about 550 cows. Last year began making April 29, and had during the season the milk of about 500 cows, from which 72½ tons of cheese were made. Keachie & Richer.

Malahide.

Commenced operations April 27, with 160 cows; expect during the season to have the milk of 525 cows. Last year began making May 1, and had during the season the milk of 525 cows, from which 70 tons of cheese were made. Joint Stock Co. J. L. Clarke.

Mapleton.

Commenced operations April 27, with about 150 cows; expect during the season to have the milk of 600 cows. Last year began May 1, and had during the season the milk of 450 cows, from which 153,400 lbs. of cheese were made. Wm. Appleford, Mapleton.

Otterville.

Commenced operations in April, with 25 cows; expect during the season to have the milk of 55 cows. Last year began making in April, and had during the season the milk of 55 cows, from which 16,001 lbs. of cheese were made. A. B. Moore, Otterville.

Adelaide Mud Creek.

Commenced operations May 1, with 50 cows; expect during the season to have the milk of 500 cows. Last year began making May 1, and had during the season the milk of 400 cows, from which 65 tons of cheese were made. Stock Company, Mr. Richison, Adelaide

East Zorra Central.

Commenced operations May 1; expect during the season the milk from 450 cows. Last year began making May 1, and had during the season the milk of 400 cows, from which 1500 boxes of cheese were made. Wm. Anderson, Woodstock.

Spring Creek.

Commenced operations May 1, with 50 cows; expect during the season to have the milk of about 400 cows. Last year began making May 1, number of cows not known. 31½ tons of cheese were made. Jacob Harrington, Woodstock.

Brucefield.

Commenced operations May 1, with 300 cows; expect during the season to have the milk of 500 cows. Last year began making May 1, and had during the season the milk of about 400 cows, from which about 80 tons of cheese were made. McDougall & Brownlee, Seaforth.

Springfield.

Commenced operations May 1, with 130 cows, expect during the season to have the milk of 400 cows. Last year began making May 1, and had during the season the milk of 368 cows, from which 111,853 lbs. of cheese were made. Joint Stock Co. J. Clusas, Springfield.

Caistorville.

Commenced operations May 1, with 60 cows; expect during the season to have the milk of about 200 cows. Last year began making May 1, and had during the season the milk of 186 cows, from which 50,253 lbs. of cheese were made. A. & R. Spears, Caistorville.

Wolverton.

Commenced operations May 4, with 100 cows; expect during the season to have the milk of 400 cows. Last year began making May 1, and had during the season the milk of 400 cows, from which 1500 boxes were made. Alex. Wood, Wolverton.

Willow Grove.

Commenced operations May 4, with about 75 cows, expect during the season to have the milk of 250 cows. I have lately bought and moved the factory, so I cannot answer for last year. Joseph Peers, Vandecar.

Soho

Commenced operations May 4, with 150 cows, expect during the season to have the milk of 700 cows. Last year began making May 23, and had during the season the milk of 400 cows, from which 55 tons of cheese were made. Wm. Peers, Richwood.

West Magdala.

Commenced operations May 4, with 100 cows; expect during the season to have the milk of 350 cows. Last year began making May 9, and had during the season the milk of 225 cows, from which 78,613 lbs. of cheese were made. Warren Warner, West Magdala

Fingal.

Commenced operations May 4, with about 50 cows, expect during the season to have the milk of about 500 cows. Last year began making May 12, and had during the season the milk of 300 cows, from which 42½ tons of cheese were made. D. McIntyre, Fingal.

Avonbank.

Commenced operations May 4, with 200 cows; expect during the season to have the milk of 700 cows. Last year began making May 19, and had during the season the milk of 400 cows, from which 101,532 lbs. of cheese were made. John Clyne, Downie.

Rodgerville.

Commenced operations May 4, with 200 cows; expect during the season to have the milk of 1,200 cows. Last year began making May 1, and had during the season the milk of 1,000 cows, from which 110 tons of cheese were made. A. Malcolm, Rodgerville.

Domlnion Factory.

Commenced operations May 4, with about 350 cows, and a daily average of 5,000 lbs. of milk. Prospects good. A. J. Collins.

Phillipsburg Factory.

Commenced operations May 4, with 400 cows, and 2,857 lbs. of milk daily; 152 patrons, of whom 32 are now sending milk. Prospect good. John Wood.

Seaforth Factory.

Commenced operations May 4, with 100 cows; and a daily average of 2,500 lbs. of milk. Prospects are good. W. S. Robertson.

Kinburn Factory.

Commenced operations May 4, with 100 cows, and a daily average of 2,000 lbs. of milk. Prospects good. W. S. Robertson.

Oxford Mills.

Commenced operations May 4, with 260 cows; expect during the season to have the milk of 450 cows. Last year began making May 18, and had during the season the milk of 330 cows, from which 90,000 lbs. of cheese were made. Murdoch Gair, Oxford Mills.

Spring Ridge.

Commenced operations May 5. Expect during the season to have the milk of 250 cows. Last year commenced May 6, and made 56,500 lbs. of cheese. C. Maltoy, Rond Eau, Kent Co.

Bay Side.

Commenced operations May 5, with 150 cows; expect during the season to have the milk of 300 cows. This is my first year. James W. Anderson, Rednersville.

Clinton Factory.

Commenced operations May 10; receive about 800 lbs. of milk daily. Prospects indifferent. Peter Straith.

Harriston.

Commenced operations May 11, with about 200 cows; expect during the season to have the milk of about 325 cows. Last year began making April 14, and had during the season the milk of 140 cows, from which 15 tons of cheese were made. Hugh Gordon, Harriston.

Fullarton Factory.

Commenced operations May 11, with 300 cows; and a daily average of 4,000 lbs. of milk; expect about 500 cows. Prospects are favorable. Wm. Francis.

Honey Grove.

Commenced operations May 14, with 125 cows; expect during the season to have the milk of 250 cows. Last year began making May 20, and had during the season the milk of 175 cows, from which 12,530 lbs. of cheese were made. Last year was my first season, and the factory was run only 4½ months. David Chalmers, Musselburg.

Poulin.

Commenced operations May 15, with about 900 cows; expect during the season to have the milk of about 1,000 cows. Last year began making June 19, and had during the season the milk of 900 cows, from which 64,000 lbs. of cheese were made. Dr. Poulin, St. Maria de Monnoir, Province of Quebec.

Carronbrook Factory.

Commenced operations May 18; owners, Robertson & McDougall; cheese maker, John Parsons; committee, D. Gallagher, J. Hayward, H. Jewell, Ehos. Gurly, Geo. Hurlburt. Prospects doubtful.

Maitland Factory.

Commenced operations May 18, with about 400 cows. Prospects are very good, although want of feed will make the supply of milk scarce for some time. A good season is looked for, as the patrons are well satisfied with their experience of last year. John Caldwell.

Brussels Factory.

Commenced operations May 19, with about 250 cows. Hugh McCartney.

Analysing the foregoing, we find that 12 of the 40 factories enumerated commenced operations in April and 28 in May; the first opened being the Moria factory, April 6th, the same date on which it was started last season. Of the 28 opened in May, we find that 6 commenced operations on the 1st and 12 on the 4th, and these, added to the 12 for April, gives 30, or three-fourths of the whole, in operation by the 5th of May.

Scanning a little further we observe that 25 of the factories enumerated handled, during last season, the milk of 11,051 cows, and produced 3,000,774 lbs. of cheese, which gives an average of 442 cows to each factory, and 271 lbs. of cheese as the average product of each cow. This season, the same number of factories report an additional 2,546 cows, or an increase of about 26 per cent., with the prospects of a much larger average yield than usual.

Cheese Factory Query.

(To the Editor of the CANADA FARMER)

Sir:—Your reply through the CANADA FARMER to the following queries will oblige myself and other farmers in this locality: What do proprietors of cheese factories pay farmers per gallon for milk delivered on the farms? Who pays for the bucket or can in which the milk is conveyed to the factory—the farmer or the manufacturer? Is it more profitable to sell the milk than to make butter, raise calves, &c.?—I am, &c.,

Arthur, Ont.

[Where the proprietors of cheese factories purchase milk of farmers, the farmers generally deliver the milk at the factories, and sell it by weight at a price equivalent to from 7½ to 9½ cts. per gallon according to the price of cheese. But few factory men purchase milk at the farms, and when they do so, they deduct a fair consideration for hauling the milk. The price of milk is based upon its delivery at the factory, where the manufacturer or proprietor can pay for 10 lbs. of milk, two cents less than the price of a pound of cured cheese delivered at the factory boxed. The factory man will generally require a little more margin than this to cover losses by accidents and liability to variations in price. Milk has sold for the three last years past at 90 cts. to \$1.20 per hundred pounds. The price at which cheese is now selling would make it worth \$1.25 per hundred, but it is not likely that it will remain at present prices long. As a gallon of milk weighs 231 cubic inches, weighs 8½ lbs., it would make a gallon worth 10½ cts., but estimates for the season could not be based on any such price. As weighing is so much more convenient and accurate than measuring, that mode of estimating milk is adopted at nearly all the factories.

The carrying can always belong to the party at whose charge the milk is delivered.

Whether it is more profitable to sell milk than to make butter or raise calves, &c., depends very much upon the relative prices that can be obtained for each. Generally, it is more profitable to sell the milk than to make the butter at home, because the factoryman has superior facilities and better skill, can make a better and larger product from a given quantity of milk, and at less cost, so that he can afford to pay the farmer more than the latter could realize by working up his milk at home. This remark is based upon the supposition that the milk is handled and the butter made by the farmer in the usual way, and the factory is convenient. If a farmer has a small dairy and is remote from a factory, and could not unite with others in the delivery of his milk, the cost of delivering his small mess of milk alone at a long distance would, very likely, be more than counterbalance the enhanced value it would receive at the hands of the manufacturer, so that it could only be moved at a loss.

Where a dairyman has running water and other facilities for taking care of the milk and making superior butter, especially if he avails himself of the modern large pans, each of which is large enough to hold the whole of the milk at one milking, the labor in caring for the milk and making butter, saying nothing of the improved quality, is much reduced, and it is generally estimated to be as easy to take care of the milk and make the butter as to deliver the milk at a factory one mile distant. Where such facilities exist or are obtainable, it would be more profitable to make butter at home than to sell the milk for cheese-making, unless there was an unusually wide difference between the price of butter and cheese.

In regard to raising calves, though it always pays a dairyman to raise choice heifers to replenish the annual depreciation of his herd, dairymen are pretty well agreed that it does not pay to raise ordinary calves on milk for the prices they usually bring. But dairy farmers are becoming quite expert in raising calves cheaply and successfully without much milk,

by substituting oil meal, or oat, corn, pea or bean meal cooked, and fed in the form of a gruel. Thus by exercising a little care and skill he can use his milk for butter or cheese and raise calves too. In all the older dairy districts of the States there may be found dairymen who raise nice thrifty calves by using milk from ten to fifteen days and gradually changing to gruel or other food as a substitute.—L. B. ARNOLD, Rochester.]

Loss of Teat.

The N. Y. Times thus answers a question which had been propounded by a farmer whose cow had lost a teat, probably from its being trodden upon by herself:—

"The loss of a teat results in the loss of the milk glands connected with it in that quarter of the udder. In this case there is no reason for the teat to be closed, which at any rate would be injudicious, although it may readily be done. We would suggest the use of an India-rubber band, the pressure of which would close the orifice. Leaking teats have been closed by the application of collodion to the teat immediately after milking. To apply it wipe the teat perfectly dry, and with a small brush or camel's hair pencil paint the end of the teat over with three or four coats of the collodion. It dries instantly, and contracting as it dries, closes the orifice. Collodion is gun cotton dissolved in ether."

Buckwheat and Wheat Bran.

It used to be thought if anything grown on the farm was worthless as feed, it was buckwheat bran. The following experiments, by the careful superintendent of the Eastern Pennsylvania Experiment Farm in Chester county, John I. Custer, seem to indicate, however, a decided value in this bran, and also to some extent the advantage of steamed or cooked corn:—

"During the first trial, commencing January 28th 1874, 16 cows were fed with 5 pounds of cut fodder and 5 pounds of cut hay, twice a day, and 5½ quarts of corn meal and 5½ quarts of wheat bran, mixed, per day, fed to them at two feeds. The wheat bran costs \$26 per ton, and the buckwheat bran costs \$2 per ton. The wheat bran weighed 16½ lbs per bushel, and the buckwheat bran 19 lbs. In these experiments an equal value of the two brans was used, and of the product, sufficient of the new milk was used for a family of two persons, and does not therefore appear in the yield of butter:—

Table with 4 columns: Date, Time of Milking, Lbs. of Milk, Temperature. Rows for January 28-31 and February 1-3.

Total Whole weight of cream..... 1252 117 57½

SECOND EXPERIMENT

The cows were fed as in the first experiment, with the exception that an equal value of buckwheat bran was substituted for wheat bran:—

Table with 4 columns: Date, Time of Milking, Lbs. of Milk, Temperature. Rows for February 4-10.

Total Pounds of cream..... 1262½ 121 59½

In the two experiments it will be seen that the buckwheat bran increased the flow of milk, and the amount of butter, notwithstanding the lower temperature and the shrinkage of the milk incident to the advancement of the season and the drying off of the cows.

TEST BY WETTING THE FEED.

The same amount of feed was given the cows as in the last experiment, and fed similarly, excepting that the meal and bran was mixed with the hay and fodder, and wet with hot water, lying so mixed for 12 hours before feeding:—

Table with 4 columns: Date, Time of Milking, Lbs. of Milk, Temperature. Rows for February 11-17.

Total... 1318½ Pounds of cream..... 140½ " butter..... 60½

—Practical Farmer.

Opening of Cheese Factories in New York.

The *Vera Herald* for April 23 publishes reports from 123 factories which have commenced work in that State this spring. Of these 38 began work in March; 15 before March 20. The earliest date was March 1. Of 29 reported from Herkimer County, 21 began in March, and none later than April 9. Of 9 reported from Madison county but 1 began in March. In several counties all that have reported began work in April.

Of the 123, 15 commenced work with 200 cows or over—375 being the largest number for any one factory; 56 had less than 100, and 20 report, in round numbers, 100. As to average number for the season, 12 make estimate at less than 400; 23 at 600 or over; 5 only reached or exceeded 1,000; the smallest number reported is 100. The total number of cows expected for these factories shows a fair increase over last year, although a number of cases a less number is expected.

These figures furnish a basis for some comparisons with the north-west. It should be borne in mind that the number reported is only about one-tenth of the total number in New York.

Even with this borne in mind, it is evident that many factories in New York commence cheese making at an earlier date than is common in the North-west. A large majority of the factories in Wisconsin do not commence work before May 1.

The factories in New York are generally larger than those in the north-west.—*Western Farmer*.

A WESTERN paper says dealers in butter classify it as wool grease, cast grease, soap grease, variegated, tassellated cow grease, boarding-house breakfast inferior tub, common tub, medium roll, good roll, and gilt edge roll. The terms are strictly technical.

CALIFORNIA butter was recently on sale in Springfield, Mass., having made the 3,000 mile journey in 14 days. The N. E. *Farmer* speaks of it as beautiful in color and of excellent flavor, and embraces the opportunity to read a mild lesson to dairymen at home.

BUTTER AND CHEESE RECEIPTS AT NEW YORK.—During the first four months of this year, 220,816 packages of butter and 119,092 boxes of cheese were received at New York. During the same time 167,571 boxes of cheese were exported.

PRIZES FOR ESCUTCHEONS.—Prizes will be given at the Fair of the Royal Jersey Agricultural Society, to be held in the Island of Jersey during the coming summer, for cows having the best escutcheons or milk-mirrors. This is the first time prizes were ever offered for escutcheons.

SCARCITY OF FODDER IN NEW YORK DAIRY REGION.—There is a great lack of hay or any coarse fodder in parts of Madison, Herkimer, Oneida, Otsego, and Fulton Counties, N. Y., hay being \$40 a ton in many places, with none to sell. Much meal is being fed. The lack of fodder and the late spring will very perceptibly reduce the early make of cheese. As a rule the dairy herds are not filled up to the usual number.

The Apiary.

Hints to Bee Keepers.

I wish to answer some questions through your valuable paper, which I think I can answer best by relating my own experience:—

1. As to which is the best honey-bee. One year ago I bought a colony of Italians (have since found that they were hybrids, but not till I had hybridized some thirty colonies), that filled seventy Langstroth frames with combs, honey, and brood for no last season, and gave off four swarms besides, while many of my black bees did not swarm, and none swarmed more than once, and did not gather stores enough for winter. I was amused to read our friend's advice in the *Field and Factory*—"Not to run off after Italian bees, but to put our home bees in a box-hive with glass honey-box in the top," when I was then taking honey and brood every week from my Italians to feed my blacks. I do not know that they will do so well every time, but this experience has made me hopeful, and also spend my money freely for pure queens for further trial.

2. At what price can queens be sold? That depends on one's skill, location from black drones, and convenience for shipping. If you have no better luck than I had last year with nuculei hives, you would say none for sale. I had at one time thirty young queens in nuculei hives, and twenty-eight followed their queens off on their bridal tour, and I lost one of the remaining two in introducing. I have lost about one-half in introducing; others have been more successful, and I hope to be so in future.

I have made several blunders. One was in not giving the nuculei hives brood to keep the bees nursing till the queen came back. Another was in waiting till May to transfer, after I had gotten a full crop of drones hatched for the bees to carry through the season. I think the best time to transfer bees as far South as Jackson, Miss., is in March or first of April. In a late spring my best success in Italianizing has been to give the colony brood and let them rear their own queen. The drawback to this plan is that you keep the colony so long without a laying queen, that it checks their progress for the season if in the spring; if in the fall, there are too many black drones for pure fertilization.

I have ordered a fifty-four queen cago nursery, and will report when I have tried it for rearing queens. Don't jump into bee keeping thinking to get a world of honey, and make no mistakes as I have done. Go slow.—W. F. STANDEFER, in *Farmers' Vindicator*.

P.S.—I thought beo quilts useless in this climate, but on seeing so many dead bees after the first hard cold, I looked and found the inside wet with condensed moisture and many dead bees still on the combs on the outside of the cluster. I hastened to cut up old quilts and blankets in pieces to lay over them. On examining them after sleet of 6th of January found no dead bees. Bees all dry and nice, only the quilt was very damp, and the under side of the top was quite wet with condensed moisture from the bees. You can learn but little about bees without a hive easily inspected and looked at often.

W. F. S.

Some Facts about Bees.

I was amused the other day at a gentleman when I informed him that a working bee did not live more than two or three months. "Why, I thought they lived all the time, as I never see no dead bees around. I guess you don't know what you are talking about. You'll tell me next there ain't no king, either. I believe you are lying, for my father knew all about bees, and that's what he told me." I suppose there are many more like him, who think they know all about bees, and do not know anything after all.

The queen lives from three to four years. The drone's life is very uncertain. If honey is plenty, they tolerate them in the hive; should honey be scarce they kill them quickly, as they want no idlers when in adversity. The workers live from sixty to ninety days during the summer, and from three to five months during the winter.

A good swarm will consist of about 30,000 bees, the queen laying from 2,000 to 3,000 eggs a day, the worker hatching out in about 21 days; so it is easily understood why a colony keeps itself up, and throws off swarms.

The drones hatch out in 24 days. They do nothing and are only brought into the world to impregnate the queen. After that duty is performed they have nothing to do, at least it has never been found out what they did, except to eat honey.

After swarms have been hived, place boxes on top for extra honey. It is better to be too soon than too late. If you are late putting the boxes on, you may not get any extra honey, for when the bees are filled they become lazy, and hang about the entrance in clusters.

In a wire frame hive you can extract the honey and keep them at work, as they will try to keep the hive full. Knowing this we take advantage of them, and extract 300 or 400 pounds in one season—not honey in the comb, but strained honey.—*Cor. Rural South-ester.*

(Hints from Bee-keepers.)

If several days of rainy weather should succeed a warm coming off, they may die of famine, if timely relief of honey is not given to them.—*Widman.*

Queens are not equally fruitful. While some breed slowly or not at all, others will speedily increase in prodigious numbers.—*Keys.*

No true lover of bees, I am persuaded, ever lighted the fatal match that was to destroy his little innocents with livid flames and a smoke that strikes them dead with its intolerable stench, without much concern and uneasiness.—*White.*

It is commonly the practice to rub the inside of the hive with aromatic herbs, or solution of salt, or other substance. But the most experienced bee master deems this altogether unnecessary, as it can be attended with no advantage whatever.—*Hacker.*

Always have the cheerful rays of the morning sun all upon your hives; but contrive to throw a shade upon their front for a few hours in the middle of the day, when the weather is very hot. Such a shade will be grateful to your bees.—*Nutt.*

Bees express not more love to their keepers than strangers, but they (their keepers,) being used to them, with greater confidence venture among them, which some (more fearful) beholding, fancy that the bees respect and love them more than strangers.—*Purchase.*

Workers alone have the property of secreting wax. Scales of it ranged in pairs are contained in minute receptacles under the lower segments of the abdomen. * * * This substance is produced by a particular organ, after the manner of other secretions.—*Huber.*

Veterinary Department.

Prolapsus Uteri in a Cow.

I would feel obliged by your opinion as to the following case of prolapsus uteri:—The cow calved about two weeks ago. It was a case wherein the fore legs came all right, but the head could not be got at being far down in the pelvis. Being a big, roomy cow it was thought advisable to extract the calf as it lay. This was done, although not without much force. The cow did not seem much the worse for a day or two, but afterwards the calf-bed came partially down and has been more or less so ever since. The treatment has been to stitch the vulva and bandage; but, unfortunately, the cow strains so much that the stitches rarely hold more than a day. She has also been blistered across the loins, and had a few doses of laudanum. She seems to be pretty well otherwise. What further treatment would you suggest? I suppose she will be of no use to breed with again?—A. B. C.

It is a pity that the calf was forcibly extracted. In a big, roomy cow, with a little time and patience, by putting cords round the fore fetlocks, and then returning the calf into the womb, the head is generally got readily enough into a natural position, and delivery is easily effected. A large proportion of the difficult labors and casualties of calving depend either upon the attendants being in too great a hurry and desirous unduly to precipitate the event, or upon their ignorantly and carelessly neglecting to examine the position of the calf in the first stage of parturition so soon as the water bag bursts, while the fetus has yet made small advance towards the outward passages, and when an unusual or faulty position can with comparative ease be put to rights. Many of these cases of straining after calving and prolapsus uteri are difficult to remove. Sometimes there is bruising and laceration of the walls of the vagina, with much irritation, discharge, and swelling of external parts. The fitting treatment in such cases consists in fomentations externally, and the injection daily of a very mild astringent solution, with which tincture of belladonna should be united if there is much disposition to straining. A retained portion of

placenta, a clot entangled in the contracting womb, or some portions of chaff or other foreign body which got returned with the prolapsed uterus, prove common causes of straining amongst recently calved cows. Relief is generally obtained in such cases by injecting tepid water into the uterus. If there is any bad smell, as from a dead calf or retained after birth, a little Condy's fluid may be mixed with the water injected. Endeavor, if possible, to find out the particular condition on which the irritation and consequent straining depend. Restrict the animal to a tolerably concentrated mash diet. Bulky roots and indigestible fodder mechanically force the womb backwards, or by exciting indigestion develop reflex mischief. An abundance of short litter have the patient's hind parts well propped up. Straining is often greatly abated by moistening the external organs of generation with Madonna extract, rubbing in the same down the inside of the thighs, and injecting, besides, a few drachms dissolved in half a pint of tepid water, if straining still continues, give every two hours, or when it becomes troublesome, eight minims aconite tincture, and half an ounce belladonna extract, mixed in a pint of tepid luscid or other gruel. You will probably have to continue the stitches and bandage. As the patient has already survived her calving fully a fortnight, she is likely eventually to recover; but her present troubles increase the risk of her again receding safely, and suggest the desirability of her being fattened for the butcher.—*N. B. Agriculturist.*

Treatment of Cows.

Never turn your cattle on wet clover for the first time; or on dry clover for more than fifteen minutes or so the first day; they will probably eat enough to hurt them, if allowed. Before turning out every morning and every evening, give each cow a bushel of cut hay, moistened and mixed with four quarts of middlings (wheat bran 23 lbs. to the bushel,) keep an account of the product, and if it will pay to feed one peck of bran at a feed always mixed with the moistened cut hay, do so: remember that you get \$15 worth of manure from every ton of bran you feed. There are several kinds of bran; get the right kind.

Cut your hay two inches long, to make animals chew it well and to prevent short pieces from injuring their gums.

Sow three bushels of oats and one of peas per acre mixed, early, on good ground for helping out the pasture in June; drill some corn—3 bushels per acre, the latter part of May—every few days,—to feed the cattle during August and September. Three good acres thus managed will, with a very little grass to run to, keep 15 cows till cold weather; if you have never tried it you have no reason to doubt it: try it.

Make one acre rich and plant mangold-wurzel on it for winter feeding; put it for 1,000 bushels per acre and in the fall build a good cellar to keep them in; and make butter all winter when you can get the best price for it: we make a mistake when we stop making butter in the winter; more work but more pay.—*Maryland Farmer.*

COLIC IN HORSES.—A "sure remedy," it is asserted, is to take a single handful of salt and rub it on the back right over the kidneys—rubbing briskly until the salt dissolves, and longer, if necessary.

CHARCOAL FOR HOVES.—There is abundance of testimony to the effect that a small quantity—half to a teaspoonful—of finely powdered charcoal mixed in a bottle of water and given to a bloated animal will afford speedy relief. Let it be remembered.

KIDNEY WORM PARALYSIS.—A correspondent of the *Western Rural* says:—The most effectual cure that I have ever seen tried is the simple plan of taking a piece of light board, about six inches wide, striking the hog across the small of the back a few strokes several times a day. I have seen it tried in numerous cases where hogs had been down for weeks, and have never known of a failure. It is worth a trial.

COUGH IN SWINE.—A Hamilton Co. (Iowa) correspondent of the *Rural World* says: "If the shoats are not doing well, and the hair or bristles do not lie smoothly—the shoats having been fed principally on corn, and they go coughing around—we come to the conclusion that they have got worms, and a teaspoonful of turpentine is then given to each, in the form of a drench. If the coughing does not cease in the course of a week, give another spoonful; usually the first dose will be sufficient. If lugs are fed plenty of salt and ashes, the worms hardly ever get the advantage of them. Sulphur and stone coal and charcoal are good preventives of diseases in swine. Hogs are very fond of charcoal, and also of salt."

Correspondence.

Agricultural College.

(To the Editor of the CANADA FARMER.)

Sir:—We farmers in these northern regions are more familiar with the axe, the bar spike, and the plough than with the pen, which feels as intangible to our grasp as the essence of our own thoughts when we attempt to commit them to paper. Although of necessity unused to the graces of composition, and unable to wield the pen of the ready writer, we feel that we are nevertheless welcome to the columns of the farmers' page, and therefore permit occasionally upon our page. We are always eager to welcome and appreciate "more light" when it is thrown upon the details of our daily avocations; and it is but reasonable and proper that the value of services rendered should be endorsed by our applause and approbation. I for one am glad to take this opportunity to record my high appreciation and approval of the efforts of the CANADA FARMER, whose admirable object and sole aim it has been to raise a high standard of agricultural authority amongst us by disseminating scientific information of the very highest and most authentic kind, and of incalculable value to agriculturists. Its mission, I am happy to observe, is not so circumscribed as to be confined to an altogether local one, for I occasionally receive papers from England and elsewhere, in which excellent articles are copied and commended. Their entire reliability and high tone, I am sure, have helped to pave the way for Canadian progress in the English markets, and have created confidence in our resources, and attracted the consideration of our neighbors, on both sides the Atlantic. I am glad to see that the CANADA FARMER, as in duty bound, speaks favorably of the new scheme for an Agricultural College and Model Farm. We sorely need an institution of this kind, and if sound agricultural education and confidence in its results can be beneficially and practically imparted, so as to be brought to bear effectually upon the great farming community of our country, we need not stop to regret the loss. We cannot hope to bridge the gulch which is felt to exist between the great mass of the people and the scientific journal in any other way than by sending out trained exponents of scientific agriculture among them who will be able to speak from their own experience, and point triumphantly to its results. And in this wise scheme of the Government care has been taken that the pupils shall speak from their own experience, and that a sympathy will be created between them and their noble profession, by engaging them continually in the practical working of the farm, all of which is done under their own eyes and by their own hands. The system of imparting agricultural education simply by theory has been found to be a mistake. The young farmer must not be subjected to the enervating influences of a "centred boarding school" life. His muscles must be kept in working order by continual contact with the plough-handle, the shovel, and the hoe. Let him be taught to make his calling as it deserves, and taught to make the most of it pecuniarily and otherwise, and he is more than the peer of a king—for the monarch is in fact the servant of all, while the farmer is the lord of society. But in order to attain this enviable position, he must be a true farmer—that is, thoroughly master of his trade. Is it not absurd that while a mechanic requires the close application of years to learn his trade, and always strives to attain the position of a first-class hand, the great mass of our farmers content themselves with the simplest rudiments, and seldom evince a desire to attain high excellence in their vocation? Of course the want of opportunity, real training, example and advice accounts for it all, and the Agricultural College is the true remedy. I say I was glad to see that the CANADA FARMER gave the matter its most cordial support, and I had no doubt that all the other journals which felt interested in agricultural affairs would second the efforts of the Government with all their might. You may then judge of my

surprise, disappointment and disgust when, upon taking up a fugitive number of the *Farmers' Advocate*—a paper which pretends to be solely devoted to agricultural pursuits and to the interests of farmers—I found these words in regard to the Agricultural College in its columns: "Nothing could show better how little the College was desired by our farmers than the fact that the Government Commission have deemed it necessary to offer a bonus for scholars. Pupils are to be fed, taught, and lodged for a year at the public expense, and then presented with fifty dollars. Now, any person that knows the real facts of the case will at once detect the execrable unfairness of this statement. There is not a word or a hint about the fact that the pupils have to give six hours daily of hard manual labor, such as they have been accustomed to on their own farms, and that it is in order to induce the young men to submit themselves to this part of the programme that a bonus has been offered. The same paper professed its popularity, and it has already been most triumphantly proved to have been a false prophet, for I am told that the institution could be filled twice over on account of the multitude of applications for admission. If the editor of that paper has the interests of the farmers at heart, as he pretends, his conduct in this instance is an enigma to me. It can in truth only be explained on the grounds of either stupidity or treachery. The first named cannot be pleaded as an excuse, for the subject has been sufficiently discussed to make it clear to the most limited understanding, and as to the latter, it is beyond my comprehension how he could better himself by betraying interests that seem bound up with his own. I am, &c., NORTH.

Oro May 25th, 1874

The Game Law.

(To the Editor of the CANADA FARMER.)

Sir:—Will you oblige a number of your readers in this quarter by publishing in the next number of the CANADA FARMER such portions of the Ontario Game Law as relate to the protection of quail. Hepworth, May 18, 1874

The following are the clauses referred to by our correspondent:—

Wild turkeys, grouse, pheasants, or partridges, may be killed only between the 1st day of September and the 1st day of January.

Quail, between the 1st day of October and the 1st day of January.

Woodcock, between the 1st day of July and the 1st day of January.

Sparrows, between the 15th day of August and the 1st day of May.

Mallard, grey duck, black duck, wood or summer duck, and all kinds of teal, between the 15th day of August and the 1st day of January.

No person shall have in his possession any of the above birds, or any portion of them during the close seasons. They may be retained for sale, nevertheless, for one month and no longer, after such periods, and in possession at any time for family use; but in all cases the proof of the time of killing or taking shall be upon the party so in possession.

None of the birds above mentioned shall at any time be taken by means of traps, snares, gins, baited lines, or other similar contrivances. Any person may destroy any such traps, snares, &c., which may discover, without incurring any liability for so doing.

No one shall have in possession the eggs of any of the birds mentioned, at any time. No batteries, sunken points, or night lights, allowed in the killing of swans, geese, or ducks.

The fine for having in possession the birds or eggs of any of the birds protected, shall not be less than five dollars, nor more than twenty-five dollars, for each bird or egg.

Dynamite.

(To the Editor of the CANADA FARMER.)

Sir:—I noticed on page 192 of your last issue (May 15), a short paragraph on the adaptability of dynamite to land clearing in Canada, and having been engaged in "stumping" for the last sixteen years, I feel particularly interested in the success of an agent that is likely to do away with the cumbersome and expensive appliances now in use. Will you please inform me where the article can be purchased, and the cost; also in what manner it is applied, &c.

Any information on the subject will be thankfully received by, yours truly, STUMPER.

Colborne, May 19, 1874.

Dynamite is manufactured and sold by the Dynamite Company of Glasgow, Scotland, but its price we are quite unable to state. It is put up in cartridges, ready for use, and is equally effective in breaking up boulders and heaving out stumps. When the boulders are very large it is necessary to bore a few inches, but when small, they are rent assunder by merely exploding the charge on the surface. In the former case the bore requires no packing, which shows at once the irresistible force of this substance, as compared with that of common blasting powder. Stumps are dealt with by exploding the charge as nearly under the body or trunk as possible, and it has been found that in such a situation the dynamite will operate effectively in mud, or even when immersed in water.—Ed. C. F.]

Corn Marker.

(To the Editor of the CANADA FARMER.)

Sir:—Can you or any of the numerous readers of the CANADA FARMER inform me how to construct a "corn marker"? I intend this season to put your "corn folder" theory to the test, and in order to carry out your instructions about cultivating, &c., it will be necessary to sow the seed in the most careful manner. An early reply will much oblige AMATEUR.

A very simple implement for the purpose is made as follows:—Out of a piece of sound, 2 inch, hardwood plank cut a wheel, measuring in circumference exactly the number of inches you intend having the seeds apart, and in its periphery or rim insert a pin, say 1 inch in diameter, letting it project an inch or so beyond the rim. At each forward revolution, the indentation made by the pin will mark the proper place in which to deposit the seed. Affix shafts, stake your ground, and go ahead. A correspondent of the *Cincinnati Gazette* constructs a corn-marker in sled shape, with three runners, made of plank three inches thick, two feet and a half long. On the top are fastened two boards by being nailed to the runners. The board in front is six inches wide, the one behind one foot. To the front one the tongue is attached, and the back one serves for the driver to stand on. The runners are eight feet apart from outside to outside, the middle one being in the centre. This marks out drills three feet eight inches from centre to centre. Then with stakes eleven feet long, for markers, and to be set up to go to, any good ordinary hand will mark out five acres per day.

He then attaches a small shovel to each runner, to pass with; or, with a two or one horse planter, plant by dropping just three grams in each hill. If the corn is drilled in he takes a single or double drill, and marks three and a half feet, dropping one grain every foot in the row.—Ed. C. F.]

Transplanting Turnips.

(To the Editor of the CANADA FARMER.)

Sir:—In reply to the inquiry of your correspondent, 'A. S. STARR' (April 15th), about transplanting turnips, my experience is that it is always best to preserve the tap root, chiefly for the reason that through it the fibres attached to it the bulb is mainly supplied with moisture. When the tap root is removed, the side roots, in their efforts to supply its place, become unduly developed, a state of things very undesirable, as many a broken-backed farmer knows only too well. Then again these rooty bulbs are to be rejected for table use (and they are not as good for stock) very on account of the large number of harsh, tough fibres which are found all through them, occasioned by such side roots. I do not think that the removal of tap roots will affect the growth, in size, of the bulb, but I know that the effects of breaking off or badly injuring the leaves are disastrous in the extreme.—I am, &c., THOMAS ALEXANDER.

Durham, Nova Scotia.

THE CANADA FARMER

IS PUBLISHED

ON THE 1st AND 15th OF EACH MONTH,

AT

One Dollar and Fifty Cents Per Annum,
FREE OF POSTAGE.

It is sent to Great Britain and Ireland by mail, for six shillings sterling, per annum.

No subscription received for a less term than one year, commencing from the month of January.

THE CANADA FARMER is stereotyped, so that copies of back numbers can always be had.

A limited number of advertisements are inserted at twenty cents per line for each insertion. There are twelve lines in one inch of space. Advertisements under ten lines are charged as ten line advertisements.

All letters and money orders are addressed to

THE GLOBE PRINTING CO.,
TORONTO.

Agents wanted in every town and village in the Dominion to canvass for subscribers. Liberal commission allowed. Send for circular stating terms.

The Canada Farmer.

TORONTO, CANADA, JUNE 1, 1874.

Artificial Butter, or "Butterine."

Truly we live in an age of immense shams, not the least of which is a recent and present attempt to force upon the public a new kind of butter, so-called manufactured from the fats of the dead rather than from the cream of the living animal, and represented to be fully equal if not superior to the best dairy-made article. The new substance, scientifically called "Oleomargarine," or, more familiarly, butterine, is made by taking the fat of an animal, removing from this fat the hardest portions, making an emulsion with buttermilk, and then collecting the fat again, thus producing a pretty fair imitation of poor butter. Fat costs only a trifle, say eight or ten cents a pound buttermilk costs a great deal less; the compound when finished, is sold for fifteen or twenty cents—hence the profit. The whole process, however, as well as the theory upon which it is based, is a fraud. There can no fat be derived from any portion of the animal's body similar in substance or quality to that contained in the cream globules, and however closely they may be approached by imitation, nature's law and nature's possessions cannot be ruthlessly invaded. Herein lies the fraud, then—the attempt to produce natural results by unnatural causes. That the new butter is totally unfit for use, or even unpalatable to certain tastes, we by no means assert. It may possibly have a fine flavor, a sweet taste, and do no injury whatever to the system into which it is taken as food, but with an increased demand for the cheap and unnatural substitute for good butter, oils and fats or other kinds besides those of cows will be utilized—these are speculative times—and very possibly substances may be produced which when consumed will prove ruinous to the human system.

The process, we observe, has also been extended to cheese-making. Fats are utilized with skim milk for this purpose. The olein and margarine expressed from the intestinal fat of cattle are intimately mixed with skim milk; the rennet is then introduced, and a curd, rich in oil it is said, is produced, which can be cured and sold for cheese. The process is simply that of substituting an animal oil for a cream oil, and is objectionable upon precisely the same ground as

the other. The fats are quite different in substance and essence, nor need any one look for an artificial process by which the two can be assimilated. The whole thing is an ingenious but certainly not a very tasty method of adulteration—nothing more nor less.

Landowners in Scotland.

A blue book recently issued by the British Government shows that there are in Scotland 132,230 land owners with possessions of the gross annual value of \$93,491,029. Seventy-five proprietors have estates of upwards of 40,000 acres. There are considerably more than 75 estates of that area, but several landlords possess more than one such. The total area in the hands of these 75 proprietors is at least 9,100,000 acres, or nearly half the whole acreage of Scotland. Among the principal landowners are the following:

	No. of acres.	Annual valuation
Duke of Sutherland	1,176,574	\$2,573,710
Earl of Breadalbane	478,338	1,040,000
Duke of Buccleuch	422,347	929,710
Earl of Seafield	393,891	859,420
Duke of Richmond	364,268	797,000
Earl of Fife	258,185	564,500
Duke of Athole	191,275	420,750
Duke of Argyll	175,114	384,100
Duke of Hamilton	147,911	324,000
Duchess of Sutherland	140,879	309,000
Earl of Dalhousie	138,921	302,620
Duke of Portland	106,166	232,620
Duke of Montrose	100,750	220,000
Marquis of Bute	92,270	202,800

In Aberdeenshire there are five estates of over 10,000 acres; Argyllshire, 12; Ayrshire, 2; Banff, 3; Caithness, 3; Dumbartonshire, 1; Dumfriesshire, 2; Glyn, 2; Forfar, 3; Inverness, 20; Kincardine, 1; Kirkcubright, 3; Lanark, 2; Nairn, 1; Orkney, 1; Peebles, 1; Perth, 5; Ross, 10; Roxburgh, 2; Selkirk, 1; Stirling, 1; Sutherland, 2; Wigton, 1. In Berwick, Clackmannan, Cromarty, Edinburgh, Fife, Haddington, Kinross, Linlithgow, Renfrew, and Zetland, there are now estates over 40,000 acres in extent. The Queen's Balmoral estate is set down at 25,350 acres, of the gross annual value of \$11,961. The Prince of Wales has an estate at Ballater containing 6,810 acres, of the annual value of \$1,083, and the Secretary of State for War two holdings—one of an acre in extent, value \$800, and the other of two acres, value \$2,500.

"It will of course be observed," says the *Speaker*, "that the amount of revenue obtained from these estates is not now commensurate with their sizes, the Duke of Sutherland, for instance, being valued at only a shilling an acre, while there are small estates valued at £2. But that is the very evil of which we complain. As the result of these huge aggregations of the surface of the kingdom, they keep down cultivation, improvement, and above all, building. The Duke of Sutherland, for example, is said to be a good landlord, and is certainly an active one; but can any one believe that he can, or does, manage his gloomy deserts as a hundred proprietors would with 1,000 acres a piece, and the whip of necessity behind them to make them inventive, to compel them to grant fees, to seek for minerals, to invite donations to apply the patient minute care to arboriculture, out of which some great proprietors have obtained so much? There are hillsides in Perthshire where a shilling an acre has become ten shillings merely by oak planting—not for timber, a slow and wearying process, but for bark. What can work or ten hours a day bring to a Duke with sufficient Welsh revenues, or why should he bore himself to reclaim a moor? Sutherlandshire is bad enough, and is not so bad as a poor one; but plant it down in Switzerland as a caution, and a community of freeholders would very soon make it a comfortable, or at least an endurable residence for a hundred thousand people. Does anybody honestly think that the vast property of the two Campbells, stretching almost from sea to sea across the very waist of Scotland, would not, if held by a hundred men instead of two, become twice as populous as it is now, and four times as wealthy and productive? The land, no doubt, is poor, but it is of a kind for which capital, patience and incessant labour could and would do miracles for which its present owners feel no need, and which they would make no special exertion to secure. If the Domesday book of Scotland proves anything, it proves that the first necessity of the country is either the disappearance of proprietors able to endure a rental of a shilling an acre, or a radical change in the habitual sub-tenure of the soil; and that, we take it, is so far precisely what Lord Derby did not intend to prove."

Artificial Butter.

At a special meeting of the Butter and Cheese Exchange in New York, the sub-committee appointed to investigate the manufacture of artificial butter and the adulteration, presented a report, in which the results of their examination are fully stated. These are embodied in the following preamble and resolutions, which were adopted:

Whereas, the attention of the merchants of the Butter and Cheese Exchange of New York has been urgently called to the manufacture of and the traffic in artificial butter, and upon investigation by a committee appointed by the Exchange for that purpose, it appears that during the past year there has been manufactured and sold to a considerable extent an article called "Oleomargarine," made from suet or tallow, and sold as a substitute; and

Whereas, while the manufacture and sale of this commodity as a substitute for butter is a matter not within the province of this Exchange, so long as it is sold under its proper name, yet in view of the great danger to the trade of any successful attempt to force this or any similar compound, or any other substance foreign to butter, upon consumers by admixture with the pure article, it is of the first importance that every effort be made by the trade individually, and as a body, to insure the entire freedom from adulterants of the new crop, upon the purity of which depends the future of American butter as an article of export, and, indeed, the supremacy of the dairy in our agriculture; be it therefore

Resolved, That the Butter and Cheese Exchange of New York, while it would encourage all experiments, inventions, or applications of science or of skill for the production of a pure article of this important staple of commerce, hereby emphatically condemns any process of adulteration or mixture, and the fraudulent attempt to sell such product for pure butter.

Resolved, That the dairymen and merchants, and all others interested in this trade throughout the United States and Canada, be and are hereby requested to report to the secretary of the Butter and Cheese Exchange of New York all instances of this practice that may come within their knowledge, for exposure through the authority of this Exchange.

Resolved, That these proceedings be published in the official circular of the Exchange, and also be furnished to the press for publication.

This report of the sub-committee was unanimously adopted.

Snuffing out the Farmer.

Mr. Mechi, the eminent English agriculturist, does not appear to relish the idea of ultimate extinction hinted at by certain seers in the ranks of the Agricultural Laborer's Union. "There is one little matter," he says "to be considered before the English farmer can be 'snuffed out.' The best farmers have some £20 odd capital per acre invested, and we know that it is only by improvements, high farming, costly implements, and abundant live stock that high modern rents, and foreign competition, and the increased price of labor can be profitably met. Exit the farmer; who is to pay him out, or find the few hundreds of millions sterling now required to cultivate and farm the 46 millions of acres returned to the Board of Trade?"

I quite believe that the British farmer knows how to take care of himself, and he also knows his power. Like other men of business, he will do the best he can for his own interest under all circumstances, agreeable or disagreeable, and laborers and landlords are justified in doing the same.

Thirty-five years ago labor was boxed up and localized, for there were then no railways or other channels to transport it, but now it can flow like water and find its level, and is actually doing so. Things will all come right by-and-by—human labor being dearer, the farmer will exercise his utmost ingenuity in economizing it, and will more readily than before avail himself of mechanical substitutes. This Union affair will be a rare godsend for our implement makers and machinists. I know the value of steam-power, for I have used my engine for 26 years, driven by an agricultural laborer."

Toronto Electoral Division Society's Spring Show.

The spring exhibition of horticultural products in connection with this Society was held on Thursday last in the Music Hall, Toronto. The collection of plants was one of the best yet exhibited, although the number of exhibitors was not large, which is to be accounted for from the lateness of the season. The professional gardeners have not yet had the necessary time to enable them to prepare a collection of plants to exhibit at this spring meeting.

Mr. J. T. Harris, gardener at the Government House, showed an excellent collection of plants; a variety of stocks shown attracted much attention, a splendid white specimen being greatly admired. A bouquet of native wild flowers, shown by Mr. John Paxton, of Brockton, was equally admired for the beauties of the flowers, which consisted chiefly of purple and white trillium and polyala species, as well as for the excellent grouping of the flowers. Mr. G. Vair, of Yorkville, showed a large collection of plants, a choice collection of geraniums, several rare plants, among which was the Japanese primrose, several well-arranged bouquets, pelargoniums, calceolarias, &c. One of the chief features of the show was the number of plants exhibited by an amateur, Mrs. Awde, of Brockton. This lady obtained no fewer than seven or eight first prizes, her collection of zonal geraniums and foliage plants was very good. Mrs. Awde was the only amateur exhibitor, and the number of prizes she took should act as a stimulus to other amateur florists to exhibit the collections of plants in their possession. Mr. Harris, gardener at the Government House, showed a splendid specimen of the imperial tophiastus, which, with other large plants shown by the same exhibitor, formed an attractive feature of the exhibition. Mr. George Murray, of York Township, took first prize for a collection of apples which were as firm as when first picked. The St. Lawrence, an apple which is supposed to go out at the beginning of the year, was excellent eating. Mr. John Paxton showed a dish of splendid mushrooms. There were other vegetables. Some shown by Mr. Harris were of excellent quality. Messrs. F. Richardson and John Forsyth contributed some excellent specimens of plants.

The attendance of the public was not so numerous as might have been expected, although in the evening there was a large number of people present.

Aversion to Manual Labor.

The practice of educating boys for the professions, which are already overstocked, or for the mercantile business, in which statistics show that ninety-five in a hundred fail of success, is fearfully on the increase in this country. Americans are annually becoming more and more averse to manual labor; and to get a living by one's wits, even at the cost of independence and self-respect, and a fearful wear and tear of conscience, is the ambition of a large proportion of our young men. The result is that the mechanical professions are becoming a monopoly of foreigners, and the ownership of the finest farms, even in New England, is passing from Americans to Irishmen and Germans. Fifty years ago a father was not ashamed to put his children to the plough or to a mechanical trade; but now they are "too feeble" for bodily labor; one has a pain in his side, another a slight cough, another "a very delicate constitution," another is nervous; and so poor Bobby or Billy or Tommy is sent off to the city to measure tape, weigh coffee, or draw molasses.

It seems never to occur to their foolish parents that moderate manual labor in the pure and bracing air of the country is just what these puny, wasp-waisted lads need, and that to send them to the crowded and unhealthy city is to send them to their graves. Let them follow the plough, swing the sledge, or shove the foreplane, and their punched chests will be expanded, their smoken cheeks pumped out, and their lungs, now "cabineted, cribbed, confined," will have room to play. Their nerves will be invigorated with their muscles; and when they shall have cast off their jackets, instead of being thin, pale, rapid convulsions, they shall have spread out to the size and configuration of men. A lawyer's office, a counting

room, or a grocery is about the last place to which a sickly youth should be sent. The ruin of health is as sure there as in the mines of England. Even of those men in the city who have constitutions of iron, only five per cent. succeed, and they only by "living like hermits, and working like horses;" the rest, after years of toil and anxiety, become bankrupt or retire, and having meanwhile acquired a thorough disgust and unfitness for manual labor, bitterly bemoan the day when they forsook the peaceful pursuits of the country for the excitement, care, and sharp competition of city life.—*M., in What Next?*

Drilling vs. Broadcast Sowing.

The last monthly report of the United States Department of Agriculture summarizes the facts received from its correspondents relative to drilling or broadcasting seed wheat, as follows:—

1. Fifty-two per cent. of the winter wheat and 33 per cent. of the spring wheat, or about 19 per cent. of the aggregate of both kinds, represent the proportion sowed with a drill.
2. Nine-tenths of the testimony given asserts the superiority of the drill for winter wheat.
3. An average increase of one-tenth in the yield is assured by the use of the drill.
4. A large majority of observers declare that in most soils in which injury resulting from frost is liable to occur, drilling prevents or reduces the loss.
5. The majority assert that in certain clay soils with rolling surfaces, some advantage accrues in surface drainage by use of the drill, while in some heavy soils with flat surfaces the water freezing in the drill furrow does positive injury.
6. The broadcast seeder predominates in spring wheat regions, because better adapted than the drill to seeding in unploughed corn fields, on rough surfaces, and in woody fields.
7. About one-seventh of the seed wheat or five million bushels for the crop might be saved by the extensive use of the drill.
8. The drill is used for seeding in connection with thorough culture, especially in winter wheat growing, the broadcast seeder for imperfect culture and rough surfaces, and sowing by hand is the method adopted for small patches and first efforts of unpeccant pioneers.

Wool Prospects.

A Sarina merchant received the other day a communication from an extensive wool broker, giving it as his opinion that "wool will rule low this season, so as to ship under low tariff, and will be bought at 25 to 30, and not over 31 cents. Four large concerns that used Canadian wools have failed, in consequence of the financial panic on the other side. They used over one-third of all the combing wool grown in Canada. They will not be in the market this season." The above opinion will inform our farmers upon an important point, which they will be considering in a few days. It is that of a dealer who considers it his duty to keep himself well posted on wool matters. Opinions differ, however, on the subject, for another dealer says:—"The prospects are good. The stock on hand is light, and in Boston the price is about three cents per lb. more than at this time last year. Present ruling prices 60 to 62½ cents, American currency."

Crop Prospects in the States.

In a recent issue of the *Chicago Times* we find 160 special telegrams, dated May 15th, in reference to the crop prospects, from the most important points in States of Illinois, Iowa, Wisconsin, Indiana, Minnesota and Michigan. The prospects, judging from these reports covering the great grain-producing region of the north-west, are most encouraging for a large yield of all the cereals. In the winter wheat-growing regions the crop is generally looking well; a few counties in Michigan report wheat badly winter-killed; in other counties it is looking unusually promising. Corn in the states named is about half planted, and it is expected the usual breadth will be devoted to this great staple. In the more western

States there has been plenty of rain, and the season is everywhere unusually backward, which has delayed corn planting.

LEARNING FARMING.—The *N. Y. World* says:—Again and again—and especially at this season of the year—no young men ask advice of agricultural editors as to the best way to learn farming. The answer in all cases is simple and brief: Go to work on the best farm and under the direction of the best farmer you can find who will accept your services. There is no other way—no schools nor system of study that will so quickly make a farmer of a young man; but he should not neglect to study. Every agency that he can employ to give him a better insight into the scientific features of husbandry should be employed; and when his hours are with the labor of the day his mind may work, and two hours daily given to wise reading or study will enable him to accumulate a vast amount of theoretical as well as practical information from the recorded experience of others.

THE SIMPLE SECRET.—Twenty clerks in a store, twenty hands in a printing office, twenty apprentices in a shipyard, twenty young men in a village—all want to get on in the world, and expect to do so. One of the clerks will become a partner, and make a fortune; one of the compositors will own a newspaper and become an influential citizen; one of the apprentices will become a master builder; one of the young villagers will get a handsome farm, and live like a patriarch—but which one is the lucky individual? Lucky! There is no luck about it, the thing is almost as certain as the rule of three. The young fellow who will distance his competitors is he who masters his business, who preserves his integrity, who lives cleanly and purely, who devotes his leisure to the acquisition of knowledge, who gains honors by deserving them, and who saves his spare money. There are some ways to fortune shorter than this old dusty highway; but the staunch men of the community, the men who achieve something really worth having—good fortune, good name, and serene old age—all go in this road.

AGRICULTURAL PHILOSOPHY.—There is no great success in farming without hard work; but it is the good thinking that costs, not the plodding alone. It is up-hill business to go against the common judgment of all your neighbors, but if you are sure you are right, go ahead, no matter what they say. The servant is not above his master in industry; the farmer must be able to lead the field and know whether a man is doing good work, and the workman must know that he knows what a day's work is. I said forty years ago I would use plaster if it cost me \$17 a ton; but clover and plaster alone will not keep up the fertility of grain farms. When I see a man draining his farm and carting out notable piles of well-rotted manure, I consider him safe. He can borrow money to make improvements, and the sheriff will not often tie up at his hitching post. When the midge demands an early harvest, or the ground is so rich that the straw falls, I have almost saved a crop by sowing salt. Farmers miss it in giving up the old worm fence. It is the cheapest in the end. I wire the stakes together and keep the bottom rail up. It is awkward looking, but I have sound rails that were not new forty years ago. I have burned good rails in my time, but I did not know as much then as I do now.—*John Johnston.*

MR. JOHN COLLARD'S PURCHASE.—Mr. Collard arrived home last week with five cattle and sheep purchased at the April sales in Canada. We looked these over on arrival here, and take pleasure in saying that the cattle are all good, and some of them especially worthy. The cow, Raspberry, imported by Prince of Worcester (20,597) dam Rebecca by Gold Medal (19,984) is a very neat and in every way a very good cow indeed. She is just in her prime, being 5 years old, and should prove a good investment at her cost, (a little over \$1,000). She has a very promising heifer calf by her side, by imported Her of Scots (881). La Brillante, 7 years, also imported, is another good investment, reduced by rapid breeding, and is just ready to calve again. Her yearling heifer, Lady Townley, a roan, is also one of the best in the lot. Two young bulls, yearlings, accompany the lot, and although looking the worse for their long rule, give promise that they will do credit to the very excellent lines of descent that they spring from. Mr. Collard was particularly fortunate in his selections of sheep. This purchase enables him to add 25 head of Cotswolds to his flock, and among them are several very superior specimens. Particularly worthy of note, are the pair of imported prize ewes, and the yearling prize buck. The pair of ewes cost him nearly \$500, and the buck \$175.—*Farm Journal.*

Agricultural Intelligence.

STOCK SALES.

Sale of the Glen Flora Herd at Waukegan

The sale of the Glen Flora Short-horns, the property of Mr. C. C. Parks, Waukegan, Illinois, came off on the 29th ult., and was attended by over 1,200 persons, including about 500 leading breeders from all quarters of the continent. Scarcely a State of the union or a Province of the Dominion remained unrepresented. Among the more prominent stock men present were Gen Meredith, Cambridge City, Ind., Isaac Boys, Cazenovia, Ill.; W. R. Duncan and Josiah Chorn, Towanda, Ill.; J. A. Mix and Emery Cobb, Kankakee; J. H. Pickering, Harrisstown, Ill.; J. H. Kissinger, Clarksville, Mo.; Edward Hes, Springfield, Ill.; T. J. McGibbon, Cynthiana, Ky; Harvey Sowdowski, Indianola, Iowa; W. B. Dodge and C. C. Parks, Waukegan, Ill.; George Murray, Racine, Wis.; Simon Beattie, Robert Miller, and Jas Miller, Pickering, Ont.; J. H. Spears, Tallula, Ill.; T. W. Ragsdale, Paris, Mo; Col. Dunlop, Jackson ville, Ill.; John Nichols, Bloomington, Ill.; F. M Myers, Minona, Minn.; George Harding, Waukesha, Wis.; Gen. Charles E. Lippincott, Chambersville, Ill.; S. W. Jacobs, West Liberty, Iowa; Gen. Cooks ton, Downing, Ill.; Day Brothers, Utica, Iowa; S E. Ward, Kansas City, Mo; J. W. Wadsworth, Geneseo, N. Y.; Elliott & Kent, Des Moines, Iowa; E. B. Groom, Winchester, Ky; J. R. Craig, Edmon ton, Ont.; Benjamin Sumner, Woodstock, Conn; Hon. M. H. Cochrane, Compton, Quebec; George M Bedford, Paris, Ky.; A. M. Winstow & Sons, Putney, Vt.; William Miller, Jr., Atha, Ont.; Elliot & Kent, Des Moines, Iowa; and many others.

The sale commenced at 11 o'clock—Col. J. W. Judy, of Tallula, Ill., officiating as auctioneer—and was continued until 4 o'clock, p.m., 77 animals having been disposed of in the interval at an aggregate of nearly \$55,000. There was an entire absence of fancy bidding, the prices being high, however, on the individual merits of the several animals offered.

Cows and Heifers.

The first cow called into the ring was one of the noted Gwynnes, Jubilee Gwynne, imported from England by J. Miller. She was at once started at \$1,500 by Mr. George Robbins, an agent for some of the noted English breeders, and ran quickly up to \$2,500, at which price she was knocked down to Col S. Dunlop, of Jacksonville, Ill; Melody Gwynne came next, and went to J. Nichols, Bloomington Ill., at \$500; Melody Gwynne 10th, an 8-month-old calf, to Gen. Lippincott, Springfield, Ill., at \$500; Melody Gwynne 5th, a beautiful red Gwynne, sold to Mr. Orr, of Wenoia, Ill., at \$350; Melody Gwynne 4th came next, and sold at the extreme low price of \$900, to J. Nichols, of Bloomington, Ill.; Melody Gwynne, another beautiful roan, 8-year cow, sold to Charles S. Wadsworth, of Geneseo, N. Y., at \$1,000; next came Melody Gwynne 6th, one of the finest of this celebrated tribe in America, sold to Elliott & Kent, of Des Moines, Ia., at \$1,600; then came a beautiful white Gwynne calf, sold to Gen. Lippincott, of Springfield, Ill., at \$350; this one closed out the family of Gwynnes, eight of them realizing \$8,500, an average of \$1,100 each.

The remaining animals were disposed of as follows:

Table listing various animals and their sale prices, including items like 'Fourth L. of G. F., Emory Cobb, Kankakee, Ill.' and 'Fifth L. of G. F., J. H. Kissinger, Clarksville, Mo.' with prices ranging from \$1,500 to \$2,000.

Table listing various animals and their sale prices, including items like 'Fourth L. of G. F., Emory Cobb, Kankakee, Ill.' and 'Fifth L. of G. F., J. H. Kissinger, Clarksville, Mo.' with prices ranging from \$1,500 to \$2,000.

Table listing various animals and their sale prices, including items like 'Imp. Royal Duke, 15,795, L. F. Esterbrook, Midwayville, Ill.' and 'Second Grand Duke of Aldrie, 12,021, D. Cookson, Downey, Iowa.' with prices ranging from \$100 to \$500.

Summary table showing 'Total \$19,305' and 'Average \$297' for the bulls.

The comparatively low prices obtained for the bulls was not owing to the lack of blood or care in breeding, but it is generally understood that there is a surplus of these animals in the country, which had of course a tendency to keep the price down.

Sale of Col. King's Lyndale Herd.

One of the most successful sales of Short-horns ever held in this Country, and one that will long be remembered by breeders everywhere, was held at Dexter's Park, Chicago, on the 21st ult. The property sold consisted of the entire Lyndale herd, eighty in number, belonging to Col. W. S. King, of Minneapolis, Minn., and a finer lot of cows, heifers and bulls was probably never brought together.

The result of the sale was a complete surprise to the Colonel. He expected the cattle would not bring within \$50,000 of the amount they did, which was in round numbers almost \$128,000. Fifty-eight cows and heifers averaged over \$1,751, and 21 bulls averaged about \$1,210. Mr. Page conducted the sale with his usual ability.

The first animal offered was the imported bull 2nd Duke of Hillhurst, out of Duchess 97th, by 6th Duke of Geneva, and the first bid was \$10,000, by Mr George Robbins, of London, England. The Hon John Wentworth, of Chicago, promptly raised it \$500. "Eleven thousand dollars," said the Englishman. "Thirteen thousand dollars," cried Mr. Wentworth in stentorian tones. "Fourteen thousand," responded Mr. Robbins, accompanied with a look that spoke a large margin at "my banker's," and at that figure the hammer fell. Many incidents of a similarly exciting character occurred during the course of the sale, but want of space prevents us going into details. The following is the sale list:—

Table listing various animals and their sale prices, including items like 'Garland, red and white; calved January, 1870; T. J. McGibbon, Cynthiana, Ky.' and 'Hubbuck's Garland, red and white star; calved November 1872; William Sodousky, Indianola, Ill.' with prices ranging from \$2,100 to \$2,100.

Table listing various animals and their sale prices, including items like 'Grace, red and white; calved October, 1873; S. W. Jacobs, West Liberty, Ia.' and 'Gem of Lyndale, red and white, calved March, 1872; S. E. Ward, Kansas City, Mo.' with prices ranging from \$1,115 to \$4,000.

Table listing various animals and their sale prices, including items like '2nd Duke of Hillhurst, red and white; calved July, 1861, George Robbins, London, England.' and 'Lord of the Lake, roan, calved December, 1871, C. A. De Graff, St. Paul.' with prices ranging from \$11,000 to \$500.

Lord Bright Eyes, red; calved April, 1873; Charles White, Chesapeake, Mich. 250
 Paulie, white, calved March 12, 1875; D. M. Flynn, Boonville, Ia. 300
 Peabody, roan; calved May, 1873; J. D. Downer, Marshalltown, Ia. 190
 3rd Baron of Oakwood, roan; calved May, 1873; D. M. Flynn, Boonville, Ia. 250
 4th Baron of Oakwood, white; calved May, 1873; Henry Sherwood, Breedsville, Mich. 200
 Star, red and white; calved May, 1873; Peter Stewart, Gibson City, Ill. 745
 Forrester, roan; calved July, 1873; Peter Stewart, Gibson City, Ill. 210
 Earl Gwynne, red and white; calved July, 1873; S. W. Jacobs, West Liberty, Iowa 180
 Lord Carlisle, roan; calved August, 1873; F. H. Matthews, Chicago 210
 Patron, red and white; calved September, 1873; Peter Stewart, Gibson City, Ill. 440
 True Blue, red and white; calved October, 1873; P. A. Corn, Washington Ill. 224
 Cherry Prince, E. C. lb, Bankakee, Ill. 60
 Pin o Gwynne, roan; calved February, 1874; S. M. Tuo a, s and Br ther, Canton Ill. 20
 Patriot, R. C. Kelly, Peru, Ill. 200

Summary	
35 Females	Average \$1,751 90 Total \$101 61
21 Bulls	1:20 24 25 40
79 head	Average \$1,607 91 Total \$127,02

Sale of Mr. Slye's Short-horns at Beaumont Grange, Lancaster

This was a draft from Mr Slye's well-known herd, which contains many highly-bred animals of Bates blood. There was a numerous and distinguished company of breeders present, including Mr Bowly, Siddington; Mr Beauford, Mr J. Fawcett, Scoble, Mr. Drewry, Holker (agent to the Duke of Devonshire); Mr. Roper (agent to Lord Skelmersdale); Mr. Kello (agent to R. Pavin Davies, Esq.); Mr Burnett (agent to Col Kingscote), Mr Kirkell (agent to Lord Chesham), Mr Punchard (agent to Earl of Bective), Captain Heaton (agent to the Earl of Ellesmere), Mr. Bowstead (agent to Sir R. C. Musgrave), Mr. Walton (agent to the Marquis of Exeter); Messrs. Casswell, Lincolnshire, Ashburner, Lancashire; Dickinson, Wigan; Thompson, Penrith; Hetherington, Middle Farm; Whaley, Cragg, Bromley, Allen, of Leicester, Fair, Whiteshude, Rev. J. Swarbrick, Dalton, Carlisle, Bell, Metcalf, Heskett, Thornton, of London; Perelle, of Liverpool; and Major Webb.

The highest priced female was Lady Clarence Bates, a calf out of a very fine cow. It fell into the hands of Mr. Fawcett, Scoble Castle, at \$1,312. Duchess of Gloucester, a promising yearling heifer, realized \$757, and was taken by Mr. Caswell, Lincoln. The Marquis of Exeter got Duchess of Kent, a two-year-old heifer, for \$509. A three-year-old bull, Grand Duke of Thorndale, went to Mr Ashburne, Nether house, Ulverston, after spirited competition, at \$1,155. A yearling bull, Genera's Duke, brought \$630, and was bought by the Earl of Ellesmere.

SUMMARY	
16 females	Average \$374 Total \$5,984
8 bulls	3:9 2,372
24 head	Average \$369 Total \$8,356

Sale of Mr Henry T Brown's Ayrshires.

This sale, which took place at Olneyville, near Providence R. I., was attended mainly by local buyers on the look-out for a serviceable family cow, without regard to purity of blood, and the prices realized were little above that of ordinary milking stock. The highest price paid was \$150 for Mamie Phillips, purchased by Smart & Randall, Providence.

SUMMARY	
16 females	Average \$99 Total \$1,590
4 bulls	74 298
20 head	Average \$94 Total \$1,888

Coleby Hall Short horn Sale.

At Coleby Hall, near Lincoln, on the 1st ult., Mr Bland's sale passed off very successfully, several of the larger and best looking heifers bringing good prices.

Summary	
AVERAGE.	TOTAL.
32 cows and heifers	\$223 \$7136
11 bulls	191 2101
43 head	\$215 \$9237

Sale of the Muirkirk Herd of Short-horns.

The sale of Mr. C. E. Coffin's Short-horns at Muirkirk, Maryland, on the 13th ult. attracted a large number of breeders and stock men from all parts of the country. The dispersion of the herd was complete, the stock being distributed as follows. —

14 sold to Kentucky	\$8,645
3, Pennsylvania	\$3,060
5, Virginia	2,215
3, Maryland	1,110
1, New York	1,975
2, West Virginia	\$1,790
3, Canada	1,000
3, Ohio	1,177
1, Connecticut	600

The highest price paid was \$1,425, for Muirkirk Gwynne, bought by Mr. Hetherington, of Kentucky. Maiden, born on this side, though catalogued as "bred by J. B. Booth, Killerby Hall," brought \$1,100 from Mr. Cooper. Water Nymph was taken by Leslie Coombs, Jr., of Kentucky, for \$1,200. Mr. C. T. Beale, of West Virginia (post-office, Gallipolis, Ohio), obtained Elvina 6th for \$915, and the 10th of the same name for \$575, both after brisk competition.

The result of the sale as a whole, says the Country Gentleman, was certainly very gratifying; for although the high average now and then attained for a few years past was not reached, the prices made are exceedingly creditable, and the distance from which purchasers and bidders were attracted, showed conclusively the existence of an interest in the breed quite as widespread and earnest as at any former period.

Cows and Heifers.

Portulaca, 1869, T. S. Cooper, Coopersburg, Pa	\$160
Portulaca of Muirkirk, 1872, John Pipe, Guelph, C. W	200
2d Portulaca of Muirkirk, 1873, William Warfield, Lexington, Ky	510
Materpiece, 1866, C. F. Wadsworth, Geneseo, N. Y	75
Malbran, 1869, Richard Gibson, London, C. W	550
Muirkirk Gwynne, 1871, John Hetherington, Cynthia, Ky	1325
Muirkirk Gwynne 3d, 1873, Wm. Warfield	500
downa 2d, 1865, C. F. Wadsworth	60
Blanche, 1870, John Hetherington	825
Baseline 1867, B. B. Groom, Winchester, Ky	5
Rosella, 1871, do do	415
downa 2d, 1873, George Grimes, Bourneville, O	250
Rosella 3d, 1873, J. K. Anderson, Anderson, O	25
Rosella 4th, 1874, Leslie Coombs, Jr., Lexington, Ky	20
Maiden 1870, T. S. Cooper	1100
Maid of Muirkirk 1871, G. M. Couler, Reesville, O	70
Eleanor 4th, 1869, John Hetherington	725
Elvina 1st, 1874, A. B. Moore, Lawrence, Mo. Ia.	300
Water Nymph, 1871, Leslie Coombs, Jr	120
Water Nymph, 2d, 1874, A. B. Conger, Haverstraw, N. Y	60
Lady Fern, 1869, Wm. Warfield	700
Lady Fere 2d, 1873, T. H. Oliver, Easton, Md.	210
Elvina 3d, 1867, with calf by Royal Briton, dropped April 28, Jas. M. Byers, Glade Springs, Va	50
Elvina 4th, 1868, S. B. Redmon, Winchester, Ky	465
Elvina 6th, 1870, with calf by Royal Briton (Elvina 11th), dropped March 26th, C. T. Beale, Gallipolis, O	915
Elvina 8th, 1871, A. M. Bowman, Waynesboro, Va.	400
Elvina 9th, 1872, T. H. Oliver	265
Elvina 10th, 1873, C. T. Beale	575
Blossom, 1864, N. G. Pea l, Milford, Ct.	625
Britanna 15th, 1867, Leslie Coombs, Jr.	400
Muirkirk Lassie 2d, 1872, O. F. Bresee, Baltimore	250
Arabella 2d, 1868, Job Darlington, West Chester, Pa	297
Arabella 2nd of Muirkirk, 1872, J. M. Byers	250
Spring Beauty, 1870, with calf by Royal Briton (Spring Beauty 2nd), dropped March 16th, S. B. Redmon	850
Lady of Muirkirk, 1871, O. F. Bresee, Baltimore	24
Rosamond 9th, 1870, A. M. Bowman	410
Victoria 6th, 1869, O. F. Bresee	310
Belle of Muirkirk, 1871, J. Hetherington	445

Bulls and Bull Calves:

Prince of Muirkirk, 1873, John Pipe	\$450
2d do, 1871, Francis Worth, Marshallton, Pa	205
Muirkirk Laddie 2nd, 1873, A. P. Moore	100
Lord Fern, 1872, T. H. Oliver	300
Ellery Foster, 1872, R. L. Morgan, Magnolia, Md	100
Knight of Prince George, 1872, Geo. A. Quinby, Leesburg, Va	225
Blossom's Briton, 1873, S. W. Hicklin, Virginia	110
Royal Briton, Jr., 1873, J. G. Meem, Jr, Mt Jackson Va	160
Muirkirk Laddie 3d, 1874, Jos. Wilmer, Rapidan, Va.	150
Elvina's Earl, 1872, O. F. Bresee	305

Summary.	
38 cows and heifers	Average, \$550 50 Total, \$20,950
10 bulls and b. calves	216 50 2,165
48 head	Average, \$451 14 Total, \$23,095

Sale of the West Wratting Grange Short-horns.

This herd, the property of Mr. Thomas Purkis, Linton, was brought to the hammer recently by Mr. Thornton. A number of the animals were of the fashionable Blanche and Foggathorpe tribes, two well known families that were at one time in the possession of Mr Bates, at Kirkelevington, and which in more recent years, when forming part of the Towneley herd, were most successful in the showing.

Summary.	
AVERAGE.	TOTAL.
34 cows	\$213 \$7242
14 bulls	169 2366
48 head	\$200 \$9608

Sale of Mr. Garne's Short-horns at Churchill Heath.

The attendance at this sale was very large and the biddings spirited. Mr. Garne has gained a celebrity in the showyard equalled by few modern breeders, having taken upwards of seventy prizes during the past two years, including three prizes at Hull, and the Champion Prize at the late Birmingham show. The highest prize realised was \$820 for Princess Alexandria, the cow which won the first prize at the last Bath and West of England show. She was purchased by Mr. J. B. Wilson, of Broadway.

Summary.	
AVERAGE.	TOTAL.
31 cows and heifers	\$348 \$10788
6 bulls	288 1728
37 head	\$338 \$12516

Sale of Horses at Waukegan.

The great horse sale at Waukegan lately was largely attended by turf-men and fanciers of equine flesh generally. Capt. Kidd, of Lexington, Ky., acted as auctioneer. The entire proceeds footed up to \$19,000, the highest price paid being \$900 for a handsome sorrel mare, which was bought by Mr. J. B. Smith, of Chicago. Six fine trotting horses were knocked down at prices ranging from \$80 to \$900, the average being \$292. A large proportion of the stock offered remained unsold.

SALE OF HORSES.—Mr William Thompson's sale of heavy draught horses at Whitby, recently, was well attended, and the animals offered brought good prices. "Prince of the west" was purchased by Mr Smith, of London, for \$2,600; "Young Lorne" went to Mr. Birrell, of Greenwood, at \$3,075; "Time o Day" was knocked down to Mr. James Sheppard, of Pickering, at \$1,575; and Mr. George Ogston, of Whitby, got the "Earl" for \$1,750. The proceeds of the sale amounted to \$9,000.

COMPOSITION BY A LITTLE BOY.—Subject—"The horse." "The horse is a very useful animal; it has four legs—one on each corner."

It is said that the sparrows did not suffer for want of food during the snow-storms this spring. They picked the young buds off the fruit trees, and found ample subsistence thereon.

A CHEESE factory, on the town line between Westminster and Delaware, was destroyed by fire, with the entire contents, on Wednesday last. The factory belonged to Mr Thomas Weeks. The fire is supposed to have originated from the furnace.

LOSSES OF STOCK IN SHETLAND.—In some parts of Shetland serious loss has been occasioned recently by the death of cattle apparently from a sort of swelling in the throat. Some sheep flocks have suffered from the ravages of dogs, several animals having been worried.

DOGS AND SMUGGLERS. Large dogs, bred and trained for the purpose, are taken across the Belgian and Swiss frontiers, and are dispatched to French territory, under cover of the night, laden with tobacco and other colonial produce on which a high duty is leviable in France.

SALE OF STOCK.—Jno. H. Holden, Sidney Grange, has sold to A. D. Denny, Esq., Cascadaga, N. Y., a fine old Ayrshire cow (74), Kate 2nd, "1373," for a good figure. This is the second sale within this season. Also, to John L. Read, Esq., Bobcaygeon, a pure bred heifer calf (481), Lady Renfrew, price \$110.

We learn that Mr. Alexander Rodgers has erected two very extensive cheese factories. No. 1 is situated at New Loynes, and is under the supervision of Mr. Beatty. The building is 60x25, one and a-half storeys in height, and is fitted up with all the latest improvements. During the last season it manufactured about 900 cheeses. At present it is receiving the milk of 250 cows and has this season a prospect of increased patronage. No. 2, situated on the Town line between Leeds and Bastard, and known as the Union Factory, is manufacturing the milk of 400 cows. Miss Eliza Barrington has charge of the establishment.—Brookville Recorder.

Breeder and Grazier.

The Jersey Cow at Home.

BY G. B. WARING, JUN.

I have just made a visit of a week to the island of Jersey, and I have seen the Jersey cow on her native heath.

The farmers of Jersey have learned how to turn her to even more satisfactory profit than we have. That is to say, where they keep cows exclusively for the dairy, they achieve a better result than any one in America with whose dairy I am acquainted. The great fertility of their soil gives them one advantage and the mildness and uniformity of their climate another; but still more is due to the enormous extent to which they feed roots. Hay seems to form an insignificant part of their winter food. They use straw much more largely, and have a fair bite of grass all the winter through. They depend very much on a plentiful supply of turnips and parsnips. Indeed, so far as I could judge, these roots are the sheet-anchor of Jersey dairy-farming. The farms are small, rarely, I think, exceeding 40 acres, and very often not over the half of that. The team force of each farmer is very small, but they club together for what is called "the big plough," and do each other's ploughing, on a social plan similar to our "corn-huskings." If root culture is their sheet-anchor, deep ploughing gives them good anchorage. When land is to be prepared for a crop of parsnips it is trench-ploughed, and completely reversed, to a depth of fully 15 inches (and often 18 inches), and then such dressing of manure are used as would do credit to a market-gardener. In this way, a small farm is made to carry a large stock, the large stock furnishes manure for increasing production, and the cows partake of the generous richness of the soil and give a rich and abundant yield themselves. This remark applies more strictly to the older cows. A more magnificent lot of motherly, big-bellied, big-uddered, rich-skinned cows can nowhere be found than could be collected by the hundred in Jersey. They are of the race that has made the reputation of this famous breed. I do not exaggerate when I say that I firmly believe that if the present fashion prevails this race will soon become extinct. A few years ago these cattle were bred solely for butter. Color and form were scarcely thought of. The result was a class of cattle that the world has never equalled for the dairy simply. Then there arose two influences which have done some harm and will do much more.

1. The desire to convert the form of the animal to the standard which has been cultivated in England by the Short-horn. I was shown the prize bull of 1872. He was a miniature Short-horn, much fatter than a butter-dairy bull should ever be. Once give the breed the tendency to lay up fat in its flesh, and you may bid good-by to fat in the milk; as the one tendency increases, the other must decrease. I would as soon think to breed beef-stock by using a ramboned, deep-flanked dairy bull, as to breed butter stock by using one who showed a tendency to lay on fat in his carcass. Of course, no perceptible harm will come of using such a bull for a single cross, but the longer the process is continued, the more mixed will the pernicious tendency become. Further evidence that "fat" is being too much cultivated is to be found in the fact that I was not shown a single cow in what I considered the right state of flesh for milk, whose owner did not apologize for her poor condition.

2. Much more important than this desire for fine form, is the fancy for color. It is playing the very mischief with the breed, and no one knows it better than the very farmers who are catering to it. They are (and not quite unconsciously) killing the goose that is laying their golden eggs. Of the best fifty cows that I saw in Jersey, not five were of the solid gray color (black points, etc.); fully twenty-five of them had white enough to condemn them in the "fancy" market, and nearly all had what would be considered an objectionable amount. Every farmer with whom I spoke sneered at the idea that solid color was an advantage, but they all said they must breed for their market. They all confessed that in so breeding they were marching on the direct road to inferior milking. One said, "I keep 6 cows, 3 good ones for the kitchen, and 3 gray ones to sell calves from." But even this will not save him. Ten years hence he may not find, in all Jersey, a really good bull to breed from. I did not see one bull-calf being raised that had not been selected solely for its color—which means that in a few generations of neglect the dairy quality must run itself out. Neither did I happen to ask after the calf of any superb milker without learning that if a bull it had been killed

because it had white upon it. In not a single case did the farmer deny that such a course is dangerous to the future prospects of the breed, but—"It is the color that sells them, and we must breed for our market."

Setting aside his errors in the matters of form and color, the Jersey farmer is a good farmer and a good dairyman. And he has a good breed of cattle, and no mistake. Good and beautiful, and lovable. Always tethered among the apple-trees, or in the little meadows, constantly handled, and talked to, and made much of, their dispositions have been sweetened and quieted through long generations of gentle care; and their mellow, mild eyes reflect a serenity and peace of mind that betoken all their ancestral ease and comfort. I saw cows milked, I saw milk skimmed, and I saw the butter that had been made from a certain number of cows. With fair opportunity for observation in various places and at various times, I concluded that the intense high farming and strong-feeding of Jersey, together with the almost perennial green bite out of doors, give results that we rarely attain where more than two or three cows are kept together. Yet I think that we have in America quite as good Jersey cows as they have in Jersey, and plenty of them.

In Jersey, the larger herds range from 6 or 8 to 25 or 30 milking animals. There are altogether over 12,000 head of horned cattle (all of the one breed), or about 1 to every 3 acres of the whole island, probably 1 to every 2 acres of the agricultural land. When it is further considered that there are over half a million bushels of potatoes (and lots of other products) exported annually, we see evidences of a thoroughness of cultivation which is worthy of our study. The cow plays a very large part in the economy of nearly every farm, and she aids very largely in securing to the Jersey farmer a degree of comfort and an independence that I have seen equalled nowhere else in Europe—nor is it equalled among farmers of the same class in America.—*American Agriculturist.*

How Ruminants Digest their Food.

Cows and other ruminants have a compound stomach containing four apartments. When coarse food, like grass, is eaten, it is only partially masticated at first, and is passed into the first stomach or paunch. This is the largest division and is about equal to the other three. It serves as a receptacle to hold the coarse, half-ground food until the animal has leisure to remasticate. While there it is kept in motion by the worm-like contractions of the muscular coatings of the sack, and is saturated and softened by a slightly acid juice that is poured out upon it, and undergoes a little fermentation, which is the beginning of digestion. From the first stomach it is gradually worked into the second, which is only an appendage of the first, lying close to the esophagus, and separated from the main part of the paunch by a partial diaphragm in the inside of the paunch that reaches in only a little way, and makes only a partial separation between the two divisions. From the outside appearance, one would hardly suspect the second stomach to be a distinct division from the first. In the second division the food is rolled into pellets and by a spasmodic action thrown back to the mouth, and when remasticated, instead of going into the first stomach as it did at first, it now goes into the third or manifold, as it is sometimes called. This is a nearly round body, attached to the branching termination of the esophagus. It is filled with a great number of folded divisions, in passing over which the food undergoes a further elaboration preparatory to the action of the fourth or last division, in which the digestive process is completed. It passes directly from the third into the fourth stomach, and the work of digestion is so far advanced that the labor of this division is quickly and perfectly performed. The fourth stomach is designed to receive the food only in the plastic condition it assumes on passing through the three other divisions, with the added influence of remastication. It is not calculated to take in, like the first stomach, food in a coarse, fibrous state, unfermented, unsoftened, and unprepared by the partial digestion of the third division. The food of the entire bovine race, when taken in its natural condition, is grown in the field or forest, always takes, in the process of digestion, the course we have described. The lower end of the meat-pipe branches out at its connection with the stomach, so that it can connect with any of the four divisions, and to aid and insure the passage of the partially masticated food into the proper receptacle, the termination of the meat pipe, at its connection with the first stomach is lined with papillæ, bent like card teeth, the action of which helps the coarse food along to the place it should go.

But in their domesticated state cattle do not always take their food in the coarse condition their peculiar and huge digestive apparatus indicates it was designed to be received. It is desirable to feed them grain and other feed that is pulverized even finer than their remastication would make it. In this condition the papillæ cannot grasp it to haul it along into the rumen and it falls directly into the fourth stomach. Perhaps the will of the animal may have something to do with the direction the food takes. But certain it is that very fine food, like corn meal, when fed alone, goes directly into the fourth stomach, missing entirely the other three, and the preparation for digestion they were calculated to give it. This I have repeatedly demonstrated, as any one else may do, by feeding meal to animals that were to be slaughtered immediately, and searching for it as soon as the stomach could be reached. It is always found only in the fourth stomach. Receiving food in this unprepared condition, the natural work of the fourth stomach is augmented and prolonged. If only a small quantity of meal is fed in this way, it will, nevertheless, be digested very well, but if fed in any considerable quantity the labor of this division is so much increased that the digestion is impaired and the meal goes out of the stomach and indeed out of the animal undigested. This is proved by an examination of the feces. To prevent this occurrence, hay or straw, cut or long, may be thoroughly wet and mixed with it. The meal will adhere to the coarse food and be carried along with it into the rumen, and pass through all the stomachs and all the preparation they are designed by nature to give. The increased benefit derived from feeding ground food in this way where liberal feeding is desirable, amounts to considerable. Fed in this way, a cow can digest from one-fourth to one third more ground food, beside digesting it more completely, than when the feed is given alone. This is quite a consideration in feeding for milk or beef.

Regarding the animal as a machine for converting into milk, or beef the excess of food that can be digested over and above what it requires to supply the waste and wear of the body, it pays to run the machine up to its fullest capacity, converting into the desired product the largest possible excess. Apples or roots pulped or sliced serve the same purpose as wet hay in carrying meal into the first stomach. In feeding animals with a single stomach, this mode of feeding is not of so much consequence. The looser and more open the food can be kept in the stomach, the more readily and thoroughly will the gastric juice be mingled with it, and the more rapidly and completely will it digest.—*N. Y. Tribune.*

Sorting the Flock—Selling the Wool at Home.

Shearing time is undoubtedly the proper time to sort the flock, in order that the better ewes may be marked and saved for breeding, and that such wethers as show the best fleeces may be reserved, so that, in selling the surplus, those least valuable for wool and carcass, may first go to the butcher. Thus, when the wool is off, those sheep that, with equal chance, have not kept up with the balance of the flock, may be more easily distinguished, and may receive a permanent mark easily known.

If the shearing is done at so much per head, the shearers will assist in the process, for the more indifferent sheep of each new lot will naturally be sheared first, and thus the culls will be disposed of. In the examination, care should be taken to note the general excellence of the carcass and the weight, length, evenness and firmness of the wool, disposition to take on flesh, and especially the fineness of bone and breadth of loin—for a good loin is apt to be connected with other good points. Thus, in a few years, especially if you are careful in selecting none but pure-bred rams of the most reputable strains, you may secure a most excellent flock, even if the start be an indifferent one.

There is but little fear that sheep farming will be unremunerative in the long run. There will be years of depression, perhaps over-production, as in any other commodity, but wool is an article easily kept, and one that does not deteriorate by so doing; indeed the clip gets better, rather than worse, and the fore-hand shepherd, having a reserve stock of wool on hand, always has property as good as money, for the reason that at any time it can be turned into cash.

To do this, however, the flock master must have means of storage at home, and must be himself sufficiently expert to be able to sort and grade his own wool. In this case, with a stock on hand, it will not be necessary for him either to send his wool away from home to be sold, or to depend upon the ability or integrity of his commission man to sort, sell, and make returns. His best market will be right at home, just as the best markets for extra hogs, hogs,

and fat sheep are at home. Buyers will eagerly find out and hunt up such lots, and pay the highest market prices therefor.

If rightly managed, that is, if care be taken that none but persons qualified for the task by special training and a thorough knowledge of the business, be selected as selling agents—and if vigilance be used by individual members that no personal considerations on the part of their head men be allowed to enter into the choice of such agents—it is in this line that the chief money value of the Farmers' Clubs will be found.

If Farmers' Clubs, and communities of farmers would agree among themselves to sort, store, and mass not only wool, but other commodities at home, there would be no difficulty in making sales at home, often at better prices than are now obtained in our cities. Especially is this the case with wool. There is no reason why it should be stored in city warehouses, where every inch of space is costly and has to be well paid for. Storing at home would eventually take the farmers out of the hands of a class of middlemen who are but little, if any, better than scalpers.

Clover Hay for Stock.

After having finished feeding fodder corn in connection with good hay to my cows, I commenced feeding from the top of a mow, which consisted of a good quality of mixed hay. With a hay knife I cut a space about three feet wide, from the end of the mow next to the barn floor, and fed the hay to my cows, and there was no perceptible increase in the flow of milk, from what it was when they were fed one-half fodder corn. But when the lump of mixed hay was consumed, and I came to the clover, which was beneath it, I found there was an increased flow of milk at least one-third, and at the next week's churning there was also an increase of nearly one-third of butter. But after I had used off the clover hay in this space and began again at the top to feed the mixed hay, the cows shrank both in the quantity of milk and butter, and continued at the former stand, till the clover was again in their milk as at the first instance. This hay was cut the 21st of June, just as it was in full bloom, received two days' sun, and was housed without being wet, in fact, it was housed during the driest week of the season, and there is now a very rich aroma arising from it as it is taken in flakes and fed to my stock, for I feed not only my cows with it, but my horses and calves, and from the way they eat it, I am perfectly satisfied it is exceedingly palatable, for they do not stand about the order of their eating, but eat.

Now if clover hay has such milk-producing qualities, it must be equally good for beef, for the same elements that go to make an increase of butter, if they were not appropriated to this use, would be employed in laying on fat, if not building up the flesh.—*Cor. New England Homestead.*

Rearing Horses

The quality and value of many products are to be traced largely by the markets. Beef, pork, mutton, wool, grain, lumber, groceries, labor, and all things saleable, have values that are ascertained when offered for sale. In beef this ranges from less than two to more than seven cents per pound on foot, according to the approximation of the animal to "scalawag" or "choice grade." It is fortunate for those who possess the enterprise by which the better quality is produced that the demand for such products is always greater than the supply. Witness the purchase of cows for \$30,000 each, and of horses for fabulous sums that need not be named. Of really choice products there is never a full supply; and this will be the case so long as the production of the choice article requires skill and care. It may be that the semi-barbarous Asiatic, or the wholly barbarous African can produce rice of as good quality as can the most cultivated agriculturist of any country. It is doubtless true that the peasant on the banks of the Danube can raise as fine a quality of wheat as can the free American on the banks of the Hudson or the Mississippi. But it is only in the hands of the man of rare intelligence and fixedness of purpose that great excellence is attained in the production of the better kinds of our domestic animals, and as a natural consequence such excellence is always rewarded by large pecuniary returns.

At the present time there is great interest manifested in the improvement of the horse. This arises from the demand for better horses, and the want of a paying market for that which is not so good, and of which the supply exceeds the demand. There is no demand for light horses which are deficient in style

and action, and about three-fourths of all the horses in the country are of that character. But for the carriage horse, the draught horse, the roadster, the saddle horse, there is always a ready sale. To breed horses that will sell it is necessary that they should be serviceable in some line, it matters little in what that use consists, but they must be good of the kind, and the kind must be good.

The time is at hand when the farmer should know what sort of horse he wishes to raise, and must govern himself accordingly. He must be willing to incur a certain amount of expense. If he would raise a five hundred dollar colt he must expect to use a good dam and a very good sire. A valued ss mare will not produce such a colt, nor will a common stallion beget one. If he wishes to raise a horse of fine style, he must have style and stylish blood in the parent, if he would have weight in the foal, he must have weight and the blood that belongs to weight in the sire and dam; if action is wanted, the same principle must be applied. "Men do not gather grapes from thorns or figs from thistles," now, henceforth, nor ever.

Intelligent action will insure results commensurate with the expenditure of the money and labor necessary to improve our live stock of all kinds, and horses that will command at four years of age two hundred dollars each may be raised with as great certainty as can the low-bred mongrel that is worth nothing, and always sells at a loss, if he sells at all. Now is the time to consider, and plan, and execute.—*Farmers' Journal.*

Ticks and Nits on Sheep.

One of the most disagreeable pests in sheep husbandry are ticks or fags. Morrell, Randall and others recommend a decoction of tobacco for a dip. Tobacco water will kill the ticks, but it will not kill the nits. If you wish to clear your sheep from ticks, you must dip the lambs in a solution of arsenic, and then keep them from mixing with other people's sheep which are full of ticks. Dipping the lambs in arsenical water is not dangerous if you will do it just as I now describe the process. In the first place procure a forty gallon iron kettle, and place it upon three stones on a bare piece of ground, free from any herbage. Fill the kettle one-third full of water; put into the water four ounces of arsenic and six quarts of soft soap; put a fire under the kettle, and heat up nearly to a boiling point; keep it at that temperature for half an hour, stirring the water all the time, so as to keep the arsenic in motion. Then fill up the kettle with cold water. Then make a fence around the kettle large enough to enclose all the lambs you wish to dip, and be sure not to enclose any grass or herbage on which the arsenical solution can drip from the lambs, for if they eat it they will certainly die. Have a rack made long enough to straddle the kettle, and about sixteen inches wide. When you are all ready bring the lambs into the enclosure around the kettle, and then catch a lamb, take hold of his four legs, and your assistant must enclose the lamb's head in his hands and hold it stiff and firm, so that it cannot move up, down or side ways. Then lower the lamb, back downwards, into the arsenical water in the kettle, so that you cannot see any part of his body, but leave his head out clear above where it joins the neck. Keep him in this position about ten seconds, and then lift him up vertically, slip the rack under his hind feet, squeeze all the arsenical water out of his wool that you can into the kettle, and then put him down among the lambs that are not dipped. Proceed thus till you have dipped all of the lambs, let them remain in the pen till nightfall, and then turn them out into the pasture with the ewes. This dipping, to be effectual, must be done about two days after the ewes are shorn. If you keep your sheep apart from ticky sheep, you will never need to dip them again, for the arsenic will dry up all the nits. In Lincolnshire the lambs are sprinkled over with arsenical water ("fag water"), but I do not think it is so effectual, and it is just as dangerous. Lambs that are dropped in April ought to be weaned by the middle of July, and put into a field of red clover that was mowed in the middle of June. Sheep must have salt, sulphur and drinking water constantly before them, winter and summer.

Sheep are sometimes attacked with the stretches, and the best remedy I know is a pint of warm lard. Stretches are produced from eating old dry hay, or a want of drinking water, or both combined. In fattening sheep I do not know any food better than early cut, well-cured clover, Indian corn mixed with oil meal, and Swedes and mangolds, if the weather is not too freezing. When the thermometer gets down to zero, cold turnips do not do sheep any good. From a pint to a quart of Indian corn, with half a pound of oil-meal and plenty of clover hay, is feed enough for one day for the purpose of fattening sheep that weigh alive from eighty to two hundred pounds.

I would insist that all long-wooled sheep should be clipped before the first of June, and if the weather is cold, be sure to house them at night, or you may lose some of them from lung fever. Late clipping produces cotted wool from the irritating action produced by quick breathing in hot weather.—*Cor. Country Gentleman.*

Rye for Pasturage and Hay.

From long experience in growing it, I can assure your readers that rye, when properly cultivated, is one of the most valuable and probably the most reliable of all our forage crops. The reason of its being the most reliable is that it makes its growth in autumn and spring, when the temperature is congenial, and there is almost invariably a sufficiency of rain, which is more than can be said for the summer crops.

Rye, on a moderately dry soil, can be pastured by sheep and young cattle late in autumn and early again in spring without injury to it when cultivated in the following manner. Enrich the soil, and prepare it as carefully as if for wheat. Sow early in September and put in the seed twice as thick as is usually done. By such a preparation a quick rank growth is insured, and the stalks being so much closer together on the ground, they grow up smaller, more tender, and more palatable to the animals consuming it.

Early in May rye begins to head, and it is then fit for soiling. Later in the month or early in June, when full headed, but before the grain begins to form, it can be cut for hay. After doing this, we dry it in the sun from seven to ten hours, according to the heat, then bind it in sheaves of about six inches in diameter, shock them in the field for a few days until there is no danger of heat, then stack or store it in the barn. It is very important not to dry the rye too rapidly nor too much, for in this case it loses a good share of its fragrance, and becomes more difficult of mastication and less palatable to the animals consuming it.

My horses and cattle seem to relish rye thus grown and cured as well as they do the best of timothy; and so far as I can judge, I think it does them as much good as average hay, and I should certainly prefer it to much hay that is not cut until after the seed is formed.

It is very dry with us here in New Jersey this season from early in May until the 15th of July, and pasturage and hay consequently short, but the rye carried us through admirably until the last of July, when the sweet corn was fully tasseled and five to six feet high. This then took the place of rye for the remainder of the season.

In the cool, moist climate of Great Britain and on the continent where irrigation is practised, rye or ray grass is much cultivated as a forage crop. Our fall and spring rye may be as largely and as advantageously grown among us for the same purpose as the above two grasses. Wheat also may be cultivated for forage, and as it ripens later than rye, it would assist in prolonging the soiling crop. Its straw is more nutritious than that of rye, and is equally palatable.—*Cor. American Agriculturist.*

Tethering a Mare.

A few weeks ago one of your subscribers inquired how he could tether a brood mare to grass without endangering the colt. I can tell him. I copy from the "Farmers Register" of 1865, p. 381.—

"The tether is simple in its structure. It consists of a pole ten feet long, attached to a similar pole eight feet long, by a chain of five stout links, the middle link having a swivel such as is common in trace chains. At the end of each pole is a piece of iron in the form of a loop, embracing two sides of the pole, and projecting a little beyond the end, in which a link of each end of the chain is fixed. At the other end of the long pole is attached a ring two inches in diameter, by a similar loop. This end is staked down the ring, allowing it to run freely around the stake. At the other end of the short pole is attached a similar ring by a similar loop, to which a halter is tied until horses become accustomed to it. The halter should be what is called a nose halter. After a time a collar around the neck will answer."

I know this plan will answer, because I have not only seen it in operation on the farm of the late Dr. Wm. B. Westmore, who gave the above account of it, and on other farms in his neighborhood, but I have also frequently tried it myself. By staking down so securely that the horse cannot pull it up, he can be kept safely and graze an area of forty feet diameter, and there is no rope or chain to trip or tangle a mare or colt.—*Cor. Country Gentleman.*

A Savage Ewe.

Last fall I bought a small flock of sheep, all ewes. One of them was quite thin; she ate well, but did not gain. At every opportunity, she would slip from the yard to where the offal from butchering was thrown, and lick the blood and gnaw the lights. After a little the offal was removed. When my early lambs began to come, I noticed a good many of them had their legs bleeding and some had a foot gone. It was quite a mystery how it happened. The dog was a fine shepherd, faithful and trusty, but he was kept confined from suspicion. About a week ago, in going into the fold about 9 o'clock at night, a pair of twin lambs had just arrived; they were strong and healthy, and the mother was fond of them. Early in the morning I went to look at them, and the poor little fellows were badly mutilated; one was hobbling around on four footless legs, and the other was so badly mangled that it could not get up. I was determined to unravel the mystery, and watched the fold through a window. Soon this blood-thirsty animal approached the prostrate victim, and commenced gnawing the bleeding body. I stopped the performance quite suddenly, you may imagine; but why a peaceable animal like a sheep should perform such an anomalous action, is past my understanding. —*Cor. Country Gentleman.*

Ammoniacal Soap for Washing Wool.

The soaps with a base of potash or soda do not produce, in washing wools, so advantageous results as a soap with a base of ammonia. The fabrication of this last is difficult and expensive. M. Robart proposes to employ for this purpose a liquid at present almost out of use, — putrid urine, that is to say, a urine in which the uric acid is completely transformed into carbonate of ammonia. He commences by saturating this liquid, by means of hydrochloric or sulphuric acid, which is a solution of chloride, or sulphate of ammonia. Upon this he afterwards turns a solution of potash or soda soap. He thus effects a double decomposition, and obtains, on one side, sulphate or chloride of potash, or soda, and on the other an ammoniacal soap, under the form of an insoluble coagulum. —*Annales de Chimie.*

HOW TO TELL WHEN A MARE IS WITH FOAL.—A correspondent of the *Rural New Yorker* gives the following method. — Take a rope, strap or string, and measure around the girth where the harness goes on the back and the belly band buckles up, then measure again, just forward of the hind legs, around the body; if larger around the latter place than in the former, you may safely conclude she is with foal.

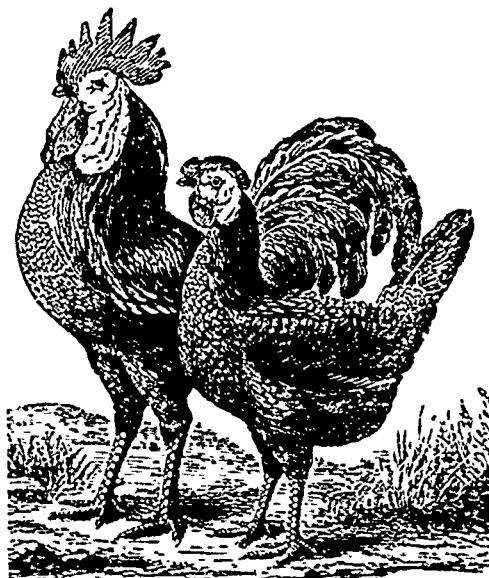
THOROUGH-BRED AND FULL-BLOOD.—An animal containing fifteen-sixteenths of thorough-bred blood is designated as full blood. To acquire this, a cold blooded animal, or one of common or indiscriminately mixed blood, must have received four infusions of thorough-bred blood. The first cross would give us a half-blood; the second a three-quarter-blood; the third a seven-eighths, and the fourth a fifteen-sixteenths-bred animal. Many breeders consider a seven-eighths-bred animal as a full blood. A thorough-bred is an animal that may be traced through the herd book, or the turf register, to a given ancestor without intermixture with impure blood. In cattle, the short-horns are called thorough-bred, the Devons pure-blood, the latter being animals that come constant in color and characteristics. They are a distinct race of cattle. The Short-horns in cattle, and racing stock in horses are descended from mixed breeds. —*Western Rural.*

PENS FOR SWINE.—The *New York Herald* says: A few days since the writer called at a neighbor's residence, who had a beautiful Chester white sow with three pigs about six weeks old. She brought forth nine, but overlaid six of them. The live pigs were worth \$5 each. Hence there was a loss of \$30, simply because his foreman did not understand how to prepare a suitable bed for a breeding sow. A large quantity of straw had been allowed to accumulate in her sleeping apartment, so that she had formed a deep hollow about the size of her body. As the young pigs could not get out of such a place, when the dam was about to lie down, they were smothered. Our own practice with brood sows has always been to remove all the long straw from a sow's bed, at least a month prior to the birth of her brood, and spread a few bushels of cut straw on the floor for her to lie on. Young pigs will never become entangled in such a bed; neither will they get cornered so that the dam will overlay them. When pigs are worth \$5 each it will pay the proprietor to prepare a suitable bed for the sow. Long straw should never be spread in a brood sow's sleeping apartment, except when no pigs are expected.

Poultry Yard.

Spanish.

Next to the Dorking comes the Spanish in popularity; no two breeds of fowls have attained so wide a celebrity as these, and none better deserving. Long before any of the Asiatic breeds were known, the Spanish were widely and extensively bred and exhibited at private shows in England, by which means they were raised to a high degree of excellence. With regard to their origin, they are said to have come from Spain, but at what particular period it would be difficult to say. The names of the sub-varieties—Andalusians, Moreas, Anconas—all point to a Spanish origin. And Mr Tegetmeier points out that the cultivation of this breed by the Dutch followed, and was consequent upon the Spanish occupation of the Low Countries. And it is said that all about the Mediterranean a fowl decidedly of the Spanish type is indigenous to that country. Even in Algiers, Egypt, and all along the northern coast of Africa, the same type of bird extensively prevails, and points most conclusively to the "Great Sea" of the Ancients as the native home of the Spanish fowl.



White Faced Black Spanish.

The most striking characteristics of this breed is the white face, which, with size, quality and shape, are the chief points in a show bird. The quick and frequent motion of the head, the strutting gait and noble carriage of a Spanish cock renders him an object worthy the admiration of the fancier. No point in any race of poultry shows more effectually what can be done in the way of careful breeding than the face of the black Spanish fowl. In every breed of fowl there is a more or less tendency to white in the ear lobe—even in those in which it is a decided blemish—and it is by the selecting of such birds as show the greatest tendency in this way, and breeding again from the best of their progeny, that white earlobes have been developed, as in the case of the Hamburgs as well as the Spanish. But although the white earlobes so frequently developes itself, it is not so with whiteness in the face, which is more rare. Signs of white face are, however, observable now and then in nearly all white-eared breeds, and no doubt it was by selecting such specimens that the white-faced Spanish received its present striking development. Two kinds of faces are usually seen, one known as the smooth-faced, the other the cauliflower. The smooth face should be of a soft and delicate texture, free from black hairs or feathers, and as smooth as possible. The cauliflower-faced, though sometimes very showy in chickens, invariably

look coarse and rough when older, and not unfrequently cover up the eye so that the bird becomes perfectly blind. Mr. Teabay, quoted in Wright's Poultry Book, thus describes the Spanish fowl:—"The face of the cock should be entirely free from coarseness, for in the very coarse, lumpet-faced birds, the white as they get older will close up the eye so as to prevent a bird from seeing. When this arises from the white under the eye getting so puffed out as to prevent the lids from opening, a piece of the white may be cut out so as to allow the eye to open freely. Cockerels with the white over the eye running to an angle towards the back part of the face, have very often the sight destroyed in the second year by the white over the eye growing down. As this part cannot be cut without disfiguring the bird, a piece of thread is put through a small portion of the white above the eye, passed close to the back of the comb over the top of the head to the other side, and through a corresponding portion of the eye there; this is then tied so as to raise the white on both sides, and leave the sight unobstructed. The Spanish cock's beak should be long and stout, and of a deep horn color. The comb should be bright red, single, firm, and well set on the head, so as not to shake about; thick at the base, and so gradually thinner to the edge; perfectly erect, straight, and free from twist either in front or any other part. It should rise from the beak between the fore part of the nostrils, and extend in an arched form over the back part of the head, the under part at the back almost touching the top of the neck. It should be deeply serrated, the serrations beginning about an inch from the beak, and being small in front, gradually increasing in size until they reach the higher part. The head should be large altogether, being both long, broad, and very deep sided; the eyes large, perfectly free and open. The face and ear-lobe should be of the purest white, and the texture soft and delicate, like the finest white kid; smooth and free from ridges or folds, the sight being perfectly free and not obstructed by the white. The white should reach well on to the beak in front, and rise over the eye close to the base of the comb in an arched form, and extend well towards the back of the head, the further over and behind the ear the better, and continuing to extend, without any break in the line, towards the back of the upper part of the neck. The ear-lobe also should be as long, broad, and open as possible, spreading out on the neck perfectly free from folds, and hanging down very low, not in any degree narrowing to a point, but preserving its width well until neatly rounded on the bottom, coming up again in front of the neck, and joining the wattles, which last should be bright red, long and thin; the inside of the upper part and the skin betwixt, white.

"The neck of the cock should be long and gracefully arched, with the hackle abundant, and reaching well on to his shoulders. The breast is prominent and most beautifully rounded, and the body neatly narrowing to the tail, with the wings close up to the body. He carries himself proudly and rather upright, giving the back a neat even slant to the tail, which is amply adorned with fine curved sickle feathers, and is carried rather upright. The thighs and legs long and neat, the latter being of a dark leaden hue. Plumage a rich glossy black, with a beautiful metallic lustre on the higher parts. In the Spanish hen the beak is also of a deep horn color, or nearly black; but the comb, though large, single, and deeply serrated, falls entirely over one side of the face. The face resembles that of the cock, but is smaller; and the wattles in the female sex are preferred small and thin. The larger the face is the better, if fine and free from ridges or coarseness, and there should be no apparent division between face and ear-lobe. The shape of the hen is very graceful and much the same as in the cock, allowing for the usual difference in the two sexes."

At one time it was permitted in the Spanish cocks to allow their combs to fall over as in the hens at the present, and no doubt it is the remains of this tendency which adds to the difficulty of breeding combs perfectly straight; but this has been long since done away with. Good breeders, by judicious selection of stock, no doubt influence the character of the combs in the progeny, the knowledge of which is of much importance. The process of moulting would seem seriously to affect the Spanish, as at such times the combs shrivel and shrink to an extraordinary degree. Occasionally the white face and ear-lobe becomes disfigured by a dirty yellowish eruption or scale, which arises from over feeding. If the cases are not severe, reducing the dietary scale, and bathing the affected parts gently twice a day with milk and water, will effect a cure. But the following treatment is pretty sure to set them right again: give a teaspoonful of castor oil every three days for three or four times, and bathe the face with sulphurous acid diluted with its own bulk of water, afterwards drying the face by dusting a little finely-powdered oxide of zinc between the folds. It is frequently necessary to cross different strains in the breeding of Spanish. The best results are found to follow by putting smooth-faced cockerels to the large and rough-faced hens. Spanish chickens are very long in feathering, and generally difficult to raise when kept in a confined place, but if a good grass run is at hand, they thrive and feather much quicker. It is rather difficult when the chickens are young to distinguish between the good and bad, but those which show a plain bluish or red as chickens may be discarded without hesitation, while those which present a dark dirty blue appearance when young with a very slow but steady change to white as they grow older, make the best specimens.

Poultry Notes—No. 11.

Turkey Raising.

The best ages to breed turkeys are three years for the cock and two years for the hen, but they may be continued as breeders much longer than this if they prove good sires or sitters respectively. It has been too much the habit to kill off the old gobblers and trust to the young ones for next year's stock. Nothing could be more deteriorating to the breed, and it should be discontinued by all good breeders and others. One fecundation is sufficient to render fertile all the eggs of one laying, and not more than fifteen hens should be allowed to one cock. Some people deny that one visit is sufficient, but we tested this matter ourselves some years ago, and proved its correctness. Turkeys will steal their nests if they can; they should therefore be watched about laying time and daily examined, and when discovered to have eggs, shut in until after laying. The number of eggs laid by turkeys vary from twelve to twenty, usually sixteen or seventeen. The eggs should not be allowed to remain long in the nest after being laid, they should be removed daily, and placed in bran or some other bad conductor of heat. After she has laid her batch, or nearly so, the desire to become broody will be apparent from her wish to remain long on the nest; after a few days, and when it is quite apparent she has all her batch of eggs laid, she may then be safely entrusted with the whole sitting. Care should be taken that none other of the hens be allowed to lay in the same nest in which the broody hen is sitting. Accidents, however, will sometimes occur, so that it would be well to mark all the eggs when being set with ink, in such a manner as to be readily distinguishable from any others which may have been laid subsequently. When a number of turkeys are kept for breeding, it would be well to set two at the same time, so that both broods may be given to one hen when hatched, and the other be again set at liberty to commence laying. Turkey

hens are very close sitters during the time of incubation, and many of them will not leave their nest even for food unless taken off by the hand; when off they should be abundantly fed with grain. If, however, she is in the habit of leaving her nest of her own free will, she should be watched and turned back to it again after being fed, she being a very absent-minded bird and apt to remain away too long, twenty minutes is quite enough at a time. The usual time for incubation is thirty days, although stale eggs may take a little longer, when the hatching out process begins, all the shells should be removed, and the young turkey chicks let remain till all are hatched. Neither food nor drink should be forced on them for a little while, they are naturally very stupid, and some care will have to be exercised even to induce them to eat. Some people hatch a few fowls eggs with the turkeys, so that when the young turkeys see the chickens begin to pick they will follow the example. The best food for young turkeys is equal portions of oatmeal and bread crumbs mixed with green food, which should be given them frequently on a clean floor. The free use of oatmeal is not good, as young turkeys have a tendency to diarrhoea, which the oatmeal rather increases; it should therefore be fed sparingly. The first week hard boiled eggs, chopped and mixed with dandelion minced is the very best food for turkeys, to which may be added, as we have already said, bread crumbs soaked in milk or water; this latter we have found by experience young turkeys are exceedingly fond of. Bread crumbs and barley meal should be added to the egg until they are three weeks old, when the latter may be discontinued. Curds are also an excellent portion of the dietary scale, but before giving them must be squeezed very dry, otherwise the whey will have a very injurious tendency on the young poults. Some turkey cocks, if allowed, would trample the chicks to death, while others appear very fond of their offspring; it is therefore necessary to watch the movements of the cock, if there should be one with the hens at the time hatching is matured; and if any attempt to kill the young ones be made, he must be banished immediately.

Great care is necessary in keeping young turkeys from cold and damp. One heavy shower of rain is sometimes fatal to the whole brood. Cold and windy weather is also injurious; in such weather turkey chicks should be kept entirely under cover and never allowed their liberty. The most critical period is over when the "shooting of the red" has taken place—that is, putting forth the red protuberances of the head and neck—which occurs at the age of between six weeks and two months. During this crisis stimulating food must be freely given. Bread mixed with onions, nettles or parsley is very good, but this once over, turkeys are the hardest of all fowls and will stand all kinds of weather. If young turkeys have the run of an open country they will feed on all sorts of herbs and insects, and generally come home in the evening quite full. Dry summers are the most favorable for them, when insects, especially grasshoppers, abound, of which they are very fond, and which they pick up with indescribable agility. From June to September turkeys will pretty much take care of themselves provided they have a free range, and the benefit they are to a farm by the havoc they make on insects is very great. It is said that in Switzerland they are taught to follow the plough for the purpose of destroying the turned-up larvae of cockchafers. Every evening after their return turkeys ought to be counted, and examined to see if their crops are well filled. If this plan is pursued at the early part of the season they will come home as regularly as the cows. If early birds are desirable, a little extra food ought to be given in September; grain of all kinds is very good, and boiled potatoes, mashed and mixed with Indian meal and skim milk, given warm in the cool

autumn mornings, has a wonderful effect on them, increasing both their size and weight in a wonderful degree. It is sometimes desirable, when extra birds are wanting for the market, to fatten them. The process is simple: shut the birds up in any place where they can perch or roost warmly at night; let them have a trough of food by them, made up of oats, barley, and a few beans, all ground together, and slaked with milk to be nearly liquid; on this let them be fed three times a day, a good hearty feed each time, but not more given at a time than will be ate clean up. Gravel and water must be supplied. If put up in good condition, three weeks or a month of this treatment should fatten them.

The different varieties of turkeys are the wild, common to Canada and the United States; the Norfolk or black, an English breed; the bronze, a cross between the wild and the domestic; the Cambridge, an English variety, something of a cross between the wild and domestic, but of a different type to the bronze, and never attaining to the same size or weight. They vary in color from a light copper to a dark tint; the pure white and the Narraganset, the latter being a mixture of white and black, and is bred more particularly in the state of Rhode Island and the south-eastern part of the state of Connecticut. The Narraganset is an excellent variety for common use, and grows to a large size, but is wanting in the beauty of color and neatness of body of the bronze. There is, however, no breed equal to the bronze, and we hope to see it more generally introduced into Canada than at present. Our American neighbors have been very successful in breeding large birds of this variety, one breeder exhibiting birds over forty pounds weight. This breed, although, as already stated, produced by a cross between the wild and domestic bird, is now firmly established, and breeds true to color and markings.

VALUE OF HENS.—A curious statement has been made and published in a French paper in regard to hens. It reckons the number of hens in France at 40,000,000, valued at \$20,000,000. Of these about one-fifth is killed annually for the market. There is an annual net production of 80,000,000 chickens, which in market yield \$21,000,000. The extra value to be added for capons, fattened hens and the like, is put at \$2,200,000. The production of eggs is reckoned at an average of 100 eggs per hen, worth \$18,000,000. In all, it is reckoned that the value of hens, chickens and eggs sold in the markets of France is \$50,000,000.

DUCKS vs. HENS' EGGS.—For general culinary purposes, possibly a duck's egg is better than the egg of the fowl, or at any rate of equal value; but for the table use most persons prefer the latter, as being free from the rank flavor possessed by the former. But, inasmuch as eggs can be secured from ducks with greater ease and in greater numbers (proper precautions for gathering them being taken), than from hens, it will certainly pay those having small streams or ponds available, to give some attention to rearing ducks; and even should there be a slight discrimination against ducks' eggs established in the market, it would still pay.—*Live Stock Journal.*

PRICES OF LIVE AND DRESSED POULTRY.—It is sometimes convenient to know the price per pound for poultry. Live weight is equivalent to a given price, dressed weight. Preparing for market will cost about eight cents for each fowl, when labor of the usual quality is employed and a considerable number of fowls butchered at a time. Making that allowance for dressing, and leaving out fractions, the relative prices in cents, of live and dressed weights, are as follows:

21c-11c	26c-17c	31c-21c	36c-25c
22-15	27-18	32-21	37-26
23-15	28-19	33-22	38-26
24-16	29-20	34-23	39-27
25-17	30-20	35-24	40-28

The above, from one of our exchanges, gives the average proportion between the prices of live and dressed poultry. The figures given cannot cover all cases, for the relative prices will depend upon the condition, a thin fowl will lose as much and be as much trouble to dress as one well fattened, and yet will not be worth as much per pound dressed. In fowls, as they are usually sold, we find the table sufficiently correct.—*Journal of the Farm.*

Poetry.

Grandfather's Barn.

O, don't you remember our grandfather's barn,
 Where we met with our cousins to play;
 How we danced over the oxen and the scaffold so high,
 Or danced at will in the hay?
 How we sat in a row on the bundles of straw,
 And riddles and witch stories told,
 While the sunshine came through the cracks on the south,
 And turned all the dust into gold?

How we played "hide and seek" in each cranny and nook,
 Where ever a child could be stowed;
 Then we made us a coach of a hoghead of rye,
 And rode it "to Boston" we rode,
 And how we kept store and sold barley and oats,
 And corn by the bushel and bin,
 We straw for our sisters to braid into hats,
 And a tax for our mothers to spin?

How we feathered and swang, and played "meeting and
 song,"
 And "Infant," and "soldier," and "bear;"
 We rode on the rollers in swallows kept house,
 Or sailed through the soft summer air
 How we longed to peer into their curious nests,
 But they were too far over head—
 Then we wished we were gulls or winged like the birds,
 And then "wee a wondrous" we said.

How we played no were b'ldies, and cack'c' and crowed,
 If grand-mother ran out to see
 If the wassies were killing the old speckled hen,
 Or whatever the matter might be,
 How we peeped on her when she saw her mistake,
 And called us her own "chicken dears";
 While a tear dimmed her eye as the picture recalled
 Like scenes in our own childish years.

O, don't you remember the racket we made
 When sailing at sea on the fry?
 And how we would up with a reel-over leap
 From the scaffold down into the fry?
 Was it we went into spring our grandfather said,
 If it had not been a boy,
 He would have said that the Russians were sacking the town,
 Or an earthquake had come to destroy.

How the years have gone on since in grandfather's barn,
 To play with our cousins we met,
 Our eyes have grown dim and our hair has grown gray—
 The garden, the brown, and the jet,
 Yet still in my heart there's an evergreen nook,
 Where our voices sweet memories stay;
 And no music to me has a charm that can thrill
 Like the voices of children at play!

—Boston Cultivator.

Miscellaneous.

How Chromos are Made.

Chromo-lithography is the art of printing pictures from stone, in colors. The stone used is a species of limestone, found in Bavaria, which is wrought into thick slabs, with finely polished surface. The drawing is made upon the slab with a kind of colored soap, which adheres to the stone, and after the application of certain acids and gums, enters into chemical combination with it. When the drawing is completed, the slab is put on the press and carefully dampened with a sponge. The oil color, or ink, is then applied with a common printer's roller. The parts of the slab which contain no drawing, being wet, resist the ink, while the drawing itself, being oily, repels the water, but retains the color applied.

In a chromo, the first proof is a light ground tint, covering nearly all the surface. It has only a faint, shadowy resemblance to the completed picture. The next proof, from the second stone, contains all the shades of another color. This process is repeated again and again, occasionally as often as thirty times. The number of impressions does not necessarily indicate the number of colors in a painting, as the colors and tints are greatly multiplied by combinations created in the process of printing one over the other. In twenty-five impressions, a hundred distinct shades may sometimes be produced. The last impression is made by an engraved stone, which produces that resemblance to canvas noticeable in all the finer chromos.

The production of a chromo, if it is at all complicated, requires several months, sometimes several years, of careful preparation. At every stage of the process equally great skill and judgment are required. The mere drawing of the different and detached parts on so many stones is of itself a work that requires an amount of labor and a degree of skill which, to a person unfamiliar with the process, appears incredible. Still more difficult, and requiring still greater skill, is the process of coloring. This demands a knowledge which artists have hitherto almost exclusively monopolized, and in addition to it the practical

familiarity of a printer with mechanical details.— "Drying" and "registering" are as important branches of the art as drawing and coloring. On proper registering the entire possibility of producing a picture at every stage of the progress depends.— Registering is that part of a pressman's work which consists in so arranging the paper in the press that it shall receive the impression on exactly the same spot on every sheet. The difference of a hair's breadth would spoil a picture, for it would hopelessly mix the colors.

The paper used is white, heavy "plate paper," of the best quality, which has to pass through a heavy press, sheet by sheet, before its surface is fit to receive an impression.

After the chromo has passed through the press it is embossed and varnished, and then put up for the market. These final processes are for the purpose of breaking the glossy light, and of softening the hard outlines which the picture receives from the stone. These processes impart to the appearance of a painting on canvas.—N. Y. Tribune.

Netting for Windows and Doors.

If we could have cool parlors, dining rooms, kitchens and bed-rooms, during the hot summer weather, we must have mosquito netting or wire gauze in all our windows, and, if possible, at the doors also. Window blinds cannot take the place of netting or gauze, because they exclude so much of the cool evening and night air, and although they are very essential and needful to shut out the hot sunshine and the beating storm, yet they will not answer all our needs.

Mosquito netting can be purchased at a very cheap rate, and the "guidman" can easily make or procure some frames to fit all the windows, which can be either painted white, or stained a dark red to match the sashes of the windows. Then dark blue, pink, green or white mosquito netting can be easily stretched and tacked over them by the skilful fingers of the housewife; and after she has used them for one summer, nothing could persuade her to go without them another season. They will exclude mosquitos, flies, moths, and all other insects, and will not exclude the fresh, cool air. They are very easily taken out and put in; or they can be so arranged that the windows can be closed on damp, cool days.

Any woman can tack a piece of the netting across the lower half of the window on the outside of the sash, if that is the only means she can employ. The wire gauze requires a workman's handling, and it can be made into permanent shades which will withstand all weathers.

When we have tried the good effect of these shades we must also have the doors attended to. A slight frame-work of pine can be made, and fastened to the outer door posts by means of strong hinges; and with a hasp to fasten it and a handle to open it by, we can bid defiance to flies and mosquitoes both by day and night. Common tools and a little ingenuity are needed to prepare a door, blind, or shade for the outer kitchen piazza, which will add far beyond its cost to the comfort of the cook and housewife. Mosquito netting can do duty for the shade when the door frame is ready; but coarse wire netting, such as is used for sieves and the like, would be far preferable, because it would last for a long time, while the cotton netting is usually destroyed in two years. In using the cotton netting, however, for the windows, it is well to select the pure white for the parlor, pink for the chambers, and green or blue for the kitchen, pantry, and milk room.—Country Gent.

Practical Use of Velocipedes.

The bicycle, after going entirely out of fashion as a toy, is now being but to some practical use. Messengers, called "veloco men," thus mounted, convey despatches in Paris from the Bourse—or Stock Exchange—to the central telegraph bureau. The distance is about six miles, going and coming, and is accomplished in 25 minutes, at a charge of 50 cents. A company is being formed to place a very large number of velocipedes upon the streets and to supply messengers to go to any part of the city. The Parisian Journals are also using the bicycle to obtain quick reports. During the trial of Marshal Bazaine, the *Moniteur* employed daily a large number of vehicles, running from the palace of Versailles to Paris. The distance, about 13 miles, was made in 45 minutes, and quicker than the ordinary trains on the railroad. Carrier pigeons were also used by the papers, the birds easily traversing the distance above mentioned on clear days at the rate of a mile a minute.—Scientific American.

How to Prevent the Crows from taking up the Corn.

Farmers are much troubled when their corn is coming up by the crows pulling up the tender shoots to get the grains at the bottom. About this time of the year the crows are sitting on their nests, and the young ones are hatched out just when the late planted corn generally comes up. This year, however, nearly all the corn will be late. As soon as the young crows can eat, the old ones commence pulling to feed them, and as they are very industrious birds, and have nothing else to do but to feed their young, they will destroy a great quantity of the grain before it gets to be too large for them to work upon. Some persons claim for the crow that he is "the only bird which catches the worms, and does the farmer much more good than harm."

Those who believe the crow to be a benefactor may prevent him from pulling up the corn by simply scattering some shelled corn in and around the corn field on the top of the ground, about the time the corn is coming up. This is all the crow wants, and if he can get the corn on the top of the ground, he will not scratch up that which is under the young plants.

Another plan which is more effective, to those who have no conscientious scruples about cruelty to crows, is to soak the corn for a few hours, then stir into it some strychnine or other poison which will kill the old crows, and the young ones will starve to death.

A third plan is one that I have heard of but have never tried it is as follows: Take each grain of corn and perforate it with some small instrument, so you may insert a long horse hair, which has to be tied in the middle on the corn, so that the corn will not slip off; each end of the horse hair after it is tied on the grain of corn will extend eight or ten inches. After a sufficient quantity of corn has been thus prepared, scatter the grains about the field where the crows may find them. The crow will swallow the corn without seeing the horse hair, and he will be so tickled with the hair that he will soon laugh himself to death.—Home Journal.

Grassing a Slope.

A steep slope may be grassed over without sodding by first smoothing the surface and then mixing a tough paste or mortar of clay, loam, and horse manure, with sufficient water. The grass seed, which should be a mixture of Kentucky blue grass and white clover, should be thickly but evenly scattered upon the moist surface of this plaster, as it is spread upon the bank. The plaster should be at least one or two inches thick, and a thin layer should be laid over the seed. The surface should be kept moist, and a light dressing of some active fertilizer would help the growth. In a few weeks the growing grass should be cut and should be kept short at all times until a thick sod is formed.—Keystone, in the New York Tribune.

In the first three months of this year the British colonies in South Africa sent the mother country 9,497,407 lbs. of wool, as compared with 8,046,792 lbs. in the corresponding period of 1873, and 7,498,227 lbs. in the corresponding period of 1872.

DISTINGUISHING THE FIRST FROM THE LAST MOON QUARTERS.—Some books will tell you that if the perfectly sharp round outline of the moon is at the left side, it is the first quarter; if at the right, it is the last. Or if you can put your right hand in the hollow or imperfect side of the moon, it is the first; and if your left hand can be put in the hollow or imperfect side, it is the last quarter. But we think it better to have a clear conception of the moon's motion, as then you can never make the mistake of being uncertain which side corresponds with the first or last quarter. When the moon rises and sets with the sun, she is never seen, and we call it new moon. Soon after the new moon (as her apparent motion is slower than that of the sun, she remaining behind) becomes visible in the west after sunset; therefore, when the moon is seen in the evening in the west, it is an increasing moon; and when she stands in the south at about the time of sunset, and west later in the evening, it is the first quarter. About a week later she will be so much more behind as to stand south at midnight; then it is full moon, which rises at about sunset and sets at sunrise, another week later she is still more behind, is not seen in the evening at all, but rises about midnight in the east; then it is the last quarter. Rising about an hour later every day, she will after a few days precede the sun, and is then only seen in the early morning in the east, while at last, being overtaken by the sun, she is again what we call new moon.—Manufacturer and Builder.

SCRAP-BOOK PASTE.—Mix a quantity of corn starch in water, stirring it until a thin smooth paste, free from lumps; place it on the stove and let it boil slowly, stirring it frequently; boil as starch; this makes an excellent paste that will keep well, and is useful for many purposes.

A LADY in the country was unwise enough to fit out her boy of five with fishing tackle. Soon she heard a shout from the barn-yard; and found that one of her very best huns had swallowed the hook and was fast winding up the line in her crop. Of course she was greatly troubled, but all the comfort she got from the young fisherman was this: "Don't worry, mother; I guess she'll stop when she gets to the pole."

SUN PRINTING.—Boys and girls, if you wish to astonish any members of the family or any coming guests by some day allowing them to discover their initials neatly printed on a pear, peach or apple, as it hangs on its branch, this is the way to carry out your plan: Just before the fruit ripens, cut the desired letters from a sheet of thin, tough paper, and paste them on the side of the fruit most exposed to the sun. When, in the course of time, you remove the paper from the ripe surface, you will find the letters distinctly marked upon it. There are other ways of printing fruit, but this is the most simple.

THE leading question in Wisconsin is "How's hops?"

In Pennsylvania: "How's your coal mine?"
 In Michigan: "How's iron and wheat?"
 In Iowa: "How's cheese?"
 In Virginia: "How's terbacker?"
 In Delaware: "How's peaches?"
 In Indiana: "How's corn?"
 In Kentucky: "How's hemp?"
 In New York: "How's the canal?"
 In Maine: "How's timber?"
 In Minnesota: "How's Injuns?"
 In Montana: "How's the snow?"

THE VALUE OF GOLD AND SILVER.—One ton (2,000 lbs avoirdupois) of gold or silver contains 29,163 troy ounces, and, therefore, the value of a ton of pure gold is \$602,799.21; and a ton of silver, \$37,701.81. A cubic foot of pure gold weighs 1,218.75 pounds avoirdupois; a cubic foot of pure silver weighs 656.25 pounds avoirdupois. One million dollars gold coin weighs 3,355.8 pounds avoirdupois; one million dollars silver coin weighs 58,929.9 pounds avoirdupois. If there is one per cent. of gold or silver in one ton of ore, it contains 291.63 ounces, troy, of either of these metals. The average fineness of the Colorado gold is 781 to 1,000, and the natural alloy, gold, 781; silver, 239, copper, 10; total 1,000. The calculations of the mint are made on the basis of 46 ounces of standard gold, or 900 fine (coin), are worth \$1800; and 11 ounces of silver, 900 fine (coin), are worth \$12.80.

QUICK TIME.—A gentleman had occasion to call on the Rev. Dominic Thomas Campbell when he was at Glasgow. "Is the dominie in?" he inquired of a portly dame who opened the door. "He's in the yard, sooperintending Sauners, the carpenter. Ye can see him the now if your business is vera precise." The gentleman walked into the yard, where he beheld a carpenter briskly planing away to the air of Maggie Lauder, and the dominie standing by. Unwilling to intrude on their conversation, he stepped aside, and heard, "Sauners, I say! Can ye no hear me?" "Yes, minister, I hear ye. What's your wull?" "Can ye no whistle some mair solemn and golly tune while ye're at your wark?" "A weel minister, if it be your wull, I'll e'en do it." Upon which he changed the air to the Dead March in Saul, greatly to the hindrance of the planing. The dominie looked on for some minutes in silence, and then said, "Sauners, I hae another word to say till ye. Did the gudewife hire ye by the day's darg or by the job?" "The day's darg was our agreeing, minister." "Then on the whole, Sauners, I think ye may just as weel gie back to whistling Bonnie Maggie Lauder."

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THE CANADA FARMER is printed and published by the GLOBE PRINTING COMPANY, at 26 & 28 King Street East, TORONTO, CANADA, on the 1st and 15th of each month. Price one dollar and fifty cents per annum, free of postage.