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The Field.

A Bad Variety of Spring Wheat.

One of the most prominent millers in the County of Wellington has called our attention, rather late we fear to have much influence on this year's seeding, to the fact that a very inferior species of spring wheat is being raised in his section of the country, the cultivation of which it is very desirable the farmers should be persuaded to abandon. It is known as the "Red Chaff Spring Wheat." Owing to its having been but recently introduced, it is not as yet very widely diffused. Indeed, it is only since last harvest that much of it has come into the market, except for seed. It has already become pretty well known to millers, bakers and grain-buyers, who are unanimous in the resolve to avoid it as completely as possible. All who have given it a trial pronounce it the worst variety of spring wheat that has ever been cultivated in Canada. No miller who is acquainted with it will purchase it, except at a great reduction in price below what the Glasgow or Fyfe variety will bring, as it injures the appearance and depreciates the value of any brand of flour which it may be used to make. Bakers complain that the flour made from the wheat in question runs like that made from sprouted wheat, and has no strength or sponging quality in it. The cultivation of such an inferior grain will not only seriously lessen the profits of those who grow it, but tend to injure the reputation of Canadian wheat and flour. We would therefore warn those who are already raising this inferior wheat to desist from doing so, and would at the same time warn others to beware of it, and to give it a good letting alone.

It is marvellous how incautious many farmers are about the kind of seed they sow. Every consideration applicable to the subject urges them to "get the best," and to use none other. Yet often for the mere sake of novelty, or to save a trifling amount of trouble and expense, they will procure and sow what is inferior or worthless. We can quite understand the desirableness of a change of seed wheat every two or three years, owing to the tendency of grain grown on the same land year after year to "run out," as farmers express it. But it is not needful to change the variety, nor is it well to do so unless one equally good or better can be had. If seed be obtained occasionally from a distant locality, where the soil and climate are somewhat different, there will be no ground for complaint of loss of vitality and diminution of value from the continued use of a particular sort. This can easily be accomplished at no great expense by dealing with a respectable and responsible seedman. But so long as farmers are content to run for seed to their next-door neighbor, just because it is "handy," we may expect to hear of deterioration of old varieties, and imposition and disappointment in connection with new ones. The Fyfe wheat

is undoubtedly the most valuable variety of spring wheat grown in this country, and may be kept up to the mark in the way suggested. We are by no means opposed to the introduction of new varieties, but they should be carefully tested before they are grown to any extent. For want of this, a considerable number of the farmers in Central Wellington will sustain serious loss on their spring wheat crop, millers and others will be subjected to inconvenience, and a great deal of trouble and expense will be required to root out what it would have been far better should never have been rooted in.

Potato Culture and Disease.

The value of the potato crop to many a farmer, and the loss and hardship which attend its failure by disease or otherwise, we plead for reverting to the subject. Last week we made a few extracts from a valuable pamphlet, recently published by Charles Dimmick, nurseryman, Ryde, Isle of Wight, on "Potato Disease and its Prevention," commented favorably on it so far as time and space permitted, and recommended its perusal by farmers and gardeners. Since then the little work has been favorably reviewed in the columns of several contemporaries. Our author asserts that the tendency to disease in the potato is largely due to a weakened constitution in the tubers. This is very likely. At any rate there can be no question we have not properly studied the desirability of maintaining the vitality of the potato. Nor have we kept sufficiently in mind that this excellent is a native of a finer climate than ours. Not that we can materially mend the defects of climate; but if the origin of the plant had been studiously remembered, the treatment might have been more in accordance with the necessities of the case.

Potatoes entirely disease proof there may be, though we are not sanguine of such being discovered, but this much we are convinced can be accomplished—viz., that by more careful treatment the evils of disease may be greatly alleviated. Mr Dimmick complains reasonably of the method of storing the seed, of stowing them up in large heaps, so that they are encouraged to sprout as soon as vegetation sets in. Then comes the rubbing off of the sprouts, which weakens the seed to an extent to all appearance imperfectly realized. Not only the storing but the selection of the seed is of great importance. The seed should be chosen when the crop is being dug, and medium-sized tubers, fully ripened, ought to be selected. The picked potatoes must be carefully handled, and special storing provision made. Mr Dimmick lays great stress on this point, remarking that on every farm or garden where potatoes are grown a potato house is as necessary as a garner or fruit-room. "My potato-house," he says, "which has been in use nearly twenty years, is 20 feet long and 12 feet wide and it will accommodate about 60 bushels of potato. At the sides and ends are racks, the shelves of which are formed of strips such as are used by builders for slate strips. The strips are nailed on, a little distance apart to allow passage for air, yet not wide enough to let the smallest-sized potato pass through. This will help to green and harden the tubers, and hinder them from growing out too much before the planting season arrives." The potatoes are placed on the shelves in single file, and the walls of the house may be built of moss or stones, but must be thick enough to keep out frost. Where very large quantities are grown the system of carrying all the seed over winter could not be easily carried into effect. But it might be done as far as possible, and

special field storing bestowed on the remainder. The essentials, we are told, in storing seed potatoes are—(1) They should be kept dry; (2) they should be kept free from frost, (3) they should not be kept in the dark, (4) they should have plenty of air in mild weather.

Too much attention cannot be given, and more should be devoted, to the choice of those varieties which have been found to resist the disease most successfully. These need not be exclusively, but principally grown. There is fortunately not disease every year to ward off. In Scotland, Paterson's Victoria Regents have come through the last few trying years with less scathe than any other variety. We have recently had extensive opportunities of ascertaining the varieties on which the scourge made least impression in different districts of Scotland, and in almost, if not every case the variety named yielded by far the largest proportion of safe tubers. In some cases Rocks stood next, while Blues, a favorite potato, proved very susceptible of disease. Such facts as these ought not to be lost sight of.

Planting is the next important consideration. The dressings about the farm, as mostly every farmer knows and practises, ought to be put under potatoes. Comparatively light land suits best, if it is in good heart. The planting of potatoes with very stimulating manures newly applied is objectionable for the constitution of the tuber. On this matter Mr. Dimmick says:—"The best of all land for the purpose is such as was manured for other crops the previous year, and if it be good it is far better not to add any fresh manure; but if manure be really necessary, let it be such as the root can feed upon, without being unnaturally stimulated. Just as light, nourishing food is the best for a man who is enfeebled by disease, so are light, nourishing manures best for the potato in its enfeebled condition." Early planting is commendable. In the finer climates March is the best time, but in colder parts of the country April is early enough. The seed, if not deposited early, is much weakened by sprouting and rubbing off of the sprouts. The first shoots should be preserved. The seed, we are told, ought on no account to be cut, cutting involves a waste of the substance and vigor of the plant. Whole sets are advocated, and if the tubers show many shoots, the seed may be placed rather farther apart. It is, says the author already quoted "contrary to nature to cut potato seed, because the tubers when whole form a store of aliment enclosed in its own skin; it is therefore specially better for the health of the potato not to cut it." While many farmers are careful about the nature of the seed they plant, we know many stand in their own light by selecting the small and weak sets. It is a mistake either to depend on the smallest tubers whole, or larger ones cut into too many pieces.

Potatoes for seed should neither be dug before they are ripe, nor allowed to remain in the drills after maturity has been reached. Just as in the case of many other crops, if the tubers are left at the stem after they ripen, injury to the constitution of the plant is apt to be sustained. Why should not every grower be as watchful to secure this excellent when it is ripe as farmers are their grain crops when they arrive at maturity? To cope as successfully as is, in the circumstances, possible with the disease, we would advise growers to select the strongest seed, preserve it till the date of planting as carefully as opportunities admit, plant the varieties, such as those named, which have been found to offer the greatest resistance to the disease, choose dry, warm soil, in good manurial condition, plant early and seasonably, and endeavor to dig when the tubers are fully matured.—*North British Agriculturist.*

Green Manuring.

P. Crawford County, Penn., asks:

First—At what state of growth or maturity should clover be ploughed under?

Second—Will it pay to turn buckwheat under as a green manure?

Third—If the latter is answered affirmatively, may it not be profitable to sow the clover field, immediately after ploughing, to buckwheat, for the purpose of turning the latter under when the season arrives for sowing wheat?

Fourth—Will the clover rot sufficiently between the first and second ploughing to make a good mulch for the surface?

I intend to pursue this plan of green manuring the present season, which has given rise to conflicting opinions among my friends and neighbors. However, I stand pretty much alone in my advocacy of the plan, as nearly every one denounces buckwheat as worthless for green manure, and many object that the clover will not become sufficiently rotted to bring to the surface again. My opinion is that buckwheat is inferior only to clover as a green manure.

Replies.—*First*—At its period of greatest growth and succulence, which is when in full blossom and before a head has turned brown.

Second—Yes, in cases when clover cannot be grown for this purpose. For instance, if a field is to be improved this season, clover, being a biennial plant, will not mature until next year. In this case we would sow buckwheat in May, ploughing it under early in July; then sow again, ploughing the crop in September, and sow rye, with clover, next spring. There will be a crop of rye, which may be fed, and the next season a crop of clover, to be ploughed under, and the feeding of the rye and the straw will go to manure the land, in addition to the clover. In the next spring the field may be cross-ploughed for corn, when the clover will be thoroughly decomposed. A clover sod should not be cross-ploughed without an interval of several weeks. The relative value of buckwheat and clover as a green manuring crop is largely in favor of clover, both on account of the greater abundance of its roots and the nitrogen it contains.

Third—Clover cannot be thus sown for this purpose, as has already been explained.

Fourth—This depends altogether upon the length of the interval between the ploughings. We do not understand what is meant by the mulch referred to. When the clover rots it becomes mixed with the soil, as a dark, fine matter, and cannot in any way form a mulch.—N. Y. Times.

Buckwheat.

This species of farm produce has disappeared from among our agricultural productions for a great length of time. As it is still extensively cultivated in America and other countries, where it is maintained in high repute, I am of opinion that if farmers were more practically acquainted with this grain—which many only know by name, and others not by that—it would be extensively grown in our own country.

This buckwheat, or brank, as it was called in old times, will thrive in any soil, even on barren sands; where almost every kind of vegetation refuses to grow, it will succeed. However, light and dry upland is the most suitable for this plant, and in very inferior soil the yield will be from twenty-five to thirty bushels per acre, without the least particle of manure, and with very little attention. To those who have a desire to manure their land at a slight cost, I would say, sow a crop of buckwheat on such land, and when the crop is in full bloom plough it under. This sowing might be made in May, the crop turned under furrow by the end of July, and the land ready to receive an early autumn crop of wheat or other grain. As this plant is of a very succulent, saccharine, and tender nature, the stalks and leaves require but a very short time before they become totally decayed. A better plan can scarcely be devised than ploughing this crop under in poor sandy soils, and in parts where ordinary manures are scarce, dear, or difficult of cartage. When this grain is allowed to ripen, the straw is worthless as far as any feeding properties are concerned; but if cut in a green state it is a valuable food for milch cows and other cattle. In some ground these plants will attain the height of 3 ft., while in very poor soil they have hard work to accomplish the length of 2 ft. The leaves when young are nearly round, but in advancing to maturity resemble those of the ivy in form. The stalks are not of great strength, are hollow, of a good green color when young, though as age comes on a deep tinge of red appears. If not sown too thick, every plant will throw off several collateral branches, all of which will produce numerous flowers

of a light purple color, or nearly white. Tusser, a celebrated agriculturist of his day, thus speaks of it in his "May's L' sbandry":

In May is good sowing thy buck or thy brank,
That black is as pepper, and smelleth as rank;
It is to thy land as a comfort or muck,
And all things it maketh as fat as a buck.

Sow buck after barley, or after thy wheat,
A week to the root (if the measure be great);
Three earths see ye give it, and sow it above,
And harrow it finely, if buck ye do love.

Notwithstanding old Tusser's allusion to the rank smell of this plant, it must be borne in mind that when the summer breeze passes over a field of blooming buckwheat an aromatic fragrance is imparted to it, second only to that of a field of blossoming beans, and in nowise disagreeable or rank. These blossoms are extremely attractive to bees, and we have it on good authority that, in countries where farmers cultivate buckwheat extensively, the bee-keepers are in the habit of sending their hives to that immediate neighborhood during the time these plants are in flower, when the bees work intensely in gathering sweets from the pale blossoms, making a great quantity of honey for the space of time; and that produced in this way is said to be more highly esteemed than any other, being truly transparent. The seed, when quite ripe, is of a triangular shape, almost black, greatly resembling beech nuts, but very much smaller.

In France and other countries buckwheat has for ages been considered as part of the food of man; but in our own country it never seems to have been in common use for bread. In Canada, and in the United States of America, this species of grain is cultivated to a great extent as bread food, not only for "the hewers of wood and drawers of water," but also for those in affluent circumstances; and when ground fine and made into cakes, is highly esteemed, particularly in the colder seasons of the year. The mode of making these cakes is to mix the flour with water until it forms a batter of moderate consistency, when it is left to ferment a little, but not long enough to become sour; and then it is poured upon the baking pan, nearly in the way of making pancakes, or perhaps more resembling the plan of making oat-meal cakes in Lancashire and parts of Yorkshire, where such are called "oat cake," "riddle bread," "warp and weft," &c. In what we should term the "country parts" of America, the pan for baking buckwheat cakes may be seen by the fireside throughout the day, on account of its incessant use during winter, it being customary to partake of hot cakes several times a day. The cakes should be eaten while hot, and they will be improved with a slight plaster of butter, similar to the way Lancashire people serve their "oat cake;" but I must admit this is used either hot or cold.

In the countries where buckwheat supplies so great a portion of food for the inhabitants, it is also used in vast quantities for feeding cattle, pigs, and poultry. Although pigs eat buckwheat meal greedily, and fatten quickly on it, this food should be stopped for at least three weeks before they are killed, when maize (Indian corn) should be supplied, which will make the pork or bacon harder, and of a superior flavor. If fed entirely on buckwheat, the pork would be soft, and of an oily nature.—Cor. Field.

A Talk About Plaster.

At a late meeting of the Ottawa, Michigan, Farmer's Club, the subject of the use of plaster was introduced by the President, Mr. Wild.

Mr. DeWitt had used plaster very freely, and always with good effect.

Mr. Wild, and also Mr. Ferguson, agreed that the use of plaster adds one-third to the clover crop.

Mr. McNaughton had experienced great benefit from its use on clover, more on sandy land than on clay. He always got a good catch when he used plaster on the land with the seed.

Mr. Lillie thought we used too little, and recommended to double the quantity now used.

Mr. Wild thought we should sow more clover than we do, and use more plaster.

Mr. McNaughton believed that the best way to keep up our land was to sow clover and plaster. He also gave some instances of the good effects of ashes on wheat.

Mr. Hall said that plaster prolonged the growth of wheat, but was no benefit to it. It would do good on clover three years.

Mr. Randall recommended sowing plaster on the snow. Clover sometimes failed to grow when not plastered.

Mr. T. B. Lillie used clover, but thinks barnyard manure the main stay to keep up the fertility of the farm.

Early or Late Ploughing.

The success of any crop greatly depends upon the proper preparation of the ground. The proper preparation of the soil consists as much in the time as in the manner of ploughing. Many fields are rendered almost barren for a series of years by unseasonable ploughing. A heavy clay soil has frequently been so injured by ploughing while wet, that twenty years afterward it had not recovered its previous fertile condition. At this season of the year there is greater danger of this mistake than at any other. The desire to be ahead of one's work leads many to plough their fields before the soil is sufficiently dry. The mechanical effect of the pressure and the peculiar plastering action of the mold-board is to render the clay tough and plastic, so that when it becomes dry, it breaks into lumps or clods which cannot be disintegrated, and remain in their solid state with only their rough edges worn off, at the most, for many years. No after cultivation can reduce the soil to a mellow condition, and a large portion of its fertility is locked up in these clods, where the roots of the crop cannot reach it. In the proportion in which the roots are prevented from entirely occupying the fertile layer of surface soil, the crop is reduced below its proper yield. Besides, a soil in such a condition suffers excessively from heat and drought. It neither receives nor holds nearly the same quantity of moisture that a mellow soil does, and it parts with what it has with the greatest facility. Here is another immense loss, which, added to that already mentioned, becomes ruinous. Lighter soils are subject to the same ill effects, but in a less degree, until they may become sandy, when the existence of a considerable degree of moisture in them becomes desirable rather than otherwise, because it gives the requisite cohesion. It becomes a matter of judicious consideration to select the best time to plough in the spring. Our rule has been to dig up a spadeful of soil and throw it upon the ground. If it breaks apart, loses its cohesion, and becomes a loose heap of mellow soil, the ground is fit for the plough. If, on the other hand, the earth retains its form, and the surface which has been in contact with the spade is full of water, sodden, and is smoothed as though it had been plastered with a trowel, the ground is not as yet fit to be ploughed. This last will apply to clay, loamy, and gravelly soils. Sandy soils are difficult to injure in this way, and in some the water may follow the plough in the furrow without injury.—N. Y. Times.

LEANING GATE POSTS.—F. M. C. Birmingham, Oakland Co., Mich., writes: "I have been bothered some with gate posts leaning and letting the gate sag. I have now learned that this evil can be remedied by placing the posts in the ground and tramping the ground solid on the back side (or opposite the gate); then place a scantling or round pole, cut so as to fit closely between the posts, a few inches under the ground, or even with the top thereof. This will entirely prevent the gate from sagging."

THE manufacture of beet-root sugar in France may be regarded as terminated for the present season. The season has not been favorable upon the whole, and the yield of sugar has been below that of last season. This falling off, added to the deficit in the crop of beet-root, explains the relative mediocrity of the production of beet-root sugar this year. Manufacturers, although much discouraged by the continued low price of sugar, do not lose hopes of a better season in 1874-5.

FED THE SOIL WELL.—A correspondent of the Vermont Farmer says: The Lord loveth a cheerful giver, and so does the soil; and just in proportion to our generosity to it, will it reward us at the harvest time. Then let us feed it well, give it liberal coats of manure, stir it often and mix it fine. I would not buy commercial fertilizers until I had used up all that is made around our own buildings. There is more plant food wasted in the kitchen slops in one year than can be bought in a ton of the best commercial fertilizer.

NEW SEED POTATOES.—Mr. Ralph Robinson, nurseryman, Hexham, has just introduced a new species of potato, which he calls Robinson's Challenge Early Rough White Potato. The potato has been well tested before being sent to the trade, and has been found to answer every expectation formed of it. It is well adapted for either the garden or field, and being an extremely early and productive cropper, it is admirably suited for the early markets. In quality it has been found to be extremely good, and to be extremely free from the much-dreaded potato disease.—N. B. A.

Grasses and Forage Plants.

Orchard Grass.

This grass deserves to be better known and more generally cultivated. Its botanical name is *Dactylis glomerata*. In England, the common name given it is "rough cocks-foot," from the fancied resemblance of its flower-clusters to the foot of a barn-yard fowl. It is one of the most widely-diffused of all the pasture grasses, being found in every country of Europe, in Northern Africa, in Asia, and in America. It is said to have been introduced into England from Virginia, in 1764. Flourishing well, and proving itself of great value, it became a general favorite, especially among cattle-feeders, who found it exceedingly palatable and nutritious to all kinds of stock. At the present time it forms one of the staple grasses of English natural pastures, and being a perennial, is well suited to a system of agriculture which includes as an important element in it the laying down of permanent grass lands. With the intelligent British agriculturist seeding down is not as here a temporary expedient, but a piece of work done once in a generation or for a life-time.

The common practice in this country, of sowing timothy and clover together ought to be amended by substituting orchard grass for timothy. Timothy and clover spoil one another for a mowing crop, because they do not ripen at the same time. Either the clover must stand too long waiting for the timothy to blossom, or the timothy must be cut in an immature state. But orchard grass blooms with red clover, and makes an admirable mixture with it to cut in the blossom and cure for hay.

As a pasture grass, it is unsurpassed. It starts early, bears close cropping, and soon recovers itself, however bare it may have become by hard nipping. It requires to be fed close, to prevent its forming thick, coarse tufts, and likewise to keep it low, so that it will not go to seed. It is in its early and tender stage of growth that it is most relished by stock. Horses, cattle and sheep are fond of it, especially the latter.

Orchard grass is not considered exhaustive in its influence on the soil. It is certainly less so than either timothy or rye grass. It grows well in shady places, and would therefore be very suitable to sow in those marginal woods which, half or three-parts cleared, skirt the back fields of most farms, and are usually suffered to become jungles of underbrush and fallen timber. If sown in such places not too thickly, it would with the natural white clover carpet the ground, and form an excellent pasture-run out of what is generally nothing but lost space and waste ground.

Its habit of growth renders it unfit for lawn mowing. Only the finer grasses are suitable for this purpose. The seed of orchard grass weighs twelve pounds to the bushel. If sown alone, twenty-four pounds to the acre will be required to insure a good crop. It is not, however, desirable to sow it alone except for the purpose of raising a crop of seed.

With a view to promoting the more general cultivation of this excellent grass, we subjoin a few testimonials to its character and value, mostly from agriculturists whose experience of it has been gathered in a climate and under circumstances similar to our own.

The late Judge Buel, a very high authority, says:—"Orchard grass is one of the most abiding grasses we have. It is probably better adapted than any other to sow with clover and other seeds for permanent pasture or for hay, as it is fit to cut with clover and grows remarkably quick when cropped by cattle. Five or six days' growth in summer suffices to give a good bite. Its good properties consist in its early and rapid growth and its resistance of

drouth; but all agree that it should be closely cropped. Sheep will pass over every other grass to feed upon it. If suffered to grow long without being cropped it becomes coarse and harsh. I should prefer it to almost every other grass, and cows are very fond of it."

Mr. Sanders, a well known practical farmer and cattle-breeder of Kentucky, says of it:—"My observation and experience have induced me mainly to rely on orchard grass and red clover; indeed I now sow no other sort of grass seed. These grasses mixed make the best hay of all the grasses for this climate. It is nutritious and well adapted as food for stock. Orchard grass is ready for grazing in the spring ten or twelve days sooner than any other that affords a full bite. When grazed down and the stock turned off it will be ready for re-grazing in less than half the time required for Kentucky blue grass. It stands a severe drought better than any other grass, keeping green and growing when other sorts are dried up. In summer it will grow more in a day than blue grass will in a week."

Colonel Powell, a late eminent farmer of Pennsylvania, after growing it ten years, declares that "it produces more pasturage than any other grass he has seen in America. On being fed very close it has produced good pasture after remaining five days at rest. It is suited to all arable soils." The late Judge Peters, of Pennsylvania, who was at the head of agricultural improvement in that state for many years, preferred this to all other grasses. Mr. Geddes, the well known farmer of Onondago County, N. Y., gave his experience in raising orchard grass in the *N. Y. Tribune* about a year since, and spoke of it in the highest terms.

According to the analyses of twenty-three varieties, made by Prof. Way, Chemist of the Royal Agricultural Society, orchard grass exceeded all except two in albuminous or flesh-forming principles, and these two exceeded orchard grass only by a small fraction of one per cent.

In reference to growing orchard grass and clover together, F. R. Elliot says in the *Cleveland Herald*:—"We have yearly written upon the value of seeding land to these two grasses, and as the season of spring sowing of grass seeds is rapidly approaching, we feel like again calling attention to the subject. In 1850 we tried our hand with seeding an orchard of clayey loam down to orchard grass and clover. We used then one bushel of orchard grass and six quarts of clover. It was sown in March, and in September we cut at the rate of two tons of hay to the acre. The after-growth was left upon the land, and the next season our first crop was about two and a-half tons to the acre, cut in June, or as soon as the plants came into bloom. Our next cutting was the last of August, and then we left the aftermath. Touching this of aftermath, let us say the orchard grass springs up as rapidly after being cut as does the clover, and so it never leaves the land dry and barren, as does timothy, which we all know burns and dies out at least once in three years. It is gratifying for us to know the intelligence of farmers is reaching the fact that orchard grass is the only grass suited to seeding the land with clover."

White Seeded Early Rape.

The *Farmer* (Scottish) calls the attention of its readers to a new farm plant with the above name in the following editorial:—

"This was first noticed in our *Illustrated Farmers and Gardeners Almanack* for 1867, among other new agricultural plants, as follows: 'An excellent free-growing, early maturing, and prolific variety of the Rough-leaved Summer Rape, the seeds of which resemble those of the white mustard in color, and are consequently expected to yield a clearer and finer oil than any of the dark-colored sorts. When young, it produces a strong growth of foliage, and experiments are in progress for the purpose of ascertaining its hardiness, as well as its usefulness for late autumn

and early spring feeding, together with its other properties.'

These experiments having been conducted on a scale sufficiently large to warrant the introduction of this new forage plant to the farming community, Messrs. Roughhead and Park, the well known seed growers of Haddington, announce that they are now prepared to offer a limited quantity for sale.

We are in a position to inform our readers that this new forage plant is a Rubsen or Rough-leaved Rape, from the northern Chinese territory of Mandchuria or Manchouria, and differs from the other kinds hitherto known in Europe, not only in the whitish or light yellowish color of its seed, but also in the remarkably early and abundant production of these, as well as in its early and profuse growth when treated as a green crop.

Experiments which have been made in Scotland shew the severity of its native climate renders it capable of withstanding our coldest winters.

When sown in August or September it produces a thick growth of rough primary or root-leaves, which are succeeded on the first indication of returning spring by a rapid development of smooth stems and foliage, flowering in April, and ripening seeds in June. When sown in March, it passes quickly from the rough to the smooth-leaved stage of growth; flowers in July, and ripens in August. Grown in East Lothian, at an altitude of about 400 feet, on a poor, wet clay soil, in the very ungenial season of 1873, and sown on the 8th of April, it was harvested on the 15th of September.

A previous experiment, in ordinary garden soil, shewed that 6 feet of drill yielded fully 1 lb. of seed, equivalent to 33 cwt. or 70 bushels per acre. In December, 1873, 40 bushels of that year's spring-sown crop were crushed, and although the oil was somewhat imperfectly extracted, the results were:—

	Weight	Oil	Cake	Oil	Cake
Weight of 40 bushels at 23 lb.	920				
Oil	6 cwt. 1 qr. 1 lb.	18	3	26	
Cake	12 " 0 0			18	1 1

Shewing a loss in drying, &c., of only... 2 19

The ripened stems or haulm are so much tougher than those of either common rape or turnip, that they form good ropes for binding up the crop, and they have been found fully equal to oat straw for making into coarse paper.

These properties specially recommend the new White-seeded Early Rape for autumn, winter, and early spring feeding for sheep and cattle, as well as for spring and summer green manure, oil-seed, and rape cake."

CLOVER WITH HUNGARIAN GRASS.—James Davis asks if it will do to sow clover with Hungarian grass. No; we would not sow clover with it, nor with sowed corn. Clover should be sown with the earliest spring grain—oats, wheat or barley; or without any grain crop, which is often better. Or it may be sown in July. Hungarian grass should be sown on clean, well prepared land, from the 25th of May to the 15th of June.—*Ex.*

REDTOP.—In regard to redtop I wish to say a word. I believe it is the best hay we have in New England, and can be raised to the most profit of any variety of grass. But different from other plants, it should be sown thick, from two to four bushels, according to the richness of the soil. Unlike timothy or herdsgrass, it has but a small amount of roots from a given number of seeds. I do think that it need not cost the farmer more than fifty cents a bushel to raise his own redtop seed. There is a portion of land on many farms that will produce herdsgrass better than redtop. I refer to our muck meadows. These reclaimed will produce herdsgrass; but the dry portions should be used for redtop.—*Ex. Cor.*

PASTURING MEADOWS.—A correspondent of the *Vermont Farmer* writes: I do not believe in feeding meadows in the fall, (and no one does in the spring.) With mowers we can better afford to feed the second crop in the barn, where the manure can be better preserved, and where there will be no danger of the cattle feeding too close, pulling up the grass by the roots, or treading up the ground, which they are very apt to do, especially where it is newly seeded. I want to get my hay done so early that the second crop of clover will be in blossom, so I can get it cut before we have any severe frost, which is earlier than most men are ready to turn their stock in; that gives time for another crop to come up sufficient to protect the roots through our freezing winters. I top-dress to some extent.

Agricultural Implements.

New Turnip Lifter.

"It may be remembered," says the *North British Agriculturist*, "that one of the novelties in the Stirling show yard of the Highland Society in August last was a new turnip lifter exhibited on the large stand of Messrs Kemp, Murray, & Nicholson, Stirling, and invented by Mr. Ross, farmer, Whithaven, Easter Ross. Great curiosity was manifested on that occasion to see it at work, and within the last ten days many have had that opportunity. On Saturday week it was tried on Mr. Hugh Mann's farm of Broombank, near Nairn, in presence of a large number of farmers. The machine is so contrived as to both top and tail the turnips. It is described as having done its work well at Nairn. On Wednesday it was similarly tried on the farm of Brackens, near Turriff, Aberdeenshire. The implement is four feet and a half wide, and it takes two drills at a time, making a fair draught for a pair of horses. In presence of a considerable number of farmers at Turriff, the imperfections which we elsewhere ventured to predict in our notice of it at the Stirling show were realised. The topping was fairly done, but the tailing was not so satisfactorily accomplished. If the bulbs were about a uniform depth into the soil, we believe the machine would make good work, but that desideratum is difficult, if not impossible, to acquire. In the Stonehaven district of Kincardineshire a more successful trial was made with it on Friday. It is said to have done excellent work there, and we doubt not but the implement may be perfected into a useful article in the course of a little more experience of it."

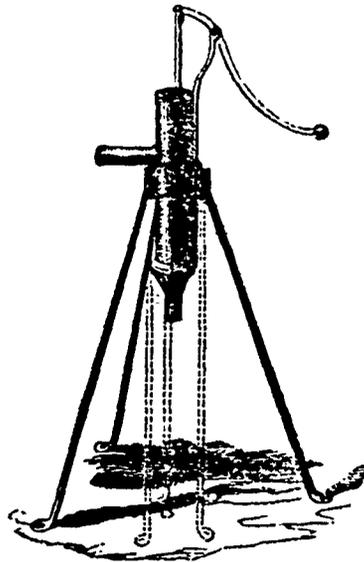
Manuring Appliances.

As we are fast approaching an epoch in the history of Canadian farming—when the question of manure is to receive that degree of importance to which it has always been entitled—we think it well, to-day, to give brief notices of the various appliances made use of in England and other countries for the proper preservation and distribution of that kind most common amongst us, and the kind also which, we are sorry to say, has been most neglected, viz., barnyard manure. As a general rule, our barn and stable contents, when cleaned out, are thrown in a heap upon what we call the dung pile, and there left to decompose, effervesce, or vanish, just as they will, under the influence of sun and rain, until we think the time has arrived for wheeling them out to the field. Then we take the heap away, load after load, with upon the whole, scrupulous care, never dreaming that during that time both wet and warmth have been leaching and scorching it alternately; it has lost one-half, perhaps three-fourths of its vital properties.

On entering a stable in the morning—we mean a well kept stable—you cannot fail to have experienced a sharp somewhat permeating smell; the same is noticed when digging down deeply into a pile of manure which has lain unmolested for some time. This smell or odor arises from an extremely volatile gas, ammonia, and it is this gas which lends to manure all its vitalizing and energizing effects. Now, we have said that this gas is exceedingly volatile; so it is, most wonderfully so; it is continually escaping and the freer access air, warmth and rain has to the heap, the more freely will this escape and loss take place. To preserve the vitality of manure, then, it must, or ought to be in the first place, kept under cover. This will prevent the influence of the sun's rays, and also keep it free from the leachings caused by rain. But, then something more must be done if the ammonia is to be preserved. What is it? Cover your manure over with layers of gypsum. In the manure ammonia is in the volatile form of a carbonate. As soon therefore as the gypsum comes in contact with it, chemical action begins; the carbonate is instantly changed into a sulphate, and in this latter state it may be retained. In other words, the gaseous ingredient is converted into a solid, and in that condition preserved to the manure. In England, the

system just described has been in vogue for years, because that country is just old enough in agricultural experience to appreciate the essential utility of not manure only, but good manure to the soil.

In cases where the manure must lie so exposed that more or less leaching takes place, i. e., when the heap cannot be kept under cover, still use the gypsum, and save your ammonia. The leachings also are most important, and for this purpose a large tank should be dug in a depressed part of the yard into which all drainages would find their way. It is very commonly the case that leachings contain the very marrow and pith of the solid material after evaporation has taken place, so that, in point of vitality, that which evaporates ranks first, leachings second, and the solid material third, or weakest of all. To preserve manure then properly, after you have cleaned your horse and cow stables each morning, and thrown the cleanings on the heap, if inside, i. e. under cover, heap on a few inches of earth mixed well with gypsum; the gypsum will, as we have said, convert carbonates into sulphates, and the earth will absorb all leachings which would otherwise escape. Again, if outside, have your pile so that the leachings may all



run into your tank and be preserved there, and at the same time never for get the gypsum and earthy application to the heap. In coming to use the manure thus preserved, it will be found doubly strong and efficacious. The leachings also may be readily pumped up by means of an implement such as that here illustrated, viz.: the Portable Liquid Manure Pump, which is very common in England. It is a 1½ inch galvanized iron pump for filling manure carts. The valve is so arranged as to admit of dirt, &c., passing through without injury to the pump. The legs also fold up for convenience in carrying—one man carrying it easily on his shoulder to any tank or pond. By merely lengthening the pipe the pump may be raised also or lowered, to suit the height of the barrel to be filled.

For pulverized manures, which are indispensable in producing good root crops, there is another excellent implement in England, and we understand, now introduced into this country, known as a One-horse Turnip and Manure Drill. It comprises in a simple form most of the important features of the more expensive article which we illustrated in the *FARMER* last year. Its manure coulters are fixed to a swing beam, while those for seed are attached to levers, to admit of the manure being buried to any depth in the soil, and the seed to be deposited directly over it, with a portion of mould between them for which forks are provided. It is calculated for two rows from 20 to 24 inches apart, and three rows of 15 inches apart, or any other spaces that may be speci-

fied with any order; and the quantities may be delivered as required, say for turnips, 1 to 6 lbs. to the acre, and beet seed, 3 to 8 lbs. per acre. The manure also may be regulated as required, from 2 to 12 bushels or more per acre. This drill can be easily drawn by a pony, and being only 3 feet 8 inches high, 4 feet wide, and weighing only 3 cwt., will be found very convenient and easy of management.

Another style of machine for similar use as the one mentioned is adapted for two coulters, and intended for ridge-ploughed lands. It is fitted with the improved slides to regulate the quantity of manure, placed directly under the management of the attendant who follows the drill, and may be altered while the implement is proceeding in its work, admitting larger or smaller quantities as may be required on hilly lands, or various qualities of soil. In order to accommodate the drill to irregular ploughed ridges, a pair of concave rollers are placed between the manure and seed coulters (which may be raised out of work at the ends of the field) so as to form and press the land properly for the deposit of the manure and seed. An improvement has been lately introduced whereby the necessity of the steering is obviated; the seed coulters being affixed to the concave rollers, and always retaining their position in the centre of their track. The rollers may also be elevated or depressed at pleasure, to act with greater or less weight as the nature of the soil may require, and may be varied in width from 24 to 30 inches.

An implement of great popularity in the old country is known as "Chamber's Patent Broadcast Manure Distributor." The machine is constructed upon an entirely new principle, and consists of a barrel or cylinder formed of a series of rings, each having projecting surfaces (for the delivery of either highly comminuted or rough manure) which come in contact with scrapers placed beneath the box, the pressure of which on the barrel is regulated by movable weights to the greatest nicety, according to the adhesiveness of the manure used. It is also fitted with a novel and excellent stirrer, which never fails to give a constant and regular delivery from the box to the barrel, however moist the contents of the box may be. It will sow from two bushels to any quantity required; and it is so easily adjusted by the slide, that even when at work the quantity can be varied according to the quality of the soil, to deposit more or less as required, and without the change of wheels. To all agriculturists using artificial manures this is recommended as a most efficient machine, and one that is daily being more needed, from the now well assured conviction that manures never act so efficiently as when thoroughly incorporated with the soil.

Loading Logs on Wheels.

An easy and safe method to load logs is to place the hind wheels opposite a point in the log, one-third its length from the butt end, so that the axle will be parallel with the log and ten or twelve feet from it; then let a strong skid run from the axle to the log, give a chain a turn or two around the log, so that by attaching the team the log may be rolled up the skid high enough for the fore wheels to be backed under, and chain in the ordinary manner. The log should be secured while on the skid by scotching with an axe. The fore wheels once loaded, of course the hind ones will easily swing the log.

Another good plan with such logs is to place the fore-wheels opposite the log where you desire it to be loaded, take off one wheel and push the end of the axle (as much as possible) under the log, then give a chain about one and a half turns around log, attach team by a chain running between spokes of other wheel and roll log up the axle. Be careful to stop the team as soon as the log reaches the middle of axle, as a slight pull beyond might upset the whole thing. The weight of the log where it is rolled up the axle will cause the axle to assume a horizontal position, when the wheel can be easily put on. There are many modes of loading heavy logs, but these two are simple, and are the easiest on the wheels of any with which I am acquainted.—*Practical Farmer*.

Horticulture.

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

THE ORCHARD

The Ribston Pippin.

ESQUUSING, Feb. 23, 1874.

MR. EDITOR:—Some time ago I read in the agricultural columns of the *Globe* that the Ribston Pippin apple was one you would advise those intending to plant orchards to plant largely of. Now, it is my intention to plant out an orchard this spring; and speaking to a nursery agent about this variety, found that it was not named in his catalogue. He also said he would not advise me to plant of this variety. Your columns also said it was a variety much sought after by buyers for shipping to England, and that it was the favorite in that market. Now, Mr. Editor which of the two statements is correct? Please answer these queries in your next issue, and oblige,

Yours truly,

A SUBSCRIBER.

[We take much pleasure in assuring our esteemed correspondent that all that has been said in the CANADA FARMER concerning the Ribston Pippin is perfectly trustworthy. It is an apple of fine appearance, good size and excellent quality, and admirably suited to our Canadian climate, where the fruit is of the finest quality, much finer than when grown in the warmer climate of the middle or southern part of the State of New York. Downing who is the great American authority on fruits, at page 333, says: "The Ribston Pippin stands as high in Great Britain as the Bank of England, and to say that an apple has a Ribston flavor is there the highest praise that can be bestowed. In Maine and part of Canada it is very fine and productive."

Having such a reputation in Great Britain, it is very natural that shippers of fruit should seek after it; and we know that fine samples sent from Canada have commanded the very highest price. We have therefore no hesitation in advising those who reside in favorable localities for growing this variety to plant it largely for the British market, being confident that when properly grown and properly handled and marketed, it is one of the most profitable sorts that can be grown. And the climate where our correspondent resides is more favorable for the full development and easy marketing of this variety than the otherwise favored climate of the county of Lincoln.

Turning to *Beadle's Canadian Gardener*, we find this apple spoken of in that work in the following terms: "This is truly a splendid apple with us, and though our cousins over the border do not esteem it as highly as they do the Baldwin, Swaar, and some others, yet in our climate it is one of the very best. The tree is sufficiently hardy to thrive throughout a large part of the Dominion, though it is not able to endure a climate like that of the Ottawa district in Ontario. It flourishes in the apple regions of Nova Scotia and New Brunswick, where it maintains fully its high character. This apple commands a ready sale at the very highest prices in the markets of Great Britain, and might be advantageously and profitably planted in considerable quantities by the orchardist, who will carefully gather the fruit early in October, sort it properly, and ship it at once by steamer to the transatlantic markets, where its reputation is fully equal to that of the famous Green Newtown Pippin."

That the catalogue of the tree-peddler did not contain the name of this variety only serves to show that if it was that of a Canadian nurseryman, he did not understand his business; if that of an American, it proves that he does not understand the

wants of Canadians, and does not grow trees with reference to their interests. That the agent should try to dissuade our correspondent from planting this variety is very natural; it is his business to sell trees; the only wonder is that he did not quietly book the order for five hundred trees of the Ribston Pippin, and then bring Baldwins or Greenings, with a label reading Ribston Pippin fastened to them. Tree-peddlers, as a class, are so unworthy of confidence, having no reputation at stake and never expecting or intending to have any, that no reliance can be placed on their advice or representations. Their tricks have been so often exposed, and tree buyers so frequently advised that they should deal only with respectable nurserymen, of whom we have a number of most honorable names, that when we hear of one and another being victimized by their artifices, we are strongly reminded of the verdict of the California jury in a murder case, "Served him right."]

Root-Pruning Fruit Trees

If the seasons were always so favorable for fruit growing as to enable us to secure a fair crop of fruit annually, and if the soil in all gardens was tolerably drained and of a character suitable for that culture, there would be less necessity for any anxiety about the roots. But, unfortunately, a really favorable spring for fruit culture is the exception not the rule, and trees that are only partially cropped have a tendency, in spite of careful summer management, to run into undue luxuriance of growth, inducing a corresponding root action, which still further aggravates the evil. I repeat, if rampant growth could be retarded and kept within due limits by an annual crop of fruit, there would be less necessity for root-pruning. But as that much-desired consummation is not likely to be achieved, as regards our out-door fruits, till March, April and May, we must, in most soils, in the case of all restricted trees, keep an eye upon the underground growth as well as upon what is visible above. In other words, when trees occupy positions where their branch growth must necessarily be restricted in order to keep them within the prescribed limits, some restrictions must be placed upon the roots also, to maintain the balance of power and induce continual fertility. The autumn is the proper time to operate upon the roots of all trees that are unfruitful through over-luxuriance; but no man, however large his experience, can lay down rules to suit all cases. I have, however, always found it a good plan when root-pruning large trees of fifteen, twenty, or more years' growth, to open a trench from three feet to four feet from the trunk, only halving round the tree at one time, leaving the remainder to be done a year or two after the result of the operation had manifested itself. In the case of old trees, it is a decided advantage to remove all the exhausted soil taken out of the trenches and from among the roots, and fill in with fresh soil, either from a heap specially prepared for the purpose, or, if this cannot be done, then exchange it with soil from the vegetable quarters that have not been exhausted by fruit trees. This, of course, involves rather more labor, but it will have a far more decided and lasting effect, and it is far more profitable in the long run to do a thing well, even if it should be necessary to incur a little expense at the time, than to half-do anything. In the case of all trees of a manageable size, (say under ten years old), I prefer taking up the trees carefully and replanting, at the same time laying the roots out straight without any severe pruning, merely shortening back long naked roots, and carefully smoothing all wounds, working in also a little fresh loam to encourage the production of fibres close at home. This is the best plan to adopt with young trees that are late in coming into bearing, and it will be crowned with success invariably.—*N. Y. Times*.

Wash for Fruit Trees.

The following is a wash used by William Saunders, of the Government Gardens at Washington:—Put half a bushel of lime and four pounds of powdered sulphur in a tight barrel, slacking the lime with hot water, the mouth of the barrel being covered with a cloth; this is reduced to the consistency of ordinary whitewash, and, at the time of application, half an ounce of carbolic acid is added to each gallon of the liquid. Mr. Saunders says:—"I generally apply it in the spring, before the leaves make their appearance, but I am convinced that it would be more effective if applied later, but then it is difficult to do so when the tree is in foliage." Mr. Saunders applies the wash not only to the stem of the tree, but, to some extent, to the main branches.

Undeveloped Fruits in America.

I have been much surprised that more efforts have not been made to improve our native fruits. I have occasionally met with Persimmons so exquisite in taste as to surpass the finest dates. Such Persimmons have few seeds, they become when fully ripe quite sugary and so dry that they may be carried any distance without being mashed, while those commonly seen in the market are astringent, full of seeds, and so soft that they require a spoon for handling. Our Papaws differ greatly in character, some being quite large and luscious. It may be that they are not brought into cultivation because they commonly grow in swampy ground, and it may not be generally known that the trees succeed perfectly well on upland. That our wild plums are not more cultivated is mainly attributable to the ravages of the curculio, which will scarcely allow a plum to ripen.

I have seen American chestnuts as large as the generality of Spanish chestnuts, and when they are so they will bring as high a price, and they are in fact worth more, as uncooked they are very superior to the Spanish, and I would recommend that the improvement should be effected by means of grafts rather than from seed, as the result would be less doubtful. Chestnuts grow well from grafts, making a growth of three or four feet the first season.

I have no doubt experienced nurserymen would succeed in grafting the hickory. My few attempts have failed, but if the finest shell-barks could be grafted on the common hickory it would prove very advantageous, especially when it is considered that ground too rocky or too swampy for cultivation, is perfectly satisfactory to these trees. It has been a matter of astonishment to me that another native fruit has not been more extensively cultivated—the service berry, or June berry *Amelanchier botryppum*. The fruit is delicious. It ripens when other fruits are not plentiful, and sells readily when taken to the Philadelphia market. Few persons are acquainted with it, for the trees do not bear well unless where they are cultivated. Though plentiful in the woods, the trees bear few berries of small size, and these are claimed by the birds as soon as they ripen.—*Rural Home*.

Liquid Grafting Wax.

Mr. L'Homme-Lefort invented, not many years ago, a grafting composition, which is very cheap, very easily prepared, and keeps, corked up in a bottle with a tolerably wide mouth, at least six months unaltered. It is laid on in as thin a coat as possible, by means of a flat piece of wood. Within a few days it will be as hard as a stone. It is not affected by severe cold; it never softens or cracks when exposed to atmospheric action. When applied to wounds in trees, it acts as an artificial cuticle. After a few days' exposure to the atmosphere in a thin coat, it assumes a whitish color, and becomes as hard as stone, being impervious to water and air. As long as the inventor kept the preparation secret it was sold at very high prices.

It is made after the following formula:—Melt one pound of common rosin over a gentle fire; add to it an ounce of beef tallow and stir it well. Take it from the fire, let it cool down a little, and then mix with it a tablespoonful of spirits turpentine; and after that about seven ounces of very strong alcohol (95 per cent.), to be had at any druggist's store. The alcohol cools it down so rapidly that it will be necessary to put it again on the fire, stirring it constantly. Still the utmost care must be exercised to prevent the alcohol from getting inflamed. To avoid it, the best way is to remove the vessel from the fire when the lump that may have been formed commences melting again. This must be continued till the whole is a homogeneous mass similar to honey.

This is undoubtedly a valuable recipe. I have found that gum shellac, dissolved in alcohol, was one of the most useful preparations that a gardener could have, and it should always be kept on hand and used like paint to coat over any wounds in trees. In budding, it is a great saving of labor, when you wish to cut away branches; to give the new one from the bud an opportunity to grow, as it excludes the air until the wound heals.—*Tribune*.

The best way to get rid of ants that we know of is to trap them with a sponge. Procure a large sponge, wash it well and press it dry, which will leave the cells quite open; then sprinkle over and into it as much as possible some fine white sugar, and place it where the ants do congregate. They will soon collect upon the sponge and enter into its cells, and then you can cut short their career by dipping the sponge into boiling water.—*Mobile Register*.

THE FRUIT GARDEN.

Keeping Grapes Until Mid-Summer.

We received recently a sample of grapes from A. M. Ross, Esq., of Goderich, which were in such an excellent state of preservation, that we requested him to give his method for the benefit of the numerous readers of the CANADA FARMER. Our request was immediately complied with, and we have the great pleasure of publishing Mr Ross's letter, and suggest that so simple and apparently efficient mode of preserving grapes in fine caving condition is well worth a trial by all of our readers who like grapes, and can refrain from consuming all they have as fast as they ripen.

(To the Editor of the CANADA FARMER.)

SIR—You ask for an account of my method of preserving out-door grapes, a sample of which I sent you. The method is very simple. The bunches, from which all bruised berries are carefully picked, are placed in shallow boxes of wood about four inches deep, and over these is sifted fine dry sand, until all the grapes are covered. The boxes are then placed in a cool dry cellar until wanted for use, when the bunches are taken gently out of the sand and rinsed in cold water to take off any sand that may adhere to them.

I had for some years used sand for keeping apples and pears, and thought that it might do equally well for grapes, and have succeeded far beyond my expectations. I had last year grapes for sale when taken off the vine on 2nd May, and expect this year to have them in June. Varieties having thick skins keep best. All of Rogers' do well; that is, all that I have grown, viz Nos. 1, 3, 4, 15, and 19. Iona also keeps well. Concord does not—it parts too readily from the stalk.

By this process, I have fresh native grapes on the table for eight months in the year, which is pretty well for what has heretofore been considered one of our most perishable fruits.

Yours truly,

A. M. Ross.

Goderich, April 9th, 1874.

Entomology and Fruit Growers.

A thorough knowledge of the insect world is of great importance to the successful fruit grower. The thousands of dollars worth of the product of the orchard destroyed annually by the numerous species of insects tells too plainly the need of more attention in this direction. Every product of the practical pomologist seems to have one or more of these small though powerful enemies ever ready to destroy as fast as man or nature can build up, and the future looks no brighter than the present. As man goes on peopling certain species of the vegetable world at the expense of others, just so rapidly will the pests of those cherished members multiply and encroach upon the rights of men.

A city is filled with a destroying insect to the great annoyance and discomfort of its inhabitants. They are caught and destroyed in all ways possible, but the next season are as numerous and active as ever. An entomologist is consulted; the low, filthy swamp in the suburbs is filled up, and the trouble is at an end.

It is knowledge that must tell us when to strike at the root of the evil, and through ignorance we fail by making costly and dangerous mistakes. The time and place of propagation, when and where they go through their changes, the means by which they produce their destructive influence, and a thousand other important points, must be understood before these pests can be systematically and successfully checked.

New insects are sweeping through every year, and it is only a general knowledge of the insect world that will enable the horticulturist to meet them while weak in numbers. Bugs may be dirty, disagreeable objects, and not pleasant to study, but we know how they can frustrate the plans of the most sanguine, and overturn in a single week the work of years or a lifetime.

The horticulturist most certainly cannot forego a thorough knowledge of the science of entomology. The insects that are our friends we must know as well as those that do us the greatest injury, and only when the latter are driven from our orchards will the product of the fruit grower be of the most perfect order in utility and beauty.—*Cor. Western Farmer.*

Transplanting old Vines.

A correspondent of the *Western Rural* asks whether it would insure a crop sooner to remove vines six years old that have been bearing for three years, or take cuttings that will be two years old in the spring.

The *Rural* replies, "By all means plant the two year old vines from cuttings. They will fruit as quickly as the larger old roots unless very great care is taken in digging and packing the latter. Even then, after the first crop the young vines will be altogether the best."

This is very sensible advice. Our fruit-loving friends in their haste to gather fruit from their own vine and fig tree often make the great mistake of planting old vines or old trees, thinking they will the sooner get fruit. In nine cases out of ten thrifty young plants, or vines or trees will bear fruit sooner, bear more fruit and live longer to bear fruit, than old transplanted trees.

The Nutmeg.

This spice, so much used in every family, is indigenous to the Moluccas, reaching its greatest perfection in Amboyna. This island belongs to the Dutch, who do not permit the cultivation of the nutmeg in the other islands under their control. The nutmeg tree is 25 or 30 feet high when fully grown, with foliage of a rich dark green, and very plentiful. It reaches maturity, or full productiveness, at the fifteenth year from planting. From the blossom to the ripening of the fruit takes about seven months; but, as the tree is a perennial bearer, there are always blossoms, green fruit and ripe on the tree. The yield is most plentiful in the last four months of the year. The average yield per annum of a healthy tree is 5 lbs. of nutmegs and 1½ lbs. of mace. A plantation of one thousand trees requires the labours of seven coolies, fifty oxen, and two ploughs, for cultivation and harvesting. The fruit is gathered by means of a hook attached to a long pole. It is shaped like a pear, about the size of a peach, and has a delicate "bloom." The nut has three coverings; the outside one is a thick fleshy husk, having a strong flavor of nutmeg. This husk, preserved in syrup when young, is a favorite sweetmeat in the East Indies. Under this husk is the bright red mace, which is carefully flattened by hand and dried on mats in the sun. It loses its rich scarlet, and becomes a dull orange color, and requires to be kept perfectly dry to preserve its flavor. After the mace is removed from the fruit, the nuts in their brown shells are placed on hurdles over a slow fire, which is kept constantly burning under them for two months. The nuts then rattle in the shells, which are cracked with a wooden mallet, the sound nuts selected and packed in wooden cases, and sprinkled over with dry sifted lime, and are then ready for market. The best nutmegs are dense, emit oil when pricked with a pin, and can always be known by their heavy weight. Poor ones are light and easily detected.—*The Garden.*

Hardy Fruits.

The Minnesota Horticultural Society does not venture to recommend a very large list of fruits for cultivation in that rigorous climate. According to the *Farmer's Union*, the following species and varieties were recommended:

Apples—Duchess of Oldenburg, Tetofski, Wealthy, Stewart's Sweet.

For Favorable Localities.—Hass, Plumb's Cider, Fameuse, Walbridge, St. Lawrence, Saxton or Fall Strip.

Rejected—Red Astrachan, Perry Russet, Golden Russet, Pewaukee.

Plums.—Only wild varieties.

Cherries.—Hartz Mountain (a German variety); for trial Leib, Early Richmond grafted on Morello stock.

Grapes.—Delaware, Concord, Creveling, Martha, Salem; for amateurs, Croton, Rogers No. 15, Rogers No. 4.

Currants.—Red Dutch, White Grape, Victoria, Black Naples.

Blackberries.—None recommended.

Raspberries.—Seneca, Doolittle, Philadelphia.

Strauberrries—Wilson's Albany; for amateurs, Green Prolific, Downer's Prolific, Michigan Seedling, Charles Downing.

Cultivation of the Quince.

A. L. Loveland writes the *Germania Telegraph* as follows about the cultivation of the quince:—

Of late years much interest has been developed in the cultivation of this fruit. The increasing demand in the market; the enhanced value, it having doubled in price during the last fifteen years, now commanding four dollars per bushel in the garden, its invaluable qualities, both as a delicacy of the table and a necessity in popular consumption; all conspire to make its successful cultivation a business of great profit. Some experiments in growing the quince as a farm crop, where the ground has been richly cultivated, with the trees six to eight feet apart, have realized several thousand dollars an acre—one instance reported in New Jersey going as high as \$10,000. In all such instances, however, we are to take into the account the long years of preparation and growth before the trees will bear, and also the continual failure of the trees themselves from the destructive action of the borer. When grown in this manner, some root crop may be cultivated between the trees, which will, in part at least, pay for the labor bestowed upon the orchard.

But the cheapest and most successful orchard I have seen grown, and one that is annually loaded with fruit, is located at the south-east of a hill where the soil is moist with small springs, and rich and soft with the wash and leaves that come as a mulch to the land. There is no labor bestowed after planting, the ground is left like an apple orchard to itself; but then every autumn the proprietor gathers three-quarters of a bushel of the best quinces to a single bunch, and sells the same for three dollars a bunch at his house. One hundred such clumps is three hundred dollars every year.

Downing Gooseberry.

I was glad to see the high commendation you gave the Downing's Seedling Gooseberries. I have found it a valuable variety—quite as productive and free from mildew as the Houghton. The berries are large, and being what is called white, are more attractive—flavor good.

The Houghton is a hardy variety, but I think the Downing is more so. A year ago last winter we had very little snow in this vicinity, but very cold weather, and the frost penetrated very deep into the ground. Our Houghton and Downing's Gooseberries grow in rows, side by side, having the same exposure—both had been nicely trimmed in the fall. The next summer the Downing's bore a fine crop of fruit, and made a good growth of wood, while the Houghton bore very little fruit (which is an exception with that variety), and the new wood was weak and spindling. However, such winters are rare, and both varieties are good.—*Cor. Fruit Recorder.*

Salem Grape.

I wish to give my verdict in favor of the Salem grape.

I was pleased to see that several, whose opinions are authority in such matters, wrote very favorably of it in some of our horticultural journals last fall, because in this very manner many are induced to plant really excellent varieties of fruit who would not otherwise know of their value. Out of twenty-two varieties grapes I have growing in my garden, I like the Salem best. It is every way desirable, in habit of growth, size and form of bush, size of berries, beautiful color, and delicious flavor. It is also free from mildew, and sufficiently hardy. I think, to be at all certain of good crops of fruit in this locality, all grape vines should be laid down and covered, for which purpose I like sods better than any material I have used, especially for those parts of the vines which from their firmness require something heavy to keep them in place.

Grapes ripened more perfectly in this locality the past summer than for several years previous, and I think much more highly of some varieties than I have heretofore, especially the Isabella and Adirondack. I have had Isabellas ripen handsomely other seasons, but have considered them poor as to flavor. This past summer they were so much better that I am convinced it is not best to condemn too hastily. I have always liked the Adirondack, but that, as well as the Isabella, was so decidedly good this year, that if I could have but few vines I should wish to number those among them.—*Cor. Fruit Recorder.*

THE VEGETABLE GARDEN.

Treatment of Farm-Yard Manure for Gardens.

Few subjects are of more importance to the gardener, or have led to the expression of more opposing views from different writers, both practical and scientific. One class recommend vehemently that manure should be thoroughly rotted in the yard before putting it out on the land, and support their position by arguing that manure is not food for the plant until it is decomposed; also that, when manure is rotted, it requires less labor to haul and spread it, in consequence of the great diminution in its bulk. This latter argument can only count on the supposition that, although the bulk be so greatly diminished, the virtue of the manure all remains, which is most certainly a mistake. Another party advocates putting out the manure while quite fresh or "green," and immediately spreading it on the land. Advocates of both measures point triumphantly to results as conclusive evidence that they are right. It is not to be denied, of course, that a marked effect will follow either course alluded to, especially if sufficient manure be applied; and yet both of these plans are greatly wrong, though partly right. It is quite true that manure is not food for the plant until it is decomposed or "rotted." But the fatal objection to rotting in the yard is that, by so doing, we lose say one-half of a valuable commodity. On the other hand, it is true that putting out green manure puts all the constituent elements on the land; yet the following grave objections exist against the plan:—1. It does not increase the manure; 2. It does not improve the quality; 3. It seeds the land with weeds; 4. It does not save labor or time, and may cut the ground up objectionably. But, can a process be suggested which possesses all these advantages without the drawbacks? Yes, I am confident that the following process will meet all objections, and will also increase the bulk of manure; will improve the quality; will kill the weed seeds, without increasing the labor; and will throw much of that work into seasons of the year which are not so precious as that in which yards are usually emptied. The process is as follows:—On the ground where it is desired to have the manure, select an elevated position, and with the aid of the pickaxe and shovel, make a long, shallow trench, say 6 or 7 inches deep, and 2 or 3 feet wide; throw the earth out on the upper side of the trench. This trench may be made at any time, but one must always be prepared just before winter, say in the early part of November. Next, in cleaning the stables, always shovel immediately into the cart or wagon and haul at once to the trench, where it may be dropped in a manner most convenient for covering. Then cover the manure as soon as possible with earth taken from either side of the trench, until the manure is covered with twice its bulk of earth. The drier the earth and the more pulverized the better. Let the earth cover all the manure as effectually as possible, to arrest the gases arising from the decomposing manure. In this state it may stand as long as desired without loss, if the weeds are not allowed to grow on top of it. A month before using it should be examined, and if not thoroughly rotted, the heap should be lightened up and stirred, to admit air and moisture. When ready for use, the manure has almost disappeared, and the earth having absorbed all the gases evolved in the act of decomposition, has become manure. But, inasmuch as we doubled the bulk of earth to the manure, we have twice as much manure as we had, and moreover we have two loads on the high part of the ground for the hauling of one, thus lessening greatly the labor of drawing to the garden. Hence it follows that this process pays best where you have to haul farthest and highest; the spreading, being downhill, is easier.

The main principle of this process is the well known quality which earth possesses of "fixing" gases. The earth retains these gases, which are the vital fertilizing properties, until the plant root comes in contact with it. This fertilizing earth is very durable, as "nothing is lost," indeed, its effects have been plainly visible on the spot where it had been spread years and years before. By this process I conceive that every possible objection in the treatment of manure is obviated, every leak stopped, and every advantage gained. When the compost is thoroughly "cooked" or rotted, the weed seeds must be killed, and the manure is fit food for the plant. It is a manure fit for any or all crops. For digging under and top-dressing, we have the high authority of the late Prof. Johnston for saying, that when a compost is made of more than one constituent, the mass is equal or superior to its best part. From this it would follow that the whole of the compost heap is at least as good as the best ingredient which came out of the stable, and that the quality of the whole is improved.—*Cultivator*.

Planting Horse-Radish.

If we look through our markets and see the chunky stuff sold for horse-radish, it is clear that not one in a hundred know how to grow it. Horse radish well-grown is as profitable as any garden crop, but we think there is not much profit in the scrubby stuff referred to.

To have good horse-radish, a rather heavy soil should be chosen, but by no means wet, though one which gardeners would call damp and cool will be by no means objected to. It cannot very well be made too rich, and if even trenching the ground is to find favor it will surely be in favor with this crop. Most of our readers know what gardeners call trenching; if not, the more agricultural term of sub-soiling will give a good idea.

Now the object in raising good horse radish is to have long, clean, straight roots, and good culture is to get these. In raising horse-radish, every piece of the root which has a little of the crown grows. Generally pieces an inch or so long are set just beneath the soil, and one or more buds start up to make crowns with leaves, and others go down to make a root or roots. These are then forked or twisted and give the wretched roots we see. The proper way is to make holes with a dibble, post-spade or crowbar, so as to let the small pieces which are to make plants go down a foot or more. Then fill in the holes and wait. The result is that in a couple of months a sprout will start upwards to the surface, and this sprout in time becomes the straight, clean root we have spoken about. The second season after planting they will be in marketable condition, and should be all taken up and marketed that season and a new plantation made in like manner on the same ground. From the pieces left in the ground by the digging of the old roots many will come up, and these are generally relied on to form the succeeding crop; but these sprouts should be hoed off as they come and be regarded as nothing but weeds, which everything that comes up where it is not wanted is.

In setting out the rows must be made about eighteen or twenty inches apart, and the pieces to form roots be planted about four or six inches apart. The distance, however, between the rows is to be regulated by the method of culture. Where the plough is used to clear out between the rows, they must be wider than when grown as a garden crop. The richness of the ground will also regulate the distance to put the sets apart. The richer the ground the closer the sets may be put.

If these simple hints are followed, one need never be without a good relish for fish, roast beef, or any of the multitudinous dishes where a little pungency is not to be despised.—*German town Telegraph*.

Cabbage Culture.

The Premium Flat Dutch, when true to name, is one of the most reliable kinds of cabbage for field culture. Sow the seed in rich garden soil, in rows twelve inches apart, about the first of May. Seed sown at this date will give sizeable plants by the middle of June. They may be set out at any time from then until the first week in July, at distances 2½ feet between, and 2 feet apart in the rows. Like onions, cabbage can only be made to pay when grown on strong, deep and rich ground. Sixty to seventy two-horse loads of barn-yard manure to the acre is none too much for cabbages. Five acres of this crop or of onions are, however, by far too much for a beginner to undertake. It would be much better policy to start with say half an acre of each the first year, and learn the details of the business from experience. It seldom turns out otherwise than in loss and disappointment, when so much is attempted on the start by inexperienced persons. Heavy losses the first year always dishearten the novice.—*New York Tribune*.

To Grow Large Melons.

When a melon gets as large as a cucumber take a sewing needle and pass a yarn thread (perhaps several threads twisted together will be best) through the stem of the melon, so that the end of the thread will come near the top of the stem. Now place the lower portion of the thread in a bottle and fill with water. The melon will soon drink up the water, when more should be added. It is said that they will thus consume a quart or more per day, and will eventually grow to an enormous size. They will not, however, possess the sweetness of those grown in the natural way.

I have never tested the foregoing, but my source of information is such that I place full reliance in the plan. Perhaps by sweetening the water and adding some spices, any desired flavor could be imparted. Who will test the matter by experiment?—*Bryan Tyson*.

Raising Tomato Plants.

BY J. B. ROOT, ROCKFORD, ILL.

Late in February we make our first sowing, and repeat it every week or ten days to keep up a succession and provide against accidents. For this purpose use light boxes filled nearly full of compost which can be easily lifted in and out. The cheapest are second-hand boxes from grocery stores, which can be split after the cover is nailed on and made into two. At this season of the year the bed must be a deep one, with abundance of heat, and the plants will then put in an early appearance, and should remain in the same boxes until they touch each other between the rows if the rows are an inch apart. They are then transplanted into other boxes an inch apart each way. Cases in which oysters in the can have been shipped, split into two, are cheap and very convenient, and thirteen usually fit neatly into a frame 12 by 5½. Here they are allowed to remain until they again touch and crowd.

For their next receptacle we provide quart oyster cans cut into two. This makes of each can two neat, stout tin boxes three inches deep, two wide, and three long; and these are convenient for so many uses in plant growing, that it may be worth while to describe how they are easiest cut and fitted for use. To hold them while being cut, make and screw to the work bench a stout frame or box just large enough to hold a can on its broadside, together with a wedge to tighten it. Saw-cuts directly opposite each other should be made in the box. Placing a short stiff-backed saw in these cuts, a few quick strokes answer to cut the can in two. Of course the saw dulls quickly, but cuts well even if dull, and can be quickly touched up with a file and kept sharp enough. Fitting each half-can over a piece of hard wood of the right size, two or three quick strokes serve to make holes an inch square in the bottoms, if they have not already been made. The jagged edges are then hammered smooth, and a pine chip covering the entire bottom, and yet not fitting tightly, is put in. This serves a double purpose; it secures drainage, without which a plant will not flourish, and also serves as a means to remove the plant undisturbed from the can when wanted.

Into these half cans filled with rich compost the plants are then removed with as much dirt as can be easily lifted with them. If the cans are then allowed to stand a few minutes in an inch of water, and the bed for a day or two is protected with lath screens, the plant scarcely stops growth, and soon fills the can with a perfect mass of roots.

When ready for sale they are placed for a couple of days several inches apart on boards in some place where the air circulates freely, and are thus hardened.

In these cans, if occasionally watered, they receive no injury if exposed for sale on the stands for days together. Carried into the garden they can be set out undisturbed, and without injury to the can, by giving a steady pressure against the chip from below, by which the plant, roots, and soil altogether are taken out undisturbed. One hardly realizes how nicely this is done until he has tried it.—*American Agriculturist*.

STICKING PEAS.—A correspondent of the *London Field* makes a suggestion as to sticking peas, which is worthy of trial. He thinks that "to those who have to procure stakes at a great cost, the following method will prove advantageous, being very cheap, simple, and easily performed. A few rough stakes should be obtained and driven into the ground on each side of the row about twelve feet apart. These stakes should be of a corresponding height to that of the peas, and when the required number for a line is inserted, some tar twine or other strong cord may be tied to the end stake, and passed along the line of stakes, making a turn on each within a few inches of the ground, and as growth progresses, raise the next turn a little higher, advancing in succession, until the plants attain their full height. These lines being run on at the right time, the tendrils of the peas will clasp firmly round them and support the plants quite equal to the well-known plan of sticking. Some imagine an advantage to be obtained in this way of training, as the lines get a better circulation of air, and pods can be gathered at all times without injuring the haulm."

The fondness of John Bull for cucumbers is something remarkable, and he has carried the cultivation of the vegetable to a high degree of perfection. Fruit of enormous size is produced, some varieties being from three to four feet in length. An "eminent cucumber grower" last year raised 107 cucumbers of the "Duke of Edinburgh" variety, the aggregate length of which was 25½ feet, or an average of 32 inches each. The longest specimen measured 40 inches.

The Dairy.

Choice Table Butter.

By the Hon. Clark King.

(Read before the Agricultural Meeting at Waterford, Vt.)

In order to make a choice tub of butter, at all times see that your cows are provided with the best kind of food for that purpose. In summer when your cows are at the pasture, let them have the best pasture you can provide. As a rule, a dry pasture which lies high and rolling produces the best grasses for butter making; it makes a yellow, fine-grained, sweet tub of butter, while a low, swampy pasture, full of foul grass and bushes, makes a much poorer grade. Such pastures are not fit for the dairy. A moist pasture, if not too wet, may produce a good quality of grass, and in such pastures good butter can be made; but my experience, after dealing in butter some ten years and manufacturing butter during this time, has taught me that a dry pasture, producing sweet qualities of grass, is the kind for dairying. At this season of the year, when the cows are stabled, and during the spring, when the cows are giving milk, give them the very best quality of early cut hay, and a fair amount of meal, each day. Corn meal is the best, and any green fodder or roots which are of good flavor will also be good to feed them when giving milk.

Give your cows warm stables, milk as regularly as possible, and milk clean. After the milk is drawn set it away, after it is thoroughly strained, in a good milk room, which must be kept sweet and clean. All odors, from whatever source, must be avoided, as cream on the milk is tainted very easily by smoke cooking of various foods, odors from the sink and other places. The milk room should be kept at a high temperature for the cream to rise well in the cold weather, and in warm weather kept as cool as possible. Many times the cream will not half rise on account of the extreme heat, and a good share of it is thrown to the pigs.

There is no doubt but that the large, patent pans now coming into use, with pipes carrying cold water around them so as to cool the milk and take out the animal heat as soon as set for the cream to rise, will prove to be a great improvement. Those who have used them consider them an improvement, and say that they paid for first cost in one season. They made good butter during the hottest weather last summer, and a good cream rose all through the extremely hot, damp weather. I had several dairies of butter made from those pans and the cooling apparatus the past season, which proved to be excellent. Doubtless these pans for setting milk will soon come into general use by good dairymen, as thereby a great amount of labor is saved as well as good butter made.

Always skim your milk before the cream is thinned. As a rule, skim it just before it sours, or as soon as it begins to sour on the bottom of the pan. No time can be given to skim milk after it is set which will always be reliable, as milk rooms vary somewhat in temperature; but never fail to skim it while it is sweet and before it becomes tainted in the least. Here is where dairymen must not neglect the care necessary for producing choice butter. Here is where many dairymen make a mistake, in letting the cream stand on the milk too long; and the result is a common tub of butter—or even worse—i. e., a poor tub of butter which nobody wants.

After your cream is taken from the milk, churn it in good season, taking care always not to let it stand too long before churning. Use a churn with as little machinery as possible. The plain churn, with the least number of floats, is the best for manufacturing solid butter.

Never salt your butter too much. An ounce of salt to 1 lb. of butter is enough for butter made to keep through the season, while from $\frac{1}{2}$ and $\frac{3}{4}$ to 1 ounce is enough for the market, when the butter is soon to be used. In fact, light salted butter commands the highest price where it is sweet and new, and this is a fact for good dairymen to be sure to remember.

The working is another very important part to be performed in the manufacture of butter. Great care must be used to work it enough and then stop; and to do this requires close attention. Before working the butter, it should be thoroughly washed in good, pure water, until you can see that you cannot do much more to cleanse the buttermilk from the butter. As a rule, I find the finest butter where the maker works the butter twice before putting the same into the tub for market. The butter is taken from the churn and salted, and worked enough to thoroughly work in the salt, then set away over night, the next morning taken up and worked until it is clear from

buttermilk. Then it is ready for use, either to send to market, or to keep through the season. I consider the use of a butter-walker the best mode of extracting the buttermilk, although fine butter can be made by working with the hands, if they are not so warm as to injure the grain of the butter. A sponge can be used with good success in connection with the butter-walker, to soak up the moisture in the process of working. After your butter is ready to pack, get a nice clean tub or box to pack it in, as a clean package is always desired by the purchaser. Never put good butter into an old, dirty tub, but give your butter the best tub the market affords. It will pay well in the end, and will be money well expended.

After you have succeeded in making a choice tub of butter, it is always wanted at good prices in the market, and you can readily find a purchaser for all you can manufacture, from the fact that so little excellent butter is made at present. A choice tub of butter at this time is sold for 40 cents in the market, while a good fair tub brings 35 cents per pound, and a common one 30, a poor one 25, and so on, down to grease price. A difference of 5 cents per pound is well worth a good amount of time spent to make a choice article. As there are over 100,000 cows kept in the State of Vermont, and the annual product of the same will average 150 lbs. from a cow, or more, let us calculate the difference of 5 cents a pound on the whole amount made in the State. Reckoning 150 lbs. to the cow, 15,000,000 lb. would be manufactured annually, and a difference in price of 5 cents per lb. would make an addition of \$750,000 to the annual wealth of our State—a fine increase to record in the manufacture of butter. If we only take as much pains in this branch of farming as we have done to improve our breeds of sheep and cattle, the thing will be done, and when once done, it will pay so well, there will be no danger of a reaction as in the sheep business, from the fact that every tub of choice butter is at all times in demand at good prices, there not being enough of such butter made at the present time for the consumer. And to review what I have said in detail, allow me to say, keep no poor cows, and only those that make good firm yellow butter. Keep them well, both summer and winter. Use great care in cleanliness in every stage of the manufacture of this product. Have a good milk room, keep it perfectly sweet and clean, and follow the best modes of making good butter; and if you do not succeed, then go to those who do succeed and find out their method, and in the end you will certainly come off victorious. And now, brother farmers and dairymen, let us all resolve to accomplish the art of making choice butter.

Short-horns as Milkers.

At the Short-horn Breeders' Convention held some months ago at Cincinnati, Dr. Stevenson, a large breeder, read a lengthy essay on the above subject, from which we glean the following:—He said that the principal difficulty heretofore in adopting the Short-horn cow as a dairy cow has been her high price. Cheaper cows can be used that will give as much milk, for in this respect he claims no superiority, but that they are fully the equals of any other breed. The earlier English breeders used these cattle for milk as well as for beef. The tenant farmer of England, twenty years ago, used these Short-horn cows for dairy purposes, and raised their fine calves "by hand," or on skimmed milk, flax seed, tea, and other suitable nutritive food, that the milk might be sold, or butter and cheese. That Short-horns are good milkers every one who has given them a fair trial will testify. Go to those districts of Ohio and Kentucky where they have been most generally bred, and bred longest, and where nothing can be obtained under a high grade, and you will find the milking qualities of their cattle unsurpassed. There is probably no state in the Union that has more Short-horns and that uses so much milk as an article of food as Kentucky, and it may be said truthfully that physically there is no finer race of men; and Short-horn milk is entitled to a large share of the credit.

I trust, he added, it will not be considered egotistical for me to speak of my own experience with Short-horns as milkers. I have been using them for milk for upwards of thirty years, and have found them good milkers, although we have, it is true, used the milk for the family only, which has, however, always been a pretty large one. I have found a difference in the quality as well as the quantity of the milk, and this is doubtless the case with other breeds. I have an old Short-horn cow now giving milk. This cow, from age and some deformity, and her poor condition, was not thought worth offering at any sale. She is, however, a fair average of my cattle as a milker, and I propose to base a few calculations upon her. She calved the first day of February; her calf is now ten months old. She has con-

sequently been giving milk the same length of time. She gives one gallon morning and evening, or two gallons a day. Now if we will put this cow's milk at double the quantity for the first three months, she will have given in this time (three months) 360 gallons, seven months more at two gallons per day, 420 gallons, or 780 gallons in ten months. This at 20 cents per gallon, would amount to \$156. In four years it will amount to \$624. This, added to the first calf, the value of Mr. Bridgo's steers sold last year—2,012 pounds at \$8, \$161996—will give \$31695. Now, as we have three calves on hand, we will sell annually for milk and calves \$31696. But to multiply our stock, ten cows and their milk and calves will give \$3,16960 annually. Now it is this that enables many English tenants, in a great part, to pay high rents and make money. We ask the attention of farmers to the consideration of this subject.—Ohio Farmer.

Home-made Cheese.

By O. S. Blica.

A farmer who keeps six cows ought never to be without cheese for his table, and unless situated conveniently near a factory where he can have it more cheaply made than at home, it should be made there. Indeed, many farmers who carry their milk to the factory during the season may at its close make their own supply of cheese with profit. A very good article of cheese may be made from only two cows, and families who keep but two or three cows cannot make a more profitable use of milk during the cool weather in the fall than to convert it into cheese. The milk should be set in the common pans in as cool a place as may be at command until there is an accumulation of several days' milk. The object in setting it in a cold room is to prevent the rising of the cream, and to preserve the milk until enough is saved to make it an object to work it up. Before the oldest milk begins to turn the whole lot is skimmed up, and set in a large brass kettle. A clean new wash-tub, which has not been painted on the inside, would be preferable. A few pans of the newest milk are reserved and placed over kettles and pans of hot water on the stove, and when heated, added to the mass in the kettle till the whole is brought to the uniform temperature of about 85°, or a little below the blood heat. A portion of a well-cured rennet, about the size of three fingers, should be soaked over night in warm water, which is poured into and mixed with the milk. To determine just the amount of rennet to be used is one of the most difficult things in the whole process. The curd should "come" in about forty to forty-five minutes. If it comes too soon the first time, less rennet must be used next time. If it is too long coming more must be used. Where cheese-making is an every-day business, a different process of preparing the rennet is far preferable; but where the cheese is "run up" only occasionally, here is no other way than to prepare the rennet for the occasion. When, on running a finger or two under a portion of the curd and gently raising it, it readily breaks or splits, it is ready to be cut. This should be done with a long thin wooden knife, cutting the whole curd from top to bottom into squares of about two inches. After it has stood in this condition ten or fifteen minutes the curd may be carefully broken up with the hands, care being taken not to squeeze it. In a short time—say, ten or fifteen minutes—the curd and whey will have become sufficiently separated, so that a portion of the whey may be cupped off and heated in the same manner as the milk was in the beginning. During this process of dipping off the whey the curd may be gently broken up into lumps about the size of chestnuts. This done the heated whey may be gradually returned to the tub and the mass is of a temperature of 95° to 100°, or at "blood heat." The heat must be raised somewhat slowly, the curds meantime being stirred and broken. The curd may now be left "to cook" for thirty or forty minutes, when it should be again stirred and broken until it has a firm consistency. When on taking a handful of the curds and squeezing them firmly they drop apart on relaxing the hand, they are ready to be removed from the whey. A cloth strainer is then thrown over them and as much of the whey dipped off as is convenient, after which the strainer is spread over a basket or a low-sided box with a bottom of narrow slats, and the curds are put into it to drain. When thoroughly drained and aired they may be salted with four or five ounces of salt to ten pounds of curd. The whole should be thoroughly and intimately mixed and broken up, when it will be ready for the press. Formerly it was supposed to be necessary to press the cheese to get the whey out, such, however, is not the case with well-made cheese. The object in pressing it is chiefly to cause the particles to adhere and make a homogeneous mass. The size and form of the cheeses is a matter of taste. Per-

haps as good a size of hoop as any for the small family cheeses is ten inches in diameter. The old form of flat cheeses is generally preferred for farm dairies to the high form adopted in factories. They do not need bandaging. They should be turned in the press after three or four hours, after which a few hours, or at most a day's pressure will be sufficient. The style of press to be used for these little cheeses is of no importance whatever—a bit of scanting or a bad may be made to do all the service needed, placing the cheese near one end of the lever, and laying a short stick of timber across the other end.

The Dairy of E. H. Seward, Marengo, Ill.

Adjoning the farm and butter factory of Messrs. Boies & Son, Marengo, Ill., is the dairy farm of E. H. Seward. Mr Seward sells his milk to this butter factory. The noticeable things about this dairy are, the large increase in yield following a change from ordinary to high feeding; the fact that it is largely a winter dairy; and lastly, that a majority of the cows are either full blood or grade Short-horns.

At the late meeting of the North-western Dairy-men's Association Mr Seward stated that he believed remarks made by Mr White of Kenosha, Wis., in 1870, had put \$1,500 into his pocket. He had been content with about \$70 as annual receipts per cow. By high feeding in 1871 he brought his receipts up to \$2,425 from 35 cows—an average of \$69.20; in 1872, from 40 cows an average of \$70.25, and in 1873, from some number an average of \$70.

These receipts include the value of calves, and of pork sold. The milk is sold at one cent a pound, and four-fifths as much when milk is returned. The calves receive no other food but this until spring. They are sold at higher prices than usual because of their breeding. One-third of the pork produced is credited to the milk, and Mr Seward thinks this is an over estimate. We understand the number of cows reported to include the full number in milk during the year.

We give Mr. Seward's statement for 1873.

Proceeds of Forty Cows.

Month	Pounds Milk	Total Proceeds	Average per Cow
Jan 1873	19,216		
February	20,674		
March	22,814		
April	23,871		
May	25,932		
June	23,453		
July	23,813		
August	19,759		
September	15,544		
October	13,935		
November	21,125		
December	27,019		
Total pounds	259,725	Sold for \$2,527.25	
		Calves 450.00	
		Pork (3 pro-	
		duce) 153.00	
Total proceeds		\$3,230.25	
Average per Cow		80.13	

With these facts before us, we felt more enjoyed an hour's visit to this farm. Mr. Seward has a good looking and well arranged barn, although the total cost, including painting was, we believe, \$1,300. The cows are stabled in the lower floor and a wing; the upper portion being used for storing hay, grain, &c.

We found in the barn about 45 cows and heifers. If we remember right 11 of these were two years old heifers, and in all 15 had calved the spring before, yet yield of milk was within a small fraction of 21 pounds.

Fourteen years since Mr. Seward, with his father, purchased five full blood Short-horns in Ohio. He has used full blood bulls and now has 16 Short-horn cows, (full blooded although not recorded) and the greater part of the remainder of the herd are grade Short-horns. There are two full blood and good looking Devons, descended from the Capron herd, and some "Natives." The Short-horns are generally of light colors—spotted with considerable white, and some pure white. They are of good size, and more resemble the old milking strains of Short-horns than any herd we have ever seen. Mr. Seward speaks very highly of them as dairy cows. His best cow is a full blood Short-horn and has given 55 pounds of milk in a day. We saw one Short-horn 16 or 18 years old, rather stiff but in good health and still a fair milker. The two Devons are not very good milkers.

Mr. Seward feeds each cow about a dozen stalks of corn, with ears on in morning; gives full feed of hay once, and also one feed of steamed shelled corn, mixed with corn and oat-meal—if we remember right three bushels of the steamed corn and one of the mixed meal. He used rye for steaming and liked it very much, but was using corn instead at the time. The

heifers before calving and cows not in milk are fed no grain.

We saw a lot of 15 or 18 calves, about four or five months old, and were surprised to learn that their only food, after they were a day or two old, had been the sour skimmed milk. They were in good condition and of much larger size than the average calf of same age—much better looking than we would have supposed possible. We still believe the addition of some oat-meal would have made them even better, but cheerfully admit that this was a case where the facts were contrary to what we would have believed. Mr. Seward thinks it much better to commence feeding the calves sour milk after they have sucked the cow two or three times, than to wait longer. The stomach is more easily adapted to the food. Having the calves dropped in September or October and kept through the winter in this way, they are ready to go on the pasture in the spring and do very well.

Mr. Seward finds dairymaking very profitable and gives his main attention to this, but has a small flock of good Merino sheep, and raises some colts each year. —Western Farmer.

Farrow Cows in the Dairy.

How shall dairymen dispose of "farrow cows" to the best advantage? is a question which many are unable to determine. If an animal is old, thin in flesh, and not very good for milk at the best, the sooner she leaves the farm and is converted into cash, even though the amount be small, the more profit will be likely to result. Such animals often do not pay their keep in pasturage, and if we attempt to put on flesh in the fall and winter, the cost of grain or extra feed will, more times out of ten, be more than her flesh will be worth for the shambles. If a cow is young and of an extra milking strain, and happens to be farrow in the fall, it will often be profitable to retain her in the herd, keeping up her milk during winter and the following summer, when she may come "round again in calf," and prove a more valuable cow for milk than one can ordinarily purchase. We have seen and owned cows of this description which, during the season they were farrow, averaged nearly, if not quite, as much milk as many other members of the herd considered as giving a good fair mess. Of course, there is always more or less risk in keeping over such stock for milk, as farrow cows, when turned to grass, not infrequently decrease in their yield and put on fat. But there is still another class of farrow cows, strong, healthy animals, of medium age and of medium condition, which, as the pasturage season closes, it is desirable to turn, and the question arises whether such animals should be sold, say in November, for what they will bring, or whether it will pay to feed grain and put them in flesh for the butcher.

Mr. Josiah Shull, of Iliou, N. Y., has been experimenting during the past winter to satisfy himself as to this matter. On the 1st of November last Mr. Shull commenced to fatten a cow which he thought too old to keep longer for milk. She was farrow, and only in medium condition. At first her feed was corn meal and pumpkins, with what hay she would eat. The meal was gradually increased. During the first two months the milk averaged at the rate of twelve pounds per day, but in the third month it dropped to ten pounds per day, the feed meantime having been increased, giving all the meal and hay she would eat. This manner of feeding was continued until February 25th, when the cow weighed 1,240 pounds. Then he commenced feeding the corn meal cooked and made into a gruel, until an average of eleven pounds of meal per day was used. The gruel made about a twelve quart pail full. At the same time she was allowed all the hay she would eat.

This course, contrary to expectation, did not increase the flow of milk, but it decreased from day to day, the average for February being seven pounds per day, and for March five pounds per day. The milk now began to get poor in quality, and was very blue. On March 11th she weighed 1,300 pounds. The same quantity of feed was continued from day to day until the 25th of March, when she was again weighed, but had fallen off 40 pounds. On the 1st of April the cow was sold to the butcher for beef for \$70.

The following is a statement of receipts and expenditures, the hay being estimated at \$20 per ton, and corn meal at \$1.75 per cwt.—Market value of cow on the 1st of November, \$15; cost of hay and grain from November 1 to April 1, \$46.50; total, \$61.50. The cow gave during the time as above stated 1,226 pounds of milk, which, at 1 1/2 cents per pound, amounts to \$18.32. Sale of cow for beef on 1st April, \$70—making a total of \$65.82. Calling the value of manure equal to that of labor, &c., in caring for the cow, the profit of fattening is \$24.32.

Careful experiments of this kind, where an accurate account is kept of the quantity and cost of feed, are valuable, because they give a basis from which an estimate may be made as to the profit and loss in feeding animals for the shambles.

Horned stock was very low last fall in Herkimer County, and the impression prevailed that it was better to sell at low figures than to fatten animals on feed at high cost, but Mr. Shull shows that the profit is very considerable. The milk's reckoned on the basis of its value for cheese making, or at 12 1/2 cents for ten pounds. But even if we drop this item from the account altogether, there is still a profit from fattening amounting to \$8.50.

It will be well for dairymen to examine this matter of farrow cows a little more closely than many have been in the habit of doing, for we are convinced that not unfrequently considerable sums are lost by not understanding clearly whether an animal can be fed at a profit or a loss.—Rural New Yorker.

Butter in France.

If our dairymen need a spur, an eye-opener, a lesson which speaks volumes in three words, here is one at the head of this article. Butter is actually brought from France and sold by the New York dealers. And this is thus because there is an actual scarcity in the market of good butter put up in attractive shape for small consumers. When we know that one dairymen gets \$1.15 a pound for his product, another \$1, and another 75 cents the year round, at his dairy door, it is easily seen that it will pay to bring butter across the ocean from France, if it is only good and shapely enough to suit the fastidious purchasers who will have something nice whatever it may cost. All this butter is made from choice cows, choicely fed on clean sweet food; the milking is done in the cleanest manner. The milk is handled as carefully as though it was nectar; the cream is churned with utmost care by clock and thermometer, the butter is worked with skill, and is made up in shapely cakes, which do not require to be cut when brought to the table. Compare, then, this cake—hard, golden yellow, sweet, fragrant and tempting to all the senses—with an unsightly chunk, which is cut out of a greasy keg, and smells of old age and rancidity, and is made from ill-kept cream from cows filthily lodged and carelessly milked, and is churned anyhow, and the difference is amply accounted for.—N. Y. Tribune.

Garget in Milch Cows.

The Country Gentleman gives the following as prescriptions that have been given for garget in milch cows.

1. Cut up finely the roots of "sooke" (*phytolacca decandra*) or "pigeon berry," and give two tablespoonfuls in bran or meal twice a day for two or three days; then omit the root for the same length of time. Repeat until cured.
2. Give one ounce pulverized saltpetre in a bran mash once a day for two or three days. Repeat as in No. 1.
3. Give seven drops of tincture of aconite, dropped on a piece of bread, and fed in a bran mash for two or three days, once each day. Repeat as in No. 1.
4. Give in same manner as in No. 3, one-half teaspoonful of tincture of aconite root. (This is not the same as the "tincture aconite" in No. 3.)
5. Lunseed oil, one ounce; kerosene, one ounce; tincture of aconite, twenty-five drops. Rub the bag well with this mixture two or three times a day. Feed roots or bran mashes freely.
6. Muriate of ammonia, three-fourths of an ounce; water, one quart. Wash the bag daily with this, rubbing thoroughly.
7. Sweet oil, two ounces; alcohol, four ounces; aqua ammonia, four ounces; tincture of opium, two ounces. Rub in thoroughly two, three or four times daily.

Mr. Edward J. Wickson, of the *Utica Herald*, has been chosen President of the Dairymen's Board of Trade of Utica. He will make an efficient and popular presiding officer.

On Wednesday, an unfortunate cow, a dweller on the south side of the Assiniboine, was calmly switching her tail about in anticipation of the coming fly time, when the narrative tied a knot in itself around a popular sapling. The cow wanted to come away, but the tree restrained her for some time, when, throwing all her energy and beef into one magnificent rush, she did come away; but like Tam O'Shanter's mare, or little Bo-Peep's sheep, she left her tail behind her. And now they say that the milk that cow gives may be called lack-tail fluid. Oh!

Correspondence.

The Route to Manitoba.

(To the Editor of the CANADA FARMER.)

DEAR SIR:—Would you kindly inform me, and a number of other intending emigrants, which are the best routes to Red River. We go at first simply to "prospect," and need not, necessarily, be encumbered with much baggage. A reply will much oblige.

FORT GARRY.

Aurora, April 24th, 1874.

[There are two routes in the United States open to the choice of the traveller, and one through Dominion territory. The distances on the States routes are as follows.—

	Miles.
By Railway from Toronto to Detroit	225
" " " Detroit to Chicago	284
" " " Chicago to St. Paul	408
" " " St. Paul to Duluth	150
" " " Duluth to Morehead	252
By Stage from Morehead to Fort Garry	250
Total	1,569

The distance by the water route is.—

	Miles.
By Railway from Toronto to Detroit	225
" Steam: from Detroit to Duluth	773
" Railway from Duluth to Morehead	250
" Stage from Morehead to Fort Garry	250
Total	1,498

The Dominion route is as follows:—

	Miles.
By Railway from Toronto to Collingwood	94
" Steamer from Collingwood to Prince Arthur Landing	532
From Prince Arthur Landing to Lake Shebandowan	45
From Lake Shebandowan to North West Angle Navigable Water and Portages	312
Fort Garry Road from N. W. Angle to Fort Garry	95
Total	1,078

Our correspondent will observe from the above that, so far as mere distance is concerned, the Dominion route has the advantage by over 400 miles.—Ed. C. F.]

Wood Ashes in Compost.

(To the Editor of the CANADA FARMER.)

Sir:—I noticed in a recent number of your issue an article on the fertilizing properties of a compost of wood ashes and swamp muck; and as I have a large quantity of the former and none of the latter, I am at a loss how to dispose of the ashes. Can you suggest any other mixture, or may I use the ashes alone? A reply will much oblige.

TOTTENHAM.

[Wood ashes may be sown alone, either broadcast, on grass or grain, or in the hill when applied to such crops as corn or potatoes. The heaviest crops on the latter on record have resulted from a liberal use of this article. For wheat, it is recommended to use a mixture of ashes and plaster. In forming a compost, barn-yard manure will be found an excellent substitute for swamp muck, and failing this, phosphate of lime may be used to advantage.—Ed. C. F.]

English Sparrows.

A Harrisville correspondent writes:—Can you inform me where it is possible to obtain a pair or more of English sparrows? I have been trying for the past three summers to have a garden such as we used to have "at home," but the grubs spoil all my endeavors. I have an idea that sparrows would look after the insects while I attend to the land.

[Can any of our readers—"COCK ROBIN," for instance—furnish the information desired?—[Ed. C. F.]

Ventilating Stacks.

To the Editor of the CANADA FARMER.)

DEAR SIR:—Can you, or any of the readers of the CANADA FARMER, suggest a contrivance for ventilating stacks which will diminish the risk of heating, &c.? During the summer of 1872 I had the misfortune to lose several tons of hay from this cause; and as I intend this season to stack a considerable quantity of meadow grass, any information bearing upon the subject will be thankfully received by Yours, &c.,

[Numerous contrivances for attaining the object sought by our correspondent have been tested with various degrees of success. The following, selected from a number of others, is commended alike for its efficiency and the simplicity of its construction:—The upright portion, represented in Fig 1, consists of three poles, pinned or tied together at

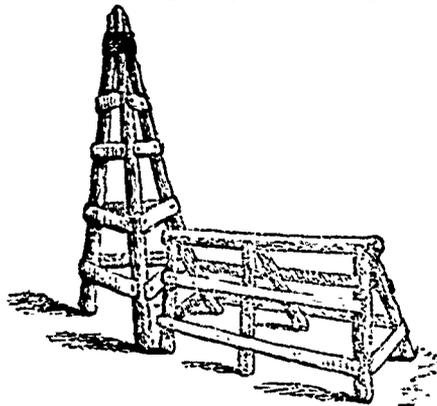
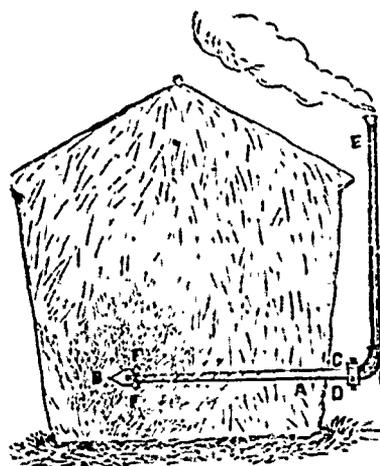


FIG. 1.

the top and spread three feet apart at the bottom; the whole being kept steady by means of cross pieces of wood nailed upon them at regular intervals. Where the stack is built on an elevated frame, the appliance just described is placed in the centre, and the air enters from underneath; but where the stack is built on the ground, it is customary to use one or more poles, about two feet high and long enough to reach to the outside of the stack, for the purpose of securing the free admission of air.

Our second engraving illustrates an equally simple and effective method of getting to the "root of the



matter" in the case of stacks already built. A wrought-iron tube (A) three inches in diameter, long enough to reach the centre of the stack, is perforated with holes about two-thirds the length, and "furnished with a point (B) at one end, and a strong band (C) with lugs (D) at the other. This tube is driven horizontally into a heated rick with a mallet, and at once affords the means of ascertaining the temperature of the stack, which is done by passing a thermometer on a stick into the tube. When it is

ascertained by this means that any part of a stack into which a tube is inserted is of too high a temperature, a vertical sheet-iron or tin funnel (E) is attached to the neck of the tube, at once establishing a current of air from the centre of the rick to the atmosphere, and immediately removing the superfluous heat, without disturbing or damaging the contents of the rick in any way. At the back of the point (B) several small hooks (F) are placed, so that in drawing out the tube a sample is brought from the centre of the stack.—Ed. C. F.]

Lice on Apple Trees.

(To the Editor of the CANADA FARMER.)

DEAR SIR:—Would you please say through your valuable columns what is the best remedy for lice on apple trees and the most suitable time to apply it. Your kind attention will greatly oblige

AN INQUIRER.

[At a meeting of the Ontario Fruit Growers' Association, reported on page 60 of the CANADA FARMER of last year, Mr. Barnes stated that he had used lime, sulphur and soot, made into a mixture with water, and applied with a stiff brush or broom.—Mr. Bennett used lime, sulphur and cow-dung, mixed with water and applied with a brush, and found it to keep off lice and lice.—Mr. Arnold used lime and soft soap; sulphur he thought to be too drying, and mixed it with a little tobacco water—it was a complete success.—A leading orchardist of our acquaintance washes his trees previous to the opening of the blossom buds with a moderately strong lye of wood ashes, and says it is the most effective remedy he has yet met with.—Ed. C. F.]

Concrete Walls in Cellars.

A subscriber writes:—"I intend building an underground or banked barn this spring, 40x70 feet, and wish to know how it will do to dig the ground out two feet beyond the frame-work; pin or nail planks on the posts; and fill up the space with concrete. Will such a wall be sufficient to resist the lateral pressure, and prevent the bank from falling in?"

[Our correspondent has omitted to state the depth of the proposed barn or cellar, which is, of course, an important item in determining the requisite thickness of the wall. He should also have stated the nature of the soil, which, if clayey, will require to be properly drained, because clay expands with moisture, and requires special consideration. But assuming that the soil is loam on the surface, with sand or gravel below, then, a 2 feet concrete wall will be quite sufficient for a cellar 6 feet deep. Material and labor would be saved by having the wall slope against the earth, and making it thicker at the bottom than at the top. A case 2 feet at the bottom and 18 inches at the top will be quite sufficient.—Ed. C. F.]

Soiling Stock.

A correspondent ("W. C.") writes:—In your next issue of the CANADA FARMER, please give us the best method of stall feeding stock, as a number of my neighbors intend to test the matter, and would like to have your opinion.

[If our correspondent will turn to pages 43 and 52, Vol. X CANADA FARMER, 1873, he will find in the articles entitled "The Soiling System" a full, and, we think, lucid exposition of our views on the whole subject. A perusal of the article headed "Soiling Stock" on page 154 of our last issue will also be found profitable. We will refer to this subject again.—Ed. C. F.]

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The Canada Farmer.

TORONTO, CANADA, MAY 1, 1874.

Canadian Dairy Products in Britain.

Few persons are perhaps fully aware of the extent and importance of our dairy interests, or of the ever-increasing favor with which our surplus dairy products are regarded in the foreign market. The following article, clipped from a late issue of the *Pall Mall Gazette*, is so directly to the point, that we submit it without further introduction:—

"Canada is fast becoming a dangerous rival of the United States in the matter of butter and cheese. Upon the termination of the Reciprocity Treaty, just after the close of the rebellion, the Dominion in one year purchased of the United States cheese to the value of \$306,000 to supply the wants of her own people. Now she has 29,000,000 lbs. to spare. This large 'dairy interest' has been the growth of about seven years, and has sprung from a very small germ. In all her territory, Canada is estimated by those best informed to contain between 400 and 500 factories, mostly of moderate size, more than half of them confined to the Province of Ontario. They are not generally diffused, but are grouped about two centres—Belleville in the eastern and Ingersoll in the western part of the Province. The greater number are contiguous to Ingersoll. Two rival associations have sprung up at these centres. The one at Ingersoll is known as the Canadian Dairyman's Association; that at Belleville as the Ontario Association. They are now acting in unison, and are jointly receiving Government aid to the amount of \$700 annually, which is expended in circulating information to educate dairy farmers and manufacturers in their calling, and the general welfare of the dairy interests of the Province. At the annual meeting of the united organization held at Belleville on the 11th ult., Prof. Bell, of the Albert University, in his opening address, traced the history of the rise and progress of the dairy interest in the Dominion, and pointed out the very large field that lies open, inviting an almost indefinite expansion for its future operations. Its advantages consist not only in the vast extent of cheap soil and favorable climate which the country offers for extended operations, but in the certainty of a good and trustworthy market which the mother country affords. The dairy lands of Canada are cheaper than those of the States, and the new territory steadily opening at merely nominal prices is better for the dairy than the cheap lands of the States. Canada therefore has the means of soon sup-

planting the United States in the British market in the traffic of cheese, as she already leads them in the export of butter. About forty factories are in active operation in the neighborhood of Belleville, and new ones are being rapidly built. From the factories about 53,714 boxes of the make of 1873 have been shipped from the port of Belleville, averaging 67 lbs. to the box, or 3,935,112 lbs., which, at 11½ cents net, have placed in the pockets of the neighboring farmers \$442,700. Most of the remaining shipments were made at Ingersoll, and are sent direct to England. The whole money value of the cheese export of Ontario is about \$1,825,000; that of the whole Dominion is about \$2,200,000."

Another Invention.

We noticed some time ago an invention in horse and cattle mangers which, from its peculiarities, has been named the "Safety Manger." This invention was first, we believe, practically applied by Mr. Fergus Anderson, an intelligent farmer of the Township of Blenheim, and we are now informed that he has applied for a patent on it. The same gentleman has recently hit upon a contrivance in the shape of an "Apple Picker," which is claiming attention. As is well known to every fruiterer and orchardist, there is no time that trees sustain greater damage than when they are ascended and shaken to get the fruit off. Limbs are constantly cracking and breaking in every direction, and it not unfrequently happens that by the time a tree has been thoroughly stripped of one crop, it is in but poor condition to prepare for a second. Mr. Anderson's invention consists of two strong blades which work after the manner of a pair of scissors. These he attaches to the ends of two light poles of sufficient length to reach the top of his highest trees; and as these poles fit into sockets in the lower end of the blades, they may be readily removed for shorter or longer ones as occasion requires. By means of this arrangement the apple is cut off its parent stem, and drops into a netted bag, which is suspended from a ring attached to the side of the cutter. The affair is exceedingly simple, but herein consists its highest commendation.

Ontario Veterinary College.

The examinations in connection with the winter session of this valuable and flourishing institution were brought to a close on Saturday the 11th ult. Seventeen candidates passed the primary examination on Anatomy and Physiology, and fifteen the final examinations, which resulted in their obtaining the diploma of the Board. The following are the names of the candidates:—Final Students—Jas. G. Alexander, Sandhill; James Churchill, Clinton; Henry Evelyn, St. Thomas; Jas. S. Hughes, Schomberg; Jas. MacIntosh, Durham; John C. Richardson, Sunderland; J. H. Tennent, London; Thos. A. Allen, Ottawa; Albert Drinkwater, Alton; M. J. Henderson, Syracuse; John Jaffray, Woodbridge; Frederick Nixon, Sandhill; Isaac Rathwell, Varna; John Welsh, Clinton; R. W. Whitehead, Toronto. Primary Students:—William Anderson, Sandhill; John Aikenhead, Clinton; John Fiskin, Elora; George Gowland, Blackheath; Thomas Hodgson, Toronto; Andrew McCollum, Campbell's Cross; W. E. Richardson, Flesherton; Wm. Somerville, jr., Buffalo; V. T. Atkinson, Nelson; F. A. Campbell, Toronto; Wm. Tolseter, Paris; J. R. Hagyard, Campbell's Cross; F. W. Lipssett, do.; Jas. O'Brien, Goderich; Wm. Ridd, Brampton; M. H. TenEyck, Woodburn; John C. Walker, Rice Lake. The following gentlemen composed the Board of Examiners:—M. Barret, M.D., Toronto; J. Thorburn, M.D., Edin., Toronto; E. Hagyard, V. S., Edin., Campbell's Cross; T. Wilson, V. S., Ont., London; W. Cowan, V. S., Ont., Galt; J. S. Cesar, V. S., Ont., Port Hope; J. Sweetapple, V. S., Ont., Brooklin, Ont.; T. Lloyd, V. S., Ont., Newmarket; R. Robinson, V. S., Ont., Albion; W. D. MacIntosh, V. S., Ont., Kingston.

A Successful Farmer's Experience.

Mr. I. O. Eaton, of Wilton, commenced on the farm where he now lives seventeen years ago. Previously the farm had been badly managed, the former occupant planting two acres of corn, one of potatoes, and sowing three acres of oats yearly and dressing very lightly. The farm cut about fifteen tons of hay. Mr. Eaton commenced by planting one and one-half acres yearly and manuring the land highly. As he could increase his manure pile he planted a larger acreage, but finding the amount of dressing too small for the tillage land, he turned about one-fourth of it out to pasture.

Now for the results. Previous to the last few years when the drouth and grasshoppers injured the crops, he averaged 60 bushels corn per acre; 50 bushels wheat from one and one-half bushels sowing, and cut 30 tons of hay. He has under drained considerably, digging the ditches from two and one-half to three feet deep, and filling with cobble stones to within eighteen inches of the top, when straw was spread on the stones and the ditch filled with dirt. The effect is that the cold wet land, producing swale grass and brakes, has been warmed and dried and is now returning bountiful crops of herd grass and clover. In dry seasons this drained land produces his best grass crop. He says thoroughbred stock is good, but thinks judicious feeding and good care better. Stock must be kept warm and kept growing through the winter. Mr. Eaton has yearling heifers of our common stock that girt five feet and six inches, and has killed them where they dressed off 400 pounds. He gives calves what hay they will eat and one quart of oats each per day during winter. Although this makes them look rather rough and scrawny in the winter, yet he finds they pick up and do much better during the summer than they otherwise would.—*Cor. Maine Farmer.*

Nova Scotia Provincial Exhibition.

The Nova Scotia Central Board of Agriculture has recently issued a supplement to the *Journal*, containing the prize list, and all particulars relating to the Provincial Exhibition, to be held at Halifax, commencing on Monday, the 5th October next. The exhibition will remain open during the entire week, the programme being somewhat as follows:—

The exhibition grounds and buildings will be opened on Monday morning at 7 o'clock, and continue open during the day till sunset, for the reception and arrangement of exhibition articles, and animals.

Tuesday.—Live animals, cut flowers and hot house plants, and perishable articles generally, will be received this morning from sunrise up to 9 o'clock, a.m., precisely; when the judges in the various classes will meet at the Secretary's office, obtain entry books, and commence to award premiums.

Wednesday.—The judges will this day meet as soon after 7 a.m. as possible, to complete their awards, and place all the remaining prize tickets.

Thursday and Friday.—An address will be delivered at 2 o'clock, p.m., of the latter day, and official announcements made, after which (three o'clock) live stock may be removed from the grounds.

Saturday.—The Treasurer will commence paying premiums at the grounds at 9 a.m. All live stock and articles of every description will be removed this day, if not during the preceding afternoon.

Bands of music will be in attendance at stated intervals.

The prize list is a most comprehensive and liberal one. Take for instance the following:—Best stallion for agricultural or draught purposes, \$50; best thorough-bred herd (one bull, three cows and two heifers) \$50; best thorough-bred ram, \$14; best general collection of fruits from any local fruit society, \$50; best collection of apples from one exhibitor, \$30, &c; with a host of prizes in the less conspicuous classes, equally as liberal.

The Board has also adopted the plan of allowing special prizes, after the manner of some of our Poultry Societies; and we notice that Mr. George Fraser of Halifax offers, under this head, \$50 for the fattest ox; \$25 for the best milch cow; and \$15 for the fattest pig.

We heartily congratulate our Nova Scotia friends on their well grounded anticipations of a first-rate show.

Small Farms.

A correspondent of the *American Rural Home* sends that journal a communication containing the following eight maxims for small farms:—

1. Small farms are cheaper and easier to manage than large ones, and pay better for the capital invested, therefore small farms are the best.
2. If you want to make your farm pay, you must give it your daily attention. But if your farm is too large you can not do this; hence, as I said above, small farms are the best.
3. If you don't want your farm to run away, you must stop the little leaks. We may expect fewer leaks on a few acres than on a great many.
4. Feed your land well, and it will feed you just as well. It takes less to feed a small farm than a large one.
5. If you would live long and enjoy life, work a little, then rest a little; but if you have a very large farm, you must labor all the time.
6. If you have good fences you need fear no loss of stock; but at the same time fences are costly.
7. If you want good roads and plenty of schools, churches and mills, you must have a dense population. If farms are large, this is impossible.
8. Farms should increase in value year by year. It costs less to improve a few acres than a great many. Therefore, in my opinion, small farms are best!

The Editor of the journal above named, makes the following sensible remarks in reply:—

Although we are in favor of moderately small farms we are aware that many powerful reasons can be given in favor of large ones, and we doubt whether all of "C's" maxims will stand the tests of logic and experience. Let us take the second proposition of the first maxim:—"Small farms pay better for the capital invested, than large ones." A farm should not only pay regular interest on the capital invested, after deducting all expenses for labor, seeds, wear of implements and machinery, &c., but it should also pay the owner a fair salary for his services as a laborer and superintendent. The salary of a man with ability enough to successfully manage five or four hundred acres of land, ought to amount to not less than \$1,000 or \$1,200 a year. There are but few farms of from fifty to eighty acres that would yield that amount above expenses and interest.

Again, it is pretty well demonstrated that the most economical labor that can be employed upon the farm is, not human brain and muscle, but power represented in the brains and muscles of dumb beasts, and wood, iron and steel in the form of machinery. That if a farmer has forty acres of grass, fifty acres of wheat, twenty acres of barley, twenty acres of oats, and twenty acres of rye to harvest, he can cut and house the crops cheaper with a mower, reaper, tedder, horse-rake and horse-fork, with just enough human laborers to manage these machines, than he can with human laborers. Add the cost of all these machines to the capital invested in a place of fifty or sixty acres, and their wear and tear to the expenses of working, and we doubt if the net profit will equal those from 300 or 400 acres. Perhaps these difficulties might be met by several small farms co-operating; in fact, we are satisfied that the only way in which small farms can be cultivated as economically as large ones is by a partnership in the owning of the necessary labor-saving machines.

The strongest argument in favor of small farms given by "C" is that in 7th maxim. To secure the greatest advantages possible to farm life, population must be sufficiently dense to make school-districts small, and school-houses near together; the blacksmith's shop, the wagon-maker, or at least repairer, the grist-mill and the saw-mill, all of ready access to the farmer. This proximity of farm houses admits of that free social intercourse among the families of families, the absence of which is often so justly deplored. When the children of farmers are compelled to seek that society so necessary to the enjoyment and normal development of the young, in the village or city, their contentment, at least, is hazarded, if not their morals. Not only do the children of farmers need near neighbors for their enjoyment and improvement, but so do the farmers themselves, and their wives. To suppose that a man, because he has chosen the vocation of a farmer, must necessarily become a hermit, is absurd. He is just as much a social being, just as much interested in the welfare of society, as is a merchant, manufacturer, lawyer, or other professional man, and we are satisfied, from considerable experience, that there are but few more interesting social circles to be found in this country than in many thickly settled farm neighborhoods.

What is Required to Feed Great Britain.

The quantity and value of the breadstuffs imported into Great Britain during the year ending December 31, 1873, were as follows:—

	WHEAT	
	Cwt.	Value.
Russia	9,593,096	£5,072,723
Germany	2,153,857	1,544,850
France	1,170,522	747,737
Egypt	1,260,401	697,193
Italy	1,557,123	680,702
British North America	3,757,930	2,485,581
Other countries	4,501,570	3,021,129
Total	24,005,904	£15,550,910
From the United States	19,712,726	12,895,779

Total 43,751,530 £28,446,689
The total import of barley was, in hundred weights, 3,322,185; of oats, 11,922,736; of peas, 1,211,068; of beans, 2,375,500; of Indian corn, 18,768,127—all having a value of £17,229,300, of which the corn was set down at £1,621,720. The flour imported was 1,204,230 cwt., having a value of £5,839,197; of this flour 1,580,667 cwt. was received from the United States, having a value of £1,330,792. Reduced to dollars, the total value of the breadstuffs imported into Great Britain was \$25,757,930.

This, however, was not the only article of food imported into Great Britain during 1873. We find the following in addition:—

Bacon	\$28,500,000
Butter	51,000,000
Cheese, salted	2,500,000
Wheat	20,000,000
Bees	19,000,000
Fish, salted	3,500,000
Hams	2,500,000
Meats of various kinds	4,500,000
Pork exclusive of hams	3,000,000
Potatoes	10,500,000
Poultry and game	1,250,000
Tea	5,000,000
Coffee, cocoa, &c.	41,000,000
Total	\$216,750,000
Add for breadstuffs	257,578,930
Total articles of food	\$474,328,930

Imported Draught Stallions.

A few days ago, says the *Whby Gazette*, we were shown three Clydesdale horses, imported by Mr. Wm. Thompson, of Pickenale. They certainly were as fine a lot as we ever looked at, and although only in ordinary condition, they weighed over 2,000 pounds each on an average. "Prince of the West," two years and eleven months, weighs one ton, and is allowed by good judges to be the best draught colt ever imported to America. "The Earl," five years old, "Lorne," four years old, are very superior horses, and all prize takers at the best shows in Britain, from the Highland Society of Scotland, down to local shows, always carrying off honors wherever exhibited.

Woodstock Horse Fair.

The annual show in connection with the North Riding of Oxford Agricultural Society was recently held on the Fair Grounds, and was attended by one thousand persons, mostly farmers. Upwards of thirty stallions were entered, some of them imported, and all excellent animals. The awards were as follows:—Heavy Draught—1st, Joseph Vance; 2nd, Hector McDonald, 3rd, James Dalziel. General Purposes—1st, James Rice; 2nd, A. Strickland; 3rd, B. Draper. Carriage Purposes—1st, L. B. Kinney; 2nd, C. Boyle; 3rd, H. H. Turner.

About 300,000 bushels of Canada wheat in bond passed over the Vermont Central for England via Boston, during the month of January.

Mr. J. MASON, of London, disposed of two of his fine English draught stallions on Saturday last. One of them was purchased by Mr. Norton, Brick Street, Westminster, for the sum of \$1,175; the other was secured by Mr. J. W. Robinson, of Missouri, for \$1,350. Both animals were two years old, and in splendid condition.

The crops in France have passed through the winter very well, and present an encouraging appearance. This state of affairs has moderated the upward movement in prices. In Hungary and Egypt the crops promise well thus far.

The Russian Government is showing a disposition to prevent the propagation of rinderpest both in Russia itself and beyond the Russian frontiers. A special commission has been appointed to consider the question, and it is proposed to establish a sanitary service in the province of the Caucasus.

In the New Brunswick Legislature, the Provincial Secretary, in his speech on the Budget, announces a grant of \$4,000 for importation of live stock. This is to be made up, by board funds and otherwise, to \$10,000. The establishment of a school for instruction in Agriculture is also talked about.

THE PRICE OF BLOOD HORSES.—At the sale of the late Mr. Hilton's horses at Tattersall's, on Monday, says the *Mark Lane Express*, the brood mare Nemesis, by Newminster, made, at fourteen years old, \$13,650 to Sir Richard Sutton, said to be the highest price ever given for a brood mare. At the same sale, the stallion Ccerops, a remarkably good-looking horse, brought \$8,400; but the rest of the stud reached to a very low average. At the sale of the late Baron Rothschild's horses in training at Newmarket, on Thursday, the three year old Marsworth, by King Tom, was bought by Count Lehndorff for \$26,250, with the object of going to Berlin to improve the breed of cavalry horses. A two year old, Pedometer, by King Tom, made \$9,975; and an own brother to Corisande, \$6,825.

NEW WAY OF PURCHASING HORSES.—At the Muir of Old Market of Thursday week Mr. Millar, Inverness, and Mr. Dick, Redcastle, were bargaining about a mare which the former was selling, but could not agree as to the price, viz., £45. After a large amount of the higgling customary on these occasions had been exchanged to no purpose, Mr. Dick offered to buy the mare by weight, a mode with which Mr. Millar confessed himself satisfied, and asked 8s. per lb. The buyer offered 6d., and a second war of words followed. Eventually there was a "split the difference," and the bargain was concluded. The mare was then weighed, when it was ascertained that the purchase price amounted to £50, the weight being about 15 cwt. It is unnecessary to add that the seller was highly exultant at the result, while the buyer declared that he would buy no more horses by weight.—*Inverness Advertiser*.

BEET-ROOT SUGAR.—The *Evening* has received a sample of sugar made from beet-root grown at Lotbiniere. It says the specimen was splendid, very fine in the grain, and of very delicate taste. It was straw colored and very clear. There is a beet-root sugar refinery established at Lotbiniere, and next year it will be in complete operation upon a considerable scale. The seed of the beet-roots from which the above sugar was made was sown in June last, that is, one month late, and without having undergone the necessary preparation to quicken vegetation. In spite of this the roots yielded nine per cent. of saccharine matter, which is two per cent. more than the yield in Europe. The farmers in the neighborhood, seeing the success of the refinery, have promised to devote several hundred arpents to growing beet-roots this season, and will doubtless reap a handsome return. 80,000,000 pounds of sugar were imported into the Dominion last year. Beet-root sugar manufactured in Canada, it will be remembered, was last year protected by the present duty for ten years. This ought to give a start.—*Montreal Witness*.

A THAME FLOCK.—Within the last fifteen months 48 ewes on a farm near Thame, in Oxfordshire (Eng.), have produced 295 lambs, all of which are still living, or have been sold fat. Forty-four of the ewes have each had three pairs, and most of them in less than fourteen months—a few in only thirteen months and two weeks. Two ewes brought seven lambs each, viz., two a few days before Christmas, 1872, two in June, 1873, and three in January, 1874. One ewe produced eight lambs within fourteen months. One half-bred ewe has given birth to nine lambs in fifteen months, in the following order, viz., two a few days before Christmas, 1872, which realized about \$25 at Easter, in June she had three, two of which were sold in December for about £4 16s.; the other, a ewe-lamb, was saved for stock, and will probably have a lamb of her own in May next. On March 11th the same ewe had four lambs, all of which are strong and healthy, and the mother doing well and in good condition. Twenty-one of the above are Dorset ewes; twenty-seven either Hampshire Downs or half-breds. Several of these 49 ewes will lamb again by next June, or early in July.—*Mark Lane Express*.

Agricultural Intelligence.

Average Prices of Short-horns in North Britain.

The sales of young Short-horns in Scotland being now over for a season, the following average prices realized for the stock of the principal breeders, sold publicly since September, will be noted with interest. We quote from our British Exchanges:—

Bulls.

"The Duke of Richmond, Gordon Castle—12 sold on 21st September at \$142 a head, and 5 sold on 17th March, at \$177 a head. Sir William Stirling-Maxwell, of Keir—7 sold on 23rd October, at \$239 a head. Mr. Kerr, Uppermill—27 sold on 23rd October, at \$148 a head. Mr. Cantlie, Keithmore, Dufftown—8 sold on 22nd October, at \$145 a head. Provost Wood, Midtown—13 sold on 10th February, at \$126 a head. Mr. Scott, Towie—5 sold on 24th February, at \$121 a head. Mr. Scott, Glendronach, Huntly—5 sold on 21st February, at \$150 a head. Mr. Cruickshank, Comstey, Huntly—5 sold on 26th February at \$185. Mr. Leslie, Coraskellie, Huntly—2 sold on 26th February at \$151 a head. Mr. Bruce, Broadland, Huntly—3 sold on 26th February at \$145 a head. The British Agricultural Society's joint sale, 25th February—10 at \$141 a head. Mr. Longmore, Rettie, Banff—11 sold on 28th February at \$179 a head. Alford public sale, March 3—9, belonging to Mr. Mitchell, Auchnagathie, and others, at \$133 a head. Mr. Mackie, Petty, Fyvie, on 5th March—16 sold at \$119 a head. Lieutenant-Colonel Williamson, of Lawers—13 sold at Perth on 11th March at an average of \$183. Mr. Graham of Redgorton—4 sold on 11th March at Perth at an average of \$237 a head. Mr. Geckie, Baldozie, —7 bulls sold at Perth on 11th March at \$123 a head. Mr. Marr, Cairnbrogie—7 sold at Perth on 11th March at \$141 a head, and 3 sold at Eilon on 26th March at \$147 a head. Mr. Bruce, Newton and Struthers—6 sold at Forres on 17th March at \$199 a head. Mr. Geddes, Orbliston—12 sold on 17th March at Forres at \$200 a head. Mr. Lawson, Braclussie, Elgin—7 sold at Forres at \$159 a head. Mr. Rae, Sumbank—4 sold at Forres on 17th March at \$159 a head. Mr. Leslie, Aldroughty—3 sold at Forres at 170 a head. Mr. Cochrane, Little Haddo—12 sold on 18th March at \$168 each. Mr. Cruickshank, Sittytown—4 sold on 19th March at \$199 a head. Mr. Thomson, Newseat of Dumbreck—10 sold on 20th March at \$193 a head. Mr. Davidson, Mains of Cairnbrogie—9 sold on 20th March at \$145 a head. Mr. Lumsden, Braco—6 sold at \$146 a head. Mr. Campbell, Kinellar—17 sold on 26th March at \$182 a head."

An analysis of the above 31 sales gives 308 animals disposed of, at an average of \$164 a head. The average price obtained for 334 bulls, sold last season, was \$143.

No Short-horn herd has been dispersed during the season; but a draft of sixty cows from the Sittytown herd was disposed of in the autumn. About the usual number of young females were sold at a considerable advance on the prices of last year. The following are the averages:—

Cows.

The Duke of Richmond—4 sold on 24th September at \$143 a head. Mr. Cruickshank, Sittytown—16 sold on 9th October at \$157 a head. Mr. Cantlie, Keithmore—2 sold on 22nd October at \$126 a head. Mr. Wood, Midtown—5 sold on 10th February at \$153 a head. Mr. Cochrane, Little Haddo—6 sold on 18th March at \$135 a head.

Short-horn Two-year-old Heifers.

The Duke of Richmond—4 sold on 24th September at \$179 a head. Mr. Longmore, Rettie—8 sold on 28th February at \$173 a head. Mr. Cochrane, Little Haddo—2 sold on 18th March at \$131 a head.

Short-horn One-year-old Heifers.

The Duke of Richmond—5 sold on 24th Sept. at \$145 a head. Mr. Cantlie, Keithmore—3 sold on 22nd October at \$141 a head. Mr. Wood, Midtown—12 sold on 10th February at \$103 a head. Mr. Cochrane, Little Haddo—7 sold on 18th March at \$123 a head. Mr. Cruickshank, Sittytown—13 sold on 19th March at \$141 a head. Mr. Campbell, Kinellar—4 sold on 26th March at \$125 a head.

Short-horn Heifer Calves.

Mr. Cantlie, Keithmore—5 sold on 22nd March at \$95 a head.

Short-horn Sales.

Maple Lodge.

The fourth of the "Short-horn week" sales took place on the 10th ult., at Maple Lodge Farm, the property of Mr. James S. Smith, near Ailsa Craig. The attendance was not quite so large as at some of the preceding sales, many of the American buyers having gone home; but the desire for improved stock on the part of local breeders was apparently as keen as ever. Most of the animals offered were well bred, and all of them in good condition. The following were the principal sales made.

COWS AND HEIFERS.

Maggie, roan, calved December, 1861. W. O'Neill... \$ 69
Rose, roan, calved February, 1867. A. Merritt... 176
He'lan of the Glen, red, calved Feb., 1867. Thos. Paisley... 145
Queen of Ontario, roan, calved Jan., 1868. W. Patterson... 107
Strawberry, roan, calved February, 1868. O. Schoff... 101
Mattie, roan, calved April, 1868. Mr. Ludlow, Wis... 116
Fashion, roan, calved Dec., 1870. Mr. Guagan, Canada... 126
Maple Leaf, roan, calved April, 1871. J. R. Martin... 178
Matchless, roan, calved April, 1872. A. Marritt, McGillivray... 156
Lady, red and white, calved Feb., 1873. Mr. Ludlow, Wis... 156
Rosetta, roan, calved May, 1873. R. Nell... 147
Molly Dhu, roan, calved Sept., 1873. J.S. Thompson Whitby... 109
Fashion's Belle, roan, calved February, 1874. J. R. Martin... 75

BULLS.

Matchem, roan, calved May, 1870. Mr. Ludlow, Wis... \$205
Maple Prince, roan, calved January, 1873. Mr. Abraham... 229
Prince Charlie, roan, calved January, 1874. W. Field... 51
Prince of Maple Lodge, red, calved Jan., 1874. D. Schoff, Ireland... 64

SUMMARY.

Table with 3 columns: Category, Average, Total. Rows include 13 females, 4 bulls, and 17 head.

British Short-horn Sale Notes.

Kinnellar.

The attendance of breeders at the Kinnellar Short-horn sale, near Aberdeen, was large, representing a wide district of country. Seventeen yearling bulls brought an average of \$182 each, which is slightly in advance of that realized last year. Three cows and four yearling heifers brought averages respectively of \$104 and \$125.

Inverness.

"This sale being the first of its kind in the Highlands," says the North British Agriculturist, "and Short-horn breeding not having yet made very much way in the far north, several of the animals catalogued were not of great merit, but a few, including those from Mr. Cran, Kirkton, Inverness, were quite up to the average of what is to be met with in localities where Short-horn breeding has been common for thirty years. For good beasts there was a fair demand, and the success of the sale augurs well for those of after years. Mr. Cran, Kirkton—who, though only a few years a farmer, has already some of the best cattle in the north—sold White Knight, a promising young bull of his own breeding, to Mr. Legg, Cromarty Mains, for \$163. He also sold Vanguard, a red and white, for \$163, to Mr. Macphail Cullaird. The prices of the others ranged from \$50 to \$106."

Thuramston Lodge.

The stock at this sale came out in poor condition. The cows having calved, and their milk having been sold, neither dams nor offspring looked to best advantage, and some very well-bred animals changed owners at prices which left room for ample profit to the buyers. The averages were—for 44 cows and heifers, \$162; for 10 bulls, \$145; for 54 head of stock, \$154. The highest priced cow, Silky Gwynne, \$430, was bought by Mr. W. H. Salt, who also took her newly-dropped heifer calf by Duke of Waterloo at \$105, making the price of the dam as a calver \$535. The Duke of Barrington 3rd, by Lightenth Duke of Oxford and from Grand Duchess of Barrington 2nd, was bought by Mr. J. Parker for \$367.

Ardfert Abbey, Ireland.

At the annual sale of Short-horns at Ardfert Abbey, Tralee, county Kerry, Ireland, recently, Mr. John Thornton, of London, disposed of forty-three animals belonging to Mr. William Talbot, Crosbie. The animals were good, and fair prices were obtained. Twenty-seven yearling bulls averaged \$178 a head, the highest priced being Royal Howard, rich roan, calved Feb. 4, 1873, by Irish Bama (\$1417), which was purchased for the Earl of Cowdor, Pembrokehire, at \$451. Sixteen cows and heifers averaged \$146 a head.

"The Island," Wexford Co., Ireland.

The averages at The Island sale were for 21 bulls, \$227 each, and for 16 cows and heifers, \$242. The prize cow Game Hen 3rd sold for \$472 to Mr. Wilkinson, of Cheshire; and the young bull Prince Gwynne, under 12 months old, went to the Hon. H. Massy, County Limerick, for \$255. Prince Gwynne is a son of Mr. T. C. Booth's King Richard.

Sittytown.

At Sittytown the average for 33 bulls was \$195, and for heifers \$140 each. World Wide, a deep-red yearling bull of much promise, was bought by Captain Smith of Glenlivet Distillery for \$378, the highest price paid at the sale.

JAMES DUSHELL has sold his trotting horse, Little Angus, to John Forbes, Woodstock. The price paid was \$1,500.

Mr. Issac Ross, of Pilkington, a few days ago sold a three year old team horse for \$250, to Professor McCandless, of the Ontario Model Farm.

Messrs. J. & R. HUNTER have sold the bull-calf, "Duke of Sunnyside," 12 months old, to Mr. John Kerby of Guelph Township; the two year old bull, "Governor," to Mr. George Bowman, of the adjoining township of Woolwich; and the yearling bull, "Harry," to Mr. John Bosomworth, of Pilkington.

At an auction sale near Rockton, in the county of Wentworth, recently, a farm of 100 acres sold for \$5,040 cash, and common cows sold at from \$37 to \$51. Pigs, which a man could pick up one under each arm and run away with, were sold at \$5 12 each, and common sheep at from \$14 to \$20 per pair.

A HEAVY COLT.—Mr. Stewart McDougall, of Goderich Township, brought into town on Saturday last, a yearling colt, got by J. J. Fisher's stallion, "King of the Dominion," for the purpose of having him weighed. He turned the scale at 1,050 lbs.

Mr. ARCH. SCOTT Carrick, has fifteen sheep, which this spring have added to his flock twenty-seven healthy and vigorous lambs. They are of the Leicester breed by a ram owned by Mr. James Thompson. This clearly demonstrates that sheep-raising, if properly managed, may be made very profitable.

THE stringency in the egg market is painful. There has been a large falling off in deposits of late, many of the hens having entirely suspended, while others are holding on to their reserves. It is thought, however, that nearly all will be able to resume in the spring, when the crops begin to move.

AN exchange says that the high price of barley, the comparative certainty of the harvest, and the great demand for that grain in the States, as well as in Canada, point to it as the best crop that farmers can produce. Barley grown in this section is, if well harvested, bright and clear, and commands a superior price in Chicago to that raised elsewhere.

CHEESE FACTORIES are going up rapidly in New-England as well as in the new Western States. The farmers of Paw et, Vt., are giving up sheep raising and going into the manufacture of cheese. Nine factories are already within its limits. The demand for American cheese in England only increases with the supply, as cheese is found to be the most palatable as well as a cheap substitute for animal food.

MESSRS. BIRRELL & JOHNSTON have lately made the following sales of thorough-bred stock:—To Mr. Lyceet, of Wisconsin, U. S., eleven pure bred Cotswold yearling ewes, for \$528; to Mr. Ferguson, of Quaker Hill, one young bull at \$200; to Messrs. Dault, Pingrey & Son, Iowa, U. S., one heifer calf at \$525, all in gold. They were offered \$550 in American money for their imported cow, "Crimson Flower," bought at the Messrs. Thomson's sale in February.

NOT REMARKABLE.—A Massachusetts farmer says: "My cattle will follow me until I leave the lot, and on the way up to the barn-yard in the evening, stop and call for a lock of hay." Smithson says there is nothing remarkable in that. He went into a barn-yard in the country one day last week, where he had not the slightest acquaintance with the cattle, and the old bull not only followed him until he left the lot, but took the gate off the hinges and raced him to the house in the most familiar manner possible. Smithson says he has no doubt that the old fellow would have called for something if he had waited a little while, but he didn't want to keep the folks waiting dinner, so he hung the tail of his coat and a piece of his pants on the bull's horns and went into the house.

Breeder and Grazier.

Freaks of Color in Horses and Cattle.

The following extract is from a very interesting article which appeared in a recent issue of the *North British Agriculturist*—

Like many other qualities, color is distinctly and strongly hereditary. Amongst horses the transmission of color from parent to offspring is more certain than in some other animals. Hobbler gives results of matching 216 mares of four different colors with like colored stallions without regard to the color of the ancestors; only eleven of the progeny failed to follow the color of their parents. When animals of entirely different colors are mated intermediate colors are not usually secured, nor even are peculiar markings or mixed colors the rule; more frequently the color follows mainly one of the parents. This is particularly noticeable amongst dogs, mice and rabbits, some of the several young born at a birth from differently colored parents have the color or special markings of the sire, others of the dam. Amongst cattle, however, the pairing of red and white parent-very frequently produces roan progeny. One hundred of such unions taken at random from the Short-horn Herd Book yielded ninety roan calves with only four reds and six whites. A white bull with red cows appear from the records of the Short-horn Herd Book to produce roan calves with greater certainty than the red bull with the white cows, from which union there falls a greater percentage both of reds and whites. Both bull and cow being red, not more than one-sixth of the calves come of any other color, and not one per cent. were white. In the same way, when both parents are white, there is such an overwhelming predisposition to white color that in twenty such unions registered in Mr. Stafford's valuable pages, I find nothing but white produce. When, however, one or other of the parents is of mixed color, such as red and white or roan, which is of course only an intimate regular admixture of red and white, the calves do not come with such uniformity, but exhibit variable proportions of red, white and roan. Extracting two hundred cases of pairing of red bulls and roan cows, I obtain an almost equal proportion of red and roan calves with only a record of four whites. Reversing the color of the parents—namely, taking the roan bull with red cows—does not materially affect the colors of the progeny, but still leaves about equal numbers of reds and roans, with not more than two per cent. of whites. Red and white parents appear chiefly to beget red calves. From 42 such unions taken at random from the Herd-book I find 38 reds, 4 roans, and no whites. Red and white bulls mated with roan cows left 30 red, 49 roan, and only 2 white calves. Two red and white sires, both of good Oxford descent, with red cows, produced 22 red calves and only one roan. Conversely, roan bulls on red and white cows left 47 red and 43 roans. Amongst Short-horns, when both parents are roan, more than half the progeny follow suit. Of 333 cows born of roan parents, 197 are roan, 72 white, 64 red. Roan bulls with white cows leave a record of 39 roan and 36 white calves. White bulls with roan cows leave 61 roan, 43 white, and 5 red.

Such facts—and from the Herd Books of the several descriptions of cattle they might be immensely amplified—indicate that the color of cattle may be fixed and transmitted quite as easily as that of pigeons and poultry, which skill and practice breed to the tinting of a feather. With a little time, patience and careful selection, a cattle fancier after two or three generations might with tolerable certainty obtain his animals of any ordinary color he required. Several other conditions modify the tolerably general rule that the calves partake of the color of their parents. The most prevalent, usually the most distinctive breed of the pair, impresses a larger share of its own color as well as of its other characters. Often a well-bred Short-horn bull will communicate his color and good points to the calves of a mongrel herd of many hues and types. I had a red bull for several years, which, although the sire of upwards of 120 calves, and mated often with white cows, never produced a white calf. For several years I have watched the crossing of polled Angus bulls, usually obtained from the renowned Tillyfour herd, with fairly bred non-pedigreed Short-horn cows, and so notable is the preponderance of the polled Angus that the calves, with the exception of a few dark greys, are invariably black, and as invariably without horns. When the Short-horn sire is put upon black polled Angus heifers there is such variety in the color of the progeny, fully half of which show the red, white and roan, so characteristic of Short-horns, whilst many are also possessed of horns.

The law of reversion often leads to peculiar colors and markings amongst cattle. In this way is to be explained the black markings and dark noses which occasionally disfigure even well-bred Short-horns, such outcroppings of old hereditary insignia are particularly apt to occur where two distinct tribes are attempted to be blended. Every observant Short-horn breeder can call to mind examples where a Bates family, clean and flesh-colored about the nose, is mated with a Booth equally free from dark markings, and yet a considerable proportion of the progeny exhibit smutty noses. The like tendency to these dark muzzles is observable among the half wild cattle at Chillingham Park and Hamilton Palace. It is recorded that during thirty-three years about a dozen calves have been dropped at Chillingham having distinct brown, blue or black spots on their muzzles, cheeks or necks, and although these mottled calves are never reared they still continue occasionally to appear, the dark marking doubtless dating back to the time of King John, when there lived in these islands an indigenous race of white cattle marked with red or black spots about the ears and muzzles. White cattle, with similar dark markings about the head, muzzle, tips of ears and feet, are at the present day found in various parts of the world. For upwards of a hundred years wild herds of such cattle have lived in the Lairone and Falkland Islands. In the latter group these white cattle occupy the higher grounds, keep themselves distinct from their colored fellows in the lowlands, and regularly breed three months earlier. It is curious that animals in a natural or semi-wild state, almost invariably divide themselves into separate herds, distinguished by uniformity of color.

Calves when first dropped, and during the earlier periods of their existence, often exhibit old specific color markings, which gradually wear out. The brindled appearance and black muzzle already referred to are usually more observable in the young calf, and after several months often entirely disappear. The lemon red, haddock red, and faded colors, which in some Short-horn tribes are very noticeable in the newly dropped and young calves, are shortly superseded by much darker reds. Similar tendency to the development of old feral colors is noticeable in foals and donkeys, many of which are dropped with bars and lines both on their bodies and limbs, which gradually, however, disappear.

"Surroundings," it has been said, "often make the man," and surroundings emphatically make the beast. Abundance of suitable food and good management continued for several generations gradually increase size and hasten maturity. Even the comparatively superficial character of color is affected by the animal's surroundings. Beasts and birds in a state of nature gradually acquire the hues of the objects amidst which they live—a provision which more effectually conceals them from their enemies. But through the imagination, more especially of the pregnant female, the color of surrounding objects, and particularly of the fellows, is frequently impressed upon the progeny. The repeated liberal use of lunc-wash throughout the stalls and boxes in which a breeding-herd is kept is stated, by various good authorities, greatly to increase the proportion of white calves dropped. An eminent breeder of polled Angus, impressed with the idea that colored objects observed by in-calf cows are apt to color the calves, eschews white paint for his gates and premises, and to maintain, without peril, the black of his Angus "Doddies," uses instead gas tar. With such well authenticated facts we need not be astonished at Jacob's success in obtaining ring-staked, speckled and spotted calves, by placing the peeled, straked rods in Lahan's watering troughs. It has long been observed that white pigs cannot long be bred of uniform color, but become marked with black spots if run in the yard with a black sow or hog. Careful breeders of Short-horns are very averse to mixing with their favorites, Alderneys, black Angus, white-faced Herefords, or other such breeds with colors or markings different from the Short-horns. An experienced breeder informs me that several years ago a valuable Short-horn cow being let to the bull male off and stood for some time by the gate of a yard containing a number of Hereford oxen. Served by the Short-horn sire, she produced in due course a calf unlike both sire and dam in color, but a *fac simile* of the Hereford oxen, which appeared to have impressed her excited imagination. We know of at least one analogous case in which Short-horn calves with most unusual black markings have been dropped by cows which, at the period of conception, had happened to run amongst black cattle. In like manner bitches in heat taking a fancy to a particular dog, although warded by an entirely different dog, occasionally produce one or two of their pups with markings similar to those of the object of their affections.

The color, as well as other characters of the offspring, is apt to resemble not their own immediate sire, but males with which the dam has previously had faithful intercourse. A polled Galloway or Angus bull put to ordinary Short-horn cows produces usually a very large proportion of black polled calves. In subsequent seasons these cows, especially if they have bred for the first time with the black polled bull, when mated with Short-horn sires still leave calves with black, grey and brindled markings, very evidently derived from the influence of the polled cross. Various explanations have been given of this curious phenomenon. There was at one time an idea that the fetus whilst in utero inoculated the maternal system; but as no foetal blood passes back into the circulation of the mother, such explanation is untenable. It is more probable that in the first pairing the male, besides fertilizing effectually one or more ova, gives his impress to others which for a year or longer period may remain unimpregnated.

Substitutes for Milk in Rearing Calves.

The question how calves are to be reared successfully when human necessities crave the milk (which accompanies the advent of the calf), is one which has, of late, exercised considerably many occupants of land. We want beef, and therefore lean bullocks are in demand. But the calls for milk urge many cowkeepers to make away, as soon as possible, with the calves, which are as surely the forerunners of the bullocks as the "child is father to the man." How to be able to sell the milk (or, at all events, the cream and butter in the milk), and yet not arrest the future supply of milk and beef making machines, has been a knotty problem for thousands. I have seen linseed, oatmeal, wheatmeal, hay tea, malt, and Irish moss recommended by persons claiming to be recognized as agricultural authorities. I have myself tried all but the last, with more or less of failure. No doubt after six or eight weeks, by help of the three first, half at least of the milk, and all the cream and butter part of the milk, may be certainly dispensed with, and yet the calves be kept healthy and thriving. Earlier than six to eight weeks' milk has proved necessary, if the calves are not to get a "stunt" and become "pot-bellied," and have deranged digestive organs for life. No doubt a careful feeder, using the produce of his own dairy to rear his own calf, gets along safely without new milk considerably sooner than any hireling; for the success depends on a daily attention to tedious minutiae which self-interest alone is likely to insure. But, so far as my observation goes, the most painstaking of calf-rearers requires milk for a considerable period, varying from a month to ten weeks. Linseed is excellent, whether as a cake or in hay tea; oatmeal is good, dry; and so is the fine miller's offal, called supers, randan, &c.; but still, up to a time some milk must be had, if disappointment be not to follow. Malt too, in limited quantity, seems good, though not to the extent that the malt-tax abolitionists assert. It is as good but not better than the preceding food, and not so much better than sprouted barley as to pay for malting. So my experience comes to this: You can, by help of malt (a little), linseed (a good deal), oatmeal and miller's offal (most of all), rub, after a few weeks, the calf of the provision made for it by nature, and make a good beast of it for feeding or breeding purposes, as may be required. But the proverbial audacity of female pioneers in the path of invention has, it is said, been rewarded by a discovery which, if sanctioned by experience, is really of considerable value. "Furens quid femina possit?" may be freely rendered, "What cannot a lady with an enthusiasm accomplish!" The successful exhibitor of short-horns, the distinguished proprietress of the herd at Witham-on-the-Hill, has hit upon a novel expedient for making younger brothers of the larger portion of her bull calves. That the future hero of the show-yard may have his dam's milk, and one or two other matrons' produce besides, the following scheme has been tried, and it is said, successfully. Under a week old calf is taken and put upon a diet of boiled bread, and yet grows and develops all its points—less quickly perhaps, but as surely, as the pampered heir. The loaf is boiled two or three hours, and then, milk-warm and sweetened with a spoonful or two of treacle, it is offered to the calf bereft of its mother's care. It is asserted (by a high authority) that the plan has answered, alike to the owner, to the show calf, and to the working partner in the firm, the future sire or dam of winners to come. I cannot speak from experience, but I mean to be able to do so before long. Meantime the plan is put before the public, some of whom may find it less novel than I think it to be. It seems to include all the requisites for success; and, as bread corn seems likely to rule low, and best fresh meat to rule high in price, in coming years, it may possibly be

found that the loaves can be transmuted into beef, and leave some gold to boot, in the shape of profit, to the alchemist who carries out the process. The British public will readily part with a slice of the loaf to have a hunch of beef to eat with the remainder.—*Apprentice in Field.*

Close Breeding.

In the Report of the Secretary of the Michigan Board of Agriculture, for 1872, Prof. M. Miles, of Michigan Agricultural College, has an extended article on Close Breeding, or In-and-in-breeding, which is illustrated by a number of diagrams showing how closely in-bred were certain famous animals of different breeds. Prof. Miles gives his conclusions in the following summary:—

All distinguished breeders have practised close breeding to a greater or less extent, and apparently with the same object,—to fix certain desired characters in their stock,—and to shut out all influences that tend to produce a variation from their standard of excellence.

Close breeding, in itself considered, does not improve animals.

All characters of both parents are inherited by the offspring.

Close breeding fixes the dominant characters and gives prepotency in the transmission of those characters.

Animals are varied by the conditions under which they are placed, and the supply of food they receive.

The most desirable characters of our improved animals are highly artificial, and they adapt the animal to special purposes.

An excessive development of an artificial character in a special direction is usually accompanied by a modification of other parts of the system, and a certain delicacy of constitution.

The development of special characters with reference to a particular standard, gives rise to resemblances, which constitute family characteristics.

In attempts to engraft any new character upon a family, care must be taken to prevent a loss of the typical peculiarities of the family.

Close breeding does not, in itself considered, injure animals.

Any defects arising from other causes will, however, be fixed and thus lead to injurious results.

The fat-producing breeds are more likely to show a tendency to barrenness than those adapted to the production of milk or wool.

High fattening qualities are not favorable to the active exercise of the reproductive function. There is a close sympathy between the organs of lactation and those of reproduction—good milkers are usually good breeders.

The reproductive organs are sometimes affected by "fatty degeneration."

With high fattening qualities other functions may be impaired, thus leading indirectly to loss of fecundity.

Changes of food and habit will often interfere with the healthy performance of the reproductive powers.

The fact that many high bred animals are good breeders, shows that close breeding does not necessarily cause barrenness.

Animals that are closely related may be separated and kept under different conditions, and thus prevent the development of precisely the same tendencies in their organization.

Too great a difference in the conditions under which the animals are placed, will however produce divergent variations that would tend to obscure the typical characteristics of the family.

A tendency to loss of fertility may be corrected by breeding within the limits of the family, if the characters of one parent are supplemented by the other,—a cross of color, or of other unessential individual characters may sometimes be made with advantage on the same principle.

Success in breeding will depend upon the skill with which selections are made. If animals are defective in organization, or have a tendency to the feeble performance of any function from lack of constitution, their offspring will inherit the same peculiarities, even if they are not closely bred.

Close breeding in the hands of careless and inexperienced breeders cannot be too strongly discouraged, as it will undoubtedly result in fixing undesirable characters.

The highest success, however, can only be attained by those who possess the knowledge and skill required in fixing those slight variations of form and qualities, that make the nearest approach to the standard of perfection, by a judicious system of selection and close breeding.—*Western Farmer.*

Determining the Age of Sheep.

The lamb at birth usually has two incisor teeth in the centre of the under jaw (the milk teeth); at the age of one month it will have cut the whole of the front teeth, eight in number; at the age of twelve months, although sometimes delayed from two to four months later, the two central lamb teeth will be shed and two broad teeth will take their place. The sheep will now be a yearling past, and is so termed. From this time two teeth will be shed each year, one on each side of those first shed, until all are replaced by new and permanent teeth. Therefore at two years old past, the animal will have four new or large teeth; at three years past, six; and at four years old or thereabouts, according to the health and keep of the animal, the last or corner teeth will have been shed and replaced by new ones; but from the pressure of the new teeth upon the others they may be forced back so that they cannot be seen from the front, therefore it is always safe to count them, and know that the proper number, eight new teeth, are there.

Until the age of six years, the teeth will remain pretty nearly perfect, although in England and other countries where sheep eat turnips from the soil, they become more or less broken and worn. In the United States they should remain intact, preserving a fan shape or position. After six years they gradually lose this peculiarity. At seven they become longer and narrower, stand more perpendicular with respect to each other, and lose their distinct, rounded, cutting edges. At eight they are still more narrow, and are drawn toward the middle. At nine, this is still more marked, and at ten years the incisors usually become loose and begin to drop out, although the mouth is often not broken until twelve. All these loose or broken teeth should be pulled out with a pair of nippers. Indeed, if the sheep from any cause be valuable enough to make it profitable to keep it after the eighth year, it is better, we think, to remove all the incisors as soon as a portion become so unserviceable as to fall out, since the gum of the under jaw soon becomes hard enough to enable the animal to gather its food perfectly.

The molars or grinding teeth do not become loose like the incisors, but from wear become shortened, so that mastication continues comparatively complete. Breeding ewes sometimes continue to breed well for two or three years after having lost their front teeth. Nevertheless, no person in forming a flock should buy such at any price; neither would sound policy dictate keeping such after they become old, except under extraordinary circumstances, as for instance when the animal is very superior of its kind.

It will therefore be found that, after the age of six to eight years, there is no way of certainly determining the age of sheep. As the animal increases in years there are various indications of age incident to all, by which, in connection with the teeth, shrewd guesses may be made. For instance, the horny appearance of the head, the sunken eye, and the gaunt appearance of the subject, are unmistakable signs of age. It is sound policy for the flock master neither to buy nor to keep such, since at eight years a sheep is past its prime for mutton, and generally so for wool.—*Western Rural.*

Shall We Wash Our Sheep this Season.

This annually recurring query among sheep breeders has again come to the surface. It may be that it will remain unanswered for another decade, but our information is to the effect that each year finds its converts to the non-washing policy. Arguments can be found for both practices—the preponderance of those in favor of washing being furnished by the wool buyers, who fail sometimes (though not so generally of late as in former years) to offer reasonable encouragement for putting wool in No. 1 fleece-washed order. An additional argument in the same direction is found in the fact that the commission man who sells the farmer's clip, usually makes his charge for such service at so much per pound, making it more expensive to sell a fleece of wool "in the dirt" than when washed. To these may be added the item of increased freight charges, which comes out of the grower, whether he sells at home or ships to a broker.—These substantially are all the arguments favoring the washing of sheep before shearing.

Against these are urged the facts: 1. The labor, which is always valuable in the season of sheep-washing, there being so many demands for it in other directions. 2. The injury to health which often results from standing for hours waist-deep in water. 3. The damage to sheep, from the inevitable crowding and rough handling during the process; and suffering by cold for one to two days thereafter. So palpable is the latter; that no breeder of choice stock

—high-priced animals—can be induced to subject his favorites to the ordeal. 4. Wool is admitted to keep better when stored in an unwashed condition, and, if held for any considerable time, to take dyes better. 5. All wools, no matter how thoroughly washed on the sheep's back, have to be scoured before working—so nothing is saved to the manufacturer in the way of labor. 6. The manufacturer who gathers his stock of raw material from different parts of the country, would secure it in a more uniform condition, as the facilities for washing differ with every state, and often in different portions of the same state. 7. There would be no annoyance from the throwing out of fleeces indifferently washed, or those that by accident have got in in an unwashed condition. This latter consideration is important, in view of the difficulty—we might say impossibility—of washing any considerable number of sheep to a uniform condition of cleanliness. Even if this were done, they would need all to be sheared at the same time, to preserve the uniformity; for the "grease" rises rapidly under the warm sun of the late spring and early summer days.

Recurring to the arguments pro and con, above enumerated, it will be noticed that most of the reasons for fleece-washing are more readily met and answered than are those against it; and, although not intending or desiring to convince anyone against his will, we nevertheless feel warranted in bringing to the minds of our readers a subject that they will soon be forced to decide for themselves.—*L. S. Journal.*

Vicious Stallions.

I would urge all breeders to avoid vicious and irritable stock horses. The idea that a stallion is less amiable than a gelding is both contrary to nature and observation, and, in common with many other erroneous opinions resulting from ignorance, confined to this country. An irritable temper and a vicious disposition are hereditary—superlatively so—in horses as well as in men. I know families that have been noted for fretfulness and ugliness of spirit for generations. Viciousness seems to be the general mark; it comes down from father to son in uninterrupted sequence. So it is with horses. A vicious sire begets a vicious colt. Exceptions there may be; but the law holds good in the main. I have known a stock-horse at death leave the county where he stood full of ugly brutes; they were untractable, fretful, hard to teach; they would rear, bite and kick. You could never make them docile and kind; they were unpleasant and dangerous. Now, I hold that no one should breed to such a horse. No perfection of muscle and frame, no high-sounding pedigree, no marvellous record on the turf, would influence me to put one of my mares to such a horse. I want no vicious colts in my stalls. None but an amiable, docile, kindly disposed animal should be selected for service in the stud.—*Murray's Bork on "The Perfect Horse."*

HOW OLD DO MARES BREED.—Mr. M. C. Stone states, in the *Vermont Farmer*, that he had a mare that died in foal at 26 years. The dam of the famous Lexington foaled at 23 years, and a hasty examination of the American Stud Book elicits the following interesting facts: Blue Bonnet, by Hedgeford, produced a foal at 24; Hannah Harris, by imp. Buzzard, at 25; Caroline, by Woodpecker, at 26; Clara Howard, by imp. Barfoot, at 27; and Katydid, by imp. Expedition, at 28.

SOILING.—This was a few years ago a new-fangled notion, but now we hear notes of preparation on every side. Mr. A. B., of New Jersey, writes: "I am going to try a thorough course of soiling on my little farm this season. I am going to treat some old crops in a new way for this purpose, which I think will add greatly to their value as green soiling and hay crops. My corn stalks, now in barn, smell as fragrant as the sweetest new-mown hay, and cows and horses devour them in preference to hay—the whole stalks I mean, no cutting up is required, no wetting, or steaming, or mixing with meal. By cutting and curing in a proper way, we can have green food almost all winter." E. R., of Ohio, writes: "I have a little farm of 25 acres, but I propose, by husbanding every rod of land, to make it as large as many others of 75 acres. I sowed two acres of winter rye the last of August, and it looks finely now; will give me an early cutting and two or three more afterward. I have five acres of clover; shall sow one acre of oats and two of corn for soiling this season. I keep ten cows and expect to make \$100 per head in the sale of milk and butter. I find that one-half acre will give a cow all the green food she can eat in summer, but it takes an acre of good grass to winter her. I have a pair of strong horses and shall raise two calves, but my ten acres of soiling crops will give me a surplus for winter food.—*Buffalo L. S. Journal.*

Veterinary Department.

Surgical and Other Appliances.

Poultices

These are valuable means of promoting the formation of pus—matter, either to be discharged directly from the surface of a wound, or from within a cavity located in the soft parts (of muscles, &c.), generally known as abscess. In many parts of the country much prejudice exists in favor of certain substances, or ingredients, besides which nothing else is supposed to possess any qualification whatever for use as a poultice; for instance, one pins his faith to linseed meal, another to bran, a third to boiled turnips, and, besides many other things, the excrements of animal and human beings are actually made use of.

The essential value of an ingredient for use as a poultice consists in its property of *maintaining heat and moisture*. That which will hold these the longest is therefore to be chosen, but we exclude from our category, *not to vitiate*, all kinds of excrement, as being not only inferior in the foregoing properties, but for stronger reasons—their filthy odor and tendency to produce long-standing ulcers or sores, as well as positive blood-poisoning, ending in death.

Poultices are always applied in a heated condition. Great care is required in this particular, or serious consequences may take place. The proper temperature is from 112 degrees to 115 degrees Fahrenheit, and in the absence of a thermometer, an ordinary test is the human hand, which, on being plunged into the substance, will comfortably bear the above degree of heat. The rough, hard hand of a laborer should not be chosen, as we have repeatedly witnessed such will bear a surprising amount of heat; one who is not in the habit of doing rough work will best estimate the proper degree of temperature required, and much inconvenience, as well as unnecessary pain, be avoided.

In consequence of the regular maintenance of temperature, those articles which exhibit a tendency to agglutinate, or stick close together, are useful in that particular, but they are objectionable, as in process of drying they form hard substances, and stick so closely to the wound and surrounding parts that much harm is done thereby, especially in removal. Flour and linseed meal are of this class. To obviate this tendency the substances may be mixed in various proportions, but what answers much better is to add to the heated mass a lump of hog's lard, which, after melting, should be thoroughly incorporated with it.

Bran is generally used, as it is cheap, but, in point of efficacy, a mixture of bran and linseed meal is better.

Poultices should be applied *early* to the affected parts, and in order to secure this, an additional covering is required. The great object in all cases is to protect the spot from the colder surrounding temperature, and hasten the formation of pus; but if the poultice does not fit closely, the result is admission of cold air, rapid evaporation from the moist surface, and a stoppage of the process we desire to promote. This result is a common cause of imperfect cures in such cases as grease, &c., in the hind legs, and strangles, or formation of abscess in the space between the under jaws, among horses, foals, &c., in cattle. In each the weight of the mass is sufficient, in the discomfort and filthy state of the sufferer, to cause it to slip away from the parts and produce awkward states. The weight, therefore, of a poultice is a thing to be taken into account, for the lighter it can be made, the closer it may be made to fit. When the legs are the parts to be treated, the most useful plan is to use either a large, strong, footless worsted stocking or make a strong canvas casing of due length, and somewhat greater cylindrical capacity than the leg itself. This is first put over the foot as carefully as possible, and when drawn into position the bottom is secured, either round the hoof or pastern joint, as circumstances require, by means of a leather strap and buckle. (If the pastern be selected, the strap must not be drawn so tight as to interfere with the circulation.) The ingredients of the poultice, being already mixed in a pail or other suitable vessel, are now to be packed within the canvas case, so much being used as may either cover the leg all round or largely over the particular part, and the top of the case being drawn towards the leg, a strap secures that also, and over the whole a long bandage is carefully bound.

This process is not to be carried out with other parts so well as the legs; the jaws, for instance, being a very awkward place to which we may secure

anything of the kind properly. In fact, we have seen much harm result from their use, and of necessity were compelled to discontinue them. In some of the forms of strangles great weakness accompanies the disease, and the weight of a poultice is a serious inconvenience. It is as much as the creature can do to hold his head without a poultice, and the addition of weight proves a great burden. In such cases many practitioners make use of a hood for the head, which, being placed in position, is packed beneath the jaws with several thicknesses of soft flannel, a bag filled with cotton wadding, or a thick sheet of spongio-piline, all of which are previously heated and applied dry. By these means the weight and other objections of an ordinary poultice are generally avoided, and good results are obtained. With the use of spongio-piline capital results take place, if it be applied after immersion in hot water. Two pieces of proper size should be employed, having greater superficial extent than the parts to be treated; one is first applied and kept in place the allotted time, and the second is to be applied direct from the hot water the moment the first is removed. In this way alternate pieces are applied, and they prove soothing and curative, while they may be caused to lie close to the skin, and are of no appreciable weight, the waterproof and non-porous outer surface admirably preventing any evaporation and sudden cooling, which so often mars the efficacy of a poultice, and thus delays cure.

In the renewal of poultices, also, there is much that should be avoided. They should never be allowed to remain on too long, and thus become discolored, hard, dry, or cold. As the great properties, heat and moisture, are gradually being dissipated, a renewal poultice should be prepared, nothing being left but the pouring on of the hot water and subsequent mixing to be done. Boiling water should, as a rule, be used, the whole being stirred with a stick, &c., and the mixture frequently tested, as before explained, until the heat is sufficiently reduced. At this stage the old poultice is to be removed carefully and quickly, and the second put in its place, avoiding exposure of the diseased surfaces as much as possible, or being moist and heated by the poultice, the skin is now doubly sensitive to the effects of outward conditions, from which dangerous reaction may speedily follow.—*Farmer (Eng.)*

Crib-Biting, or Cribbing.

Crib-biting is a propensity peculiar to the horse, which is regarded as a decided vice, because, when the habit becomes confirmed, it is attended by very disagreeable symptoms. The first symptom of crib-biting is usually the licking of the manger, which habit the horse about to crib will indulge for hours together. If taken at this point, and a lump of rock salt be placed in the manger, the animal will apply its tongue to it; this usually prevents him from becoming a cribber, by giving him employment and strengthening his stomach. A cribber is generally known by the rounded and worn aspect of the front teeth, and this not from a fair way of biting, but rather pressing or rubbing the edge of the teeth, either of the upper or lower jaw, or both, against any hard object, especially the manger, as the most convenient place. In the act of cribbing, a horse fixes his head, curves his neck, and appears to eructate, or to swallow air. Whatever may be the nature of the act, there is soon evidence of a dyspeptic state, as the abdomen swells, and the horse may seriously injure himself by persistence in indulging in this bad habit. In some cases the evils attending the vice are not so great, but at all times a crib-biter must be looked upon very suspiciously. In the course of time the gullet becomes thin and distended in crib-biters, and from the irregularity in the width of the passage, choking is sometimes favored. Some horses, notwithstanding they are inveterate cribbers, get fat, and perform the work briskly, even to the end of prolonged lives.

The only cure for a crib-biter is to do away with the manger or any object against which the horse can crib. The horse should be placed in a loose box, or where there are no fixtures but the walls. As idleness and indigestion are among the causes of this habit, the animal should be fed regularly, and worked as regularly. Place his hay upon the floor, and his oats or corn in a small trough, and remove it as soon as the feed is eaten. By placing a broad strap round the throat, and thus pressing on the windpipe, the animal is stopped from the bad practice, but this is attended with the danger of producing distortion and constriction of the air-passage, rendering the animal an incurable roarer.—*Prairie Farmer.*

Tonic for Horses

If a horse is very low in flesh and spirits, give him one button of nuxvomica every other day until he has taken three buttons. They should be beaten or filed, and should be given (when the horse is hungry) in meal or hominy. Be sure he eats it all. If, however, he should leave a portion, drunch him with what remains, a tor mixing it with water and putting in a bottle. Then give him a tablespoonful or two following mixture once a week: one-fourth pound alum, one-fourth pound saltpetre, one-fourth pound sulphur, one-fourth pound ginger, well pounded and mixed. Have his sheath well washed out with warm soap suds, by means of a soft mop, grease it with a small quantity of oil or lard, and allow the horse to run on a pasture if convenient. He should be exercised moderately, or put at light work; he should have his usual food left in his trough. In four weeks the horse will probably be in a thriving condition; if not, continue the mixture.

The nuxvomica should be omitted unless the horse is in a very bad condition, as there is some danger in giving it to a horse in tolerable health. If convenient, have his corn ground to hominy, and mix with it one-third shelled oats. Twelve pounds per day of this mixture (eight pounds hominy and four pounds oats) is a fair allowance for a work horse. I have known horses treated in this manner for twenty-five or thirty years, and do not remember of its ever having failed, excepting a few cases that were very old.

This mixture is an excellent tonic and alterative, and may be safely and advantageously given to horses and mules at any time, and will improve their condition, particularly in the spring when they are shedding their coats, and often lose their appetites. The same applies to cattle. Both should have salt and ashes or weak lime (equal quantities) given them regularly every week.—*Rural Carolinian.*

How Animals Treat Their Weaklings.

Audubon observes that with the wild turkey the old males, on their marches, frequently destroy, by picking the head, those which are immature, but it does not appear that full grown and vigorous birds are attacked. The old, sick, and disabled are left continually to their fate by moving herds of the American bison, and are fed upon by wolves. That they are expelled by violence is probable, but so far as we know, there is no positive proof of the fact. It is known that wolves, if wounded, are attacked and killed by their comrades; and the arctic fox, if disabled, is sometimes not only destroyed but eaten by his companions. One of a school of porpoises at play around a vessel, as we once witnessed, was injured by a pole hurled at it, when it was instantly pursued by dozens of others with a celerity of movement that was astonishing.—*Popular Science Monthly.*

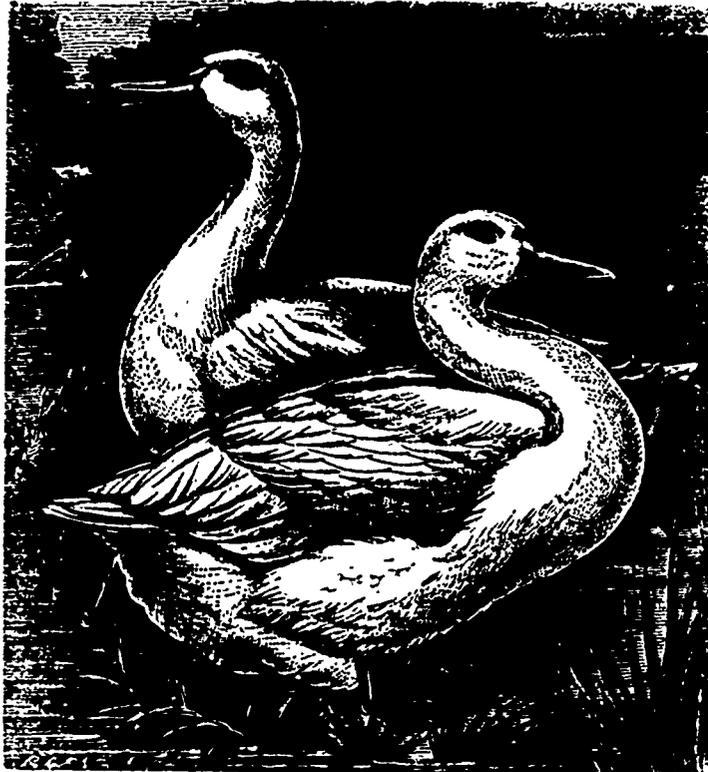
REMEDY FOR STERILITY.—The *London Agricultural Gazette* recently made a suggestion that seems worthy of trial. Two Short-horn breeders in Ireland hired two aged but valuable bulls, and used these to cows recently purchased at sales at long prices, and which had been more or less forced. They found their cows in heat again and again; but finally tried the experiment of each driving his cows in the ordinary country manner, seven miles to the other's bull, and succeeded in getting calves from all the cows. The result plainly shows that the driving of cows in heat some distance before serving is of decided benefit in cases where the cows are in high order. In one case the treatment has answered when the cow had been two years barren, and had been served at home thirty times by seven different bulls.

RAISING CALVES.—A writer in the *Olaso Farmer* says:—"Supposing it does require two gallons of sweet milk per day, and that milk is worth on the average ten cents per gallon for cheese, the feed at the end of four months will have cost \$24. The animal may not be worth the difference between the milk and slop and grain, but when the calf is three years old the difference will appear threefold the other way. If the cost of raising a calf on new milk is \$24 for the first four months, and the animal is not really worth more than \$10 at that age, then, of course, there is a loss of \$14, so it will not pay to raise common or inferior calves where milk can be sent to the factory or made into cheese on the premises. Where butter is made, either on a large or small scale, skimmed milk may be fed with profit, for the casein, or curdy part, furnishes the requisite for growth and development, but we do not wager anything on there being good paying results from feeding whey or dash water to any grade of calves.

Poultry Yard.

Aylesbury Ducks.

The town of Aylesbury, in the county of Buckinghamshire, England, has given the name to the famous breed called Aylesbury Ducks, which originated there. It is no doubt the result of a cross, but at this distance of time (it has been peculiar to the neighborhood longer than the oldest inhabitant can recollect) no information can be obtained of the parent birds used, but there is little doubt it has been greatly improved in breeding within late years. The breed is, however, now well known and universally admired. It has found its way to this continent, and has become a favorite both in the United States and Canada. Their great merits are, hardiness, great size, and, above all, their early development to maturity. Of all the water fowls, they are perhaps the most easily acclimatized, and will thrive where other breeds fail. In and around the town of Aylesbury, large numbers are reared annually for the London market by cottagers, familiarly known by the cognomen of "duckers," whose houses in the spring are filled from kitchen to bed-room with young ducklings. Birds reared in this way are seldom permitted to enter the water, nor in fact to leave the places in which they are confined till ready for market. Their food is at first eggs, boiled hard and chopped fine, mixed with boiled rice, on which they are fed several times during the day. As they grow older and capable of consuming more, they are fed upon barley meal and tallow greaves, mixed together with the water in which the greaves are boiled. Some "duckers" will have as many as one hundred and fifty



hens sitting at one time. All fanciers know how beautifully transparent the shell of a duck egg is, and how readily the fecundated egg may be recognized with the assistance of an egg-tester; but from long habit and experience, these people can tell after a few hours, by holding them up to the light, how many eggs will prove good, and the useless ones are taken away and fresh ones supplied in time to hatch out with the rest. When hatched, several broods are put together, one hen taking charge of fifty ducklings or more, as they do not want brooding like chickens. At the age of about four weeks they are killed, and the weight is considered good if they reach four pounds each at that age.

To produce exhibition birds, a somewhat different course must be pursued. In order to command success in the exhibition pen, great size of frame and weight is necessary, and therefore birds ought to be hatched out as early as possible, in the months of March and April. After hatching, the same kind of food as that given by the "duckers" is supplied until they are about a week old. Some good breeders then feed with barley-meal, mixed with boiled greaves, quite stiff, giving plenty of green food, such as lettuce, cabbage or any other garden produce that can be spared. At the age of about three weeks they should be allowed access to water, if the weather permits it, for a short space in the morning only, and the softer and clearer the water is the better. They should be fed regularly three times a day. The greatest

difficulty is found in keeping their bills of the proper color, which should be "as pink as a lady's nail!" But in the vicinity of Aylesbury there is little difficulty in this, as the peculiar formation of the soil by the sides of the streams and ponds, it being a sandy gravel, conglomerated with minute shells, keeps their bills of the much admired color. In other localities not so favorable as Aylesbury, much may be done to ameliorate the difficulty by putting some gravel in the water-troughs, and keeping them from the sun, which will often tan them. Running much in the grass, and having access to foul water is also prejudicial to the delicate color of the bills. Although in England yellow or discolored bills are tantamount to disqualification, they are permissible in the United States, by the standard of excellence, owing, no doubt, to the hot summer sun.

There is but one variety of the Aylesbury, and they are universally known as the "White Aylesbury's," their plumage being of a spotless white, the

slightest discolored feather being a disqualification, showing impurity of blood; legs, bright orange. There is no distinguishing characteristic between the duck and drake, save that the latter is of a larger size, and shows a very handsome curled feather in the tail, as well as the well known difference in voice. At the age of twelve months, the ordinary Aylesbury duck weighs about six pounds, and the drakes seven pounds; but exhibition birds are sometimes very much heavier. The weight of the prize-pair of Aylesbury ducks at the Birmingham Poultry Show of 1867, was 18½ lbs.; 1868, 17½ lbs.; 1869, 17½ lbs.; 1870, 18½ lbs.; 1871, 17½ lbs.; 1872, 18½ lbs.; and 1873, 17½ lbs. These are, however, outside weights and require constant care and attention in producing them. One drake to two ducks, or two drakes to five ducks is given by an experienced English breeder as the best proportion for breeding, and at that season should have ready access to water, a running stream being preferable to a pond, but one or the other is indispensable. The autumn is the best time to purchase breeding stock, and the birds should be the early young of the year, say about seven months old. The drake should, if possible, be unrelated to the ducks, and not over two years old, and about every third year a change of blood is advisable. The eggs vary in color in an unaccountable manner, some being quite white and others a bright green or cream color, though the same food and treatment is given to the ducks. The color of the eggs has, however, nothing to do with the sex, as some assert.

Poultry Notes—No. 9.

Care of Young Chickens.

After the newly-hatched chicken emerges from the shell, it is wet all over, and each tuft of down is enclosed in a very thin membranous sheath, but as the chick dries with the warmth of the hen, the down expands and assumes that appearance so fascinating to all young amateurs. Chickens do not require food for at least ten or twelve hours after hatching, during which time they should be left with the mother, entirely undisturbed; they require the heat of the living body to nourish them, and it would seem to impart vitality to them which no artificial warmth can do. The first food of young chickens should consist of eggs boiled hard and chopped up, mixed with double its size of bread crumbs, and the whole slightly moistened with milk; this they will pick up quite freely, as the appetite begins to sharpen. At first they will eat very little, and seldom drink any during the first day; but provided they are tolerably strong on their legs, and lively, nothing should be done to induce them to eat beyond pacing food and drink before them. If anything comes naturally to animals of any kind it is eating, and therefore any attempt to teach chickens this act is a work of supererogation. Some people still entertain the idea that it is necessary to remove the horny scale which is to be found on the beak of nearly every newly born chicken, by means of which it breaks the shell, with the thumb nail; but this is not at all necessary. Nature never provides any animal with an appendage which it is necessary to remove by artificial means. It will of itself drop off in due time. If any of the newly-hatched chickens show debility, it would be well to supply a stimulant, and a little raw egg beaten up with brandy may be given. After a few days the chopped egg and bread crumb may be discontinued, and a regular dietary scale commenced. Ground oats, oatmeal rather coarse ground and mixed with about one-third barley meal, where both can be afforded, make an excellent diet, varied occasionally with some kind of grain; wheat screenings are perhaps the best. Buckwheat, cracked corn, and barley may also be given. For very expensive chickens, canary or crushed hemp-seed may be given in the first instance; but as this is expensive, it cannot long be given with profit. If it can be supplied at small expense, then their soft food should be mixed with milk instead of water, and for early chickens, new milk warmed given them to drink early in the morning has a wonderful effect on their growth and in bringing them through cold weather; but care should be taken that it is not left too long so as to get sour; if so, it may cause serious trouble. A little meat chopped fine may be supplied, of which young chickens are very fond, and it greatly assists in maturing them. Chickens are very early risers and have generally good appetites, and should therefore have an early breakfast. In summer they will be thoroughly awake at four o'clock, and should then have something to eat; we have found it a good plan to place a little food within easy reach of them after dark the previous night, so that when they pass out in the morning they can satisfy their hunger. Long fasting is very prejudicial to their growth and happiness. As a rule food should be given so as to fully satisfy their appetites and no more; just as much thrown down as will be all clean picked up, leaving none to be trodden into the ground, or to remain over. Chickens for the first two weeks ought to be fed every two hours; after this, and until they are a month old, every three hours; and after that four times daily will be sufficient. In this country, where milk is cheap, curd may be given to chickens, and of which they are very fond. A little alum in the new milk will cause it to curdle immediately.

Nothing conduces so much to the health and growth of young chickens as a good grass plot, where it can be obtained. Early in the season, however, no

matter how wide may be the range at other times, this will be impossible to procure; it is therefore very necessary to provide a substitute; this will be found in a head of early lettuce, which, if occasionally given, will be found of great benefit, and also a great preventive of diarrhoea. When the weather admits of it, chickens ought to be cooped out, the coop so placed that the back will face the wind, and be sheltered from any sudden storm that may arise; by this means the hen is confined while the chickens have full liberty. For other reasons also it is beneficial; it prevents in damp or cold weather the hen bringing the chickens too far away and getting wet and chilled, from the injurious effects of which they may never recover. Once a chicken is thoroughly chilled, it rarely if ever gets the better of it, and even if it does it checks the growth and injures it in many ways. The importance of dryness under foot in rearing chickens is very great. Some breeds will endure dampness better than others, but dampness under foot will be likely to bring on cramped feet. In the early part of the season, boarded floors will be best, but they must be kept well sprinkled with dry ashes to prevent insects, and when the weather admits of it, cooped outside during the whole or a part of the day. When chickens arrive at between six and eight weeks of age, the mother will in all probability show signs of leaving them, if allowed her liberty and not kept cooped, or she may begin to lay at this time, if she has been allowed to partake freely of the chickens' food. In either case she will begin to lose that fondness of them previously so noticeable, and some means should be at hand to provide for this contingency. If the weather is still cold, a dry warm place ought to be ready to put them in at night, which should be daily cleaned out, else it will soon become so foul that the chickens will not resort to it, or will catch some disease by continuing to remain in it at night. In such a place, kept nice and clean, it is surprising how long they will continue to resort to it, huddling up together and keeping each other warm. Sometimes, if the hen is permitted, she will go to the perch at night, and the chickens will follow her, and as many as can will get under her wings, where she will still continue to brood them, but this will not continue long, nor is it desirable in the case of some breeds that it should. Large breeds should not be allowed on the roosts until they are fully three months old, nor in the case of birds for exhibition would we allow them to roost at any age, until after maturity. A crooked breast may be the result, even with the utmost care exercised, which to exhibition birds is a disqualification. Chickens, however, should not be allowed with the old fowls under any circumstances, but should be kept apart and fed freely. In the case of birds for show, they ought to have as much as they can use, a more than liberal supply, they are now growing fast, and require it. Any check to their growth at this period will be of permanent injury. Four good meals must be regularly given, one of which, at least, should be of soft food, mixed rice and dry, and if the place admits of it, scattered about so as to allow them room to pick it up clean, but if not, it should then be placed in vessels kept clean, and free from sourness. Milk, if it can be had, may still be given them, even up to the age of six months if the range be good; but if kept in confinement, not more than about three months; in such cases, it is too much for the sluggish digestive organs. At the age of from ten to twelve weeks the cockerels ought to be separated from the pullets, and kept by themselves. They never grow so large when the sexes are kept together, besides which, it saves trouble, and the cockerels are not so ready to fight among themselves as if with the pullets. In all the larger breeds there will be little difficulty in picking out the cockerels, the comb and spur of which will be a pretty sure indication of their sex. In cases where a good run is impossible and the chickens are kept in small yards, these should be kept regularly swept out, and occasionally sprinkled with carbolic acid of limes, which kills all the offensive smell and prevents disease among the chickens arising from this cause.

Thorough-bred Fowls.

So many persons, well informed on general subjects, are at a loss to know the meaning of *thorough-bred*, that it may be proper at this time to give some explanation, so that those who for the first time are about to breed fowls may understand what a thorough-bred fowl is.

Every animal as it grows up tends to develop in a particular way like its parents or ancestors near or remote, or like the average of its ancestry; but circumstances during development crowd it this or that way every instant of its existence, so that it has many obstacles to prevent an exact copy of its ancestors—the weather, diet, and many other influences more or less remote, tend to this result. No domestic animals have ever yet been bred strictly true in color, size, form, &c., yet where they breed nearly true they are called “bred true.” When they really are not perfectly thorough-bred, offspring tend to resemble the average of their ancestors; the more even the ancestor, the stronger the influence over the offspring; so that in the breeding of fowls, we desire to breed to produce the form, color, size, by care in selections for generations. Selecting with these three objects in view, discarding all but the best types, we eventually produce fowls that will in a large degree produce form, size, color. We then have thorough-bred fowls as far as these three qualities are concerned. We may add other points if we desire, and when we have these points established in such a manner that the offspring will be a true fac-simile of the parent, these points will be thorough-bred, having with great care obtained the several points of excellence desired. We must not forget that continued care and study are necessary to retain these points, there being so many circumstances that tend to weaken the ancestral influence. The progressive breeder continues to breed from his perfect birds only each generation, and by so doing he retains the ancestral influence with more strength and certainty and more full development; hence the true honest breeder of thorough-breeds becomes identified with his thorough-bred of whatever variety, and these are known as his “strain” of blood.

In fowls as in other domestics there are humbug breeders who have no established strain. But there are many who are not humbugs that have not obtained a high degree of excellence. Many of them from want of study or care fail to establish the desired points, hence the oft repeated assertion that high priced fowls are all “fancy.” Many who undertake the raising of fowls do not give to it the time and attention necessary, hence the result is failure and the blame is charged to the fowl. In a future article I will give descriptions of the different varieties and also some statistics as to products.—*Cor. Maine Farmer.*

The Growth of Feathers.

In the skin of a bird where a new feather is to grow there is a little pit, and at the bottom of this an elevation or pyramid; extending up one side of this pyramid is a groove or furrow, deepest at the base, and gradually growing shallower until it disappears near the top; from each side of this furrow a great many smaller grooves extend around to the other side of the pyramid, and these also decrease in depth, and at last disappear just as they are about to meet on the side opposite the large furrow. The whole pyramid is covered with skin, and the surface is made of the same scales, or flattened cells, that are found over the rest of the surface of the body, but instead of falling off when they are pushed out by the new ones below them, they become united or welded to each other, so as to form a horn coat over the surface of the pyramid, and as new cells grow at the base this coat is cast off, the surface is pushed upwards till it breaks at its thinnest part, which is, of course, the smoothest part, with ridges opposite the large furrow, and then as it is pushed onward and flattened it assumes the form of a feather, the ridge formed in the main furrow being the shaft, while the cast of the side grooves form the separate barbs of the vane. When all of the vane has been formed and pushed forward, the pyramid loses its grooves and becomes smooth, and the wall now formed on its surface, being of the same thickness in all its parts, does not break, but remains tubular, and forms the quill, which is attached to what is left of the pyramid. A finger-nail or a hair is formed from the same kind of scale in the same way, the process differing only in those features which give to each organ its special character. Feathers, scales, hair, claws, and nails, are all made alike from the dead, flattened cells crowded to the surface by the process of growth.—*Popular Science Monthly.*

Poultry Experience.

Thinking that perhaps my experience the past season might be acceptable as showing the value of poultry under ordinary circumstances, I will give you a few facts and figures. I had, November 1, 1872, 100 good laying hens, 1 and 2 years old. I had no losses by disease or from any other cause. Now for the figures:—

	Dr.	
100 fowls		\$50 00
Feed from Nov 1, 1872, to Nov. 1, 1873,		100 10
		<hr/> \$150 10
	Cr.	
1,416 dozen eggs, 23 cents per dozen.....		\$325 68
100 hens on hand Nov. 1, 1873		25 00
50 chicks		25 00
		<hr/> \$375 68
Total.....		150 10
Profit		<hr/> \$225 58

I have now on hand 100 old hens and 50 chicks and 7 cockerels, which I would not sell for \$175. The grain was principally corn; but some wheat and oats were mixed occasionally. Coarse meal and cracked corn was fed to the chicks, which were allowed full liberty of the yard. I shall try to do better this year; for as last year was my first, I think that it is only reasonable that I should.—*Cor. Rural New Yorker.*

Geese.

Where the farm homestead is adapted for geese, where there is proper restraint on the swine, there is nothing pays better for keeping on the farm than a gander and three geese. Some have as many as four or five geese with one gander, and the feathers from the young ones when killed are valuable without cruelly picking live ones. When there is a comfortable coop, with choice of nests and there is nothing to disturb them, geese will generally raise ten goslings each on an average; but if brought to a fresh place in the spring, or gander or geese are changed, they seldom do well the first season. They are very long-lived and will last any farmer's time on a farm. Some people are ignorant of the habits of domesticated geese, and suppose they will only breed in pairs; others think the picking alive to be very economical, whereas the poor, miserable wretches never do much else but supply a few feathers, while those who have fine heavy breeds and manage them so as to sell the young ones fat at the right season make a handsome income without stripping them while living.—*Cor. Rural New Yorker.*

It was perpetrated by the *[Boston Advertiser]*, and we don't hold ourselves responsible for it, but heretofore is:

Said a great Congregational preacher
To a hen: "You're a beautiful creature!"
The hen, just for that,
Laid two eggs in his hat—
And thus did the Hen-re-ward Deecher!

EGGS NOT HATCHING.—A correspondent of the *Queenslander* cautions poultry breeders against shipping by steamer eggs that are intended for hatching. The steady jar of the machinery or the rocking motion of the boat seems to destroy the germ, and the eggs are sure to be added. The same person also says that eggs are best prepared for shipment by rail, by being first coated with varnish and then packed in safety packages. Eggs will hatch, if so prepared, after being kept two months if the varnish is washed off by the use of warm water at the time they are put in the nest.

MANAGEMENT OF BREEDING FOWLS.—I keep my birds (game fowls) in small movable pens, one cock and two or three hens in each. These pens I make 10 feet long by 4 feet wide and 4 feet high. One end is roofed for 3 feet and divided with boards to within 15 in. of the ground. The sides are boarded 33 in. high, and wire-netting 12 in. wide stretching to the top rail 14 in. The roof is made of weather boards, and the top of the run is wire netting. There are two doors, one in roofed part and a trap door in run. There is in each pen a loose nest box, and a tray without any bottom for ashes. They are moved every few days, and have a day's liberty at least once a week. Less than 4 feet high will not do, as the cock often gets on the top and the other flies up at him.—*Poultry Review* (Eng.)

The Apiary.

Successful Wintering.

(To the Editor of the CANADA FARMER.)

SIR:—I notice an item in the apian department of your valuable paper, as follows:—"He may be regarded as a master in bee culture, who knows how to winter his stocks in a healthy condition, with the least loss of bees, the smallest consumption of stores, and with the combs unsoiled."

Well, then, I am a master in bee culture, for I have succeeded in all of the above particulars, combs nice and bright, bees all alive, and my strongest stocks have not consumed more than 15 lbs. apiece. I will tell you how I proceed. I study the "Canadian Bee Keepers' Guide," use the "Thomas" hive, have built a bee-house according to the "Guide," only I make the walls eighteen inches thick, filled with oat straw well packed in, have two doors, one to open inside and the other out, and put newspapers between these two doors. Through the winter I open the bottom ventilator when the weather is warm, and close it again when the weather grows cold.

I prepare my hives for winter by removing the honey board, and place on a frame of inch stuff covered with wire cloth, then fill the cap with wheat straw, by turning it over, and filling it in nicely, so that it will not fall out when placed on the hive. I leave the bottom ventilator of the hive open. My bees are always healthy on natural stores, and I think it too bad to extract all their honey and winter them on sugar syrup. Yesterday my bees were working lively on meal prepared of two parts of buckwheat flour, one of wheat flour, with a little shorts and bran mixed in.—I am, &c.,

ILIA MICHENER.—]

Low Banks, April 14th, 1874.

[We congratulate our correspondent on his attainment of the degree of M. B. C.—"Master in Bee Culture." His plan of wintering is undoubtedly a good one, though we should fear, without a large amount of ventilation, the bees would be too warm in an ice-proof house, with the hive cover stuffed full of chaff. Growing experience, however, inclines us to the opinion that bees are oftener hurt by getting chilled than by being kept over-warm. To judge by the small amount of honey consumed, we should be inclined to think Mr. Michener has hit the happy mean between the two extremes of heat and cold. We should like to know if his house is regulated by the use of a thermometer, and if so, at what degree of temperature he keeps it. We should also like to know if the past winter is the only one during which his bees have been treated in the manner described, or if he has had several years' experience of the method. We are acquainted with numerous bee keepers, whose experience has been very variable in wintering their bees in a similar way. We believe that this was the case with Mr. Thomas himself, whose plan, as described in the "Guide," Mr. Michener has substantially followed. We can testify that it has been ours. "One swallow does not make a summer," nor does one season's success in wintering a lot of bees constitute an apian "Master in bee culture." What is wanted is a definite method, which has only to be followed to secure uniform and certain success. So far as we know, no such method has as yet been demonstrated.]

Spring Advice.

BY M. QUINBY.

Be advised not to put bees out of winter quarters too soon. If possible let the cold winds—if there should chance to be any—all pass over first.

At our association recently, many members reported that their greatest losses were last spring, during April; most of them with plenty of honey. They were not all affected with dysentery (Dr. Pratt—a member—remarked that diarrhoea would express our meaning better than dysentery, and I will use the term) but seemed to dwindle away till gone. Were apparently strong when set out. Sunshine just warm enough most of the time to induce them to fly, but too much cool

wind to allow them to get back to the hive. I would suggest, that it being rather cooler in the room in which they were wintered, than usual—not cool enough to destroy life—they did not commence to rear brood before being set out. Before the queen was sufficiently warmed up to commence laying much, too many bees were gone to protect the eggs with sufficient warmth. No young bees were hatching to replace the old ones lost. Hence the result.

Another result was reported, where bees had been neglected to be set out till some time in May, when they were in the best possible condition, and remained so. The weather had warmed them in the house—as it used to, in March—before they were put out. Young bees in the comb were ready to hatch, to replace the few that were lost, two to one. Consequently the profits from such stocks amounted to something. We ought to get an important lesson from such cases. I would say, do not put out the bees till pretty sure of warm weather out doors. I would advise—when there is honey enough—waiting, with some at least, till there are flowers for them to work upon. Perhaps that may yet be a guide when to put them out. It is possible we might save trouble. We all know that when there are no flowers, bees are much more inclined to rob. Many of us have taken much pains to feed flour, to keep them employed and furnish pollen for the brood. Now, in this trouble can be saved without detriment to the bees, we have gained much. I intend to keep some in at least till flowers come. Will report the results. I am relieved from the fear of their not retaining their feces if warm enough. When it is shown that they have been confined seven months, and discharged no feces except in a dry state, we may hope that they may remain a little longer if necessary.

If the room containing the bees becomes too warm before I want to set out, I intend to cool it with ice or snow, put over head in such a way that the air which surrounds the ice, and is cooler, will settle among the bees, while the water will be conducted out of the room. Perhaps fifty degrees, or a little below, will be about right. There was nothing reported that went far to remove the conclusion that cold was the cause of diarrhoea, but much to confirm it.

Several subjects of minor importance were discussed at the convention, but nothing in which there was so much interest as this. It is desirable that losses, as well as success, be reported. We often learn more by the report of failure than of success; because it sets us to thinking how to avoid it, under similar circumstances. Let us try and turn the calamities of the two last winters into a blessing.—*Bee Journal.*

What is Honey?

Gen. D. L. Adair is reported to have said at the North American Bee Keeper's Convention: "Strictly speaking, there is no distinct substance that can be called honey. The bees gather from flowers, from the different sweets known as honey dews, and from the saccharine juice of fruits and plants, substances that consist chiefly of sugar in some forms, mixed with other secretions and essential oils, and store it in the comb cells, and it is called honey. It necessarily varies widely, depending on the source from which it is derived. All honey is sugar containing vegetable substances in solution with it. Sugar in all three of its forms is, in a general sense, the sweet principle of plants, fruits and trees. Cane-sugar, fruit-sugar and what is known as grape-sugar, vary but slightly in their constituent elements and can be chemically converted into each other. They differ only in the proportion of hydrogen and oxygen or the element of water. Bees will gather and store up anything that sugar in any of its forms are mixed with, so as to give a decided sweet taste; and while it may be true that in the process of gathering and transferring to the hive no chemical change takes place, they mechanically change its taste by its absorbing the scent peculiar to the hive, and often change its consistency by a process of evaporations of any excess of water."

Gen. Adair is a very scientific and successful apian, and we can usually endorse his views to the full. But he is occasionally hyper-philosophical, and pushes science too far. It may be quite true that sugar is the basis of all sweets, honey included, but it is convenient, to say the least of, to have distinctive

terms for the various saccharine substances, though the one luscious principle pervades them all. Only confusion of ideas can come to the popular mind, by forcing too much philosophical accuracy into common modes of speech. Thus, we call one form of sweet, molasses; another, syrup; and still a third, honey. What is the good of arguing that there is no distinct substance that can be called molasses? It is the popular and commercial name of a liquid sweet obtained from the West Indies, having a peculiar flavor, and capable of being distilled into rum. Yet we all know that its main constituent is sugar, or the saccharine principle. So of honey. It is a liquid sweet, gathered from a thousand flowers, acted on in some peculiar way by the honey-gatherers, and possessing a flavor and properties peculiar to itself. But mankind were pretty well aware, before Gen. Adair delivered his philosophical disquisition, that honey was mainly composed of sugar.

There is a question as yet unsettled among scientific bee keepers, to which Gen. Adair seems to give the go-by altogether. He says, it "may be true that in the process of gathering and transferring to the hive, no chemical change takes place" in the sugary stores collected by the bees. On the other hand, it may be true, as many suppose, that a chemical change does take place, and that the formic acid in the body of the bee so acts on the gathered sweet as to transform it essentially. There may be more than an influence mechanically exerted by the odor of the hive. Each hive is generally considered to have its peculiar scent, and hence in joining swarms or introducing new queens, it is good policy to introduce smoke or some perfume to confound the bees for a time, until the new colonists or newly-introduced queen come to smell like the rest. But honey, if gathered from the same flowers, is all alike, no matter in what hive it is stored. At any rate, human senses cannot detect any difference. It is therefore quite as probable that the change is chemical, as that it is merely mechanical. On the whole, we are inclined to think that the great majority of people will persist in believing that there is such a thing as honey. If they should come to a different opinion, and conclude that it is mere sugar, "only that and nothing more," we fear it will spoil bee keeping, and that it will no longer be possible to obtain twice or three times as much for honey as for common sugar. "Where ignorance is bliss, 'tis folly to be wise."

Queen Feeding A Drone.

In the *Beekeeper's Magazine* we find a very interesting act on the part of an Italian queen bee, but whether the act was that of kindness or malice is hard to determine. The writer says that he took the queen out of the hive and placed her, with one drone, in a paper box with glass lid over it, so they could be seen. As soon as they were put in the box, the queen went to the drone, and acted as though she was hungry, and would crawl around as though in search of food. He dropped a piece of candy into the box. She went to it at once and began eating. This appeared strange, as she had just been removed from the hive, where there was an abundance of honey. After sucking at the candy a few moments she went to the drone and fed him. She repeated this several times, when the drone began to show signs of stupidity. The queen now stopped feeding, but the drone grew worse till he died, which was about noon. The drone was as lively as a cricket when put in the box. The question is, did the queen poison him, or did confinement kill him? He was in the box about six hours. The queen consumed a piece of candy, the writer says, as large as a grain of wheat.—*Ohio Farmer.*

The leading breeders and most eminent stock raisers in the Province of Quebec will hold a union sale of thorough-bred horned cattle and valuable horses at Montreal, on Wednesday and Thursday, 13th and 14th May next; the advertisement appears elsewhere. We bespeak a large attendance; the names of the contributors and committee are a guarantee that this, the first combined sale, will be as represented. Catalogues will be ready in one week, and will be forwarded on application to John J. Arnton, the Auctioneer, Montreal.

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