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THE CANADA FARMER.

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The Field.

Leaves from Farming Experience.—No. 1.

EDITOR CANADA FARMER:—I have had an experience of forty-three years farming in Canada, raising grain, feeding cattle, making cheese and butter, and I have taken notes of everything as it was done, for the use of my grand children. I improved the land from the woods, and drained it. I began with clearing 15 acres the first year, now there are about 180 acres arable, mostly drained, stones and stumps out, and about 100 not arable. Every thing was carefully attended, food measured or weighed, milk weighed twice daily, cheese weighed, and all marked for years in a book. A number of letters will be required to explain my method. My remarks will be taken as addressed from a grandfather to a grandson about whose welfare he is anxious.

Errors in Choosing Employment.

First, I will try to point out some errors that young men are apt to fall into in choosing employment, to gain their bread, or to be able to live. Many choose to be salesmen in a store, because it is cleanly, and appears an easy life; and, if a little better educated, he turns schoolmaster. Those employments are poorly paid and also laborious. Young men seldom stay long in one place, being subject to the whim and caprice of their employers. Few salesmen ever have a store of their own, and very few are able to pay their debts. It is a life of great anxiety and care. There is not work for one-fourth of them. A good mechanic can get work in any civilized country and be as well respected as any man. Clergymen, doctors and lawyers, if first-class, will succeed in getting wealth and honor, but the work is hard, requiring many years of training. But there are only few first-class men of any profession, and third or fourth-class men are seldom in a comfortable state.

Managing Help

There are but few men so blessed by providence as to be able to turn themselves to any occupation that comes in their way, with success. I know of no business that needs such varied information as that of the farmer. He will do but little if he does not hire help. You will find 100 per cent of difference in the way you go about it, or between saying to your men, "go and do it," and "come with me and do it." You must remain and see it done. It is vain to expect any one will do as well in the absence of his employer as in his presence. I have hired many men, some very good, but commonly they have little skill, and will try your patience sorely. You need to know how to do everything yourself, and you should know what a day's work is.

Ploughing.

When ploughing, the furrow is commonly six inches deep and nine inches wide. That is sometimes called the standard furrow. When well done, the two faces measure equal, or six inches each. When a field is ploughed with that size of furrow, the horses will travel eleven miles ploughing an acre. I expected that quantity ploughed daily. Some get one and a quarter acres done. Others scarcely half an acre daily. Some have the horses tied back that they cannot go ahead. The custom in Scotland was to have a small line fastened to the outside of each bridle, which the ploughman guided the horses by. Another line tied the bridles together between the horses, keeping their heads about three feet apart. Some men used a small rod of wood which kept the horses' heads apart, and right before them. It is cruel to tie horses' heads back. I have seen them so cramped that their mouths were drawn back near the breast. No farmer should allow it. The horses are kept fretful, they do

little work and do not thrive, and their owners do not thrive either.

Some Rich, some Poor.

Some farmers have plenty; others are in trouble a few years, then have to hire out, weary, broken-hearted men, complaining of bad luck. Old age and poverty are a sad pair, and when joined with sickness are to be avoided by every man.

When you get a dollar, or any implement of industry, make it the means of getting more not for its own sake, but for the privilege of supplying your own wants, and assisting the needy. When you get an animal of your own, see that you provide a proper lodging for it, free of bad smell, nearly frost proof, such as you would feel no hardship to sleep in yourself. The smell of ammonia in stables is poisonous, and is the cause of many diseases. When many cattle die with a man, he may be certain something is wrong about his management. With proper attention to feed, protection and training, the value of stock of all kinds might be doubled in Canada, as I hope to show you.

JOHN ROBERTSON

Bell's Corners, Ont.

Log-Drains.

As a rule, tile drains are the cheapest everywhere that tiles can be obtained, and we by no means recommend the use of log drains where stone can be got. But in parts where the timber is of little value, tiles very dear, and stone not handy, good serviceable drains may be constructed with logs, as depicted in the engravings, which we copy from the *American Agriculturist*. The ditches are dried in the usual manner, and the logs are placed in the bottom in such a way as to leave a water channel between them. In fig. 2 the bottom log is split, and each half is laid closely against the side of the ditch, so that the current can not wear it down, and cause the earth to fall in. The side logs are kept in place by the pressure of the top log.

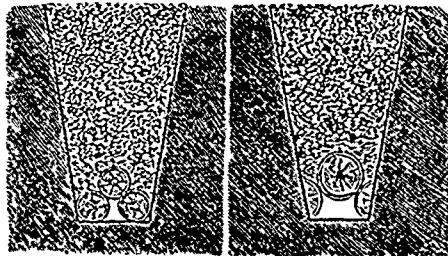


Fig. 1.—Drain of Whole. Fig. 2.—Of Split Logs.

Brush is laid upon the logs and trodden down, and earth is thrown upon it, until the ditch is full. Such drains may be expected to last several years, after which it will pay to make more permanent ones.

The Value of Muck.

EDITOR CANADA FARMER:—I beg to enquire of you as to the value of muck as a fertilizer. I have probably 15,000 loads, the accumulations of many years in a large mill-pond, and I have taken the liberty of sending a small quantity with the request that you will kindly give me your opinion of it. I have also nearly a thousand loads of leached ashes, and I am under the impression that I have somewhere read that the two mixed in certain proportions make a valuable manure. A reply, in the next CANADA FARMER number, if possible, stating what crops and soils (mine is a clay-loam) it is best adapted to, &c., will greatly oblige, as I shall get out a large quantity this fall if your answer is favorable.

Hayward's Falls, Ont.

O. C. HAYWARD.

To answer shortly—a few deposits of muck are valuable, many deposits are good for a little, many more good for nothing.

The value of muck depends entirely on the composition of it, and on the composition of the land to which it is

applied. A great deal of muck is composed of the decay for ages of low forms of vegetation, as mosses and ferns, that possessed very few fertilizing elements in the first place, and have lost what little they had. Much land too, already has enough vegetable matter in it, while some other land has nearly none. The latter class of land will be benefitted by the application of a good quality of muck.

In the case of our correspondent, the muck has been formed by the decay of aquatic vegetation. This kind of muck is deficient in salts, and for use by itself is of very small account. But it can be mixed with other things and so manipulated as to pay handsomely for the trouble. And again, it is quite probable that the pond, from the bottom of which the muck is to be obtained, has been the receptacle for years of the surface drainage of the adjacent land. If it has, the muck is probably extremely valuable of itself. Judging from the sample sent, we should think this is the case. The right way would be to experiment with it, by different methods, this year, and defer hauling a large quantity till it is known by actual test in which direction it is chiefly valuable. Any other method of treating it would be purely empirical, and might result in an annoying loss of time and trouble.

Muck is frequently applied as a top-dressing to grass lands, and with paying results. To be of value it must be pulverized finely, as in lumps it is useless, or indeed worse than useless. And it is questionable whether the good effects of the application of muck to grass are not frequently due to the mulching which the grass thus gets, rather than to the value of the muck as a fertilizer.

The wood ashes mentioned by our correspondent are just the thing to mix with the muck, as they will neutralize the acids present in it and the potash will convert the insoluble into soluble parts. The muck must be dry and then the two thoroughly mixed together, and turned over occasionally. The right proportion of each to be mixed together can not be told except by actual test. If the ashes are hard wood ashes, probably one of ashes to eight of muck would be a good proportion to start with. If soft-wood ashes, try one to six of muck.

Muck is of great value as an absorbent. If used in the farm-yard, a layer of muck should be placed at the bottom, and on it the farm-yard manure. When thoroughly trodden, put another layer of muck, and so on. Mixed with plaster, by which the ammonia is fixed, this forms a fertilizer that cannot be beaten.

Good Things about Rye.

It will grow and produce fine crops far north of the degree of latitude where wheat will fail. It is, indeed, one of the most hardy crops that is cultivated. In regions where fall-sown wheat is almost sure to be killed, fall-sown rye is almost sure to survive and do well. Throughout the prairie region of Illinois, very little wheat went through last winter without injury, but rye came out all right and generally produced good crops. In many places where wheat was ploughed up last spring, rye yielded twenty-five or thirty bushels to the acre.

Rye will grow and produce very fair crops on soils so poor that little else will yield enough to pay for harvesting. It delights in dry, sandy soils, and will yield a good return for the labor and seed on land that will produce little but white beans. There are many thousands of acres of land in different parts of the west that yield hardly anything, that would produce paying crops of rye if it was sowed. Southeast of this city, rye is grown on land that will produce no paying crop of any of the other grains.

Rye is one of the best grains to sow where it is desired to seed the land down to timothy, clover or other grasses. It has little foliage as compared with oats and wheat, and accordingly does not shade the ground as much. It allows sufficient sunshine to reach the soil to cause the young

grass to grow very well. After the crop of rye is harvested, the young grass is not as likely to be burned up as is the case when oats and wheat are cut.

Although the disposition of rye is to throw up tall stalks with very little foliage, it will produce a great amount of feed if it be prevented from running up to seed.

In some places it is common to sow rye in pastures and go over the ground with a harrow. The effect is excellent if the grass is scattering, or if there are patches that have been killed by the cold or drought.

As a crop to turn under for the purpose of green manuring rye ranks next to clover. It has the advantage over clover that it can be grown much sooner.

Rye-bread is rarely eaten by Americans, notwithstanding its excellence. Most foreigners, especially the German and Scandinavians, eat it, and prefer it to bread made entirely from wheat-flour.

Rye makes excellent feed for cattle and horses, especially where the object of the feed is to add to the growth of flesh rather than to the formation of fat.

The chief objection to raising rye is the great fluctuation of prices. Crops of which only a limited amount is raised are liable to fluctuate much more than those of which very large quantities are raised and consumed.

Commercial Fertilizers Adapted to Wheat.

A paper by Mr. Conrad Wilson was read at a late meeting of the American Institute Farmers Club. After giving figures showing the average production of wheat in that State to be less than twelve bushels per acre, he asks if that average cannot be doubled, and answers the question in the affirmative.

Among the manures adapted to this crop the following have been used with more or less profit, and some of them with remarkable success:—Animal dung, guano, malt dust, rape dust, bran, dried blood, sulphated urine, nitrate of soda, sulphate of soda, nitrate of potash, dissolved bone, soot, ashes, salt, &c.

The following experiment on three different plots of wheat, by Mr. Burnett, of Galgirth shows a very striking result: Plot No 1, not manured, 31 1/2 bushels per acre; plot No 2, sulphated urine and wood ashes, 4 1/2 bushels per acre; plot No 3, the same, with sulphate of soda, 49 bushels per acre.

From experiments in top dressing wheat with nitrate of soda and salt the following is reported by Dr. Voelcker in the journal of the Royal Agricultural Society: Plot No 1, not manured, 27 bushels; plot No. 2, 1 1/2 hundredweight nitrate of soda, 38 bushels; plot No. 3, 2 1/2 hundredweight

guano, 40 1-10 bushels; plot No. 4, 180 pounds nitrate of soda and 1 1/2 hundredweight of salt, 40 6-10 bushels.

The beneficial effect of nitrate of soda and common salt is further indicated in the following case cited by Professor Johnson, from which it appears that the product of straw is increased no less than that of grain:—

Plot No. 1, not manured, 37 1/2 bushels of grain, 27 hundredweight of straw.
Plot No 2, one hundredweight nitrate of soda, two hundredweight of salt, 45 bushels of grain, 30 hundredweight of straw.

The bran of either wheat or rye, when partially fermented with urine, is a powerful manure for the cereal grains as well as for roots. Though it is in general the best economy to feed the bran and make it serve a double purpose, yet the peculiar effect of the urine in this combination has been known to give results that justify the experiment by making it profitable.

The "complete fertilizer" of M. Ville is highly commended for wheat, and has proved itself capable of large results. Yet it is doubtful whether the cost does not, in many cases, nearly counterbalance the increase of yield.

"Fleming's peat compost" is a useful and comparatively inexpensive manure. Its effect on hay and grass is quite remarkable, and if used in connection with animal dung, it would be nearly certain to increase the yield and profit of wheat.

Experiments with Oats.

The following experiments with oats were made this season at the Eastern Pennsylvania Experiment Farm.

As to Quantity of Seed, &c

The oats drilled in on one-eighth acre plots April 21, on dark ground.

Table with 2 columns: Quantity of seed per acre, and Bushels. Includes 1. Two bushels of seed per acre (74), 2. Three bushels of seed per acre (100).

As to drilling and broadcasting:

Table with 2 columns: Method, and Bushels. Includes 1. 2 1/2 bushels drilled in (117), 2. 2 1/2 bushels broadcast and harrowed in (110).

Fertilizers; drilled or surface sown:

Table with 2 columns: Fertilizer, and Bushels. Includes 1. Fertilizer drilled in with seed (124), 2. do sown on surface and harrowed in (101).

Produce of barley and oats:

Table with 2 columns: Quantity sown, and Per Acre. Includes 1. 2 bushels barley per acre-sown (10 1/2), 2. 2 1/2 bushels oat per acre -sown (20 2 1/2).

With Different Fertilizers.

These fertilizers were applied in the spring of 1871, on 1/4 acre plots on 1 plow in the bottom for corn, ground re-ploughed for oats this spring.

Table with 2 columns: Fertilizer, and Pounds. Includes 1. Nitrate of soda, \$10 worth per acre (21), 2. No fertilizer (24), 3. Substrate of ammonia, \$10 per acre (74), 4. Birdyard manure (38), 5. Pure ground bone, \$10 per acre (105), 6. Bone superphosphate, do (105), 7. Acidulated S. Car. rock do (118), 8. Night soil, 8 bushels (127).

WITH LIME.—The lime was applied to the preceding corn crop in the spring of 1871, and ploughed down, and ground ploughed April 15; oats drilled in April 22, at the rate of 2 1/2 bushels per acre. Plots contained 1/4 acre. All harvested July 20.

Table with 3 columns: No., Quantity of Lime, and Lbs. of Oats. Includes 1. 50 bushels per acre (95), 2. 50 bushels per acre (91), 3. 100 bushels per acre (90), 4. 160 bushels per acre (101), 5. 200 bushels per acre (85), 6. 200 bushels per acre (91), 7. No lime (103), 8. No lime (98).

With Different Varieties.

The ground used for these experiments was in corn last year; was ploughed for oats April 14 and 15; oats sown broadcast April 24, at the rate of 2 1/2 bushels per acre.

Table with 4 columns: No., Varieties of Oats, When ripe, Pounds of straw, and Bushels per acre. Includes 1. Surprise (2,050 lbs straw, 34 1/2 bushels), 2. White Selwynen (2,210 lbs straw, 41 1/2 bushels), 3. Houghton (2,330 lbs straw, 38 1/2 bushels), 4. Yellow (2,000 lbs straw, 40 1/2 bushels), 5. Early Yellow (2,440 lbs straw, 44 bushels), 6. Halfless (1,690 lbs straw, 15 bushels), 7. Husk Norway (2,085 lbs straw, 25 bushels), 8. Canadian (1,560 lbs straw, 30 bushels), 9. Somerset (1,903 lbs straw, 32 bushels).

THE DECLINE IN THE USE OF GUANO, which has been especially marked in Great Britain, less so in this country, is ascribed by Mr. Lawes, and with good reason, to the falling off in quality. Since the Chincha Island supplies failed, no such high grades have been in the market, still the price remained the same.

SPREADING MANURE.—A writer in the New England Farmer gives a bit of experience in manuring which is against spreading manure over the surface in autumn. Late in autumn he carted out fourteen ox-loads on one-half acre and spread it, expecting to plough the ground at once, but a sudden freeze prevented.

REMOVING STUMPS.—A friend asks us what can be done to get rid of stumps in fields—whether crude oil would not cause the stumps to burn readily. In our experience we have found it preferable to remove stumps with machines made for that purpose and burn them afterwards, if desired.

PAVING FARM-YARDS.—For paving with stone, large, flat stones are objectionable, because stock are liable to slip on them and be injured. Flat stones, not more than eighteen or twenty inches square, however, can be employed for this purpose, but even then, it is better to alternate them with rows of cobble stones.

SOFT-WOOD ASHES.—W. J. F. says, in a communication to the Country Gentleman:—"Many people unthinkingly suppose that all ashes are alike in value. Nothing could be farther from the truth. Ashes from some kinds of wood are almost valueless, and the same is true of soils. Some years ago a large heap of button wood limbs was burned in one corner of a neighbor's field.

EXPOSING MANURE.—Some of our correspondents advocate the fall spreading of manure for hoed crops the following year. My experience does not convince me of the value of this practice. Late in the autumn of 1868 I spread 14 ox-loads of barn manure on about one-half an acre of soil ground, intending to plough it in before the ground froze; but the sudden freezing of the ground prevented me, and it laid spread on the surface all winter.

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Grasses and Forage Plants.

Sweet-Scented Vernal Grass—*Anthoxanthum Odoratum*.

The Sweet-scented Vernal Grass, figured on the page, derives its botanical name, *Anthoxanthum*, from two Greek words signifying yellow-flowered, and its qualifying adjective, *odoratum*, from the sweetness of its perfume. It is valuable principally on account of its early growth, chemical analysis assigning it but small feeding value. Ordinarily it does not exceed a foot or a foot and a half in height, but it has been found twice that height. It may be identified by its perfume, which it imparts to other grasses with which it is cured. The sheaths are long and rather rough or hairy when felt from below upward. The flowering time is from May to July. Of itself it would not yield above half or three-quarters of a ton per acre. The seeds weigh five or six pounds to the bushel.

Way's analysis gave of a 100 parts:

Water.....	80.85
Protein.....	2.05
Fat.....	0.67
Heat-producing principles.....	8.54
Woody Fibre.....	7.15
Ashes.....	1.24

In the Woburn experiments an acre mown at the time of flowering produced 7,827 pounds, which lost 5,723 pounds in drying, and yielded 122 pounds of nutritive matter. Compared with timothy, the vernal cuts a poor figure. Timothy gives 42.5 pounds of dry hay for 100 pounds of grass, and 3.9 pounds of nutritive matter, more than three times the produce of the vernal. Flint says of this grass: "The aftermath or fall growth of this beautiful grass is said to be richer in nutritive qualities than the growth of the spring. A curious and beautiful peculiarity is exhibited in the seeds of this grass, by which they are prevented from germinating in wet weather, after approaching maturity, and thus becoming abortive. The husks of the blossom adhering to the seed when ripe, and the jointed awn by its spiral contortions, when affected by the alternate moisture and dryness of the atmosphere, act like levers to separate and lift it out from the calyx, even before the grass is bent or lodged, and while the spike is still erect. If the hand is moistened, and the seeds paced in it, they will appear to move like insects, from the uncoiling of the spiral twist of the awns attached to them. There are nine hundred and twenty-three thousand two hundred seeds in a pound, and eight pounds in a bushel. It cannot be said to belong to the grasses useful for general cultivation.

Raising Red Clover for Hay vs. for Seed.

I have known a crop of clover seed exhaust the land more than a crop of wheat. Clover is a great renovating crop when grown for hay, for pasture or for ploughing under, hence clover seed should be sown liberally. On the other hand, raising seed is highly profitable, but so expensive what exhausting to the land. Raise clover seed, but use the money obtained from its sale to enrich the land. A bushel of clover seed will usually buy six or eight bushels of peas or beans, and these fed to stock on the farm will restore to the soil, in the form of manure, six or eight times as much plant-food as the crop of clover seed removed. Do not try to cheat the soil. Do not induce it to give you a good crop of clover seed and then refuse it a share in the profits.

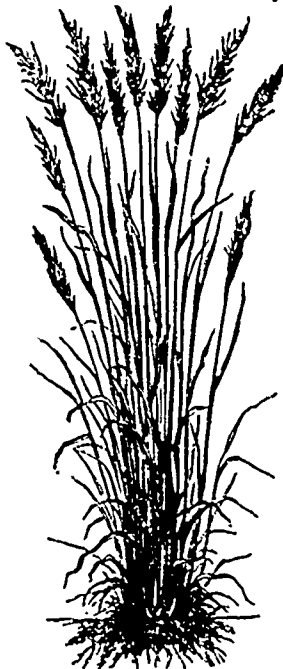
In raising clover seed cut the first crop early—say in this latitude the first or second week of June. A better rule still is to cut the first crop before all the blossoms are unfolded. It is also important that the first crop should be mown as evenly as possible, that the plants may start equally, and the future crop of seed ripen all at the same time. It is desirable to get the seed early—say the first or second week in September. Occasionally a larger crop will ripen in October; but at that season the weather is usually unpropitious, and a large number of the heads, when ripe, are apt to drop off in wet weather, both before and after they are cut.

A large growth of foliage is sometimes obtained by sowing gypsum on the clover after the hay crop is removed, but in a cool growing season the seed in this case is apt to ripen poorly. The largest crops are obtained, other things being equal, from land seeded with nothing but clover, and in this case the seed should be sown pretty thickly—

say six or eight quarts per acre. This thick seeding has a double advantage. You get a finer quality of clover hay, and the plants being thick on the ground, the crop is not so apt to lodge and can be mown more evenly. Six bushels per acre is sometimes grown on good land when clover alone is sown, but three or four bushels is a full average.

Let not the farmer who neglects and starves his land think that he can get rich by growing clover seed. The profits are not for him. There is no better indication of good land and good treatment than luxuriant crops of clover. The land that will produce good clover will produce good wheat or other grain, and the negligent farmer deserves neither one nor the other. Let him give the soil good tillage and liberal treatment, and it will prove grateful. On the contrary, if a farmer starves the soil the returns in light crops will impoverish his pecuniary resources. On a wheat farm it is not easy to grow too much clover, provided it is all consumed on the farm, or ploughed in as a green manure; but it is quite easy to raise too much clover seed.

Clover is, perhaps, all things considered, the best renovating crop that can be grown on a wheat farm. Like peas and beans, clover is a leguminous plant, and draws a considerable quantity of ammonia from the atmosphere, while its deep roots penetrate the subsoil and bring up potash and other ingredients of plant food. It is admirably adapted to our climate, and as yet "clover sickness," which is so troublesome on the light soils of England, is known in but few localities in this country. Whether it



Sweet-Scented Vernal Grass.

is best for farmers to raise their own seed, is a question which deserves consideration. It should be borne in mind that the main object of sowing so much clover is to enrich the land, and it is undoubtedly true that letting clover go to seed changes it from a renovating to an exhausting crop. Hence the true system of management is to raise seed only in small quantities, say on half an acre of the best ground, while the remainder should be ploughed under, or be made into hay and ted out on the farm.—*Agricola in New York Herald.*

June Grass and Permanent Pasture.

"It would be a great blessing to the country if the best of these pastures could be saved from being ploughed, for they are to Canada what the blue grass is to Kentucky, and according to the different quality of the soil and climate are in comparison of much more value in grass; for the farmers forget the saving of labor on the old swards, and the time will come when every farmer will wish his land was half in this permanent grass. Wherever the land is kept in grass the owners are more prosperous. They own a deal of live stock, and although sheep, cows and horses are very much lower in price than in the States and the longer and colder winters are unfavorable, yet the raising of animals is more general. Still the French and other old inhabitants work their ploughed land too hard, cropping year after year and renting portions to others till fertility is sadly weakened."

So says an Ontario correspondent of the *Rural New Yorker*. The editor of that journal adds.—"The above needs to be taken with some qualification. In sections where dairying and grazing are leading branches of farming, June and blue grasses and permanent pastures are advisable. In other sections, small as yet, but yearly increasing, where cultivated crops are the rule and pastures the exception, June grass is a weed, and one of the most

difficult to get rid of. In such sections land should be seeded only with clover, or clover and timothy, or orchard grass, and ultimately cattle will be kept by soiling rather than pasturing. Wherever a regular rotation of the farm is observed, and corn, wheat and spring grains come in every third or fourth year, June grass is not admissible. Its sod will not rot as clover will and it does not, when ploughed, benefit the soil as clover does.

Alsike Clover.

Alsike, or hybrid clover, which takes its name from the Alsike district, near Stockholm, we have sowed and tested for five years, and have found it superior to red clover. The root is fibrous and the heads globular. It bears a greater resemblance to the white than to the red clover. The advantage it has over other varieties, are that the frost does not affect it, and consequently can be sown on damp ground with good results. I have sowed some seed in a wet place, and at the same time sowed some red clover seed. I had plenty of Alsike clover but not one plant of red clover. From four to five pounds of seed is required for an acre when sowed clear; and about half that amount when sowed with timothy. This clover makes finer and better hay than either white or red clover, for the stalks are not as thick and woody as those of red clover. It will remain green until after harvest, when it will be as white as timothy, and not turn black like red clover, when cut as late as timothy is, after being left standing until harvest. It can also be threshed with timothy, the seed easily separates, and also imparts a flavor to threshed timothy.

When allowed to ripen its seed, it cannot be cut more than one season, as it bears its seed with the first blossom in each year; but if it is grown for a hay crop, it can be cut again in the fall, and will yield a nice lot of fine hay for calves and sheep. It yields about one-third more seed to the acre.

Among its disadvantages may be reckoned its rank growth, rendering it liable to be lodged.—*Cor. Rural Home.*

CLOVER AND LUCERNE PESTS.—In the south of France, and in Spain, clover and lucerne are severally attacked by a small black insect, called *colaspæ*, which eats the leaves. In the early morning a trough moving on wheels, and putting in motion a light thin board, by means of a connecting belt, is pushed over the field. In its passage this board or fan gently shakes, without breaking them, the leaves and stems, so that the bugs fall into the trough, out of which they are taken and burned, or killed with boiling water.

HUNGARIAN AND HORSES.—A correspondent of the *Southern Cultivator* gives an instance of what has been repeatedly stated in these columns, viz., that if allowed to form seed, Hungarian will injure horses by acting as an irritant upon the kidneys. The correspondent was feeding his horse on Hungarian and he noticed that the horse manifested an almost continual desire to urinate—appeared weak and stiff. He discontinued the grass feed, and the horse became all right. A mule was similarly affected. He let him eat it two days longer than the horse, and the symptoms of kidney affection grew worse. These two were the only stock fed on it. The grass fed was fully ended, but not ripe. He will feed no more after it blooms.

SALTING HAY.—President Hoffman of the Elmira Farmer's Club, wants to enter his protest against salting hay. It will, he says, prevent the barn from burning, but it lanages the hay. Cattle will eat salted hay, but it is not good for them. He would rather use lime if one or the other must be used. He starts with the proposition that the very best feed for cows is grass, but we cannot have grass in winter so we make hay. The true plan is to get that as near like grass as possible. Let us combine bulk and quality as well as we can and we shall be doing as well by ourselves and our cattle as we can. If we were to cut one stalk of timothy at just the right time, we should do it just as it begins to show the blossom; but in the field we have to take into account the time required, so we must begin a little earlier.

MANAGEMENT OF WITCH GRASS.—A few years since, writes some one in the *Maine Farmer*, a gentleman purchased a residence in my neighborhood. The garden attached to the premises had not been cultivated for several years, and was a solid bed of luxuriant witch grass. Passing his premises in the month of September, I found him at work spreading a thick coat of horse manure, from his barn cellar, over his witch grass sod. He informed me that he should not plough his garden till spring, and that the dressing he was applying would kill out all the witch roots during the winter. At the time I supposed he was quizzing—but the next spring I noticed his remedy was successful. He had spread the dressing close up to the fence, but did not plough within two feet of his line, still the witch grass did not spring up, even on the unploughed borders of his garden. Having occasion a year ago to remove a couple of cords of witch grass soil, I stacked it up three feet in depth, making the centre of the heap slightly concave, and covered it with a barrel of salt and several barrels of beef pickle, but even then did not succeed in killing the witch grass roots.

Implements.

A New Self-Binder.

One of the few novelties at the Fairs this year was the recently-invented self-binding harvester, invented by J. H. Gordon of New York. As far as could be judged from seeing its stationary work, Gordon's machine will do all that its inventor claims for it. But it binds with wire, and to many farmers that will be a fatal objection, though the danger from using wire is over-estimated.

Sooner or later, an efficient, simple, cheap and safe self-binder will be originated. Let some one strike on a happy idea, and a hundred busy brains will set to work improving it, until the harvester of the future is elaborated. Indeed, it is already possible that a young Canadian has distinguished himself as the inventor of a practicable self-binder. We are informed that Mr. Walter Nicol, living near Cromarty, has, after nine years of patient effort, contrived a machine which will twist its own hand of straw, bind and tie the sheaves, cut off the band, and throw aside the sheaf. The implement is stated to be somewhat complicated and heavy, at present, but those are defects which are capable of being improved away. Mr. Nicol's invention is patented in Canada. He will do well to protect his interests in the United States and Europe immediately.

How a Good Farm Wagon Should Be Built.

The original cost of vehicles in use among farmers exceeds \$200 for each farm. Many of these are unsuitable for the purpose intended, poorly made, and very badly cared for. Scarcely any piece of mechanism is put to more severe strains, or suffers more from exposure, than the farm wagon.

When a farmer buys a wagon he should look well to quality rather than to price. A good wagon with good care should stand for twelve to fifteen years. No two-horse wagon should be used with tires less than 1 1/2 inch in width. The pole should be of the best straight white ash, rather small at the end, and the largest part about twenty inches ahead of the center. The center and neck yoke should be of good length, as the team will then work better on rough roads. The tires should be a very little wider than the felloes, so that the paint will not wear off; they should be bent true and fit tightly. A wheel to carry loads should have about 7 inch dish, and nearly all of this should be made in the wheel and not drawn over with the tire, else the tenons will be strained and the spokes loosened. The hub should be firm, solid, and fine-grained, but not "too hard;" the spokes of fine grained second growth oak; the tenons should be smooth and uniform, with a little more taper than the mortice, and 3-16 of an inch wider at the shoulder than the mortice, and 3-32 inch thicker. If the hubs are well banded, there will be no difficulty in driving, if the points are smeared with tar.

The spokes must be perfectly dry, two years seasoned, and the tenons, after having been thoroughly warmed to drive out all atmospheric moisture, should be driven until the shoulders come down firm on to the hub, but not driven into the hub so as to spoil the shoulder and the grain of the hub. The spokes on the fore wheels should be driven over, 5-16 of an inch, and the hind ones 3/4 of an inch. The felloes should be of the finest grained oak to be procured; good forest timber is better than young second growth. When they are bored and fitted they should be put on as soon as possible, and left on, so that they may settle on to the tenons, which they should fit tightly. They should not be painted until they have been entirely finished two weeks, and if the felloes are rolled in a sheet-iron tank of boiling linseed oil, the tires will not need re-setting until worn out. After boiling they should be wiped with old rags, as the paint will not adhere well where the oil is allowed to dry on.

Good, sound, hard maple, which has been dried under cover, away from the sun and rain, but with free circulation of air, makes the best axle, although some hickory is very good. The skeins should be set exactly level on the bottom, and all first-class skeins have the gather cast in them. The reach should be made of a good tough stick, and not too large, as it must either spring or break.

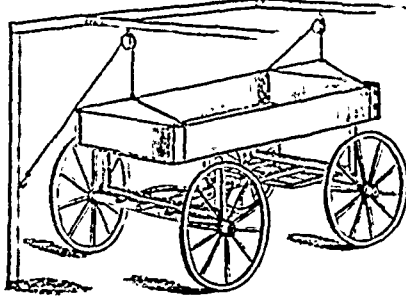
When the wagon is painted, nothing but the best English orange mineral, which is better than our red lead,

should be used for the first coat. This should be ground in five parts boiled oil to one part Japan dryer, using a very little turpentine. This coat is put on all the wood-work before it goes to the blacksmith, and if the felloes have not been treated with boiled oil, the treads of them should have two coats, and the smith cautioned to shape his tire well before heating, and not to burn quite all of the paint off. The second coat is put on after it leaves the smith, and should be ground in boiled oil and Japan, half and half. The third and last coat may be the same, or of one part oil, one part Japan, and one part No. 1 coach varnish. The wood-work should be well sand-papered before priming, and lightly after it leaves the smith shop, and after removing all grease and smoke. After painting, the wagon may be striped neatly with black, and a good heavy coat of coach varnish given. The varnish should never be permitted to wear through to the striping, but renewed when necessary, and if it has been well done with good stock, it will stay on for twelve years.

A wagon with 3 1/2 inch skeins, made in this manner, will carry 6,000 lbs., and last fifteen or twenty years. The box should be made with extra side-boards, primed and painted with white lead and amber, half and half in weight, darkened with a little lamp-black, and mixed for priming in the same manner as the red. Then two coats with oil and Japan, half and half, should be given, after which a coat of best medium chrome green ground in Japan and varnish half and half, striped with plain, broad, black lines, and the inside panel of fine white lines. The above information is for the benefit of the purchaser and not the builder.—*American Agriculturist*.

How to Handle a Wagon-Box.

A simple and easy way of lifting off a wagon-box is often wanted on the farm. Such a want is supplied by the cut below, which is copied from the *Country Gentleman*. It can easily be made in a barn or shed, by means of a pair of rope and pulleys, as in the accompanying cut. Attach the pulleys to beams or rafters, and securely tie a loop in



Lifting off a wagon box.

one end of each rope, large enough so that it will slip over the end of the box. To the other end of the ropes, hooks may be attached to hook into rings, placed at convenient points. Small blocks may be nailed or screwed under the corner of the box, to prevent the ropes slipping off. The apparatus may be constructed and used out of doors if desired.

The Jointer Plough.

The object of using a jointer (or small plough) in place of a coulter, is to divide the furrow-slice, and thus more effectually pulverize the soil. The jointer carries its small furrow slice of surface soil over into the bottom of the furrow more effectually than can otherwise be done, and the back or large plough brings its furrow-slice over and covers it completely, leaving the surface level and light. It will completely invert weeds, stubble, and manure, or heavy clover, so that it will not drag up. No corn stubble can be well ploughed, as it should be, without it. Sod, at one ploughing, is made as mellow as a summer furrow, and can be harrowed crosswise of the furrow without dragging up a particle of turf. An important advantage the jointer has over the coulter is its cheapness of repair. The coulter soon becomes dull and blunt, requiring resetting and refacing with steel, costing from four to six shillings, and time in going to the blacksmith's shop, worth in the busy season as much more. When the jointer point becomes worn out, the farmer has only to loosen one bolt and replace it with a new one, making his jointer as good as new, and at a cost of only thirty cents, and five minutes' time, at the longest. The jointer does not increase the draft any more than a coulter, and will work wherever a coulter can be used, and perform its work much more thoroughly and satisfactorily. It does the best work when it only takes a shallow furrow-slice, and a half or two inches deep. In sod the standard should be placed nearly perpendicular.

Champion for 1876.

The unprecedented success of the "Champion" Reaper in Canada has seen such that the Joseph Hall Manufacturing Company have decided to devote themselves exclusively to its manufacture and will build 5,000 machines for the harvest of 1876. The "Champion" Combined Reaper and Mower, "Champion" Single Reaper, and "Champion" Single Mower have given universal satisfaction this season.

2,500 "Champions" have been sold in Canada and from Prince Edward Island to the Western extremity of Ontario, but one report has been received, namely—that the machine is giving great satisfaction in the work done, and its durability and freedom from breakage is in marked contrast with all other machines.

Nothing will be left undone by the Hall Company to maintain the great reputation the machine has won. Only the choicest material will be used in its construction, and by thorough division of skilled labor and building it as a speciality, the highest grade of workmanship will be secured.

At Springfield, Ohio, Messrs. Whiteley, Fassler & Kelly, the "Champion Machine Company," and Messrs. Waider, Mitchell & Co., are already working their shops to their full capacity on next year's machines. 40,000 "Champions" will be built at Springfield for the coming harvest.

Although the "Champion" is sold at a little higher price than ordinary machines, there is not the least doubt that it is the cheapest, taking into consideration the material used in its construction and the perfection with which the parts are put together. Durability and freedom from vexatious delays, caused by breakages in the field, are two of the strong points of the "Champion," and should not be lost sight of by all intending purchasers.

The changes in the Hall Works necessary to make the building of the "Champion" a speciality are now being made, and in a few days work will be begun in earnest on next year's machines.

The "Champion" in the United States has distanced all its competitors, and there is no doubt but when built, as it will be built by the Hall Company it is destined, to take the same high position here.—*Ontario Reformer*.

ALL EFFECTS OF GALVANIZED IRON PIPES.—I wish, says a *Country Gentleman* correspondent, all your readers could understand that water through galvanized iron pipes is not fit for man or beast to drink. I have known a valuable horse with all the symptoms of zinc poison from drinking water through such pipe, unfitted for work, and the owner was obliged to kill him. Several cases of the death of children have come under my observation of late from the use of zinc-poisoned water. Still people all over our land go on laying down galvanized iron pipe. The result is numbness of the feet and legs, severe itching of the skin, persistent inflammation of the throat, nausea, faintness and other attendant symptoms.

DRIVING NAILS.—Every farmer who has had occasion to drive a nail into seasoned oak posts knows its liability to bend and break. If the point be moistened in the mouth it will usually drive more kindly. Oil is still better, but then it is inconvenient to dip each nail separately into it. Another point observed is that boards become loose eventually from the rusting of the nails, which communicating to the wood, causes not an enlargement of the nail hole, but the wearing away of the nail itself, rendering the fence or the building shaky and insecure. This may be prevented by heating any rough grease until it smokes, and then pouring it over the nails to be used. The grease will penetrate the pores of the iron, and cause the nails to last, without rusting, an indefinite period. Besides this, no trouble will then be experienced in driving them into the hardest wood. The reason is that the coating of grease prevents contact of air, and, consequently, oxidation.

FOUNDATION WALLS.—L. D. Snook tells the *Country Gentleman*, that within ten years there has been a noticeable change in the manner of constructing foundation walls for farm buildings. With a few exceptions barns built upon the side hill principle were supported upon three sides by walls of masonry, and in very many cases, owing to the combined influence of poor material and improper knowledge of wall building, have tumbled down or have been pressed inward by the heavy bank of earth, causing much annoyance and expense in their reconstruction. As farmers are not slow to learn by the success or failures of others, the almost universal practice now is to build a wall laid up in mortar about two feet above ground, extending upon two or three sides of the building, upon which is laid a sill or heavy plank, which in turn is connected to the sills of the barn proper by short and heavy posts well braced. This plan is claimed to be as cheap as a full wall of masonry, and is not damp or unhealthy, nor likely to become materially disarranged by the action of frosts, &c. The entrance to the barn should be bridged over, and the arch not allowed to rest against the boarded side of the building, as wood absorbs the moisture, causing decay in a few years.

Horticulture.

THE ORCHARD.

Pear-Tree Fire-Blight.

Mr. Thomas Meehan, editor of the *Gardeners' Monthly*, says that fire-blight is never seen in the neighborhood of his residence in Philadelphia, and when a few fresh specimens were sent him last spring, he gave them to Dr. J. G. Hunt, an accomplished microscopist and botanic physiologist. After careful examination Dr. Hunt is satisfied that the disease is fungoid, giving his views as follows:

I have examined those pear branches, and find that the black color is caused by a fungus. It attacks the bark and outside of leaves and young fruit first, causing changes in the cells, in these locations resembling much those pigmentary cell-changes which differentiate the negro from the, so-called, white man. The cell contents, normally transparent, are changed into extremely minute pigment granules which fill the cells and give that characteristic color and smell which mark the disease. Moreover, minute drops of viscid offensive liquid come out on the surface. These changes are not confined to the epidermal cells, but pigment granules crowd the cambium cells in the young and forming stage, giving the appearance in cross sections of the stem, of a black ring encircling the stem.

From the cambium layer the fungus travels towards the interior of the stem, through the *metallary rays* chiefly, and here I find those round bodies, which, in our hasty ignorance, we often call spores. The ducts which ascend the stem are often obstructed with similar bodies and aggregated pigment granules. This is all I know about the subject. I cannot venture to name the fungus. Repeated observations only can determine that question. Ordinary microscopic observation will fail to show the points of which I have written. I have made thin sections of stems, bark, fruit and leaves, and removed excess of black color until I could send day-light into every cell, and then under 500 \times , the parasite reveals its presence.

Is this fungus the primary cause of fire-blight? It is not often that the cold of winter injures vegetation in this latitude, but a few warm days in early spring may cause great vital activity in the young growing cells; the protoplasm of these parts is in a rapidly dividing condition; then if a cold term suddenly succeed, all these delicate vital changes are suspended, and for all we know the cell contents die, turn black and decay. It is just in locations in the pear where such early cell-activity takes place, namely, in the cambium layer, tender growing extremities of buds and fruits and epidermal coverings, that this black disease is found. Were it not for the detection of evident organized and apparently reproductive vegetable units totally unlike any result of degenerative action in ordinary cell-process, which we often call spores, I would not have said a fungus was associated with the disease. Had I found analogous appearances in animal tissues I would have called it "melanotic cancer."

TO KEEP WINTER APPLES.—A practical farmer invited me into his cellar to show me his simple but good way of keeping his winter apples, of which he had a large supply. The cellar was about 15 ft. square. A hanging platform of about 12 ft. square was made by nailing supports to the floor joice above, and to joice for the floor of the platform raised some 4 feet from cellar bottom; upon these joice a floor was laid of boards, with narrow boards for sides and ends. This gives a pass-way 3 ft. wide round the platform upon which the apples were laid. They were thus open to the air more than in casks, and decaying ones could be easily discovered and removed. At the same time they were more secure from the rats and mice. It occurred to me it was an excellent plan, and would prove successful. It may be very easily tried on a small scale if desirable, in almost any cellar. —*Cor. Boston Cultivator.*

PEAR BLIGHT REMEDY.—Mr. G. F. B. Leighton, President of the Norfolk, Va., Horticultural Society, is authority for the statement that the remedy for pear blight, recommended by the Commissioner of Agriculture, has proved successful in Eastern Virginia. This remedy is made and applied as follows.—One pound of sulphur added to six or eight pounds of carbolate of lime, reduced to the consistency of thick whitewash, and applied to the diseased parts, and where the bark is diseased remove the outer portion before making the application. Mr. L. says he has used this with magical effect on blighted or diseased trees, but writes to the *American Farmer* that in future he will "use the formula recommended by the Hon. Wm. Saunders of Washington, who has charge of the public grounds, as being more economical than the above, on account of the volatile nature of carbolic acid. To half a bushel of lime add four pounds of sulphur—slake to the consistency of whitewash, and when applied, add half an ounce of carbolic acid to each gallon of wash, and apply as above directed."

Protecting Trees.

Persons who go to the trouble and expense of tree-planting frequently lose the results of the labor by having the bark of their trees destroyed by horses or cattle. A simple protector is given in the figures below, which were published in the *Rural New Yorker* some time since. The idea has since been altered—possibly improved, but we doubt it—by having the poles on an elastic cord which is supposed to give way as the tree grows. Our opinion is that the elastic would not last very long, and would require renewing quite as often as the guard, if tied with wire, would need loosening for the growth of the tree.

To make the guard, procure poles of any straight-growing tree, six feet or more in length, and two inches in diameter at the thickest end; they should have holes drilled through them at the top and bottom about one foot from each end. Get a similar hole drilled two or three

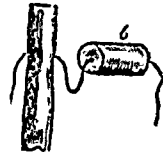


Fig. 1.

inches up the centre of a stake, and then saw off the length which has had the hole drilled through it, and which will give a piece that, when the string or wire is drawn through it, will resemble *b* in Fig. 1. Repeat the operation till as many pieces are drilled and sawed off as may be wanted. Pass a strong piece of wire, or thick tarred string, through one stake by the hole at the top, and then through one of the two-inch pieces, then through another stake, and so on, separating each stake at the top and bottom by one of the two-inch pieces of wood,

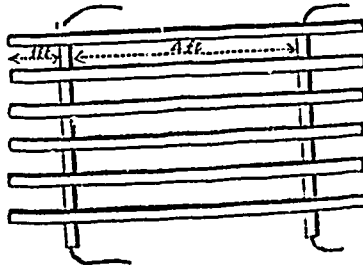


Fig. 2.

until you have enough to surround your tree loosely, leaving plenty of space for growth. When this is done, the appearance of the guard, before being put on, will be as in fig. 2. Place the guard thus formed round the tree and fasten the ends of the wire or string. The guard is much the same as the cradle put round the neck of a blistered horse, to prevent his gnawing the irritated part.



Fig. 3.

The ends of the stakes merely rest on the ground, and they should be cut quite flat at the bottom to prevent their sticking in it. At the upper end they should have a sharp slanting cut with a bill-hook, to throw off the rain. The motion of the tree will not be in any degree impeded, and the bark cannot be injured, let the wind blow as it may, for the guard moves freely with the tree in every direction. If a tree is growing, the guard will have to be opened every year at the top and bottom, lengthening the string or wire by tying a piece to it, and introducing an extra rod, and two extra separating pieces. As a principal feature in this guards is, that the tree is left quite at liberty to be blown about by the wind in every direction, of course it does not

obviate the necessity of staking a newly planted tree until it becomes fairly rooted. Fig. 3 shows a horizontal section, and Fig. 4, a portion of the elevation of a tree so fenced.

THE SITE FOR THE ORCHARD.—We so recommended as the best location for an apple or peach orchard, an "elevated site and dry, firm soil." We should not certainly select a low valley for an orchard, but we would vary the location of a peach orchard from that of the apple. We should select a rather high and northern exposure for two reasons—first, to have a colder and more uniform temperature, thus retarding too early blossoming; and, secondly, it would be less liable to early frosts than the valley, and therefore not so liable to be "nipped in the bud." For an apple orchard we need not be so particular, though we regard the northern exposure the best, but we have seen good apple orchards in all sorts of places, except in very low or wet locations. *Low-branching*, however, is of the highest importance in warding off as much as possible the injurious effects of hot suns. —*Germanstown Telegraph.*

THE GRAVENSTEIN APPLE.—My old specimen of this variety is succeeding so admirably the present season that I feel like directing attention to its claims, notwithstanding it is so well known to pomologists. Downing says, "An early bearer," but my specimen never had a fruit on it until 20 years had passed, and I find this to be the experience of many others, but I consider myself amply compensated for waiting by the vigorous, healthy constitution of the tree, and its annual crops ever since. It is now, Aug. 14, just commencing to ripen, and as the beautiful large apples drop to the ground, their flavor gives ample evidence of the treat I have in store, when the more perfect fruits shall be in perfection. I know not of a variety combining at this season of the year so many essential qualities for selling in market as this. Large size, beautiful color, fine aromatic flavour, and bountiful crops. The tree, too, is a strong grower, and towers up above its companions in the orchard as if to assert its claims to superiority. —*New York Tribune.*

CANADA REINETTE APPLE.—This fine apple, says the *Ohio Farmer*, has long been quite popular in Europe, and deserves to be better known in this country. It has not the advantage of showy color, which is now deemed essential for popular market varieties, but its good size, fine texture and juiciness, with rich, sprightly, acid flavor, makes it very desirable as a family fruit, both for table and cooking. The tree is of thrifty growth and reasonably productive—more apt to bear every year than the majority of apple trees. The following description is transferred from Dr. Warder's work on *American Pomology*:—"Tree vigorous, robust, tall, spreading, productive. Fruit large, oblate, angular; surface not smooth, yellow, blushed and spotted with red; dots numerous, small, gray; basin abrupt, deep, angular; eye small, nearly closed; cavity medium, acute; stem medium, inclined; core wide, regular, closed, clasping; seed plump, angular, dark; flesh breaking, fine grained, very juicy; flavor acid or subacid, aromatic, rich; quality very good. Use for table and cooking. Season, December to February."

DEATH TO THE APPLE-TREE BORER.—I have waited for a long time for some one to invent an easy way of killing the apple-tree borers: but the chisel, mallet, knife, and wire are only recommended, and in using them I have had to cut a six-inch apple-tree until I could see daylight through it to kill a single borer. My way of getting at this miserable "worm of the dust" is an easier one and more effectual. I cut a sumac or alder one foot, more or less, long, punch out the pith, cut one end with a slope, hunt the borer's hole, clean it out at the entrance with a wire, place the beveled end of my tube against it, take some putty-like clay that I get in our spring-branch, plaster it water tight around the end next the tree, fill the tube with very strong soap-suds, and the thing is done. No matter how crooked the hole is, or whether it goes up or down, the suds in the tube will force itself to the end. I have tried it two years and have not failed once. Of course any kind of small, hollow tube will do, and anything that will make it water-tight will do to plaster it with. —*Cor. N. Y. Tribune.*

NAILS IN TREES.—J. H. L., of Hamilton, says in the *Gardeners' Monthly* that he has some experience in the nailing of trees to keep off insects and to conduce to healthiness. Some years ago there was a genius about here named S—, who was always riding a hobby, at last he mounted one named Horticulture (poor beast)—and that here includes pomology—and among the wonders he was going to produce, including blue roses, yellow geraniums, &c., he hit on the very thing your correspondent asks about. He stated with much parade and the air of a public benefactor, that to drive nails into fruit trees all around just above the ground, would drive all insects, including the little Turk, from them; nay more, that it would be death to them. Well I of course liked to see my fruit fine and healthy as well as he did, so drove every tree on the place full of nails as directed, and, I might as well have kept them in the nail-box, for the trees did not get healthier and the insects grew and multiplied with, it seemed to me, tenfold vigor, so that I was fain to confess that iron was not poison to insects in this country. It was tried with a like success on cabbages to keep the maggot off; but they didn't "keep off" worth a cent.

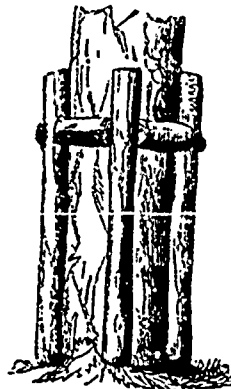


Fig. 4.

THE FRUIT GARDEN.

Pruning Grapes.

A part of my vines are trained on trellises, six and a half feet high, and a part on poles. At the trellis, my plants are six or eight feet apart, and the canes are spread in somewhat fan-shaped fashion, so as to be pretty nearly equally distributed over the wires and slats. When poles are used, from four to six canes are allowed to stand, and poles lean outwardly in every direction, so as to secure sun and air. The canes on the poles are longer and higher than on the trellises, and the bearing wood is mostly confined to the top—some old wood being cut out annually, and the new growth brought into use. I get splendid fruit this way, but would not claim that it is the best mode. Perhaps my method grows out of the circumstance that I have plenty of room, and need to practice no economy in this respect.

I prune altogether in the fall, and cover all my vines of every description with earth, burying them so as to put them as much under as possible. Some of the wood will be ten inches deep. It all comes out in the best condition in the spring. In this northern climate, the snow sometimes falls so deeply that it affords some additional security against frost; but snow is not to be relied on in this locality always, as eighteen inches to two feet in depth, sometimes disappears in a single night. I suppose early spring pruning answers every purpose as well as it done in the fall; but I can only cover after removing or thinning out the surplus wood of the previous summer's growth. Some years ago I left my vines one winter hanging to their supports; but the frost that season was exceptionally severe—the thermometer falling to 15° or 20° below zero—and my vines were evidently injured, neither starting vigorously in the spring nor setting the usual quantity of fruit.

In regard to training, I should advise no one to adopt the fancy styles so much recommended and so profusely illustrated in the books. There is some beauty, but no profit, in their systems. They involve an enormous amount of labor and attention without anything like an equivalent. When more fruit is wanted, occupy more ground and let the vines grow more naturally. I don't advocate slovenly cultivation; let the ground be kept clean of weeds, and in small vineyards, stir the surface frequently. But espaliers, horizontal arms, spurs, &c., should be left to those whose time is of no account, or whose room for grape growing is extremely limited.

While on this subject, I will take occasion to add a word in regard to "ringing" the grape vine. I have had so much prejudice against this treatment, from what I had read in relation to it, that I never tried it until last year. Last spring I ringed several Concord vines of eight or ten years' growth, by way of experiment. The fruit from these vines was much improved in size and flavor, and I think was a little earlier. I was so well satisfied with the results, that I shall do much more in that way hereafter. Wherever I wish to get rid of an old cane and substitute a new one for it, I intend to ring the former, and then cut it away in the fall. By this practice I reckon upon obtaining some fruit of a superior quality without detriment to the crop or to the canes left over.—*Cor. Country Gentleman.*

WINTERING GRAPEVINES.—Prof. Reel of Michigan Agricultural College says: "Our vines of 25 or more varieties are on a gravelly terrace facing the south. We bury the vines in the soil a few inches deep every autumn, and leave them till about the first of May. They are sure to keep nicely."

PRUNING RASPBERRIES.—It was formerly the practice to allow the old canes of raspberries to remain untouched after the season of bearing till early the following spring, when these and all superfluous newer canes were cut out at the surface of the ground, and the few stronger ones left to bear the crop for that year. More recently the practice is recommended of cutting out all the old canes as soon as the crop is gathered. There is one objection to this practice. The leaves are usually in their full vigor, and the roots derive a portion of their strength from these leaves. Cutting away the canes at this time tends to check the vigor of the roots, in the same way that pruning away large limbs of a tree in full leaf injures its strength. It is better, therefore, to defer the pruning till the leaves begin to drop from the old canes, or even to leave the work till early spring. When too many new canes spring up, they should be cut out as soon as they make their appearance early in the season, leaving no more to grow than are wanted for bearing the crop next year. But if this is neglected till they have made full growth, it is better to leave them till spring, as cutting them away in full leaf injures the roots, as already explained. But as experiment is usually better than theory, those who have raspberry plantations may satisfy themselves on these points by treating parallel rows according to the different methods, and observe the results on the bushes and crops next year.—*Country Gentleman.*

SETTING STRAWBERRIES IN THE FALL.—Says the *Small Fruit Instructor* in answer to a correspondent who wants to know if he can set out strawberries in the fall and get fruit next year. Successful fall setting depends very much on the character of the soil, location, &c. If it be dry, and does not heave, they can be set any time in your section up to November 1st to 10th, and come on well in the spring, but if it is wet and liable to heave, don't set them in the fall. We have gathered from fall-set plants, at the rate of 15 to 20 bushels to the acre the following season. Eight to ten bushels can be relied upon, so you can judge from this how many you can depend upon for use in the family, or to sell. The "gain" in setting in the fall on soils where they do well, is that they make a much larger growth next season for the first full crop the year following, than those set next spring, and too, the drought is not so apt to affect them as spring set plants. For family garden beds, where there are none now, of course we would recommend to set this fall, and protect well with straw or evergreen brush. We would not purchase plants from a distance, to be transported by mail or express, before last of September, or in October, for they are "milky" or "sappy" until then, and very easily peel and spoil.

THE FLOWER GARDEN.

Culture of the Hyacinth in Glasses.

In selecting glasses, says an English gardener, always choose colored ones and with the lower part the widest, to allow the roots to have plenty of room. The glass ought to be at least 9 inches long, with a cup at the top to contain the bulb; they should be filled with clean soft water just up to the neck, but not to touch the bulb.

The time to do this depends upon the wishes and wants of the cultivator. If desired early they should be put into



the glasses as soon as the bulbs arrive from Holland. When they are so placed, and at whatever time, they should be put into a dark cold room for twenty to twenty-five days, to cause the root to be formed previously to the bloom bud appearing. Examine them occasionally and remove gently any scales that may be decaying, but be very careful not to injure the young roots, which will soon be seen breaking through the skin at the base of the bulbs. One drop of spirits of hartshorn put to the water of each glass, changing the water every week and adding the same small quantity of the hartshorn, is beneficial. They should be brought into full light of the window, but even then, if possible, avoid a window facing the midday sun, or one in a room where there is a fire. If these precautions are attended to, it will induce a gradual growth, and consequently a much stronger foliage and finer bloom.

When the roots have nearly reached the bottom of the glass, there will be at the extremity of each a covering of mucous matter. This soon stops the absorbing power of the roots by which the food of the plant is conveyed to the leaves, when the plant is injured and often the whole set of roots are destroyed. To prevent this, the roots should be drawn carefully out of the glasses, and in a wide vessel partly filled with clean soft water the roots of the bulb

should be placed, drawing them carefully through the hand, yet using a gentle pressure. This should be done two or three times until the roots appear quite clean. The glasses in the meantime should be thoroughly washed-out and wiped clean and dry, then gradually work the clean-washed roots into the washed glass before putting in any water. If the roots are numerous, it will be found necessary to twist them round and round till they reach their old quarters and the bulb rests on the neck of the glass. Now fill the glass with clean soft water and replace it in the window. Once washing the roots will be sufficient to carry the bloom through. The regular changing of water will be all that is required.

After having bloomed, the bulbs should be taken out of the glasses, preserving the roots, and lay them in a border. A slight watering will be necessary, and they will ripen the bulb and the leaves will gradually turn yellow and decay. They should then be taken up and keep them dry and cool until the middle of October, then plant in the borders.

EARTHWORMS.—Mr. Vick says in his "Floral Guide" that ten drops of carbonic acid, to be obtained from any one of our druggists, put in a pint of water and poured on the earth in flower pots, will destroy all earth worms which do so much damage to the plants. A trial will satisfy all of its beneficial effects.

SAWDUST FOR WALKS.—In the extensive wild garden adjoining the well-kept pleasure grounds at Cadland, near Southampton, the gardener, Mr. Harnett, has used sawdust as a dressing for the pathways cut out amongst the heath and trees in the woodland. The transition from smooth mown lawns, bright, clean gravel walks, and brilliant flower-beds, on the one side, to the adjuncts of this wild garden, is both pleasing and refreshing, and seems specially enticing when the sun sheds a tropical heat, and quietness and solitude are most appreciated. The walks are firm and yet soft to the tread; the sawdust soon becomes of a natural tint closely allied to the crushed dried leafage of the Beech, which here so much abounds. Weeds seldom grow, and these are easily kept in check with the hoe and a light sweeping with a broom keeps all clean and neat. No doubt the turpentine, found so abundantly in the wood of the Pine tribe, proves a great deterrent to weed growth.

FLOWERING BULBS IN SPONGE.—James Vick says:—An article was published in the English papers several years since, stating that if Hyacinths were placed in a sponge, they would flower almost immediately—in a few weeks at most—and much sooner than if placed in either earth or water. This was copied by many American papers, but there is no merit in the method, so far at least as the hastening of the flowering is concerned. Hyacinths will flower in water, or anything that will hold moisture, like moss, and of course a coarse sponge is almost, or quite, unequalled for this purpose. Cut a place in the sponge sufficient to insert the bulb. The sponge can be placed in a basket or stand: To conceal the dark looking mass, sow over it a little Cress, or fine grass seed, and it will soon be green. Of course the sponge must be kept supplied with water. Hyacinths that we grew in sponge last year flowered in thirty days after planting, but about three weeks after we put a few in earth that flowered in fifteen days after planting. The Hyacinth needs a long season of rest, and does not become anxious to grow until about the first of December, and this desire increases as time advances. A Hyacinth planted the first of November will go along moderately, and will take nearly three months in blooming. The same bulb, if kept out of the ground, in a cool and moist place, so that vitality would not be weakened, and planted in January, would flower in thirty or forty days. As a general rule, however, the slower grower produces the most robust plants and the most perfect flowers.

THE BEST TIME FOR MOVING EVERGREENS.—Your correspondents differ greatly in their opinions as to the best time for transplanting evergreens, some advocating spring, some summer, and others autumn as the best time for moving them; while their combined experience goes to show that evergreens may be transplanted at nearly all seasons of the year, the winter months perhaps excepted. Nevertheless there must be a general best time for the transplanting of evergreens—a time when the life of the plant can be ensured, and when it can be moved without impairing or, at most, but slightly impairing its vigor. That time cannot be in the spring when the sap has already begun to move, because, even should the plant live, the check given to it by the cutting of its roots would impair its vigor, at least for the current year; and the same consequence in a general way, must, of necessity, pertain to summer transplanted trees, to say nothing of the danger belonging to the moving of some species of Conifers, the leaders of which are of so much importance. Autumn, therefore, is the best time for transplanting evergreens, say from the middle of September to the end of October, or more definitely still as soon (the weather being favorable) as the plants have made their terminal buds. Why? Simply because the sap of the plants has not then become inactive, and the soil is sufficiently warm to induce the formation of new roots, which serve to re-establish the plants in their new situations, thereby enabling them to push vigorously and without check the following season.—*Garden.*

THE VEGETABLE GARDEN.

The Potato Disease.

Our occasional correspondent, Mr. J. F. Wilkey of Mount Radford, Exeter, England, sends us a local paper to which he had addressed the following communication about the recent discoveries relating to the potato disease:—

The discovery made by Worthington G. Smith, as published in the *Journal of Horticulture*, and for which the Royal Horticultural Society has awarded him the Gold Knightian Medal, affords a suitable basis for operations with a view to its cure or prevention. The cause of the disease appears to be a fungus, the "resting spores," or seeds of which live through the winter in the ground, where having fallen with the dead haulm, leaves, and tuber, they quietly rest till the following summer.

Taking this for granted, it will be seen how important it is that all the diseased portions of the potato plant should be immediately gathered and burnt. Daily watching is imperative, to prevent the incursions of this pest. Every leaf or stalk showing symptoms of the disease should be destroyed by fire, to prevent further ravages. It should be remembered that the circulation of the sap soon communicates the poison to the tuber, and it is only from the healthy leaves and stalk that the tuber can receive any advantage.

As the "resting spores" lie hibernating in the ground, it seems reasonable to attack them there before planting the sets. I knew an intelligent farmer in Cornwall who told me that he always salted the ground before planting to kill the weeds, sowed from 1½ to 2 cwt. of salt to the acre and ploughed it in, at three successive periods, of two weeks apart. About three or four weeks after this the potatoes were planted. They never took the disease, whilst his neighbor, who never salted his land, which was separated from his only by a hedge, had his potatoes badly affected.

By this I judge that salt destroys the fungus spores as well as the weeds. By persevering in this simple and economical plan it is probable that the potato disease may be greatly overcome.

Insect Pests in Gardens.

The insects which annoy the gardener, and damage or destroy his crops, are of several kinds. The striped bug is very destructive to young plants of cucumber, melon, squash, &c. Tobacco dust, bone flour, ashes, soot, &c., are used to destroy or drive them away, but I have never found anything equal to shell lime (air slaked) for their destruction. The cabbage flea, a small, black insect, which attacks young plants of cabbage, turnip, &c., is also very destructive, but easily conquered by early applications of the last named remedy in a liberal quantity.

The cabbage louse (I use the common names), a small, bluish insect, often infests crops of growing cabbages. They are not particularly destructive to these, but when a mass of them collect on the heads, as they frequently do, the appearance of the cabbages is spoiled, as they can scarcely be gotten off without removing all the outer leaves, and thus damaging the sale. These pests, although not very destructive to the growing cabbages, are very much so to the plant when producing seed. It was only a few years ago that I had a crop of seed cabbages entirely destroyed by them. They first appear in small clusters, at the tip of the branches, about the time the blossoms are coming, and, if not immediately attended to, soon envelop the leaves and stalks to their total destruction. They are generally the worst in dry seasons, and sometimes a heavy shower, before they get much start, will destroy them. I do not know of any positive remedy. Lime will check, but not destroy them. As soon as they appear on seed cabbage, the tip on which they lodge must be nipped off, and attention must be paid to them every day until the stalks and pods are quite hard.

A new enemy to the cabbage family has lately appeared, in the form of a green grub, which eats away the leaves, and in some sections whole fields have been destroyed. There is no positive remedy as yet found against them, though many have been tried, with varying success. They are not yet common in this section, hence I have not had occasion to experiment with them.

Another injurious insect is the one which produces what is known as "club root" in cabbages, cauliflowers, &c. Various theories have been advanced as to the cause of this malformation, but it is beyond a doubt caused by a maggot which eats into the root, causing it to swell in various shapes and destroying the plant. I have no doubt that the eggs are deposited in the manure, and so taken to

the field; the maggot there hatches, and at once commences the work of destruction. My conclusions in this matter have been arrived at from observations made on three different crops of radishes, and here, to be the better understood, I will say I believe the cabbage maggot to be one and the same. A few years ago I sowed three pieces of land with the white summer radish—one on land manured with stable manure at the time of sowing, the next without manure, where a liberal application had been made the previous year, and the other without manure, but on one end of the land a heap of stable manure had lain during the winter, and was removed to adjacent land for an early crop. The radishes on the first place were mostly maggot-eaten, those on the second were not affected in the least, nor yet were those on the third bed, except where the manure heap had been.

The theory that hog manure will produce club root is not entirely unfounded; for, while it may not be the immediate cause, yet, no doubt, from its nature, it is the most attractive to the fly in seeking a place to deposit her eggs, and by it more eggs are carried to the ground than in horse or cow manure. I firmly believe that much depends on the previous treatment of manure, such as heating, turning, &c. (by which the eggs may be destroyed), for the prevention of club root. Shell lime is an effectual preventive, and about Newark, N.J., market gardeners apply it heavily once in about five years, with good results. Undoubtedly the maggots are killed by it before they can begin the work of destruction. Where lime cannot be had conveniently, and even where it can, I advise putting the manure, especially that intended for cabbages and cauliflower, into a large heap, letting it heat, and occasionally working it over to prevent scorching. Henderson advises bone flour as a remedy for club root. One thing is certain, if my view is correct, we have in this valuable fertilizer the best substitute for stable manure, and one that is free from the eggs which produce the cabbage maggot.—*Francis Brill, in New York Herald.*

Peppermint Raising.

The editor of the *Rural Home* has been taking a cruise around in New York State. He gives notes of his journey, from which notes we extract the following:

At East Palmyra you begin to see fields of a crop special to this locality, with which the general farmer is wholly unacquainted, viz: peppermint. All along the valley to Lyons, our stopping-place, and we know not how much farther below, nearly every farmer has his plantation of peppermint, and in the valleys extending northwards to ward Lake Ontario, where wet enough for the mint to flourish, it is grown.

Dr. E. W. Sylvester, whose fruit farm and nursery he visited, has some low land in a valley north of Lyons, and grows several acres of mint every year. We made some inquiries of the doctor, as to the yield and profit of mint and will give our readers the benefit of the information gained:

Peppermint is best propagated as we propagate strawberries, by the young roots formed by runners taking root. These may be set in the fall, but are rather more certain if planted in the spring. They grow up and yield their maximum crop the first year. Dr. Sylvester has two or three new plantations, and a few old ones. The new had made a ranker growth and were almost entirely free from weeds, while those growing their second crop were more or less weedy.

When fully in blossom, probably from the middle to the latter part of August, it is mowed, wilted and taken to the distillery, where it must be distilled without delay. The mint is steamed up, the oil passing over and being condensed, the same as in distilling whisky. There is about one distillery to a school district, and they generally charge forty cents a pound for distilling. A good first crop will yield from thirty to thirty-three pounds of oil to the acre, and the price ranges from \$2.50 to \$6 per pound. The Doctor received \$5.11 a pound for his last crop.

The yield the second year is but little more than half that of the first, so that if the average of the two crops is about twenty pounds, it is all that can be expected, and perhaps an average of \$3 per pound is all that can be calculated on for a series of years, by good careful cultivators.

They generally keep the oil in tin cans, but the Doctor has brought up from New York demijohns, holding two and three gallons, believing it will keep better in glass. A three-gallon demijohn will hold twenty two pounds, which at the price that the Doctor realized for his last crop, would be worth \$112.42. Ten of these, weighing 220 pounds, making a light load for a buggy, would be worth \$1,124.42.

The expense of erecting a distillery ranges from \$600 to \$1,000, and as under favorable circumstances they can distill about thirty pounds in twelve hours, earning \$12, they can make a fair percentage on cost, annually.

It is calculated that about half a million of dollars' worth is annually produced in Wayne county, and perhaps about the same value in Michigan, and that supplies the limited demand for the use of babies and adults suffering from cholera, toothache and other severe pains.

The Farmers' Garden.

We presented some thoughts and suggestions on this subject in our last, and we feel disposed to amplify them, because we are thoroughly convinced that the attractions of farmers' homes and of the farmers' life might be very greatly augmented by increased attention to the family garden. As we stated, the greatest objection on the part of farmers to a liberal garden patch probably is, the labor required for its proper cultivation. The labor could be very much lessened by such an arrangement of the garden plot and garden crops that most of them might be cultivated by horse labor.

We will suppose that a farmer wishes to devote about half an acre to the kitchen garden, and that he determines to lay it out in circular form. The circle would be about 10 rods in diameter, and 31 rods in circumference. Should the exterior row be devoted half to grapes and half to blackberries, the former 8 feet and the latter 6 feet apart, he could plant 32 grapes and 42 blackberries, which would afford, when in full bearing, quite a liberal supply for a family.

Eight feet inside of this, a row of raspberries could be planted, about 23 rods in length. At three feet apart, 154 raspberries could be planted in the row, which could be divided between the red and black varieties, to suit the tastes of the family.

Six feet inside of this, a row about 26 rods long could be planted to currants and gooseberries. At four feet apart, about 108 plants could be set in this row, or, if that would be more than the family would like of these species, raspberries, or whortleberries could be substituted for part.

Four feet inside of this, a row of strawberries, over 25 rods, or 418 feet could be planted. Set one foot apart, 118 plants could be set in the row. Four rows of strawberries, three feet apart, would contain about 1,600 plants, covering about one-ninth of an acre, which, properly cultivated, ought to yield thirty bushels of this delicious fruit.

After making this liberal allowance for the small fruits, in the kitchen garden, there will be a circular space, fifty-four feet in diameter, one hundred and seventy feet in circumference, left for vegetables. The outside row of his might be planted to asparagus, and the next to rhubarb, and the remainder planted to those annual vegetables, a small amount of which is relished in every family.—*Rural Home.*

TO KILL HORSERADISH.—Horseradish when it has once got possession of the ground, is one of the most difficult things to eradicate. We notice a statement that kerosene will kill it, if the stalk is cut off close to the ground and the oil applied to it.

PUTTING UP POTATOES IN THE SOUTH.—A writer in the *Mobile Register* says: "I always put my potatoes up in slaked lime, sprinkling it thoroughly among and over them throughout the barrels. It takes no great deal of lime, but it prevents the potatoes from getting strong. Northern potatoes would soon get strong in our climate unless so treated, but lime and a dry room keeps them good the year round."

TOADS.—The *New York Herald* says that N. C. Ely, the wideawake President of the Farmers' Club of the American Institute pays fifty cents apiece for all the toads he can purchase, and these useful reptiles are put on his 500,000 farm in Connecticut. On our own grounds toads are encouraged to be fruitful and multiply, as they destroy immense numbers of noxious insects. Toads are useful nocturnal marauders in gardens.

SUPERPHOSPHATE ON ASPARAGUS.—Peter Henderson says he has found superphosphate of lime very useful as an application to asparagus beds, at the rate of 500 pounds per acre (which would be a little over three pounds to the square rod), sown on the beds and hoed in. When tried in alternate rows, the difference was nearly a foot in the height of the stalk in favor of the phosphated rows; and the crop was nearly double when cut the following spring.

GROWING HORSERADISH.—Around the city of New York gardeners grow it as a second crop. The ground is plentifully manured, and marked off into rows one foot apart. Every alternate row is planted with early cabbages, and after the plants are set out, the horseradish sets are planted in the intermediate rows, at the distance of 18 inches apart. If the horseradish starts too soon, it is cut off in hoeing the cabbages, which does not injure the horseradish roots in the least. In July the cabbages are harvested and sold, and the ground is left entirely to the horseradish. As the farmer is supposed to produce only one crop from his land each year, he can manage the crop without so much labor. The soil must be deep, so as to allow the roots to penetrate a foot or more if possible. The sets which are planted consist of the small roots which are taken from the large ones, and are from four to six inches in length.—*Rural New Yorker.*

The Breeder and Grazier.

Color in Shorthorns.

Now that so much attention is bestowed upon the color of Shorthorns, the following, resurreted by the London *Live Stock Journal*, will be interesting. It is from an address by John Hitchman, M.D., as Chairman of the Derbyshire Agricultural Society, in 1862 and was subsequently published by request for circulation amongst the members.—

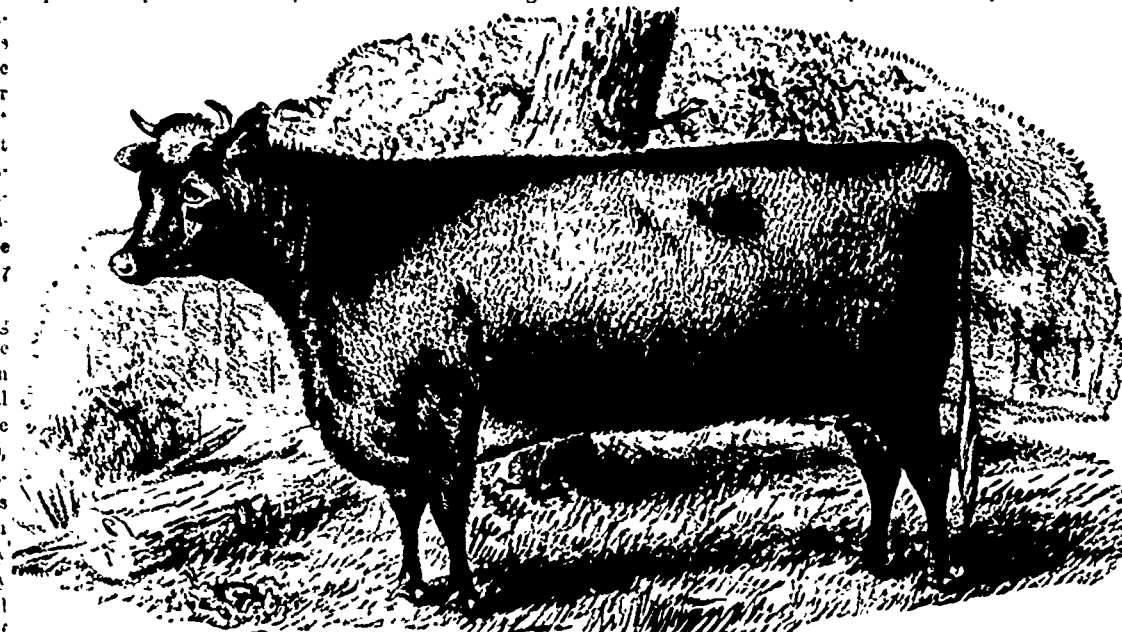
Color is at times uncertain in the offspring of the Shorthorn, because no one color has ever been sought for continuously for a long period of time. White, or red-and-white, is, perhaps, the primitive color of this tribe; but fashion in 1815 demanded white, and subsequently red, and now for the past fifteen or twenty years *roan* has been in vogue—this very color requiring a blending of red and white to produce it. *A white bull and a red cow will produce a number of roans, in the first instance*, but the progeny will produce red, or white, or patchy mixtures of the two, according as either parent may have left the stronger bias in this particular. It is because of this variation in color that the admirers of the Hereford or Devon tribe of cattle regard the Shorthorn as being not only *parvenu*, but an artificial product—a *made* animal, with a constant disposition to run off to some one or other individual type of which it is a compound.

Now, notwithstanding that there is a race with the "alloy" of the Galloway, in its blood, yet is the original Shorthorn as distinct a tribe as any other of our races, and has, probably, an ancestry as remote, and I am as positive, as I am of my own existence, that a uniformity of color, as unvaried as any other class of animals, could be secured in process of time, if breeders were unanimous in determining upon one of three colors, namely, red-and-white, white, or red. So long as *roan*, which is a compound color, is determined upon, so long will it be a matter of the greatest possible uncertainty what the actual color of the progeny may be. Certainly roan is a very beautiful color, and the variety which it is to make a herd of Shorthorns a most picturesque object in the park or meadows of a nobleman; but still, this variety detracts from its dignity as a tribe, and lessens its value when viewed as a herd in the stalls, or grouped for sale in the market. I say, that this uniformity may be effected, because even now, there is a kind of unity amid all this variety, for, if we cannot determine what the color of the future calf will be, we can, at all events, predict what it will not be; we know that it will not be entirely black, or have any patch of that color—black, or anything approaching black, would taint the fair fame of the Shorthorn, as assuredly as would a woolly scalp, a flat nose, a protuberant lip, and a dark skin in her progeny, sully the honor of a Virginian lady.

Perhaps there have been more good Shorthorns of a white than of any other color; although it is now very unpopular—unpopular, because it betrays dirt, and is difficult to keep unsullied; and, erroneously unpopular, as implying weakness of constitution. *It is as hardy as any color.* Stick to facts and not to fancies. In what color does Nature robe the animals which spend their lives amid the regions of eternal snow? What is the predominant color in the Arctic hare, the Esquimaux dog, and the Polar bear? Of what color are the body-ends of nearly all feathers, especially the feathers of all water-fowl occupying cold latitudes? What color has instinct and experience alike sanctioned as the proper one to husband

and preserve the heat of the human body? Let no man who puts on a white shirt, condemn white color in his ox as a sign of "nesh." A white cow may be "nesh," but the same cow would have been as "nesh," or "nesher," if she had been of any other color.

In determining the color and the texture of the hair and skin, the influence of the male predominates, where both have an equal hereditary tendency; that is, supposing that the female had through six successive generations been red, and the male through as many had been white, the progeny will partake more of the latter color. Bear in mind, that this effect will follow only where the hereditary bias towards a special color and character of hair, is equal in both of the sexes. Look at the Mule, carrying always hair of the coarseness and color of the Ass: reverse the procedure, let the Horse be the sire, and the "Hinny," or as I have heard it called in Derbyshire, the "Foulart," will have the hair and the color of the horse. From early childhood I have reared birds, rabbits, and other pets, and have never known an instance where the male has not influenced mainly the color and texture of the external covering of the body. If you pair a male Goldfinch with a hen Canary, the male progeny will resemble the Goldfinch. Place a Dorking cock with Cochin-China hens,



Georgie Hillhurst.

and the feathers of the offspring will resemble mainly the Dorking. Reverse the procedure, let the Oriental be the lord of the harem, and the scene is changed, the offspring of the Dorking hens will be far more like "Cochins" in their feathers than Dorkings.

Again and again have I known a white Boar produce all white pigs from a black Sow; and *vice versa*; but let it be ever remembered, that for such results to follow, the bias, or hereditary transmission of the special color, must be equal on both sides. A white Boar, *e. g.*, descended from a black Sow, by a white Boar, when placed with a black Sow, would not make so decided an impression upon the color as one which had for many generations descended from a white strain.

Short-Horn Heifer, Georgie Hillhurst.

The cut on this page represents Georgie Hillhurst 3d, a red heifer belonging to B. B. Groom & Son, Winchester, Ky. She was bred by Col. Kingscote, Walton under Edge, Gloucestershire, England. She is
by Duke of Hillhurst

- | | |
|-----------------------|-----------------------|
| 1 d. Georgiana Walton | by 2d Earl of Walton |
| 2 d. Georgiana 6th | by 4th Duke of Oxford |
| 3 d. Georgiana 5th | by Gen. Canrobert |
| 4 d. Georgiana | by St. Bernard |
| | by Lord J. Bentinck |
| | by King Pippin |
| | by Earl Stanhope |

Duke of Hillhurst was bred by Hon. M. H. Cochrane, Quebec, and is now let in England for the current six months for \$4,000 gold.

Unnatural Appetites.

Whenever animals fail to get in their food the proportion of elements they have been accustomed to appropriate they are pretty sure to pick them up wherever they can find them. Failing to get the requisite amount of salt in their food, some of our domestic animals eat freely of the mineral to make up the deficiency. If there is salt enough in their food to serve their necessities, as when grazing near the ocean, the mineral is not wanted. The young bovine so long as it is fed on the milk of its mother, has no appetite for salt, but soon acquires one when fed upon grass. When swine are long fed on corn they gradually acquire an appetite for salt and for something alkaline, and if they can find a substitute nowhere else they will find a partial one in the use of rotten wood or in the soil into which their noses instinctively plunge. Fed on the blood and offal of a slaughter-house no such appetite develops, as all they require is contained in their food.

So milk giving and rapidly growing cattle, not finding the lime and phosphates called for in milk and bone in their food produced from soil more or less exhausted of these materials, find a substitute in old bones, softened by inorganic decay. For this appetite finely ground bone

meal mixed with salt is a remedy. It supplies just what is wanted. If the sulphur which enters into the growth of hair, hoofs and horns is lacking, an appetite for woollen rags, mittens, horses' blankets, sleigh-ropes and the like may be expected. The sulphur in feathers and the phosphates in hen manure may reasonably account for the depraved habit above complained of. Other missing or scanty elements are found in partly decayed corn-cobs, the salts of urine, and various other substances.

These abnormal appetites all come from some deficiency in the food consumed, and may be remedied by supplying that deficiency. In the first place the food should be regulated as far as it can be, so that it shall furnish all that is needed, and especially such as is abundant in the food or salt is craved. A liberal use of wheat bran or shorts, with oat meal, oil meal, clover, and plenty of roots, especially potatoes, is very efficient in guarding against unnatural longings in cattle, as such food contains about all that the animals require. The bran and the roots are particularly effective.

When an unnatural craving for bone, wool, &c., has been formed, the cure will be hurried if in connection with the food named the cattle are fed plenty of salt mixed with bone-dust, sulphur and ashes. One half of the mixture should be salt, and the other half be made up with equal parts of the other ingredients. This has proved the best corrective of depraved tastes in cattle of anything I have ever known to be gives. It is harmless at any time, and is excellent to give occasionally in the spring when cattle are shedding, especially in old dairy districts.—*New York Tribune.*

FEED AND WATER FOR A HORSE.—A rule adopted by some omnibus companies and others, working large numbers of horses, is two pounds of ground grain, to each pound of hay. For road driving, if the horse be not doing severe work, a good rule would be to allow eight to ten pounds of the best hay, with twelve to fifteen pounds of good sound oats per day. For farm horses, when doing exhausting labor, as ploughing, for instance, it is safe to allow them all the clean, sound oats they will eat at three separate meals, up to three pecks a day to each horse, bringing them gradually to their feed, requiring that the feed be eaten clean, and, in addition, what hay they will eat. As to the amount of water required, an average horse will consume twenty-four quarts a day if doing light work, and not sweated.

Breeding from Aged Cows.

Some surprise is occasionally caused by experienced breeders giving what seem large sums for old cows whose period of usefulness to all appearance has ended. Light is thrown on the profitableness of these transactions by a letter just addressed to the *Live Stock Record* by Mr. Wesley Warnock, one of the best known of living breeders. He gives his experience of purchasing and breeding from aged cows thus:

Easter Day, vol. 7th, p. 315, purchased by T. J. Megibben and myself from Dr. J. J. Taylor, near Lexington, Ky., at nine years old. We gave \$550 for her. She was in calf to Airdrie Duke 5306, and produced red cow calf March 6th, 1869. The names of descendants and purchasers are as follows:

Airdrie Belle, vol. 9th, p. 422, Geo. M. Bedford, \$1,700; Airdrie Belle 2d, W. E. Summs, \$900, Airdrie Belle 3d, \$910. Rosette, vol. 11th, p. 1066, John Nichols, Illinois, \$750; Cambridge Rose, John Nichols, Illinois, \$800; Cambridge Rose 2d, John B. Taylor, Ontario, Canada, \$1,000; Cambridge Rose 4th, Richard Gibson, Ontario, Canada, \$350; Master Maynard, Corbin & Patterson, \$700, Admiral S. Moore, Ohio, \$370; Prince Alfred, twinned with Cambridge Rose 4th, \$80; Mr. Larkin, Alabama; being \$7,590 over and above first cost, Master Maynard being resold in a short time to Cyrus Jones of San Jose, Cal., for an advance of \$1,000, this included, making \$8,590 in five years and nine months, from the time of the purchase of the old cow Easter Day. She descended from imp. Rose of Sharon through Flora, sister to Thames, from which all Mr. A. Renick's Rose of Sharon descended.

Also, I give another case of a profitable purchase in Miss Stonewall Jackson, vol. 7th, p. 478, A. H. B. We also purchased her and red cow calf Rosa Jackson at \$600, and in about the same length of time, breeding as from Easter Day, we sold the whole family for \$6,458.

Profit on the two cows above cost, \$13,470 for food, interest and care, we were not so successful with any other family, but very nearly so with Hope, by Sir William Wallace 2d, a descendant of imp. Josephine, by Norfolk (2377). See vol. 7th, p. 369.

Oxfordshire Downs.

The face and legs of an Oxfordshire Down sheep should be of a nice dark color; the poll well covered with a top-knot on the forehead, the fleece should be thick on the skin, of moderate length, but not too curly. The average of a well-bred flock in wool should be 7 lbs per fleece, rams of this breed will not unfrequently clip as much as 20 lbs. each. Combined to a round, well-formed barrel there is generally considerable length and immense substance of frame. Tups are sufficiently wealthy in grazing characteristics as often to develop carcasses weighing from 20 to 25 lbs. a quarter ere twelve months old. The mutton partakes of the closeness of texture and good quality of the Down, while in bulk it well nigh equals the immense joints of Cotswold sheep.

That such animals should be in high favour amongst graziers is what naturally might be expected on all soils sufficiently fertile to maintain the affluence of such a productive sort in full development. Oxfordshire Downs answer best for mixed soils, consisting of good heavy, or light loams, but with management and tolerable high feeding, they are well adapted to prove more remunerative than most sheep under other circumstances, and over rather a wide diversity of districts. I fully expect to see them extend, ere long, much further than they have hitherto done, as they answer so very fully the wants of English farmers, in combining large quantities of best quality meat and wool, to be obtained too, without any detracting features involving either loss of time or sacrifice of food.—*London Live Stock Journal*.

Economic Horse Management.

(Continued from last month.)

Green food is a valuable article of provender, but it requires a little discretion in its use to prevent mischief at times. Thus in commencing its use, care should be exercised by the horse-keeper not to allow each horse more than from six to ten pounds for his first feed, which should be at night, and after he has eaten his corn. The next night from 12 lbs. to 16 lbs. may be allowed, and the next a full allowance may be given without fear of colic, as by that time the green food will have passed through the whole length of the digestive organs. When thus commenced with caution, from 15 to 30 lbs. may be given night and morning with advantage and economy. It is true that, when feeding on green food, horses perspire more than when fed on hard, dry food, and I am inclined to think that this increased action of the skin is the principal cause of the beneficial action I have found to arise from a few weeks' use of green food every summer. These facts require more than opinions or assertions to invalidate them; nevertheless, it may be useful to reply to some of the objections occasionally advanced by clever "horsemen." These men say, "No; no green food for my

horses. I want my stud kept like hunters—in hard condition; and who would give them green food? Did you ever hear of a grass-fed horse being in condition?" This argument is founded on a fallacy—that food, because it is physically hard, produces hard muscles; whereas we ought to know that it is exercise, and exercise alone, which gives to muscles this tone. Food is required, not to give any specific character to the system, but simply to supply the waste caused by exercise. The two illustrations chosen to support the argument are equally fallacious. A grass-fed horse is not in condition, it is true; but it is because he is not at work—because his muscles are not exercised; besides, he lives entirely on grass, whereas the pit horse receives, in addition to his green food, a large amount of nitrogenous grain. There is, then, clearly no analogy between the two cases.

Perspiration is not a true indication of weakness; of course it may depend upon an animal not being equal to the work, but it also depends upon the amount of fluid taken into the system. The weaker of two men doing equally hard work will perspire most freely, but this can be reversed by the stronger man drinking the most, and that without affecting his strength. Green food contains a large amount of watery matter, and thus horses consuming it perspire freely. They do so not because they are weak and wanting in tone, but because their systems contain an extra quantity of water. Hunters in hard condition usually sweat but little, because they are fed on dry food or limited in the amount of drinking water allowed; thus their systems contain no more water than can be easily excreted by the kidneys.

Having selected the food or mixture of food we propose to use, we have now to consider the form in which that food may be most advantageously given. It comes to us in the form of hay and grain, and is open to two objections. The long hay is wasted by the animals allowing a portion of it to fall under their feet, and the whole grain is liable to pass undigested through the alimentary canal. To avoid these sources of loss, we advise that the hay be chopped and the grain be crushed. Experience enables us to say positively that these operations are productive of no ill effects. The additional expense they entail is many times repaid by the prevention of waste in hay, and the more complete digestion of all the grain eaten. It has been objected to these operations that they induce a horse to bolt his food only half masticated. We crush grain, not to improve upon mastication, not to save the animal the trouble of chewing his food, but simply to break the envelop, and thus allow easy digestion. We do not grind it to powder, but are quite contented if it be split. No doubt horses with good teeth would give a good account of most of the grain they are allowed, but we are not satisfied to loose any, and therefore we reduce all the corn to a form which, while it might still be well masticated, is most favorable for digestion; to a form in which, even should it escape the teeth, it will not escape the stomach. The cutting of hay is advised for a different reason. We do not suppose that this mechanical operation effects its digestibility. We cut it to prevent its waste in transit from granary to pit, and in the stall, when the horse pulls a mouthful from the manger, but principally to mix with the grain, so as to compel the horse to thoroughly masticate the whole of his provender. With long hay frequent portions fall under foot, are trampled on and spoiled; some horses, from mischief, wilfully throw their hay on the floor, and these little bits form collectively, in a large establishment, a considerable item. By cutting the hay this waste is prevented, as the animal can only remove a mouthful at a time. The length of cut is almost immaterial, being equally effective if cut to two inches, as cut to a half.

Almost of more importance than the form in which food is given, is the frequency and regularity of meals. The horse's digestive organs are not constructed for long fasts. Long intervals without food produce hunger, and hunger begets voracity; food is bolted, and indigestion and colic follow. This is doubly true and doubly dangerous with horses doing hard work. They come to their long-deferred meal not only hungry, but exhausted; not only is the food bolted, but the stomach is in such a state as to be incapable of thoroughly active digestion, and is overpowered by half the amount of food it could otherwise easily digest. The prevention of waste is almost attained when we give a proper amount of food in proper form; but there are two points to which it is right to devote some attention—the form of the mangers, and attention to the wants of individual animals. The mangers should not be less than three feet long, eighteen inches wide, and twelve inches deep. They should have an upper border of wood projecting inwards for two inches, and a transverse bar of half-inch round iron across the middle. A piece of two-inch-wide hoop-iron, screwed on to the top of the manger, protects it from damage by the horses' teeth. This simple arrangement prevents the horse from throwing out his corn, and the provender is not left in so thick a layer as in the ordinary narrow and shallow manger.

VALUE OF FOODS.—It has been found by careful experiments that 100 pounds of turnips, 50 pounds of potatoes or carrots, 25 pounds of sweet milk, 9 pounds of oatmeal, 7 pounds of barley meal, 9½ pounds of bread or flour, 4 pounds of lean meat or 3½ pounds of peas or beans will produce one pound of flesh. These experiments were made upon animals that were in a suitable condition for laying on flesh.

GOOD CONDITION MOST PROFITABLE.—It is cheaper to keep animals in constantly good condition than to allow them to become lean, and then again fatten them; so land that is kept in good heart from the start, always returns a greater profit to the owner during a series of years, than if allowed to become exhausted through want of system in farming, or the waste of manure; for among the economic values of straw, not the least is its value as manure.

RETAINING THE OLD COAT.—A sharp attack of disease, chronic indigestion, want of condition, with frequent exposure to cold, retard, and sometimes actually prevent the change of the coat which, in horses, naturally occurs in spring and autumn. Good food, regular grooming, and a comfortable stable usually hasten the natural process. Well-bred horses, and those foaled early in the season, change their coats earlier than their fellows. In dealers' and other stables, where at spring and fall it is desirable to hasten the growth of the new hair and get the horse to look as smart as possible, a pint of boiled linseed oil or steeped barley is daily given to hasten the slipping of the coat.—*N. B. Agriculturist*.

STRAW AND HAY.—Good clean straw, carefully stacked, is supposed to represent a value in comparison with the best meadow hay, of three to one. That is, an animal must eat three pounds of straw to get the same subsistence as would be afforded by one pound of hay. Now, since it is required that cattle must consume all the hay they can eat, to bring them through the winter in the same condition they were in at its commencement, it is evident that if wintered largely on straw, they must subsist largely upon the fat and flesh previously stored up; but if fed with corn or other concentrated food, the case becomes widely different, since it acts as a divisor to the other food, and at the same time furnishes whatever nutriment it may possess to the animal.

THE HORSE-BARN.—The horse-barn is of vital consequence to the breeder in protecting his stock from the cold storms and bleak winds of a northern climate. The stable should be well drained and perfectly ventilated. Damp stables, surrounded by stagnant pools of water, affect the atmosphere around them. Filthy, ill-ventilated stables corrupt the atmosphere, that engenders disease in the stable and destroys its inmates. The effect of confined air diluted in foul stables, breathed over and over, is to create diseases, such as blindness, glanders, farcy, and contagious disorders, from which the subjects seldom recover. Apertures should be provided in the horse-barn for the egress of foul air and the ingress of pure air. Nature has provided means to purify the stable and preserve from premature decay its valuable inmates. Foul air becomes lighter than pure air, and rises to the upper regions, where windows are provided for its escape, and the pure air rushes in to supply its place.

GRINDING CORN-COBS.—Geo. Geddes writes thus to the *New York Tribune*.—It costs but little to shell corn, and when we have shelled 100 bushels and have the cobs piled up by themselves, and take Prof. Johnson's statement of their composition, and inquire: Will it pay to grind these cobs and feed the meal to cows? we have a fair question for the chemist and the miller to talk over, and to them I wish to leave the discussion, merely saying that having fed and seen fed to the ox kind much meal made by grinding corn and cobs together, I have come to the opinion that cobs are not worth grinding any more than wheat straw, and that if cobs are to be ground, it would be much the best way to shell the corn and grind separately, for by so doing the grain might be well ground, and the cob ground to suit the means and fancy of whoever may desire to spend his time in such experiments. I wish to add that I entirely agree with Prof. Johnson in his closing remarks, that only careful experiments "can fix the value of cob meal for practical purposes," and having for myself made sufficient experiments to make up a very decided opinion, I have given it—subject to abandonment only when more accurate and more scientifically conducted trials shall show me to be in error. Why cannot Agricultural Colleges make such experiments?

THE INORGANIC CONSTITUENTS OF FOOD.—The bodies of animals, though chiefly composed of organic substances, contain also certain inorganic salts, either in combination or solution. The soft parts of the bodies are here intended, and not the bones, which are, of course, largely composed of inorganic matter. Mr. J. Foster has recently described some interesting experiments on the effect of gradually reducing the quantity of these salts in the system, by feeding animals with food of an entirely nutritious description, but completely deprived of such salts. The food employed consisted of albumen, starch and fat, with entirely pure water. Animals thus treated suffer gradual derangements of the functions of various important organs, which derangements go on until the power of assimilation of the food taken is so far reduced as to prevent the proper repair of the ordinary waste of the system. The natural consequence of this would be to produce decline or death. But death usually ensues before it could be brought about by a cause so slowly acting, since the deficiency of salts, by arresting some of the processes necessary to life, precipitates the destruction of the organism before it could perish by exhaustion. The quantity of salts necessary in the food is less than has heretofore been supposed, but further experiments are necessary to determine its exact amount.

Veterinary.

Parturient Apoplexy in Cows—Treatment.

Cases of parturient apoplexy require the greatest of care in connection with their treatment. In the early stage, before there is complete loss of power, depletion of the system by bloodletting is strongly recommended by some practitioners; and this operation, to be of advantage, must be performed in the early stage. When coma and paralysis have supervened, bleeding is not attended with any benefit.

In a majority of cases, however, it is desirable to administer a good dose of purgative medicine, as:—Epsom salts, one pound, dissolved in two or three quarts of water. An enema of soap and water, to which may be added an ounce or two of spirits of turpentine, should be given every two or three hours; and in many cases it is of the greatest advantage to use the catheter in order to relieve the distended bladder.

When the symptoms are decidedly comatose, much relief may be afforded by the application of cold to the head, and, in all cases, the body should be kept warmly covered. Moderate doses of stimulants are sometimes found useful. We strongly recommend the Bromide of Potassium in two or three drachm doses three or four times a day. During the past few months we have had a number of very alarming cases that recovered under the use of the Bromide of Potassium.

The limbs and udders should be well handrubbed, and the general comfort of the patient must not be neglected. Great relief is afforded the poor sufferer by turning her over from one side to the other and by supporting the head in an elevated position. This can be easily done by means of bundles of straw, or ordinary grain bags filled with chaff or straw.

In this disease, it is necessary to administer medicines with the greatest care, for, when the comatose symptoms are developed, or coming on, the patient can only swallow with considerable difficulty, and the drench, if too quickly or forcibly given, may partly pass into the larynx and trachea and produce suffocation.

When a comatose condition is fairly established, it is almost an impossibility to give medicines without the aid of a stomach pump, and therefore it is much better and safer to persevere with the external application and the free use of medicated clysters.

This serious and often fatal affection might be easily prevented. It is generally the result of a full or plethoric state of the system, acting upon the nervous system, and at the same time the various excretory organs remain inactive and the whole vascular system soon becomes abnormally engorged. This preternatural condition of the system can be counteracted by very simple and safe means.

For eight or ten days before calving the animal should only be allowed a limited quantity of food, and after parturition the food should also be limited for some time. It can be gradually increased after four or five days, and when the excretion of milk is taking place in a regular manner. No doubt for a short period the cow would not yield such a quantity of milk as if she were largely fed, but the temporary loss would be amply counterbalanced by escaping the dangers of parturient apoplexy.

The Horse Epizootic Again.

The genuine old epizootic has appeared again in many places in the Dominion and the United States. The disease appears to be of a milder type than that which prevailed three years ago. We are informed, however, that, in Buffalo, the disease is assuming a more serious character many of the horses that were attacked and, as was supposed, had recovered, being found to be suffering from pleuro-pneumonia.

The symptoms of the epizootic, which is a kind of influenza, are pretty well known to all horse-owners. The pulse is quick and weak, the breathing accelerated and accompanied by a cough, the extremities cold, the throat swollen and sore and the lining membrane of the eyes and nose of a yellow tinge. Usually, there is a discharge from both nostrils, and sometimes the matter is coughed up in lumps.

The treatment consists in keeping up the strength of

the patient while the disease runs its course, giving no quack nostrums nor depleting remedies that will merely waste the strength which it is desirable to economize. In mild cases the horses may be worked a little without injuring them, but in the more severe cases, rest and warmth are necessary. Sponge out the nostrils several times a day with tepid water, and afterwards wash with a weak solution of carbolic acid. The diet should be of a mildly stimulating class, such as is nutritious and easily digested. Linseed tea, oatmeal gruel and boiled grain are about the best, apples and bread will also be relished. If the animal from soreness of the throat refuse to eat, it must be drenched with linseed tea or oatmeal gruel. This treatment will carry through all ordinary cases.

Enlargement of the Glands.

EDITOR CANADA FARMER:—What is the matter with my cows, and what is the remedy? Two cows have already died with it, and now a fine female calf is sick. The symptoms are as follows:—Difficulty of breathing, sweating, soreness about the throat, lump on or near the root of the tongue, froth running from nose, a slight cough. To all appearance the calf is healthy and fat and eats well. The two that died were cut open, and on the throat, near the tongue, was found a small lump which, when it was cut open, was found to contain a yellowish matter.

Shelbina, Mo

JOSEPH OLFORD.

The disease is an enlargement of the glands. We recommend the trying of an ointment composed of one part of biniodide of mercury to eight parts of lard. Apply every third day. You can also give one drachm of iodide of potassium morning and night for eight days. If the enlargement shows signs of suppurating, have it carefully opened.

Treatment for Foot-and-Mouth Disease.

The following interesting paragraph appeared in the *London Times* as to the treatment of foot and mouth disease, which is now so widespread in England:

The disease is worse on the borders of Oxfordshire and Gloucestershire, and in the extreme north of the county, adjacent to Staffordshire. 'H. G.,' Isle of Wight, sends us a recipe for the cure of foot and mouth disease among cattle, which he received from Mr. Thomas Scott, of Knapp Hill Farm, Woking. 'H. G.' states that recently all his cows were affected. The treatment prescribed in the recipe was immediately strictly applied. In little more than one week they all entirely recovered, and are now, so far as he can see, feeding well, and in their former good health. The recipe referred to is as follows:

"When the disease first shows itself, dissolve one pound weight of blue stone (or sulphate of copper) in a gallon of soft water, and with a sponge tied firmly to a stick, well wash out the animals' mouths with this liquor; then mix some powdered alum and oatmeal in equal quantities, and put three large tablespoonfuls of this mixture into their mouths, as near the root of the tongue as possible; this will produce the discharge of an immense quantity of saliva. Also, wash the animals' feet with the blue-stone water, especially between the claws, and allow the cattle to stand on dry straw. If this treatment be attended to when the disease first shows itself, three applications a day will cure the worst cases in three or four days. During the continuance of the complaint, all food must be given chopped, as the cattle cannot lay hold of anything with the tongue; and they should have plenty of water to drink. Do not send for a professional cattle doctor—he is more harm than good. The disease is very infectious, and in all probability he visits so many cases that he will be likely to carry the infection in his clothes and spread it wherever he goes. This prescription can easily be given by an intelligent cowman; and even this man should not go among other cattle in the clothes he wears when he attends to the diseased beasts.

The theory of this treatment is, that blue-stone (or sulphate of copper) being a caustic, it eats out the disease and hardens the membrane between the claws when applied to the feet, and when applied to the mouth and tongue it has a similar effect; but to prevent any of the matter of the ulcers being swallowed or sealed up in the wounds and thus passing into the blood, the mixture of alum and oatmeal is used, and while this has a healing effect, it compels a constant motion of the tongue until all the mucous matter in the mouth is discharged in the shape of saliva. The blue-stone and alum can be obtained at any chemist's. Advice—Keep your cattle in your own fields as much as possible. Prevent them from taking the breath of strange cattle in any way, either over a hedge or on the road. Keep them off the road as much as possible; in short, do not let your cattle mix with or go where other cattle go, if you can help it.

Wind-Sucking, Stump-Sucking and Crib-Biting.

A veterinary contributor to the *Chicago Tribune* thus answers a correspondent enquiring about what he should do to the horse with the above vices:—

Wind-sucking, stump-sucking, and crib-biting are essentially the same vices. The only difference consists in the greater proficiency of the wind-suckers, for the same are able to swallow air, and to belch it out again without needing any support for their teeth; while crib-biters cannot do it unless they have something—manger, pole of a wagon, neck-yoke, etc.—of which they can take hold with their teeth. Both vices, once fully developed, are incurable; and horses that have acquired them can be prevented only temporarily from exercising the same.

The most common, and, may be, the most efficient, method, of suppressing the exercise of these bad habits consists in buckling a strap rather tight around the horses' neck. Sawing between the horses' teeth, or driving a wedge between his nippers, are old horse-jockey tricks, which cause the animal sufficient toothache not only to induce him to neglect his crib-biting exercises, but also to make him refuse his feed. Both vices—wind-sucking and crib-biting are usually the consequence of too much idleness, and are acquired, almost exclusively, only by such horses as are naturally very active and possess a nervous temperament. A young horse, that commences to make his first exercises, may be broken of that bad habit, and be caused to forget it altogether, if he is worked sufficiently every day, and does not occupy one and the same stable with an old wind-sucker, or crib-biter, whom he can see exercising his bad habit.

Wind sucking and crib-biting, like a great many human vices, are somewhat contagious; for it has been repeatedly observed that an old wind-sucker or crib-biter is apt to teach or to impart his bad habit to other younger horses who stand in the same stable. Still, these vices are not quite so bad as people generally suppose them to be; they diminish materially the real value of a horse only when the latter makes his crib-biting exercises on the edge of a manger while he is eating his grain, for in that case considerable grain will fall to the ground and be wasted. It is also claimed that wind-suckers are more apt to be affected with wind-colic than other horses. This, however, is probably a hypothesis without any foundation; but, even if it should be true, then the same cause—that is, the wind-sucking—which is supposed to induce the wind-colic will make the latter also the less dangerous; for an accomplished wind-sucker can eruct gases with the same facility with which he swallows air.

Preventing Milk Fever.

A correspondent of the *North British Agriculturist* writes:—In your columns an inquiry has recently been made as to the best means of preventing milk fever in cows. I have been in the habit of giving the following dose:—Glauber salts 12 oz., cream of tartar 4 oz., nitro 2 oz., and ginger, in powder, 2 drachms. Since I adopted this plan, I have never lost a cow by milk fever. The dose should be given three weeks before calving and three days after. Before giving it, the animal should fast for four hours before and two hours after, and have plenty of tepid water standing before her. Shake the mixture well before giving amongst two bottles of boiling water, and let it cool to blood heat. The moderate use of salt along with turmps is very beneficial to cows, particularly before calving—the disease is brought on by gross humours within the system before calving.

The veterinary editor remarks thereupon:—Our correspondent may consider himself remarkably fortunate that with such a simple saline remedy as that used he has hitherto kept clear of milk fever. Amongst well thriving, liberally fed, superior milking cows in the prime of life such a remedy unfortunately would not be of much avail. One dose of physic, such as that prescribed, given three weeks before calving, is insufficient to arrest the excited condition of the brain and nervous centres in which the disease consists. Spare diet, dry food, and frequent removal of any milk that can be got away are as essential as the physic. Epsom salt and common salt, or a mixture of the two, proves quite as serviceable as the best common Glauber salts. The repetition of the physic three days after calving may perhaps sometimes be requisite for other evils, but can have little effect in combating the approach of milk fever, which often shows itself on the second day after calving. Indeed, if the cow is safely over the third day, there is seldom much fear of her going down with milk fever. Salt given with the food, as the writer remarks, is beneficial for cows, but it is very doubtful whether such benefit depends upon its effects on the fancied "gross humours" presumed to exist "in the system before calving." The gross humours or other mischief occurring in milk fever evidently occur after, not before, calving.

EATING WOOD.—When a cow is found eating wood, bones, &c., it is an intimation that she is suffering from indigestion, and needs some condiment. Salt, bone-ash finely pounded, and wood charcoal, in equal quantities, should be mixed together and a handful a day given to each cow. A few corn ears may be given occasionally with benefit.

The Poultry Yard.

Sultans.

These pretty fowls were introduced into England by Miss Watts. She says of them:—"This is the last Polish fowl introduced among us; they partake of the character of Polands in their chief characteristics, in compactness of form and good laying qualities. They were sent to us by a friend living at Constantinople, in January 1854. A year before, we had sent some Cochin China fowls, with which he was very much pleased; and when his son soon after came to England, he said he could send from Turkey some fowls with which we should be pleased. Scraps of information about muffs, and divers beauties and decorations, arrived before the fowls, and led to expectations of something much prettier than the Ptarigan, in which we had always noticed a certain uncertainty in tuft and comb. In January they arrived in a steamer chiefly manned by Turks. The voyage had been long and rough; and the poor fowls so rolled over and glued into one mass with filth were never seen. * * * We at once saw enough to make us very unwilling to be utterly dependent for the breed on the one sad looking gentleman with his tuft heavy with dirt, dirt for a mantle, and his long clogged tail hanging round on one side, and we wrote directly for another importation, especially for a cock, and to ask the name they had at home.

"In answer to the first request, we found that good fowls of the kind are difficult to get there; our friend has ever since been trying to get us two or three more, but cannot succeed either in Constantinople or other parts of Turkey; the first he can meet with will be sent. With regard to the name, he told us they are called Serai Taook. Serai, as is known by every reader of Eastern lore, is the name of the Sultan's palace, Taook is Turkish for fowl; the simplest translation of this is 'Sultan's fowls,' or 'fowls of the Sultan'; a name which has the double advantage of being the nearest to be found to that by which they have been known in their own country, and of designating the country from which they came.

Time very soon restored the fowls to perfect health and partial cleanliness; but it was not until after the moulting season that they showed themselves as the '*bellissimi galli bianchi*' described by our Constantinople friend. They rather resemble our White Polands, but with more abundant furnishing, and shorter legs, which are culture hocked and feathered to the toes. In general habits they are brisk and happy tempered; but not kept in as easily as Cochin Chinas. They are very good layers; their eggs are large and white; they are non-sitters and small eaters. A grass run with them will remain green long after the crop would have been cleared by either Brahmas or Cochins; and with scattered food they soon become satisfied and walk away. They are the size of our English Poland fowls. Their plumage is white and flowing; they have a full sized, compact Poland tuft on the head, are muffed, have a good flowing tail, short and well feathered legs, and five toes upon each foot. The comb is merely two little points, and the wattles very small. We have never seen fowls more fully decorated—full tail, abundant furnishing, in hackel almost touching the ground, boots, vulture hocks, beards, whiskers, and full round Poland crests. Their color is pure white; and they are so very beautiful that it is to be hoped amateurs will procure fresh importations before they disappear from among existing kinds."

Many efforts were made to procure a fresh stock of these fowls, but with the exception of one hen procured by a fancier in England none others could be obtained. From the original stock, however, several English amateurs have been supplied, and we presume there is no danger of the breed becoming extinct, although as yet comparatively scarce. Some breeders say they are rather a delicate breed, but most other breeders only attribute this delicacy to chicken-hood, and that when matured they are tolerably hardy. Experience has proved that they are good layers, small eaters and exceedingly beautiful in their appearance. Brisk, yet tame in their disposition, with much of the ways and habits of Bantams, they are a very desirable fowl to have.

The chief point to be observed in breeding Sultans is to

breed full crests, which in this breed is particularly round and close. The minor points such as the fifth toe, hocked and feathered legs, and the muffling, should also be looked after, several of those now exhibited at shows in England being destitute of one or more of these points. The average weight in the cock is about four to five pounds, and the hens about three and a half pounds. One peculiarity about the cock bird, worth mentioning is, that when he gets old, his spurs are peculiarly liable to grow long, and so much curved that the points enter the legs and cause much pain. This should be watched, and if necessary, the spur shortened sufficiently to prevent such consequences.

Ducks Without Water.

Has it occurred to many of our readers that ducks can be raised, advantageously, upon premises where there is neither pond or stream, for their amusement?

The common idea is, that such a convenience is absolutely necessary to their thrift. But we have the assurance of a breeder in Massachusetts who has tried the experiment for three successive years, that this notion is altogether erroneous.

Our domesticated ducks, like the wild ones, prefer a brook or lakelet to pass their leisure in, and a swampy piece of ground, through which a river-branch sluggishly flows, affords a good deal of animal food for this race, which helps to keep them during the summer.

But the party spoken of above has no open water on his farm, and he has raised several scores of common ducks in the past three seasons, among his flocks of barn-yard fowls, which have turned out as profitable, so far as he can calculate, as the chickens he has marketed in the fall and winter.

These web-footed birds have been fed with the other poultry, and all his ducklings are hatched and reared by hens. He makes no distinction in feeding, as to variety or kind of food. All his poultry are "in common," and all have the same chance at the grain, the grass, and the scraps from the house; but he has never provided his ducks with any water, except what his fowls have at hand for drink; and he says he knows no difference in their thrift, from the shell upward to killing time.

If the common mongrel duck will thus do well without water to wash and swim in, why may not the Pekin, the Aylesbury, the Rouen duck, be bred to similar advantage? This kind of poultry is fully as profitable as are hens; and if it can be raised without pond or stream on the premises, why is not this experiment worth the trial by others.—*Poultry World*.

PROTECTING PIGEONS FROM BIRDS OF PREY.—The Chinese take a curious method to prevent their pigeons from being attacked by birds of prey while circling over the cities or moving from place to place. This consists in the employment of small, short cylinders of reed pipe, in groups of three or four, or more. These are attached to the back of the bird, and so adjusted that as it flies through the air, a very sharp sound is produced. Varying lengths of the bamboo give variety of tones to this instrument; and when large numbers of birds are flying together in a flock, as is frequently the case, the sound produced by them is distinctly audible for a great distance. It is said that rapacious birds are effectively repelled by this precaution, so that the pigeons make their flights with perfect safety from one point to another. Varnish is used for coating these bamboo whistles to protect them from moisture. This practice is said to have been in vogue among the Chinese for a great many years.

BRONZE TURKEYS.—Last spring I procured thirteen eggs, put them under two hens (not hen-turkeys), and only six eggs hatched. Seven eggs had never been impregnated. Those turkeys are now about half grown. They are all gobblers but one. The prospect now is that they will make large and heavy roasters by Christmas. I will never attempt to rear any turkeys besides the bronze breed. The real bronze turkeys are almost identical with the American wild turkey in plumage—a dark grey bronze. When full grown they are twice the weight of a common, or the largest of common turkeys. The improved New-England bronze turkey never weighs less than 45 pounds the pair—that is, the lowest weight allowable when bred in-and-in. Some have been known to weigh 80 pounds the pair, extra fat. They are like the "Rouen" duck—size is the main criterion they are judged by. Of course they must be next thing to black, every feather showing a bright, shiny bronze. They are the least difficult to raise, as they are hardy, prolific, large, fine, and the meat is sweet. A beginner can raise a dozen where one is raised of the white sorts. Some have an idea that they are some

strange-looking turkey. There is no difference between them and many common turkeys, only great size. They are marked similar to the original stock, only some darker; in fact, the wild stock has been extensively used in bringing about this noted bird. They are to common stock what Rouen ducks and Toulouse geese are to their respective common ancestors. Now is the best time of all the year to select gobblers for breeders.—*New-York Herald*.

GRAVEL FOR FOWLS.—Carnivorous fowls need the assistance of hard substances, such as stones, gravel, etc., to digest the food upon which they live. This they are able to obtain for themselves, in most localities, at all seasons except in winter, or when confined in limited quarters. At such times they must be supplied with a liberal quantity of clean, sharp gravel, or coarse sand. Young fowls of all kinds should have fine gravel or coarse sand constantly within their reach, of a size adapted to the capacity of their throats.

The Apiary.

Wintering Bees in Cellars.

EDITOR CANADA FARMER.—Would you give the best way of wintering bees (in cellar,) in hive (Thomas' Double Boarded)?

Mr. Thomas directs that the entrance be covered with wire cloth; how can dead bees be removed (by the bees)?

And would not the dead bees, in that case, stop the bottom ventilation? Is bottom ventilation requisite at all? Mr. T. directs the honey-board to be replaced by a frame, covered with wire-cloth. Would not that cause excessive ventilation at top. One of my stocks weighs, exclusive of hive, 39½ lbs. Deducting 12 lbs. for bees and board, this leaves (according to Mr. Thomas) 27½ lbs. of honey. Is that enough to winter the stock till end of March next, or later? Should bees be put in cellar, when thermometer goes below freezing point?

R. T. R.

MONTREAL.

The apiarian authorities do not agree about bottom ventilation. If there be no upward ventilation, the interior of the hive will become damp and mouldy from the breath of the bees; and, if the draught be too strong, too much animal heat will be removed. Therefore, if there be a lower opening, it should be as small as possible. We incline to the opinion that, if there is no danger of mice getting in, it will be better to leave the bottom open. If there are mice about, the best way is to close the bottom with wire cloth, and examine about every six weeks, when dead bees can be removed. The replacing of the honey board with a frame covered with wire cloth would only be advisable in a cellar where the temperature was very equable. The bees should go into the cellar on the first really cold day, probably about the 1st of November.

The quantity of honey wanted during the winter depends upon the degree of heat or cold that the bees will have to endure. An extreme of either will cause activity among them, and a consumption of food. A small colony will want more honey in proportion than a large one, to keep up the heat. Twenty-five pounds is sufficient for a good average colony in the open air, and would be enough for a strong colony in the cellar.

Upright Ventilation.

Bees have done better this year than they have for several years past. Two-thirds of them died in this country, last winter, on account of not giving them upright ventilation. The frost accumulated in the hive until the bees were frozen in a solid mass. The first warm day they would thaw out and fall down dead, and leave plenty of honey. Some old fogies came to me to know what was the matter with their bees. They died with plenty of honey. I replied nothing but laziness. Had you done as I told you, you would have had all your bees now! "Oh," said they, "they died with some disease. I know they did, for they had plenty of honey left. Did not your's die?" "No, not one. I fixed them, as I told you to do. Take off all the honey; then pack the top of the hive with corn cobs, just high enough so your cap will cover them; put 2 one-inch holes in your hive, one on each side, cover well, and your bees will be all right next spring, on their summer stands."—*American Bee Journal*.

THE HONEY CROP is a failure in England this year. Very few hives will be able to get through the winter without feeding.

The Dairy.

Heating Bad Milk.

One of the principal subjects discussed at the Dairy men's Meetings last year was the feasibility of heating milk that was set for cream but was suspected of some taint or odor. It was advanced by some good authorities, Mr. L. B. Arnold being chief, that the milk would thus be rid of its volatile impurities, that the germs which caused fermentation would be killed and that better butter would be got than by the old style. During the summer, Mr. Arnold was at Elgin, Ill., and while there he was asked to exemplify his heating theory. The *Utica Herald*, from which we are quoting, gives this account of the experiments:—Two vats of milk were taken. One was treated in the ordinary way the other was heated to 130°. Both were allowed to stand 36 hours. The vat treated in the old way kept sweet until the expiration of the time, and the cream skimmed from it yielded 60 lbs. of butter. The heated vat was sour in 24 hours, and at the end of 36 hours was a "frothing, foaming mass," and 48 lbs. of butter were made from the cream. These, in brief, are the facts of the experiment in heating milk for butter making. Upon the face of the matter, it appears to be an overwhelming verdict against the heating theory.

Where Does the Meal Go To ?

In the CANADA FARMER for June was an account of experiments which tended to upset the generally received notion that meal fed to cows passes, not into the first stomach, but directly into the fourth or true stomach. Mr. L. W. Miller, of Chautaugua Co., N. Y., has been investigating the subject thoroughly in connection with his theory and practice of feeding meal alone. His results confirm other observations that the meal lodges in the rumen just as does coarse food, and does not pass directly to the fourth stomach, as Professors Arnold and Stewart concluded from their dissections. Mr. Miller writes:—

I have just slaughtered an exclusive meal diet beef, and examined the contents of the several stomachs, feeding meal immediately before killing. I found none of the meal fed in either the manifolds or the fourth stomach, but all, or nearly all, lodged in the rumen, where I found an accumulation of several days' diet, I should judge from five to seven. In the fourth stomach was a quantity of meal, I should judge about the amount I had been in the habit of feeding at one time, in an advanced stage of digestion. This is probably the first animal ever slaughtered upon an exclusive meal diet, and the evidence is overwhelming as to the passage of the meal into the rumen and its subjection there to the law of rotation which governs that organ in the article of coarse food."

Mr. Miller admits that if cows were fed meal while their first stomachs were already full of coarse food, some of the meal might go directly to the third and fourth stomachs, and he thinks also the death-struggles of animals previously experimented upon may have caused some of the meal to be pushed into the third and fourth stomachs. But he regards his experiments as conclusive upon the point that meal fed alone always goes into the first stomach, and undergoes the same processes as other food is subjected to

How to Milk.

The first requisite to good milking is that the cow be kept where her sides, teats, and udder shall be clean and dry. In the summer, when cows are grazing, this is easy, but in the winter when they are stabled, it requires some attention and effort to keep them clean. But it can, and always should be done with cows which are milked. Some advise washing the udder before every milking. This is all nonsense, except in accidental cases. A cow's bag has no business to be at every milking in a condition to require washing, whether stabled or not. The man who keeps his cows so filthy as to be habitually subject to this necessity has failed, not only in the initial step to good milking, but in the first essential to neatness in dairying. The udder of a cow is not likely to become filthy without involving other portions of her body. If it were necessary to wash her bag, it would be equally so to wash her sides also.

Milk is a very powerful absorbent, and if there is filth upon or near her, the scent from it will infect the milk, to say nothing of the danger of getting filth into the pail.

The next requisite is that she shall be where she will be comfortable and free from any annoyance or excitement. This is essential to her "giving down" perfectly. A cow's bag is interspersed with delicate muscles so much under the control of her will that she can easily contract them and hold back a portion of her milk. There are but few cows which can long "hold back" the milk of a full udder, but it is very easy for them to hold back whenever there is but little in the bag, as at the last end of the milking; and this they are very sure to do if there is anything unusual to disturb or excite them, as loud talking, being milked by a stranger, or even his presence. I had my dairy of twenty cows fall short in their yield a pailful of milk several times one Summer simply from a neighbor's dog following into the milking barn when I was milking, my cows not being accustomed to the sight of a dog.

Assuming that the cow and her bag are clean and dry, and that she is comfortable and quiet, the milker should sit down gently on a firm stool, and with a light and careful motion brush the teats, udder and side of the cow next to him, to free them from any specks of dust or dirt or hairs that would be liable to fall into his pail. A tin-pail with the top wider than the bottom is the best vessel to milk in. Let this be held firmly between the knees, with the bottom resting on the ankles, as this is the safest and best way to hold a pail to protect it against any sudden motion of the cow. If the bag is much pendant, and the cow is very gentle, there is no objection to setting the pail on the ground. Let the milker now grasp the teats with his whole hand, and by a firm and rapid but steady pressure crowd the milk out by closing the fingers next to the udder a little in advance of those below, being careful not to hurt the cow by pinching her teat between the ends of his fingers and his hand, or by pressing his finger-nails into the teat as his hand is closed. Milk the left hand teat with the right forward one, and the right hand with the left forward, always holding the left wrist firmly so as to be ready instantly to crowd the cow's leg back if she should attempt to kick or step suddenly forward. The milking should always be done with dry hands, both on account of cleanliness and for the sake of keeping the teats in good order. If the teats are too dry and inclined to crack, they may be wet after milking with a little of the strippings, or with a little linseed oil or other soft grease. The hands should press alternately and not both at once; and when milking is once begun it should go on as rapidly as it can consistently with the comfort of the cow and the strength of the operator, and without any cessation until the milk is all drawn, otherwise the cow will get out of patience and hold back the last part of her milk.

The milk in the udder is contained in branching tubes and in numerous small cavities distributed through it, the tubes coming together just at the upper end of the teat, and forming a single constricted channel, which is inclined to keep closed, and is nearly equivalent to a valve. Toward the close of the milking a little pulling down as the teat is pressed, works the milk out of the little cavities by stretching and flattening them, and at the same time pulls open the constricted channel to let it flow through. This pulling down must be gentle and moderate. As done by the calf in sucking it is just right. If the teats are pulled too hard, the severe stretching of the walls of the passage at the upper end of the teat causes them to pull up and thicken, so much as to impede the flow into the teat, and often stop it entirely. For this reason the practice of stripping the milk out by pulling down with the thumb and fingers, and letting the teat slip between them as the milk is driven out, is not a good practice. It often causes the passage at the top of the teat to pull up and close, as just described, and to make the thickening of the walls apparent by a hard bunch which feels like a kernel of corn. The stripping method pulls too hard.

To get out the last drop of milk is an important means of keeping up and prolonging the flow. Nothing will dry up a cow faster than to leave a part of her milk in her bag at each milking. It will often aid in getting that important drop to clasp the lower part of the udder, or so much of it as can be taken in, and slide the hand down gently pressing, so as to help crowd the milk forward, till the hand comes to the position of grasping the teat, and pressing the milk out. All this should be done as expeditiously as possible, as the quicker the milk is got out, the more perfectly it can be drawn.—L. B. Arnold, in *N. Y. Tribune*.

THE YOUNG HEIFER.—So far as it can be controlled, the period of dropping the first calf should be arranged to take place in the month of May and June, so as to induce the largest possible flow of milk, beginning about the second week after calving, when the grass is green and succulent. The milk glands are now in condition of growth to be easily influenced by food, and a greater development of the mammary or glandular system takes place than if the animal came in on dry food. This for the young heifer is extremely important, as it will not only secure the largest possible flow of milk at that age, but create the capacity for large secretions all through the life of the animal. A cow coming in the first time in May or in June will be worth a good deal more than the same cow would be to come in at any other season.—*Ex.*

Concerning the Ear Marks of Butter Cows.

Hon. John Shattuck, a noted butter dairyman of Chenango County, N. Y., said, at the late Convention of the New York State Dairymen's Association, that he had found the color on the inside the ear to be one infallible guide in the selection of a good butter cow. If the skin on the inside the ear is of a rich yellow color, the cow was sure to give a good quality of milk; that is, milk rich in butter. He said in all his experience he had never known this sign to fail. Mr. J. W. North, in the *Maine Farmer*, gives some further information concerning the subject. He observes that cows producing very high-colored butter have a large amount of the ear secretion, in many instances the whole internal surface being covered with a thick, orange-colored oily matter; on the other hand, the light-colored butter-makers present a scanty, thin and pale yellow secretion, in some cases found only at the bottom of the ear. His theory is that every animal has the power of secreting a certain amount of this yellow pigment. If the quantity be sufficiently large, secretion will take place freely in the mammary glands, the ear and skin. If, however, the production be limited, the tendency may be wholly toward the milk glands and ear, causing the animal to exhibit a pink hide, or the skin may be almost the sole avenue of escape from the body, the butter in consequence being light-colored; or there may be so little coloring matter evolved, as to furnish none to the skin, and a very scanty supply to the ear and milk. In selecting Jersey cows, in order to judge in regard to the color of their butter, he recommends the ear to be inspected.

Dr. Sturtevant, in his recent address before the Connecticut State Board of Agriculture, alluded to this color of the ear in selecting cows, but he thought some caution should be observed in clearing away the secretion that may have accumulated on the skin, so that the true color of the skin on the inside of the ear may be seen. Otherwise the accumulated secretion, if taken for the true color of the skin inside the ear, would deceive, as it might be darker, or exhibit a deeper color than that of the true skin. He regarded the color of the ear as a good guide in respect to the color of the butter which the cow would yield.

DAIRY STOCK RETROGRADING.—Dairy cattle are generally inferior. Very good cows are the exception. There seems to have been a retrogression during the last thirty years. There has been too little breeding especially for milk. There is a necessity now to the dairy man for a breed which shall combine the good points in all existing breeds. The milk product could be increased one-third by thus breeding. The advantages are greater now for selecting the best animals than formerly. There are signs by which we can discriminate. There are poor cows in every breed. If the best cows for milk should be selected from each of the breeds, there would be found not a great difference between them. There are native cows as good as any, but take a dairy made of natives, and the average would not be as good as in a dairy of Ayrshires or Jerseys.

GOOD AND BAD COWS.—The difference between a good cow and a poor one is not generally appreciated. Often than otherwise the price at which cows are bought and sold is made to accord with the amount of milk they will give. But this is not a sound way of estimating their value. Beef cattle may be estimated by the pounds of beef they will make. A bullock that will make 500 lbs. of beef, may be worth half as much as one that will make 1,000 lbs.; but the cow that produces only 100 lbs. of butter a year is not worth half as much as one that will make 200 lbs. in the same time. As it will take the former cow two years to make as much butter as the latter will in one, she will cost the owner a year's keeping more than the other cow will to get the same amount. The butter from the poor cow costs double what it does from the good one, and is produced at a ruinous rate to the farmer. Such a cow will not pay the cost of keeping, and is only fit for the shambles. She ought certainly never to occupy a place in the dairy.

HOW MUCH FOR AN AYRSHIRE BULL.—A young dairyman writes to the *Live Stock Journal* to ask if it will pay him to give \$150 for an extra Ayrshire bull for a herd of thirty cows. He gets this reply:—Let us see what the basis is for this extra price. Suppose you get fifteen heifer calves from your herd. These you would, of course, expect to keep, and if a good two-year-old heifer is worth \$16 more than a poor one (and who does not think the difference more than this?) then the calves of the first year would wholly reimburse you for the whole price of the thoroughbred. But you have still got him, and he is worth more the second year than the first. Suppose you keep him four seasons, and that during that time you get fifty heifers from him, it would cost you only \$3 per head extra. We make no account of the bull calves, because grades should never be used as bulls. We have not counted his use for your neighbors, but for this you might probably get nearly enough to pay his keeping. You should remember that "like produces like," and never allow yourself to be betrayed into the use, for breeding, of a poor animal, because he is cheap. It will always prove a "dear" investment, in the end.

The Agricultural matter published in the WEEKLY GLOBE is entirely different from that which appears in THE CANADA FARMER.

The Canada Farmer

TORONTO, CANADA, OCTOBER 15, 1875.

Work for October—November.

A good deal of the work done at this time of the year may be advantageously invested in attending the Fairs. The larger gatherings have already come and gone, and have shown no decrease in their utility or in the interest with which the farmers regard them. The articles exhibited show convincingly that 1875 will be looked back to as a good year by Canadian farmers. And even if the articles did not prove that their exhibitors are prosperous, the personal appearance of the farmers would be enough to convince any on-looker of the fact.

Though the rushing time is over, there is no scarcity of work to be done; for the farmer's work, like that of the good housewife, is never done, till he is in possession of his ultimate freehold of six feet by two. Advantage should be taken of the many fine days which may be reasonably expected about now, to do work that will cost twice as much if put off till the cold, sleety days of next month. Land for spring-crops should be ploughed and left rough, the surface being first scarified so as to allow the germination of seeds of weeds, previous to ploughing under. All of the winter grains will have been sown before now, but rye can still be sown with reasonable expectation of success.

Every exertion should be used to add to the bulk of the manure pile. Leaves, wood ashes, plaster, house scraps, where not fed to pigs, bones and refuse of all sorts have a manurial value. Swamp muck and vegetable mould make valuable ingredients of the manure pile, though possessing little value alone.

The spring work will be greatly expedited if an outlet is now made in all places where water stands upon the surface. These places can be seen now just as well as when in spring they become miniature lakes in which nothing but aquatic vegetation will flourish. This is the time of the year for drainage operations, both surface and under-draining. We have not space to enlarge upon the virtues of underdraining, and it is unnecessary to do so. They are visible to everybody. The increase in the one year's crops has frequently paid the entire expense of the draining. If stone be used for filling in the drains—but tiles will be found cheaper in the end nearly everywhere in Canada—they should be got together ready for hauling on the snow. If the drains are dug before the ground freezes up, the work can thus proceed till the snow gets too deep.

Potatoes are not improved by much exposure to light. Therefore, do not delay burying or housing them permanently. Let them sweat in heaps for a short time, and then, if you bury them, put a layer of straw between two layers of earth with straw over all, as mentioned in last FARMER. There is less labor and more security from frost by this method. Do not trust to luck by leaving the potatoes unburied a day longer than is necessary. A sudden change of wind in the night, and a sharp frost, may knock the profit out of an entire crop.

It will be better to husk the corn as it becomes ripe rather than wait till later when cold fingers will be the order of the day. Select seed corn, throwing aside any likely-looking ears without husking them. Take from stalks having two ears in preference to those having only one; and take the upper ear only.

Burn all the weeds that can be collected, and let none of them disperse their seed.

Get rid of old, that is, unprofitable stock which it will not pay to winter. Carry this right through from the horned stock down to the hens. It is unprofitable to depend on old horses, and thrifty farmers usually get rid of them before they are quite past labor. But there is often a deep and laudable attachment between the farmer and his old four-legged servants, and we do not wish our recommendation to be taken as applying to them. Old milk cows should be fattened as soon as they are past their

milking prime. Old ewes give weak lambs, and light fleeces; qualify them for mutton as soon as possible.

Cattle are better in stables that are not very light, nor very dark. Plenty of shelter should be provided. Places where, on bright days in the winter the cattle may enjoy the sunshine, but be sheltered from cold, should be made, such as an open shed facing the south.

Do not endeavor to carry through winter more sheep than there is shelter and provender for. See that the manure made by the sheep in the winter does not go to waste, for it is very valuable.

"Swine well-summered are half-wintered," is a true saying. It is less troublesome and expensive to keep them fat than to make them fat. Let them go into winter fat and strong. Keep none but well-bred swine. Let them have warm and comfortable quarters and they will want less food.

Look after the water supply. In Canada, the roofs of the buildings necessary to shelter the stock in the winter will furnish enough rain-water for the stock all the year round. Every building should be spouted, and the water conducted into a cistern.

Do not keep your orchard produce, if a good price can be got now. Plough land that is intended for new orchards next spring. Look after the labels on the trees, and that the name is decipherable. Look after the bindings on budded trees and loosen them if necessary. Feed all fallen fruit to the hogs before it decays. Insects will be thus destroyed, and the hogs pleased.

Grape-vines should be pruned, laid down and covered with earth about eight or ten inches. Mulch strawberry beds with leaves, hay or some such thing. Cut out the old wood from raspberries, and tie up the new canes. Cut out old wood from currants and gooseberries, and plant cuttings, which succeed better when planted in the fall.

Earth up celery, but not when wet, and, later, store it in pits covered over with planks upon which put several inches of earth. If new beds of rhubarb are wanted, divide old roots now, as it is easier done than in spring. Sow spinach for spring crop, and cover the fall crop with hay on the approach of freezing weather. Store squashes in a dry place where there is no fear of frost. Cut back parsley to force a new growth in the spring.

The wood pile should be got together. A covered shed for it is a necessity, and a covered approach a great convenience.

Now is the time to prepare an ice-house. Sawdust or tanbark should be got to pack the ice in.

Some of the Western doctors are predicting an unhealthy fall, when the unusually luxuriant vegetation shall have fairly begun to decay.

Around the homestead there are a host of things to be done. A closed porch around all the outer doors will be certain to be worth the money. There are door and window jambs and fastenings to look to, storm doors to be put up, leaks to be stopped, banking up to be done—all things that pay for themselves in lessened consumption of fuel. Much may be done to avert disease by seeing that all surface and closed drains about the house are kept clean. No stagnant water should be allowed to lie around, nor any heaps of refuse, except in the manure pile. With due attention to cleanliness, no fear may be felt on account of malarial diseases. The drinking water is the cause of many diseases in the country—perhaps more so than in the city, where a howl is soon raised if the public water be impure. Bright, sparkling well-water should always be shunned—or boiled. So also should water that has a pleasant taste. Water ought to be tasteless, but not mawkish.

THE TREE-PEDDLING NUISANCE, we notice, is as great in New Brunswick as in Ontario—or perhaps worse, for the trees sold from United States nurseries will be less likely to suit the climate than they are here. The *St. Stephen Journal* gives some experience of its editor in this line, that, if it were not so common, would be agonizing. He invested \$125 eleven years ago, and since then has invested any quantity of time and attention in caring for the trees purchased. Result: seven trees alive, one in the last stages of decline. It will be observed that he is seven trees ahead of many persons who have invested with travelling tree-peddlers,—and yet he is not satisfied.

A Defence of College Education for Farmers.

The Agricultural College of Iowa is one of the Colleges to which the finger of scorn has often been pointed, on account of the small number of its graduates who take to farming after going through its course. Mr. J. K. Macomber writes from the College to the *New York Tribune*, defending the institution. He says that sixty-one pupils, including eleven ladies, have graduated. He mentions three of the graduates who are now farming, and says he could name several others. Also that a third of the graduates are in the Department of Mechanics and Engineering.

As we are as much interested in the question of Agricultural Education as are our neighbors, we want to know all about what is done in other countries, as well as in our own country. It seems to us that Mr. Macomber's letter admits indirectly the justness of the allegations against the College that it does not turn out farmers. He makes a good defence on general grounds, which we reproduce.

He says:—But the Iowa College does not measure its success by the number of practical farmers found among its graduates. [This is a fortunate thing for the Iowa College.—Ed. C. F.] Every year it sends to the farm and workshop from 100 to 150 young men who have attended one or two years. They go home with new and improved notions of farming and farm processes. They have studied stock-breeding, examined the fine specimens of cattle and swine kept on the College Farm, received lectures on botany, horticulture, and forestry, and in every way have better ideas of farming than they had on entering. The above-named branches are taught during the first two years. Thus it is evident that the graduates are not the only ones benefited. Again, it is very doubtful about the propriety of college graduates endeavoring to swell the amount of the grain and stock raised in Iowa by adding to the horde of common farm laborers. It is not muscle that we want. There is already an abundance of cheap labor to do the rough farm work. [The Immigration Agents tell another story.—Ed. C. F.] We need more brain work out West and more improved processes. We need to learn how to widen the margin between the cost of production and the selling price. The men who are most helping agriculture in this country are not following the plough, but driving the quill, teaching or working in laboratories. The land is surfeited with unskilled labor, and now what we want is brain work. The fact of the matter is, however, that people are looking for fruit from the Agricultural Colleges too soon. Men seldom achieve anything of note until past the middle age, and we must not look for noteworthy results from striplings hardly out of their swaddling clothes. Again, the graduates of these colleges are generally poor and unable to purchase farms. They can hardly be expected to hire out as farm laborers at \$20 per month when their labor in other pursuits is worth five times that amount. [This last expression "five times the amount" must be a joke. It must be a queer place where young men can go to learn farming, and in a short time can learn enough of other subjects to make them worth \$100 a month.—Ed. C. F.]

IT WAS NOT LIKELY THAT JOHN BRIGHT, the apostle of Free Trade, would have much sympathy with the efforts of English farmers to close their markets to foreign cattle, but some one thought it worth while to ask his opinion on the matter. Mr. Bright replies:—I shall not venture to give you a confident opinion upon the matter on which you have written to me, but my impression, when the bill was passing this Parliament, was that the county gentlemen were anxious to make it as restrictive as possible, and that its operation in the direction of protection made restriction popular with them. I have not much confidence in the legislation to prevent cattle disease, and I distrust it entirely when it is fixed at the point which meets the views of county Members of Parliament. High prices and high rents, by the help of legislation, were once greedily sought after, and will not be refused now if offered under cover of an Act to prevent the importation of diseased cattle. An impartial inquiry into this question would, I suspect, discover that the restrictions imposed are needlessly severe, and that they tend sensibly to diminish the supply, and to raise the price of butchers' meat throughout the country.

Where to Put Our Buildings.

There are few things of more importance to the farmer than the location of his buildings. In many cases the buildings remain in the place where the first clearing was made, entailing many miles of useless travelling and hauling weekly. The *Oermantown Telegraph*, than which journal there is no better authority on all matters of farm economy, thinks farmers might be nearer neighbors than they usually are with mutual advantage. Our cotemporary says:—

"In times past he who entered farm life expected to be more or less an isolated being. Society had no charms for him. He was in most respects a world unto himself. How to make the most money out of his land was the beginning and the ending of all his hopes, and to this object all his arrangements turned. In selecting a site for his dwelling-house and farm buildings it was therefore a point to get as near the centre of his plot of ground as possible. Of course the contour of the surface, contiguity to water and other conveniences, had to have a voice in the decision, but if these voted for the middle of the tract, it was all the more comforting. Every field required attention, and the centre of the whole economized time and space in getting from part to part of the whole concern.

"But times have changed. Agricultural intelligence has advanced more than would have been dreamed of a generation ago. The newspaper is now as much a part of farm life as it is of city life, and we live as much for mental pleasure as for the hogs and cattle and potatoes and corn which our broad acres yield. Social life as well as material wealth is an agricultural want, and must be kept in view in locating buildings as much so as any of the mere conveniences before named.

"Another point is that there is not now the same necessity for as much manual labor on the farm as formerly. Machinery now does most of the hard labor, and the mere saving of manual labor has already been in a measure accomplished. Altogether it is not a matter of serious consequence on what part of the ground the buildings are located.

"This gives us much more chance to entertain the social element in farm life, and there is no reason why in locating buildings the spot chosen might not be especially in view to its contiguity to a neighborhood as not. A dozen farms of a hundred acres or more each could be so arranged that the dwellings might all be within gunshot of one another.

"Even though there were some disadvantages from the labor point of view, the nearness to society would generally compensate it. Farmers, as well as other classes, have learned that there are many ways in which they can cooperate to mutual advantage, and this may just as well be borne in mind when arranging the farm buildings as not."

There is a good deal that is attractive in the picture painted by our cotemporary, but there are some radical objections to farmers being near neighbors. To mention two of them:—There would be difficulty in isolating the stock of one farmer on whose premises some fatal disease had broken out—and, in these days, isolation and prompt stamping out are the recognized moles of treating such things. Another weighty objection is, that the danger from fire would be increased. If farm-yards were but a few rods from each other, sparks could be carried from one man's premises to another—and then, among other advantages of being neighborlike, farmers would have to pay a much higher insurance rate than the companies are satisfied with now.

Self-Education after Working-Hours.

EDITOR CANADA FARMER:—You will, I hope, be able to afford me a little space to make a few remarks in reply to my young Missourian friend. As you have already pointed out the manner in which he has mistaken my meaning, I need only answer a part of this communication. He observes, "Where is the boy of ten or twelve who, after working hard all day in the cold rain, wind, or snow, will take that interest in his studies which is calculated to develop him into a rare specimen of noble manhood?" To this I reply, any boy of ten or twelve who possesses within himself the germs of a noble manhood, will take that interest in his studies which is necessary for the development of those germs into a full maturity—that clothes can soon be changed, a good supper dispatched, and seated within the cheering influence of a blazing fire

of hickory logs—which so far as comfort is concerned, is worth all the stoves in Canada—he will find the change from physical to mental labor will give him all the rest he needs.

Education, even of the best kind, cannot create ability. The most it can do is to develop, either for good or evil, those natural talents, with which every one, male or female, is born into the world, and where great ability naturally exists, it will sooner or later become conspicuous—education or no education.

Can a more striking example of this be adduced than the late ex-President Johnston? For an English example of what natural ability can accomplish I may mention one who became one of the radical leaders of his day—the late William Cobbett. He had but a very limited education in his youth, yet he taught himself English grammar when serving as a private soldier at Halifax, on the pay of sixpence a day. His table for writing on was a board held on his knees, his light the guard-room fire, and only his share even of that. Still he persevered, and to such good purpose that after he had obtained his discharge and returned to England, he published an English Grammar, with which I had an opportunity, about forty-five years ago, of becoming acquainted, and I can conscientiously recommend it as the very best English Grammar extant for any one who wishes to be his own teacher. His radical opinions may account for his selecting a King's speech to exemplify his rules of English composition. In this purpose he selected the shortest King's speech he could find, but short as it was, he pointed out several grammatical errors. Considering that a King's speech after being drafted, is submitted to the Privy Council, and further considering that the Privy Councillors were men of rank and wealth who had enjoyed the best facilities for education that the public Seminaries of England could provide, it does seem strange that these grammatical errors should have been exposed by a self-taught private soldier, and this too, in a document, every expression in which, one would think, would have been carefully scrutinized before it was placed in the King's hand to be delivered on such an occasion as the opening or closing of the Imperial Parliament.

CHARLES JULYAN.

FARMERS WILL NOT HAVE a great deal of work to do this fall in one direction at least—and that is in gathering apples; and it will not be of much use recommending the systematic feeding of apples to stock when the crop is not a great one. The value of apples to cows is great, not for their nutritive qualities, but from the change that they give to the work of the digestive organs. Cut or crushed before being fed, there is no danger of apples choking cattle. By feeding out windfalls, a host of insects will be destroyed and fewer enemies left to prey upon the crops next year.

IT IS PRETTY WELL SETTLED NOW, that, if no artificial restrictions be imposed upon the import of live stock into England, cattle from Western Ontario can be sent to Liverpool at a profit large enough to compensate for all risk of loss by shipwreck, or casualties on the passage. An English paper thus notes the arrival of American Cattle:—Thirty-seven cattle, imported from America, were recently exhibited for sale at the Islington market, and in the Metropolitan Live Cattle Market on Monday, several fat beasts from New York were offered. Taking into account that they had undergone the wear and tear of a long sea-voyage of 3,000 miles, and had met with some rough usage when brought ashore at the port of London, it was remarked that they were in surprisingly good condition. They arrived in the docks all sound, with the exception of one which had suffered severe butting and bruising, and which the inspector detained along with the others until Wednesday, and carefully examined before passing, declaring it, however, to be free from chronic disease. It was sent to the shambles; but the remainder, by reason of having been confined for two days in a very insufficient space, were said to have suffered a depreciation in value of £2 per head. Good prices, nevertheless, were realized, the animals bringing from £28 to £36 each. This experiment proves satisfactorily that animals can be brought long distances by sea, in well-appointed vessels, without being much deteriorated; but the question remains to be considered whether the freightage would not absorb the profit.

IT IS ALWAYS A PLEASANT TASK to record a brotherly action, and when the action recorded is one in which a new organization like the Grange figures so creditably as it does in the instance we are about to mention, the pleasure is doubled. Recently, Bro. Abraham Whitmore, of Howick township, had his barn destroyed by a storm. His circumstances being such that the loss was a heavy one to him, Mr. Alex. Locking, Master of the Local Grange, sent the particulars of the case to the Secretary of the Dominion Grange. The latter officer acquainted the Sub-Secretaries of the facts of the case, and the result was, in a few days, a subscription of \$71.12; and at the date of our receiving information, letters were coming in five a day.

LAST YEAR, ENGLISH JOURNALS sneered extensively at the reported yield of potatoes grown from a single pound of seed for the prizes offered by one of the seed firms over the line. The highest claimed yield from a single pound was 1,018 pounds, the Brownell's Beauty being the variety. This was classed by our English friends among "Yankee stories." Now, however, we observe that a larger yield has been obtained in England. The *Coventry Standard* states that in the spring of the present year one pound each of Snowflake and Eureka potatoes were planted in the gardens at Capesthorne, the seat of Mr. Bromley Davenport, M.P. On the 13th of August the Snowflake was lifted, when it was found that the one pound had produced the surprising weight of 638 lbs. A week later the Eureka was lifted and it was ascertained that the pound of seed potatoes had produced 1,082½ lbs., the largest yield on record. Three hundred of the tubers weighed 369½ lbs.

VERILY, IN THESE DAYS, people have to get up early in the morning, if they would avoid being victimized. No sooner is one sharp trick exposed than the keen intellects of a host of modern Ishmaels who have nothing to live on but their wits are set to work to concoct other devices for the entrapment of the unwary. One of the latest dodges is for a man, got up to represent a farmer, to possess himself of the advertised description of a stray horse or cow, and then to claim it from the person who has taken it up, giving as evidence of his ownership, a full description of the animal. As he lives a long distance off, he says, he will sell the animal for much less than its value, rather than be bothered with getting it home. Now, notwithstanding that men are always accusing women of being incapable of resisting a bargain, the falling belongs to the sterner as well as to the softer sex. The holder of the estray, unless an uncommonly sharp man, snaps at the bargain, and the swindler goes on his way rejoicing in the consciousness of having done a profitable stroke of business.

THAT A GOOD DEAL of the inferior grades of what is called "butter," in the British markets is a mysterious compound, has long been known. About the only ingredient that is known for certain is hair. Now it appears that ground bones furnish a large part of the fatty matters with which the Englishman coaxes down his matutinal toast. It appears that a certain bone manure manufacturer in the neighbourhood of Southampton was rash enough to engage in a free and communicative conversation with a friend of the analyst of the district. In the innocence of his heart the manufacturer disclosed the fact that of the produce of the coppers in which the bones are boiled down many tons are annually sold to the wholesale butter factors. The friend recounted to the analyst, and the latter has now communicated to the public, the process by which the material obtained from slaughter-houses, knackers' yards, and old bonemen's bags is converted into the elements of butter of the period. In the boiling operation a large quantity of fat rises to the top of the vessels. This is skimmed off and placed into tubs. "When cold, it forms a lark, brown-coloured grease, having a most offensive odour, and a taste—well, nobody has been found with sufficient courage to test its flavour." This is the industrial product for which the wholesale butter factors pay so handsomely; and this is the substance which, after being duly manipulated, enters so largely into the composition of the butter sold by certain wholesale dealers in large towns. At the same time, the compound thus elaborated is one which no chemist can declare to contain matter "deleterious to health,"—and therefore the adulteration is only mildly punishable.

To Test Lightning-Rods.

Mr. George B. Prescott, the electrician of the Western Telegraph Company of the United States, has published an article concerning an alleged electrical phenomenon observed during a thunder-storm in a private dwelling. This phenomenon consisted of electrical discharges from the water and gas pipes of the dwelling, which was furnished with a lightning-rod. The question was as to the cause of the electrical manifestation. Mr. Prescott believed that it was due to the defective connection of the lightning-rod with the earth; but in order to satisfy himself fully in the matter, he took the trouble to send an assistant to the locality, and subject the premises, pipes, and rod to actual electrical tests with the galvanometer.

The result was that the lightning-rod was found to be so sadly defective in its ground connections that it could not conduct the electricity into the earth, except feebly; and whenever a thunder-storm occurred, the house became charged with electricity, and the current, being unable to pass down the rod, made its way through the building to the water-pipe, and escaped through it into the ground. The details given by Mr. Prescott are quite interesting. He advised the immediate connection of the rod with the water-pipe, which would thus serve as an extensive conducting terminal for the rod, ensure the safety of the building, and put an end to the electrical manifestations among the pipes before mentioned.

The case is a representative one, as the rod was put up in the same defective manner as the majority of rods, that is the bottom of the rod was simply stuck down a few feet into the ground or rock, and thus practically insulated. The advice has been repeatedly given in many respectable newspapers and scientific journals, that a lightning-rod, in order to serve as a protection for a building, must have a large conducting terminal in the earth. The terminal may consist of an iron water-pipe, as in the present case, or a very considerable extension of the rod itself into wet or damp earth; or a trench, filled with iron ore or charcoal, may be made available.

If a man, employed to put up a tin pipe to conduct the rain-water from the roof to the cistern, were to solder up the bottom of the pipe, thus preventing any flow, his work would be rejected, and he would be stigmatized as a fool. But this is substantially what our lightning-rod men are doing every day. They put up rods for the alleged purpose of conducting the electric fluid, but seal or insulate the bottom of the rods so that the fluid cannot flow into the ground; and the majority of employers are so ignorant of the subject that they are unable to detect the fraud.

The known laws that govern the flow of electricity are almost as simple as those relating to water. If a proper connection exists between the rod and the earth, the building will be protected, for electricity will flow through the rod with the same certainty that water will pass through an open leader from roof to ground. But if the bottom of the pipe be sealed, the water cannot run; and if the bottom of a lightning-rod be sealed or insulated, the electricity cannot flow.

The golden rule for safety is to have the bottom of the rod placed in connection with a large mass of conducting material in the ground.

Wooden Shoes For Farmers.

EDITOR CANADA FARMER:—In the FARMER for August, I notice an extract from the *Practical Farmer*, respecting wooden shoes. These are no new invention. I have often seen the wooden shoes or *sabots* in use among the French *habitans* in Canada East, and very useful auxiliaries to personal comfort they certainly are. In this part of the country, in wet weather, a woman cannot go ten steps beyond her door yard without getting wet feet, except by using India rubber overshoes, which are not only troublesome putting off or on, but not nearly so efficacious in keeping the feet dry as the good old fashioned French *sabots*. By keeping a pair just inside the kitchen door, any one, either man or woman, might step into them, and walk about the barn yard or garden, and on returning to the house, just step out of them, with feet as dry as when they went out.

It might be a good thing for some enterprising speculator to go through some of the French Canadian parishes in

the fall, and bespeak a few thousand pairs to be delivered in the spring. The *habitans* would be able to make them during the long winter evenings, so that they would be disposed to sell them on more favorable conditions than if they were required during the summer. If the speculator, whoever he might be, were to be satisfied with a little less profit than the rascally tree peddlers ask for their trashy surplus stock—the *sabots* would be readily purchased by our farmers, and once having tried them, they would never be without them again.

SARAWAK.

IT IS NO NEWS TO OUR READERS to tell them that Canadian forests are being exhausted but little less rapidly than the forests in the United States. As to the supply in the latter country, an authority stated recently that in a comparatively short time the supply of timber must be exhausted unless proper regulations are adopted to prevent such a calamity. He estimated the annual demand for railroad ties alone to be nearly 40,000,000 pieces, or 100,000,000 cubic feet, this of course being in addition to the needs of building and other purposes. One serious cause of the destruction of timber he considered to be the felling of hemlock trees for the bark alone, the wood being left to rot. He strongly urged the importance of State action in reference to this subject, and showed the amount realized by foreign nations in the way of revenue by a judicious system of treatment which maintains the forests perfectly at full vigor of growth, France alone deriving annually \$41,000,000 income from 12,500 square miles, which, it is believed, will continue at this rate indefinitely.

IN MR. JAMES CAIRD'S annual letter about the cereal crops, there are some interesting statistics about the English consumption of wheat. Previous to 1860 the annual breadth of British wheat land exceeded 4,000,000 acres when the population was barely 28,000,000. The average breadth during the last eight years is 200,000 acres less, while the population has increased to 32,000,000. The produce of 3,000,000 acres of foreign land sufficed for our wants before 1870, that of 4,500,000 acres has been consumed in each year since that time. The consumption of wheat in the United Kingdom in the year 1874 may be stated in round numbers at 100,000,000 cwt., in the following order of supply:—Home growth, 50.7; United States and Canada, 31.5; Russia, 5.8; Germany, 4.0; Chili, 2.2; France, 1.1; other countries, 4.7; total, 100. This is subject to considerable fluctuation, Russia sometimes rising to 18 per cent., and America so recently as 1872 falling to 12. But on the average of the last six years the United States and Canada have taken the leading place, and Russia the second. The countries of Western Europe—Germany, France, Denmark, and Spain shew, he says, a declining export, either from a greater home consumption or lessened production. The mainstays are the United States and Canada and the Black Sea ports of Russia, whose rich and unexhausted lands, with a comparatively sparse population, finds a profitable outlet for an abundant surplus in the United Kingdom.

PROF. RILEY, the eminent entomologist, tells the *New York Tribune* that we are probably to suffer from the depredations of another *Bruchus*, akin to the *Bruchus pisi* or pea weevil. The new enemy is the *Bruchus fabae*, bean weevil, which, although undoubtedly indigenous in this country, has only within the last 10 or 15 years manifested its destructive propensities in our gardens. "It is now, says Mr. Riley," pretty generally disseminated over the country, and bids fair to outdo the notorious pea weevil in its injurious work. The larvæ and pupæ, though smaller than those of the pea weevil, closely resemble them. One great distinction between the two species is found in the fact that whereas the pea weevil places but few eggs on a pod, so that it is but seldom that more than one grub is found in a pea, the bean weevil deposits so large a number that a single bean often contains from a half-dozen to 14 or more larvæ. Infested beans can always be distinguished from those that are sound by one or more round, transparent spots on the skin, where the larvæ have prepared places of egress, in order that they may the more readily issue as beetles. Many of the beetles are perfected in the Fall, but a large proportion of them not till the following Spring, so that there is the same danger of introducing them from one locality to another in seed beans as there is in the case of the pea weevil. All beans intended for seed

should be closely examined, and the infested ones separated and destroyed. Where large quantities are required the most expeditious way of separating the sound from the unsound is to throw them into water, when the sound ones will mostly sink, and the unsound swim."

DR. CARPENTER is inclined to believe that a purely vegetable diet, if it contains a due proportion of oleaginous matter, is capable of maintaining the physical powers of the body at their highest natural elevation, even under the exposure to the extreme of cold. We are inclined to believe that if Dr. Carpenter were set to undertake a course of farm work in keen, bracing weather, on a "purely vegetable diet"—even though it were "oleaginous" enough to nauseate an Esquimaux—he would be hankering after the flesh-pots of Egypt before the first day was out.

A NEW JERSEYMAN was badly bitten by a new variety of strawberry called "Brown's Wonder," introduced from England. He bought it on the faith of a beautifully got-up illustration representing its habit. Each plant was to bear about a bushel of berries. His experience, as detailed in the *Gardeners' Monthly* is that it is indeed a wonderful variety, but for its worthlessness only. "Should this variety continue to grow and produce in the future as it did the past season, I think it would take about a hundred acres, under extra cultivation, to produce one mess for a sick grasshopper. When picking what a tempting sight it was—the bed of Brown's Wonder! Such a display of foliage and such a want of fruit, while the contrast with Monarch of the West was very "pleasing." This bed of Brown's Wonder was so tempting that I immediately let the Monarchs hang, and went for a hoe. It struck me that the contrast would be still more pleasing to have bare ground by the Monarchs. Brown's Wonder might be a good thing for covering sandy door yards, where grass cannot be made to grow."

Correspondence.

PEARS FOR NORTHUMBERLAND COUNTY.—Subscriber, Cobourg.—For your district we should recommend Beurre d'Anjou, Flemish Beauty, Vicar of Winkfield, Louise Bonne de Jersey, and Sheldon. If the Bartlett has not been already tried and found wanting in your section, try it in a small way.

THE PRICKLY COMFREY.—As well as the May number of the CANADA FARMER, see also the June and July numbers. We are pleased to find the amount of interest evolved by our articles on the *Symphytum*, which we think worthy of a systematic trial here. Mr. Edwards, of Burbage Hall, Leicestershire, is the principal English grower of the plant.

APPLE SCIONS FROM ENGLAND.—E. E. Woodburn.—Apple scions can be sent by mail from England here. It would be most convenient for them to reach you by the beginning of April; if earlier they should be stored in a moist place. They can be packed in damp moss enveloped in oilskin. It is well also to stick the ends of the scions into a potato.

THE JAPANESE PEA.—H. A. P.—If you had read your CANADA FARMER more closely, you would not have been victimized. In the April number you will find that we stated, in answer to a correspondent, that the pea would not succeed in Canada. We never heard of its having got so far as flowering, here. It may be profitable to cultivate as far south as Tennessee, but the extravagant claims made for it justify anyone in classing it among the swindles. It will drop out of sight now, but will surely be resurrected again in a few years, probably under another name.

ENTOMOLOGICAL SPECIMENS FOR NAME.—C. J. Sarawak.—The two moths in your first letter were crushed beyond all identification except that they belonged to the *Agrotis*. The second letter contained a dark grey moth, *Agrotis trilinea*, both European and American. The larva feeds on the leaves and culms of wheat before heading, and does much damage to the cereals and fruiting grasses. The quill contained the larva case of a *Coccinella*, lady bug, and the perfect insect which had undergone its transformation *en route* to us. The variety is *Hippodamia convergens*, not a very common one; useful to agriculture as preying on *aphides*.

Agricultural Intelligence.

The Ontario Provincial Exhibition.

The Provincial Exhibition which, this year for the first time, was held at Ottawa on Sept. 20th to 24th was, taking all things into consideration, a gratifying success. The weather for the first two days was cold and uncomfortable, and undoubtedly many intending visitors were thereby deterred from appearing. As it was, however, there were as many as the city could accommodate. Had the attendance been much larger, overcharging, and, to speak more plainly, "gouging," might have become unendurable. As it was, some of the citizens showed a very short-sighted desire to get rich all of a sudden. When it again becomes Ottawa's turn to be honored with the Provincial, this question may assume an undesirable prominence.

The Fair grounds are beautifully situated, being almost insulated by the Rideau Canal and an arm of it, access being easy therefore both by water and land. The soil is a wiry and springy one that will stand tramping without chewing into mud. This is a quality the reverse of which has to be experienced before it can be appreciated. The accommodation for the stock was good and ample for all sorts, except for the hogs. Swine came in such quantities that the pens had to be divided before they were all comfortably fixed. The poultry house is large, but rather too open for such weather as the Show came in for this year. The Central Hall is not large enough for an exhibition of the importance of the Provincial.

The Horses were a fine lot, especially the heavy draughts. In this class, Mr. John Clark, of Nepean, secured the diploma and the prize for best four-year-old stallion. Best three-year-old, Joseph Thompson, Whitby; two-year-old, S. Thorn, Williamsbury; yearling colt, Birrell & Johnston, Greenwood; three-year-old filly, two-year-old filly, yearling filly and best foal of 1875, John Miller; brood mare and colt, Birrell & Johnston; span of draught horses, A. McKellar. In Agricultural Horses, the diploma and prize for best stallion was obtained by Francis McKenna, Ottawa; three-year-old stallion, John Temple, Hull; two-year-old, W. Craig, North Gower; yearling colt, W. Kettles, Goulburn; three-year-old filly and yearling filly, Geo. Dodge, Whitby; two-year-old filly, Wm. Fenton, Gloucester; brood mare and foal, and best foal of 1875, Wm. Herdman, Gloucester; best team, George Heron, Gloucester. For Cattle Horses, best four-year-old stallion, W. Long, Lansing; three-year-old, W. Mackenzie, Whitby; two-year-old, A. Wilson, Bearbrook; yearling colt, John Brown, Williamsbury; two-year-old filly, yearling filly, and foal of 1875, James Harrison, York; best mare and foal, Wm. Fenton, Gloucester; pair carriage horses not over 16, W. Rodden, Plantagenet; pair over 16, P. Buckley, Ottawa; single horse, over 15, Brown & Patterson. For Thoroughbreds, best stallion, four years old and upward, Porter & Campbell, Trafalgar; three-year-old stallion, W. F. Coleman, Ottawa; two-year-old stallion, J. Hickson; diploma, best stallion of any age, Porter & Campbell; best two-year-old filly, J. Hickson; best mare with foal, And. Wilson.

The show of cattle was a splendid one in all classes. In the Short-horns, the principal prizes came west. Messrs. J. & R. Hunter, Alna, took the diploma for the best bull of any age. The first prize for bull four years old and upwards, was taken by Thomas Clark, Nepean; three-year-old bull, John Snell & Sons; two-year-old bull, yearling bull, and bull calf, J. & R. Hunter. Best cow, F. W. Stone; three-year-old cow, yearling heifer and heifer calf, J. & R. Hunter; two-year-old heifer, John Miller, Brougham; Messrs. Hunter also took the three herd prizes for best five calves by one bull; best bull and five females of any age; and the Prince of Wales' herd prize for best bull and five females over one year old.

The Ayrshires were a splendid lot in quality as well as in number. The diploma for best bull of any age, was secured by Mr. Rodden, Montreal. The four-year-old bull prize was awarded to Mr. T. Guy of Oshawa, after long indecision by the judges between his bull and one belonging to Mr. Purvis of Arnprior. The three-year-old bull prize went to Mr. Rodden; two-year-old and bull calf, Messrs. Jardine, Hamilton; yearling, Mr. J. McIntyre, Bromley. Best cow, best three-year-old, and best yearling, Messrs. Jardine; two-year-old, Mr. Thomas Irving, Montreal. Best herd of one bull and five females, Messrs. Jardine; 2d herd prize, presented by Mr. Robert Wilkes, M.P., Mr. T. Guy.

The Herefords all hailed from Guelph. Mr. Stone and Mr. Geo. Hood being the only exhibitors. Mr. Hood took the diploma for best bull of any age; also prize for best yearling bull. Mr. Stone took the prize for best four-year-old bull, three-year-old bull, two-year-old bull, bull calf, cow, three-year-old heifer, two-year-old heifer, yearling heifer, and heifer calf; also the herd prize.

In the Devon class, the principal exhibitor was Mr. George Rudd of Puslinch, and he took all the first prizes except that for best cow, which was taken by Mr. Guy of Oshawa.

Guelph was alone, also, in showing Galloways, for the

best bull of which breed, Mr. Wm. Hood took the diploma. Mr. T. McCrae took the first prize for yearling bull, heifer calf and for best herd. The remainder of the first prizes were taken by Mr. Hood.

There were a few very good fat cattle shown, and some superior looking grades. The Jerseys were not honored with a special class. Some good ones were shown in the class "Any other breed."

The sheep were not very numerous but were good. The principal prizetakers were:—In Cotswolds, F. W. Stone, John Snell's Sons, W. Hodgson, Whitby, and Birrell & Johnston. In Leicesters, C. S. Smith, Acton, A. Oliver, Downey, W. Whitelock, Messrs. Brooks & Biddulph. In Southdowns, Robert Marsh, Richmond Hill, F. W. Stone, H. H. Spencer, Whitby. In Shropshire and other Downs, H. H. Spencer, George Whillans. In Merinos, A. Terrill, Platt Hinman, Northumberland. In Lincolns, T. Cameron, Acton, C. S. Smith, Acton, Jas. Anderson, Westminster, P. & J. Brooks, Biddulph.

The swine were numerous beyond expectation. The quality was first class. The best prizes were taken in Berkshires by John Snell's Sons, Satchell Bros., Ottawa. In Suffolks, Joseph Featherston, Toronto, Wright & Butterfield, Sandwich, Joseph Main, Trafalgar. In Essex, Joseph Featherston, Wright & Butterfield. In other small breeds, J. Main, Wright & Butterfield. In large breeds, Wright & Butterfield, J. Featherston, J. Main, Thos. Irving, Montreal.

The show of Poultry was not a large one, nor did it go beyond average in point of merit. The Light and Dark Brahas and the Partridge Cochins were probably the best classes. The principal exhibitors and prize-takers were Thomas, Brooklin; Sturdy, Guelph; W. M. Smith, Fairfield Plains; A. Fraser, Quebec; T. Starner; Wright & Butterfield, Sandwich; Jos. Hickson, Montreal; A. Nicol, Cataraqui; J. W. Buck, Brantford; A. Terrill, Wexler; J. Main, Trafalgar. Of pigeons, A. Nicol, Cataraqui, and W. Barber, Ottawa, were principal exhibitors; of turkeys, Thomas Foster, East Flamborough; Jas. Mulligan; P. Hinman, Grafton; of geese, A. Terrill, J. Main; G. Somerville, Clarke; of ducks, F. Sturdy; A. Nicol; W. M. Smith; J. S. Stuckley.

The Agricultural Implements class embraced specimens of all the standard articles. Reapers and mowers of nearly all kinds were shown, including the Champion, shown by Joseph Hall & Son, Oshawa; the New Kirby by A. Harris, Son & Co., Brantford; and others. Gordon's Self-Binder was shown among the Machinery in Motion. This is an attachment to the Marsh Harvester by which the crop is bound in sheaves with annealed wire. It attracted much interest. Three or four styles of potato-diggers were shown, some cheap and some apparently expensive. Among the latter is one which carries astern of it a wheel upon which are a series of little forks. This wheel revolves rapidly at right angles to the line of draught, and hits out the potatoes against a screen which is towed alongside to stop them. Another digger is simply an attachment to a reaper. Yet another elevates the potatoes on to an oscillating platform of slats where they are shaken free from dirt.

There was a good show of Seed Drills, Broadcast Seeders, Ploughs, Gang Ploughs, Separators, Threshers, Cultivators and Dany Censels, but none calling for special remark.

The display in the Horticultural Hall was good and the articles were tastefully arranged. Outside, was a collection of roots which caused visitors from the United States to "allow" that Canada is ahead of them in that kind of fruit and yet the largest root we saw was scarcely half the size of some shown at Toronto in the next week.

The amount of gate money was, on Tuesday, \$587.22; Wednesday, \$4,982.15; Thursday, \$3,333.76; Friday, about \$400; total for the four days, \$9,603.13.

Ontario Fruit Growers' Association.

The annual meeting of the Ontario Fruit Growers' Association was held at Ottawa on Tuesday of the exhibition week, Pres. Burnet in the chair. The Directors' report recommended that Canadian fruits should be illustrated in their future reports. Attention was called to the American Centennial.

The Treasurers' report showed:—Receipts, \$2,725; Disbursements, \$2,638.17; Balance in hand, \$85.83.

Pres. Burnet read his annual address which was received with a vote of thanks, and on his consent, directed to be printed. A discussion took place on the subject of the Centennial, and ultimately the President, Secretary, and Mr. Arnold were appointed a Committee to draw up a recommendation to the Advisory Board; and the Association resolved to do all in its power to forward the proper representation of the fruit growers at Philadelphia. It was confidently stated that in apples, strawberries and raspberries, we can beat the Americans hollow.

The following officers were elected:—President, Rev. R. Burnet, Hamilton; Vice-President, P. C. Dempsey, Albany; Sec.-Treas., D. W. Beadle, St. Catharines. Directors—P. E. Buck, Ottawa; C. Arnold, Paris; W. Saunders, London; A. M. Smith, Grimsby; G. Leslie, Toronto; G. Elliot, Guelph; Judge McPherson, Owen Sound; Col. McGill, Oshawa; W. H. Mills, Hamilton. Auditors, W. Hoskins and H. Colebeck, of Hamilton.

Guelph, Hamilton, London and Toronto Shows.

The Guelph Central Exhibition opened on Sep. 14 and, notwithstanding the occurrence of one very wet day, closed on the 16th with the general verdict that it had been a success. The amount given in prizes was \$8,000; the entries were 5,373, being 200 in excess of last year. The exhibition of stock was exceedingly good, as is shown by the fact that the principal prizewinners at the Provincial Show had previously been exhibited at Guelph. The minor departments were all of average, and some of more than average excellence. The attendance was good.

Probably by accident—or, if otherwise, then with exceedingly bad judgment, the Hamilton, London and Toronto Exhibitions were allowed to occur in the same week, with results more or less unfortunate for each of the shows. The number of entries were, at Hamilton, about 9,000; at London, over 7,000; at Toronto, 4,335. The weather was cold and raw, which had the effect of diminishing the attendance. The stock at Toronto and London comprised animals that are the very types of their breeds, but there were not many shown, defeated competitors at previous exhibitions not showing up again. The implement show at Hamilton was very good. The roots shown at Toronto were probably never equalled in Canada since the country has been settled. The attendance at London and Hamilton was good; at Toronto, very small.

Meeting of the Agricultural and Arts Association.

The Directors of the Agricultural and Arts Association held their annual meeting on Wednesday of the Fair week at Ottawa. The attendance was good. President McNab read his annual address. Messrs. Beadle and Cunningham were elected auditors. A resolution was carried endorsing the actions of the Dominion Government as to the representation of Canada at the Centennial, and pledging the Society to do their best to aid therein. After a lively contest, Hamilton was selected as the place for the next Provincial Exhibition. The contest was between that city, Guelph and Kingston. A vote of thanks was passed to the City of Ottawa for its exertions to accommodate the visitors to the Exhibition.

FIRST GRAND EXPOSITION of the Tradesmen's Industrial Institute, Pittsburgh, Pa., opened Oct. 7, closes Nov. 6. Address A. J. Nelis, Pres. T. I. I.

THE MASSACHUSETTS Agricultural College has one feminine pupil. The Iowa college has several lady students, also.

MR. JAMES BOOTH, of Bethlehem, Ky., is the owner of a Berkshire sow that dropped nineteen pigs at one litter about two weeks since.

THE AMERICAN POMOLOGICAL SOCIETY held its biennial session in Chicago last month. The meeting was a successful one. The display of fruit was magnificent.

MR. J. P. WISE, of Prescott, is said to have a seven year old son of Mambrino Pilot in training that is full of promise.

TWO CLYDESDALE FILLIES, out of a prize taker at the Highland Show, have just been imported by Mr. W. F. Kay, Philipsbury.

MR. SYMONS, an English meteorologist, estimates that 3,797,000,000 tons of water fell in a single day during a certain rain storm in the western part of England and in North Wales.

THE WINTER TERM at the Ontario School of Agriculture commenced on October 3rd. The building to be devoted to Veterinary Science will soon be ready for occupation.

A FINE LOT OF COTSWOLDS, some winners at the Royal Agricultural Show, recently arrived in this country for Messrs. Birrell & Johnston, John Snell's Sons and Mr. Geo. Middleton, of Pickering.

PLANET, THE CELEBRATED RACER and stud-horse, died at the Woodburn Farm, Kentucky, lately. He was born in 1855. He is the second famous sire that Woodburn has lost within a short time, the celebrated Lexington being the other.

THE TEXAS CATTLE FEVER has been very fatal in Columbia Co., N.Y. It is supposed to originate from blood poisoning by the ticks which the Texans drop around. The Texans themselves do not suffer much from the disease, but it is very fatal to stock which comes in contact with them.

WALKING HORSES.—At many of the fairs in the Western States, this year, a new feature has been competition by walking horses. We mentioned this several months ago as a practice we should like to see introduced at Canadian fairs. Walking is the gait that is of most use to the farmers, but when there are any competitions to our fairs, they are of trotting or running horses, and are attended with more evils than enough to counterbalance increased gate money.

Sale of the Aylesby Herd.

A good deal of Short-horn history has been made during the last few weeks. The excitement caused by the reaching of the highest average by Lord Dunmore has scarcely subsided when wonder is again raised by the attainment of the highest price ever yet given in England for a female Short-horn, one of the Aylesby herd. The latter sale came off on the premises of the late Mr. Torr, on Sept. 2nd. The result of it shows that Booth cattle have as ardent admirers as the Bates, and indeed the sale may be said to occupy to the Booths the same place as Lord Dunmore's sale does the Bates. A notable occurrence at the Aylesby sale was the purchase of £12,000 worth by Mr. T. C. Booth, of Warlaby. These are the first purchases of any account that have been made for the Warlaby herd, a constant run of sales having been the rule hitherto. The following is a complete list of the sales:—

Cows and Heifers.

Table listing various cattle breeds and their prices in guineas, including items like Weal Royal, Geneva, Bright Queen, etc.

Summary.

Summary table for Cows and Heifers showing averages for 71 cows, 13 bulls, and 84 head.

Average of Tribes.

Table showing averages for different tribes: 15 Brights, 7 Ribys, 25 Flowers, etc.

Sale of the Ulverston Short-Horns.

The sale of the Bates Short-Horn herds of Mr. Brogden and Mr. Ashburner, of Ulverston, took place on Sep. 14. The principal sales were:

Table listing principal sales for Ulverston Short-Horns, including items like Maid of Lorn, Lady Waterloo 18th, etc.

Summary.

Summary table for Ulverston Short-Horns showing averages for 33 females and 8 bulls.

Sale of Lord Skelmersdale's Short-Horns.

A draft from the herd of Lord Skelmersdale was sold at Lathom House, Lancashire, lately. From this side of the water Messrs. Cochrane, Beattie and Hope, Pickrell and Streater, of Illinois, and Crane, of Kansas, were present.

The principal sales were:—

Table listing principal sales for Lord Skelmersdale's Short-Horns, including items like Princess Victoria 5th, Honey-moon, etc.

Summary.

Summary table for Lord Skelmersdale's Short-Horns showing averages for 35 females and 5 bulls.

Sale of Mr. Geo. Moore's Short-Horns.

Last month the herd of Mr. Geo. Moore, Whitehall, near Wigton, was sold. The following were the principal sales:—

Table listing principal sales for Mr. Geo. Moore's Short-Horns, including items like Grand Duchess of Oxford 11th, Duchess, John Rigg, etc.

Summary.

Summary table for Mr. Geo. Moore's Short-Horns showing averages for 28 females and 7 bulls.

Sale of the Scaley Herd.

The first portion of the Shorthorn herd of the late Mr. Fawcett, Scaley Castle, Carlisle, was sold lately. The best prices realized were:—

Table listing best prices realized for the Scaley Herd, including items like Fantail 4th, Florentia 13th, etc.

Table listing various cattle breeds and their prices, including items like Kirklevington Duchess 15th, Seraphina 26th, etc.

Summary.

Summary table for various cattle breeds showing averages for 41 cows and 16 bulls.

ROSARIO, A GRAND BULL, has been purchased by Mr. Gordon, of Udale, Scotland, for 400 guineas.

MR. A. RENICK, of Kentucky, has, according to the Live Stock Record, sold five more of his Rose of Sharon heifers to go to England. The price 3,333.33 per head.

MRS. KIMBERLEY, the "Cattle Queen of Iowa," is exhibiting her Shorthorns at several Western Fairs. She took many good prizes at the Illinois State Fair.

THE IMPORTED SHORTHORN HEIFER Orange Blossom 18th has been purchased by Mrs. Kimberley, Iowa, of Messrs. J. H. Kissinger & Co.

BARON BARRINGTON, a roan calf, was recently purchased for Mr. F. W. Stone, from Lord Bective, for 65 guineas.

THE RED ROSES lately bought by Lords Dunmore and Bective of Mr. A. Renick, of Kentucky, have arrived safely in England.

KIRKLEVINGTON DUCHESS 5TH has recently been bought from Mrs. Fawcett, Scaley Castle, by Sir Curtis Lampson for 1,100 guineas.

THE KENTUCKY SHORTHORN BREEDERS are thinking about establishing a State Association for the encouragement of their art—so says the Live Stock Record.

AT THE LATE SALE OF THE Aylesby Shorthorns, Lord Tankerville bought several white bulls, which he intends to cross upon the famous wild cattle in his Chillingham Park.

THE HIGHEST AVERAGE in Shorthorns ever reached on this continent was \$3,504.50, at Mr Campbell's sale. Calculated in American currency at the average discount, Lord Dunmore's average was close upon \$3,700.

DR. SPRAGUE, of Iowa, writes to say that the average of his late Shorthorn sale—leaving out the barren Lady Newham cow, "Faitte," not sold as a breeder—was, on females, \$703.69.

AT THE SALE IN ENGLAND on Sept. 16th, of Short-horns belonging to Mr. Tippler of Roxwell, near Chelmsford, Mr. Simon Beattie purchased Cambridge Geraldine, Cambridge Violet, and Cambridge Lad.

THE Live Stock Record says that Mr. Renick has given five Rose of Sharons to Mr. Vanmeter in exchange for the latter's interest in the 4th Duke of Geneva. The Roses are rather aged ones, but are still good for several calves.

THE SHORTHORN BULL, Duke of Armskirk, out of Lord Skelmersdale's \$35,000 cow, 1st Duchess of Onaida, purchased at the New York Mills sale, and by 4th Baron Oxford, has been sold to Mr. Foster, of Cumberland, for 2,000 guineas.

DEATH OF 16TH DUCHESS OF AIRDRIE.—The splendid young shorthorn cow 16th Duchess of Airdrie, red, calved Nov. 7, 1872, by 10th Duke of Thorndale, \$26, out of 11th Duchess of Airdrie, by Royal Oxford, \$36, died Thursday morning last. This is the cow lately purchased by E. H. Cheney, Gaddesby Hall, England, for 18,000 gold, and the mother of the heifer calf, some six or seven weeks old, that Messrs. B. B. Groom & Son, of Vinewood herd, Winchester, Ky., bought from Mr. Cheney for \$12,000.—Live Stock Record.

THE AVERAGE PER HEAD realized at English Shorthorn sales during the quarter between April 1 and July 3, according to Thornton's Circular, was £144 1s. 4d., and £72 9s. for males and females respectively. In the three months as many as 97 highly-bred shorthorns were sold to leave England. As many as 70 of these were exported to the United States, 19 came to Canada, 6 went to New Zealand, 1 to Germany, and 1 to Australia. English importations numbered 15 animals only, shipped from New York, June 24, by Mr. George Fox, of Harefield, Wilmslow, Cheshire, and landed at London July 8, 1875.

HOW "THOUSAND GUINEA" BATES SHORTHORNS PAY.—A remarkable instance, says the North British Agriculturist, of the extraordinary profits which have recently been made on some Shorthorn transactions came under our notice the other day. At the Duke of Devonshire's sale in September, 1874, Mr. Geo. Moore paid a thousand guineas for Grand Duchess of Oxford 11th, then a seven-year-old cow. Shortly after the sale the cow was served by 5th Duke of Wetherby, to whom she produced a heifer calf at the end of June last. At Mr. Moore's sale on Thursday, the cow brought 2,000, and the calf was taken by the Duke of Devonshire at 1,000 guineas. Mr. Moore had thus a balance of 2,000 guineas to meet the bull service, the year's keep, and risk—a very handsome sale indeed.

MAJ. H. EVANS, of Spring Station, Ky., has recently sold the eleven months' Duchess Wiley to E. K. Thomas.

FIRST GRAND EXPOSITION of the Tradesmen's Industrial Institute, Pittsburg, Pa., opens Oct. 7, closes Nov. 6. Address A. J. Nellis, Pres. T. I. I.

MR. J. L. GRIN, Compton, has sold to Mr. W. L. Lewis, Halifax, N.S., the Ayrshire heifers Crocus 2nd and Park 4th; also to Mr. R. Taft, Profile House, the Ayrshire bull, Pilot; and to Mr. James Stephen, Trout River, the Ayrshire bull, Lord Dufferin.

JOHN SNELL'S SONS have sold to J. N. Barker, Indiana, a young Berkshire boar by imp. Lord Liverpool out of Primrose 2d. The same purchaser has also become the owner of the Berkshire sow, Mapledale 2d, purchased by Gen. Meredith at Messrs. Beattie & Miller's sale, Toronto.

COL. WM. S. KING, of Minneapolis, Minn., has recently purchased the entire flock of Lincoln sheep, the property of Richard Gibson, London, Ont. These, added to his previously fine flock, probably gives the Colonel the largest and choicest flock of Lincolns in the United States—*National Live Stock Journal*.

THE MINNESOTA STATE GRANGE lately took decided action in reducing salaries. The master is to receive \$2 a day and expenses; secretary, \$600 a year; State agent, \$3 per day and expenses; executive committee, \$2 per day and expenses. This committee was reduced from six to four, and new men chosen.

THE SECRETARY of the Pennsylvania State Grange is taking steps to form what will be called "The Centennial Equipment Association of the Patrons of Husbandry." The object will be to provide accommodation at reasonable charges for members of Granges who may visit the Centennial.

THREE CARGOES OF SPANISH CATTLE have recently arrived at the port of Penryn, Cornwall, England, where several new vessels are being adapted for the trade. The beasts are described as fairly grown animals, in good healthy condition, and they met with a ready sale. Stock in Spain has been much improved lately by importation of English thoroughbred bulls.

MR. F. W. STONE has lately made the following sales:—Short-horns—To H. Walker, Walkerville, yearling bull Cyrus, roan; to C. S. Smith, Acton, yearling bull Zephyr, also yearling heifers Lady Smith and Maggie Bell. Hereford yearling bulls—Canaan, John Merryman, Cockeyville, Md.; Claudihoys, to F. I. Chadwick, Guelph; St. Walter, to J. Challen, Townsend; Dreadnought, to J. Gordon, Puslinch.

A GENTLEMAN OWNING a considerable area of land in the Southland district informs the *Otago, New Zealand, Daily Times*, that the rabbit nuisance is becoming perfectly intolerable. Owing to the presence of these pests on an estate of 60,000 acres, it carries about 7,500 sheep less than it otherwise could do. One day 322 rabbits were killed on this property, and between 7000 and 8000 were destroyed on it last year.

LARGE SHEEP.—A Border Leicester ram, shown at the Highland and other shows in Scotland, is said, by the *North British Agriculturist*, to be, "when measured tight round the girth, 5 feet 8 inches in circumference; around the body, 9 feet 4 inches; across the breast, from one fore leg to the other, 1 foot 4 inches, and weighs 34 stone, (476 lbs.) He has a fine, stylish, symmetrical frame, covered with a very superior fleece of wool.

IT IS NOW AN ASCERTAINED fact that the honey harvest in most parts of England is a complete failure. For this result the daily and weekly weather reports, which were regularly published in our best periodicals, had in some measure prepared us. Bee-keepers in the south are not only without any return from their apiaries to reward them for their care and attention—they have also the farther misfortune of finding their hives have got no stores.

A QUEER HORSE DISEASE has broken out in Washington Territory. A local paper says of it: At first the animal begins to mope, then breaks out in lumps and sores from which yellow water runs, and in a few days the animal dies, or gets well, as the case may be. The disease does not seem to be contagious, as it has not spread beyond the place where it first made its appearance, and only a few horses have been attacked out of a large number exposed. But those who have lost by it would like to know what to call the distemper, and more especially, how to cure it.

THE MODERN SHOWYARD COW.—Says the *North British Agriculturist*:—For three years in succession Mr. Outhwaite's remarkable Short-horn cow, Vivandière, has defied all competition in England. Has any other cow done the same? At the Northamptonshire Show, the other day, she won the fifty-guinea cup and made her last public appearance for the season, if not, in fact, her last in the showyard, as Mr. Outhwaite, we believe, does not intend bringing her out another year. She may well retire, for she has gained in prizes no less than £1,071 10s. Has any other cow done as much—bred regularly, and retained her wonderful form too?

WE HAD THE PLEASURE the other day, says the *National Live Stock Journal*, of looking over the young 5th Duke of Hillhurst, when on his way to Tennessee, and were agree-

ably pleased at his Dukeship's fine appearance. We found him to be a great, big, lusty fellow, the very picture of health, and looking as bright as a dollar—a muzzle like a race horse—a most excellent back, well filled out in all the meat points—flank and twist that made us think of Breastplate, and a touch and hair indicating a most robust constitution. He is, in fact, a calf with but few faults, the most conspicuous of which, we noticed, was a slight inclination to be "volcanic" about the tail, a deficiency that he may outgrow with age.

MEETING OF THE STATE GRANGES.—Canada Dominion, October 27. West Virginia, November 3rd. Alabama, November 30th. Kentucky, December 7th. South Carolina, Indiana, Florida and Georgia, December 8th. Missouri, Illinois, Iowa, Louisiana, Maine, Maryland, Massachusetts, Michigan, Minnesota, Mississippi, New Jersey, Pennsylvania and Vermont, December 14th. Nebraska and New Hampshire, December 21st. Wisconsin, January 4th, 1876. Texas, January 10th, 1876. New York, January 11th, 1876. Arkansas, January 24th, 1876. North Carolina, February 15th, 1876. Tennessee, February 16th, 1876, and Ohio, March 14th, 1876.

LORD FITZHARDINGE'S SHORTHORNS.—The purchase at Danmore last week of Duke of Connaught, the highest priced bull in any country, at 4,500 guineas, should bring Lord Fitzhardinge's herd of Shorthorns at Berkeley Castle, Gloucestershire, into even greater repute than before. The herd is skilfully and carefully managed by Mr. Peter, a native of Forfarshire, and according to the annual catalogue issued the other day, contains thirty-three females and eleven bulls. First in order come a pair of Blanche Roses, then two Darlington. There are three Gazelles, seven of the Wild Eyes tribe, including two Winsomes. These are followed by six Minstrels, three Raspberries, two Siddingtons, four Ursulas, and two Waterloos. So much for the cows and heifers. The stud bull for a few years has been Grand Duke of Waterloo (28,766), bred by Lord Fitzhardinge after Third Duke of Wharfedale. The Waterloo bull heads the list, and is followed by Second Duke of Siddington, a yearling-roan, bought at 400 guineas, if we remember rightly, at Mr. Bowley's late sale. The other nine bulls and yearlings and calves bred by the noble owner of the "best Duchess bull in the kingdom."—*North British Agriculturist*.

New Granges.

The following new Granges have been organized in the Dominion since our last issue:

Division Granges.

19. LENOX AND ADDINGTON.—James Daily, Master, Newburgh; W. N. Harris, Secretary, Napanee.

20. SIMCOE, County of Simcoe.—Charles Drury, Master; John Darby, Secretary, Barrie.

Subordinate Granges.

233. MONCRIEFF.—James Livingston, Master, Moncrieff, Alex. Stewart, Secretary, Grey.

234. NEWRY, County of Huron.—Henry Smith, Master, Newry; G. Richmond, Secretary, Newry.

235. TOWN LINE, AMARANTH, County of Dufferin.—Thomas W. Myers, Master, Shelbourne; John W. Stone, Secretary, Shelbourne.

236. FLOWER OF THE FOREST, County of Huron.—D. McDonald, Master, Molsworth; Arch. McDonald, Secretary, Molsworth.

237. ARCHERTON, County of Simcoe.—Wm. Kerr, Master, Elmvale; John Barnett, Secretary, Elmvale.

238. LISKARD, County of Durham.—Thos. Staples, Master, Liskard; R. Staples, Secretary, Liskard.

Seeds, &c.

The Liability of Seedsmen.

EDITOR CANADA FARMER:—I notice in your last number an article by "Sarawak" on the "Liability of Seedsmen." In reply I would say that if any seedsmen were to sell for dwarf beans what proved to be runners, the purchaser already has his remedy by action at law, and could recover not only his money but damages as well. If the law were even more stringent, I believe it would be beneficial not only to farmers but to seedsmen. It would assist in putting down unprincipled agents who now tramp through the country selling seeds which no seedsmen who had a reputation to lose would dare to offer.

As the seed trade is done on honor, it requires great caution on the part of the seedsmen to see that the many varieties are all genuine. Seeds cannot be expected to grow under all circumstances, but those that do grow should prove true to name. Seedsmen are often blamed

undeservedly. Only a few days since, a farmer called and told me that he had wrongfully accused me of selling him tares with foul seeds. He remembered afterward that the foul seeds were bought from an agent in his neighborhood.

Toronto.

WM. RENNIE.

NEW AND EARLY OATS.—The *Irish Farmers' Gazette* was shown, some weeks ago, a new and early variety of oats originally got by an Ayrshire farmer in Switzerland, and now coming into general use.

NEW SEEDLING POTATO.—Mr. James Woulf of Varna, in the township of Stanley, while passing through Liverpool on his way from Scotland got a small seedling potato. He planted the potato and from the one seed gathered 213 potatoes.

ARNOLD'S GOLD MEDAL WHEAT.—This new variety is to have a trial at the Michigan Agricultural College Farm. Mr. Gully, of the college, says of it, on the receipt of the seed, "It is certainly the finest specimen of winter wheat we have ever seen this year, as to plumpness and general appearance."

CLAWSON VS. DIEHL.—Mr. A. A. Bumpus, of Irondequoit, has shown the *Rural Home* heads of Diehl and Clawson wheat grown on the same field upon his farm in Perinton. Both kinds received the same attention. The Diehl heads averaged hardly three-fifths as long as the Clawson, while about one-third of the kernels on nearly all the Diehl were eaten out by midge, and the Clawson showed no marks of the insect at all, every head being well filled out and plump. The Clawson is rapidly gaining in favor among the Monroe county farmers.

AUSTRALIAN WHEAT.—Mr. Mechi's Australian wheat, previously mentioned in these columns, does not "pan out" good. He says:—The wheat is not finally dressed, but the quantity will be about 2 qr. per acre, or not quite half as much as the adjoining English wheat sown the same day (November 30). I shall probably try a small patch again from this seed, but there appears to be a great disadvantage in using it. No doubt the Australian wheat is grown from English seed originally sent there. The quality is good so far as we can judge in its undressed state. The crop was erect, not laid.

GREEK WHEAT.—It is stated by a Baltimore paper that a commission from there have recently obtained from Montana a lot of "Greek wheat," with a view of introducing its culture into the wheat-growing sections of Eastern Pennsylvania, Maryland and Virginia. This wheat is stated to have been carried from its native home in Greece to Spain, and from there to Montana by the Jesuit Priests. Our Baltimore cotemporary says:—"There is no wheat raised in this country that can approach it in the roundness and fullness of the grain. In Montana the yield is from sixty to seventy bushels per acre. No such crop can be expected from our soil, but if the yield per acre is only equal to that of the standard varieties, the Greek wheat will have a great advantage, because it will command a higher price in the market."

BROWNELL'S BEAUTY.—A *Rural Home* correspondent bought a peck of Brownell's Beauty potatoes, and cut them into small pieces, one or two eyes each, and planted in six rows eight rods long and two and three-fourths feet apart. The ground had been manured and ploughed the previous fall. At planting time put a large tablespoonful of superphosphate in each hill. September 11th he dug them. There were seventeen and a half bushels of very large potatoes, scarcely any too small for market. This is seventy times the seed, and at the rate of 350 bushels per acre. In one place he dug from eighty-two and one-half square feet, forty-three pounds, being at the rate of 3783 bushels per acre. He cooked a mess, and found quality to be excellent, better than the Peerless, nearly or quite as good as the Early Rose. They cook all through alike, no hard centre.

THE EARLY VERMONT AND THE EARLY ROSE.—The close resemblance between these two potatoes has led many people, some of our own correspondents among them, to imagine that they are one and the same variety. A Pennsylvania farmer writes to the *Country Gentleman* pointing out wherein they differ. He says:—With us, the Vermont are not as early, the Rose vines dying several weeks before the Vermont. The vines are of a more vigorous, hardy growth, and in consequence, I suppose, of both these characteristics, it is a better yielder. Under the same circumstances our Vermonts yield a third more than the Early Rose, and almost the same as the Late Rose, ripening with the latter. Both these points of difference, however, may be partly owing to the Vermont being a newer variety, as I have noticed that potatoes grown in this vicinity gradually ripen earlier and lose in vitality and yield. But with us it has not so much of the Rose tinge, and is less oblong in shape with the ends nearer alike in size. I see the English papers notice the black curl, or decay of the leaf of potatoes. I have noticed this for more than fifteen years. It is worse on delicate varieties, the Early Sebec, I remember, dying prematurely with it. I have always thought that when prevalent on vines it indicated rot, if not that year the ensuing one. It is quite bad this year, although but little rot has yet appeared,

Miscellaneous.

Wine-Making at Tilsouburg.

We make the following extracts from a letter to the Brantford *Expositor*, describing Dr. Joy's vineyard. After mentioning that the kinds in bearing comprise Clintons, Concordis, Delawares, Adirondacks, Rogers' No 15, Salem, Othello, and others, the writer goes on:

Now all these grapes would be comparatively valueless if the Dr. had not entered into the manufacture of wine, which he has done most efficiently. A building has been erected about sixty feet in length and two stories in height, the basement having a concrete floor as solid as a rock, descending from either side, so that when flushed with water for cleansing, it passes away readily. The walls are also of concrete, two feet in thickness, and arched with the same material. This effectually precludes the possibility of sudden changes in the atmosphere. This is absolutely necessary for the safety of the wine contained in the huge tanks, 3 of which are of 1123 gals. each, and 7 of 518 gals. An immense cistern, the whole width of the building, the capacity of which is 15,000 gals., controllable by a faucet, affords water of the best quality for all purposes. Last year about 5,000 gals. of excellent wine were produced, and this year the quantity will be considerably increased. One part is worthy of mention—no spirits are used in the manufacture—and thus when your correspondent imbibed a quantity so great as to forbid mention, from the Dr.'s favorite brand, no effects followed, only a desire to possess a cow that would yield such fluid and *never go dry*.

The Dr. claims the use of a process devised by a celebrated French chemist, named Pasteur, whereby the wine at a certain stage is submitted to a sudden heating up to 140 degrees, Fahrenheit, and as suddenly cooled. The effect of this is to precipitate the ferment which is the destructive agent which our wine manufacturers have to contend with. This process has been adopted with the happiest results.

An Italian, named (I think) Berlotte, from the vineyards of his native land presides over the vats, and the Dr. brings his knowledge of chemistry to bear, thus rendering mistakes impossible. This subject is so agreeable in consequence of the inevitable basket with the mysterious contents covered with paper, which comes sometimes to correspondents as well as to editors, that I propose to visit the vineyard and surroundings of Russel Smith, Esq., Fairfield Plains, and give you a brief account of his doings in giving a pure and wholesome drink to the people in the *juice of the grape*.

The Manurial Value of Leaves.

The following, republished by the *Country Gentleman* from its columns of fifteen years back, is as good now as when it was first written:

Leaf manure has long been held in high estimation by gardeners and floriculturists, as affording one of the best substances known as food for plants. Many, however, regard it as a purely vegetable substance, whereas it is rich in mineral matters which have a direct and powerful tendency to improve the constitutional texture and character of any soil to which they may be applied. The alimentary substances which contribute to the sustenance and growth of vegetables are, for the most part, taken up in a state of solution by the roots. In this condition all the mineral ingredients discovered in plants are introduced into the system—such, for instance, as silica, lime, potassa, magnesia, alumina, &c. The sap, which is the medium of this transmission and assimilation, passes into the leaf, where the watery particles are thrown out by evaporation through the minute spiracles on the upper surface of the leaf, and the mineral matters retained and distributed through the plant, and in part through the vascular structure of the leaf itself.

To illustrate more fully the truth of the position assumed, we present the following analysis of the leaves of the pear tree, plucked in May, immediately after the falling of the blossoms:

Carbonic acid	11,500
Silicic acid	1,750
Phosphates	25,000
Lime	4,715
Magnesia	4,509
Potash	18,900
Soda	15,100
Sulphuric acid, chlorine, and organic acids, not determined	

81 715

By comparing the results of the analysis of the same tree made in the spring and fall, it will be found that the older the leaf is, the greater will be the amount of mineral matters contained in it. It will also be found that the foliage of trees contains more mineral matter than the solid wood of the trunk.

In the matured foliage of the elm (*Ulmus Americana*), upwards of 11 per cent of earthy matter—ashes may be found, while the solid wood contains less than 2 per cent; the leaves of the willow more than 5 per cent, while the

wood has only 0.44; those of the beech, 6.67, the wood only 0.35; those of the European oak, 4.06, the wood only 0.22; those of the pitch pine, 3.13, the wood only 0.27 per cent.

These facts demonstrate conclusively that the application of leaves as manure must be succeeded by advantageous results. Every leaf applied in this way restores to the soil something of which it has, in the process of vegetation, been deprived. In this way the mineral ingredients of the soil are forced through a certain routine, and a constant circulation or reciprocity of action, is kept up between the soil and the vegetable beings it supports and perfects.

Entering the sap in solution through the mouths or spongioles of the terminal rootlets, they circulate through the system, and are ultimately deposited in the substance of the leaf, which, in due course of time, falls to the earth, and by its decay restores them once more to the soil, and in a condition the more favorable for again travelling the circuit in which they are destined endlessly to revolve.

The soils of our forests, it is well known, never run out, or are so far depreciated as not to be able to supply abundant aliment to the gigantic vegetation they are found to support. The reason of this is obvious. They annually receive back the greatest portion of the mineral constituents of the trees, together with no inconsiderable quantity of organized matter, derived from the atmosphere.

Were the leaves to be removed every autumn from the forest lands, the same as grain, grass and root crops are removed from arable soils, the impoverishment consequent upon such a course would be no less obvious in the one case than in the other; they would "run out"—the vegetation would be weak and sickly, and to support it, we should be under the necessity of applying, annually, large and increasing quantities of manure.

Leaves unquestionably afford a rich material for manure, and a farmer who has a wood lot in the vicinity of his farm should neglect to accumulate large quantities, to be used as a litter for his animals during the winter, or as a coating for his yards and other enclosures where animals are confined, and where the leaves will be in a situation readily to absorb the liquid voidings, and thus be reduced more speedily to the condition of aliment for growing crops. No compost heap should be formed without them where they can be obtained, and compost made exclusively of them and other decomposable vegetable matters, will be found not only an economical, but efficient aid of fertility on any and every soil.

The Universal Use of Arsenic.

Prof. Henry Wiertz writes as follows in the *American Gas Light Journal*—

We object not only to allowing Paris green to be spread over our fields, to contaminate the soil of our market gardens, but even to its being allowed, as it is, to be kept on open sale in our shops, so that an amount of poison which would sicken a city—by introduction into a distributing reservoir, for example—could at any time be purchased, without suspicion, by any maniacal or fiendish individual, and so introduced, with far less trouble or liability of detection than many of the murderous performances of such individuals.

In America we are happily endowed by nature with a general absence of this deadly mineral, arsenic, from our rocks, our soils and our mineral waters, and we ought to keep ourselves so. Whether this is one cause or not of the known longer average of human life in America than in Europe, it will be safer and better for us to admit that it is one such cause, and not to throw away or destroy our advantage in this respect by sprinkling arsenic over our vegetation all through the land. It is true the predatory insects must be destroyed, but let it be with such poisons—and they are known to be many—which have been given us by God for these special uses—which are endowed with deadly doom for all the insect tribe, while almost without hurt for man. Among such none are more prominent or more familiar than the gas tar products, of which we spoke in this same connection in our last issue. Let these be used instead of arsenic.

Arsenic is, in fact, getting to be, throughout the world, almost as common as dirt. We doubt very much whether it would not be impossible, at the present day, in any country, to convict on chemical evidence before any jury, the most bungling arsenical poisoner, if he or she had a legal defender who would make such use as he might of the argument furnished him by the almost universal distribution of the venomous element throughout our most familiar walks of life. We have received medicines ourselves from drug stores, wrapped in arsenical papers, put up in Paris green paper boxes, with arsenical paper caps tied over the corks, etc. We have often seen confectionery exposed for sale to young children wrapped in the deadly green paper. We have often found young children sucking lumps of sweetened with the horrible stuff, and with their mouths stained throughout with the venom.

The Paris-green paper is one of the commonest in use

for binding school books, and we have more than once taken such books away from our own young children, which have been given them by their teachers. Numerous deaths of children are well known to have been thus occasioned. No country can be called civilized in which such suicidal ignorance, such stupid slaughter of the innocent, is common. One more illustration only. It is very common to see a lawyer, or his clerk, put into his mouth, to moisten the gummed side of it, a beautiful green paper disk, with scalloped edges, to attach to some document. These things are found in every lawyer's office in the land, and used constantly. They are seldom made of any other than the Paris-green paper. Can this be ignorance, or are our lawyers all fatalists, and believe they can only "die when the time comes."

In commencing to write, we had in our mind to refer to some of the wonderful facts developed of late, in Great Britain especially, of open carts loaded with white arsenic passing in open day through the country in some districts, with drivers sitting on the top of the hideous heap; such carts being often exposed all night openly to the rain; of strongly arsenical waters flowing from mines and metallurgical works, into streams of water afterward drunk by large populations, and so on. These are facts.

Everybody will remember the cargo of salt and arsenic together shipped to us from Europe a few months ago, which got a little mixed during a rough passage. This particular mixture was discovered in time, but have all such been discovered? The water we ourselves drink comes from a stream, on one of whose tributaries is a large chemical works, which so contaminates the said tributary with arsenic that cattle drinking of it have been poisoned to death. These things, we say, are facts, on both sides of the Atlantic; but really while we wrote the first part of this article—especially when we thought of the recklessness of the public press, which has actually recommended their rural readers, in many cases, to pile on the Paris-green on their potato patches with a perfect looseness—these other things seen trifles as flat and stale as they certainly are unprofitable; and our enthusiasm and zeal for the cause of humanity seems to wilt down into a sort of sentimentality, which is certainly ludicrously lame and impotent, if not downright sickly.

Vegetable Gum and Gluten.

Gluten is one of the most nutritious of vegetable substances; and wheat owes its superiority to all other grains in a great degree to its containing this substance in larger proportion. It has a gray color, is elastic, ductile and tenacious, soon decomposing when kept in contact with air, and emitting an offensive odor, similar to that of putrid animal matter. It is readily obtained from wheat or flour, through the agency of cold water, and pressing out the starch. Gelatin is an animal substance nearly identical with gluten, which enters largely into the composition of bones, horns, hoofs, &c. Isinglass and glue are formed of gelatin; and when the lime is dissolved out of bones by means of sulphuric acid, this substance remains in nearly a pure state.

Vegetable gum is analogous to animal mucus. Gum is the substance which exudes from certain trees. It appears in the form of a thick fluid, but soon hardens in the air, when it becomes nearly white and somewhat brittle. Its characteristic properties are, easy solubility in water and insolubility in alcohol. Its composition is, carbon 43, oxygen 51, hydrogen 6, in 100 parts; and all varieties are nutritious as food.

Mucus, or the animal counterpart of gum, is a secretion found on the surface of the lining membrane of the intestines, and possesses the same characteristics and nearly the same composition. It may be obtained by evaporating the saliva to dryness, and is then similar to gum-arabic in appearance, but rather more opaque. The fluid found in the shell of an oyster, when evaporated, produces this substance. Sugar is essentially the same, whether derived from the maple tree, the cane, the beet or the milk of animals. In the last-named substance it constitutes about one-third of the whole solid matter. Its composition is nearly identical with that of gum.—*New York Herald*.

DISPOSING OF DEAD ANIMALS.—A dead horse or other animal should be skinned and roughly cut up into as many small pieces as possible. A plot of ground a few rods square should then be ploughed deeply, and the carcass thrown upon the soil in the centre of the ploughed ground. Some freshly dry-slacked lime should then be scattered upon the heap, so as to cover it thinly but wholly. The loose earth is then to be heaped over it a foot in depth, and the pile covered with boards, so that dogs cannot get at the heap and tear it up. If the least smell is perceived, more earth should be thrown upon the heap. In three months the heap may be dug over or turned over with the plough, and well mixed. The bones that cannot be broken up should be taken from the heap, and the fine matter will be worth at least \$20 per ton, to use in the hull for corn or cotton. The larger bones may be broken up and buried among the roots of grape vines or fruit trees.

How to Advertise Successfully.

Let the article you advertise be sufficiently valuable, of public utility, and possessed of merit, then never recommend it beyond such merit.

State facts only, or what you conscientiously believe to be true. Facts, like diamonds, are always valuable and difficult to mutilate.

Give your story concisely and to the point. Advertisements at best are prosy, and short ones least expensive.

However anxious to make money, let its acquirement be secondary to the principle of doing good. The gratification of doing good is the greater reward.

Never essay to build a reputation by attempting the ruin of another. Your foundation is too frail for a substantial structure, and you unwittingly assist your adversary.

The above rules are those of the inventor of Fellows' Syrup of Hypophosphates, and their observance by an advertiser should insure a demand in the market for his merchandise, while business prudence only is necessary to complete the programme for success.

OAK TIMBER loses about one-fifth of its weight in seasoning, and about one-third of its weight in becoming perfectly dry.

TO TEST THE SOUNDNESS of a piece of timber, apply the ear to the middle of one of the ends, while another person strikes upon the opposite extremity. If the wood is sound and of good quality, the blow is very distinctly heard, however long the beam may be.

A LIVING RAFT.—The leaves of the gigantic water lily known as the Victoria Regia, in the Botanic Garden at Ghent, having attained a remarkably large size, Mr Van Hulle, the chief gardener, recently undertook to determine their buoyant power.

BUTTER FROM MILK FOUR YEARS OLD.—The Agricultural Gazette says:—A sample of condensed milk, weighing about 1 cwt., was lately exhibited at the rooms of the Society of Arts, and an interesting experiment made thereon.

DESTROYING COCKROACHES.—For the destruction of the cockroach Mr. Harris, the late eminent entomologist, recommends a mixture containing a tablespoonful of red lead, the same amount of Indian meal, with molasses enough to make a thick batter.

CONCRETE.—The first thing to be done before concreting is to bring the surface on which it is to be laid to the required level and shape, taking care that every part is evenly and firmly beaten, to prevent the concrete from sinking into holes after it is laid on.

WALKING STICKS.—Hazel grown in low districts is usually dark-colored in the bark, and not so highly esteemed as the light-colored variety. Whitethorn, if peeled soon after cutting, has yellow lines marking the circulation of the sap, but these can be scraped off.

HOW THUNDER SHOWERS COME UP.—In order to convey a more definite idea of our theory, we will choose a certain locality which may serve the purpose of a diagram to our demonstration; and this locality shall be the region of Westfield river.

EPPS'S COCOA.—GRATEFUL AND COMFORTING.—By a thorough knowledge of the natural laws which govern the operations of digestion and nutrition, and by a careful application of the fine properties of well-selected cocoa, Mr. Epps has provided our breakfast tables with a delicately flavored beverage which may save us many heavy doctor's bills.

MANUFACTURE OF COCOA.—We will now give an account of the process adopted by Messrs James Epps & Co., Homoeopathic Chemists, and manufacturers of dietetic articles, at their works in the Easton Road, London.

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