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THE
CANADA FARMER:

A MONTHLY JOURNAL

OF

AGRICULTURE, HORTICULTURE,

AND

RURAL AFFAIRS.

VOLUME XIII.

(NEW SERIES VOL. IV.)

FROM JANUARY TO DECEMBER, 1876.

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DEPARTMENTS.

AGRICULTURE.
HORTICULTURE.
LIVE STOCK.
THE DAIRY.
VETERINARY.

THE POULTRY YARD.
THE APIARY.
GENERAL.
CORRESPONDENCE.
MISCELLANEOUS.

THE CANADA FARMER.

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Agriculture.

The Effects of Lime on Land.

EDITOR CANADA FARMER.—Will you be so good as to tell me if lime is good for clay land? Also please state the quantity to be applied per acre, and the way to apply it.

YOUNG FARMER.

North Wentworth.

Like most of the great questions of Agriculture, the action of lime is a subject upon which further enlightenment is needed; and this can only be got by experiments conducted by some institution where operations can be carried on year after year without danger of all the results being lost by the death of the experimenter, as is the case where experiments are carried out by individuals.

Lime is one of the constituents, to a greater or lesser extent, of all soils that are capable of cultivation. All plants remove some of the lime from the soil, especially wheat, clover, barley, oats, and turnips. It follows that, unless the lime be restored, exhaustion will ensue. And yet lime cannot strictly be said to be a manure. It is rather a stimulant. Successive applications of lime without other manure being applied will only quicken the exhaustive process. As a means of bringing back run down land, lime alone is useless. Its action is to decompose vegetable matter and to render more quickly available the plant food that already exists in the soil. In this direction it acts like magic.

It follows that the best time to apply lime is immediately after the application of a heavy dressing of stable manure, or after the turning under of a green crop.

Newly-drained swamps, or new clearings that have much vegetable matter in the soil always respond liberally to a dressing of lime. Such land is also benefitted by lime uniting with acids and carrying off sourness. Clay lands are lightened, and sandy soils rendered more tenacious by lime. On the stiff soils it allows the roots to find nutriment more easily, and on light soils prevents drouth from being so destructive. It is also supposed to have some disintegrating effect on the mineral portions of the soil, reducing them to an available state.

Probably the best time to apply lime is in dry weather, during the early fall. It should be applied in an air-slacked, finely-pulverized state. Any quantity up to 200 bushels to the acre may be the right amount. It is well to begin with as little as forty bushels, and continue the application as long as good results are found to follow. This is also the best course for another reason, viz., that lime is of a peculiarly penetrating character. When applied it commences to work downwards in the soil and after a while is lost to the use of vegetation. Therefore even where a large quantity can be taken with benefit it is better to apply it successively than all at one time.

Wet lands are not benefitted by the application of lime. On pastures the good effects are immediate and great. Cereals are lighter, thinner-skinned, stiffer-strawed, more productive, and earlier in ripening.

Changes in Modes of Cultivation—Growing Potatoes.

EDITOR CANADA FARMER.—The changes that have been effected in farm operations within the past twenty-five or thirty years are very great, and have tendered to benefit the farmer. These are for at least two reasons. In the first place, Agriculture has been more thoroughly studied—looked upon as a subject of investigation for the purpose of increasing the profits resulting from the occupation, as well as enhancing the permanent value of the farmstead. And while men have not aspired to the noble position of being called "public benefactors" they have not only

caused "two blades of grass to grow where only one grow before," but have caused the soil to be more liberal in its increase, in the different crops that have been cultivated. And while the tendency has been to cause a marked increase in production, at the same time it has also been to effect this increase and the general production of the crop at a less expenditure of labor.

In the second place changes have been wrought by the introduction and general use of improved farm implements and labor saving machinery. In viewing the farm implements of early days in comparison with those of the present day, the great wonder is that anything could be accomplished with such rude apologies of farming tools, and that "old mother earth" did not refuse to give her increase in response to the abortive efforts of the husbandman of that day.

But progression is still the watchword, and what was considered good for to-day is surpassed to-morrow. The method usually pursued in the cultivation of potatoes, was to plough the ground as early in spring as could be conveniently done, without spreading any manure, generally of greensward, furrow the rows at least three feet apart, and manure in the hill no less than three feet apart, drop the potatoes and cover with the hoe; after they were of suitable size to hoe, an old fashioned plough, with wooden sides and an iron front, was run through between the rows, and the hoe brought into wearisome use; this operation was gone through with twice or three times, and the rest left to Providence until digging time.

But now how changed is the mode of cultivation; although there are diversities of opinion upon some minor points, such as the use of manure, etc., the important principles of cultivation are followed alike. It is very seldom now, except in case of some experiment or from necessity, that potatoes are planted upon sward ground, but rather in fields that have been undercultivation one or more years, by which means the soil becomes thoroughly pulverized and better adapted to the expansion of the growing tubers. The fact that the potato is a gross feeder is fully observed, and the soil has incorporated with it by having spread upon it, before ploughing or immediately after, a liberal quantity of manure; when this follows the plowing, the effective labor of the pulverizing harrow makes an excellent seed bed for the potato.

The rows are then marked with the plough, from two-and-one-half to three feet apart, (many preferring the distance first named) the potatoes dropped from one foot to eighteen inches apart with the use of a small quantity of phosphate and then covered with a plough, or better yet with a ridger, which performed the labor a little more satisfactory. About the time the potatoes are coming up a harrow is passed over the field in the line of the rows, which operation is repeated before the tops become too large. After this the horse hoe or cultivator accomplishes a large proportion of the labor of cultivation. In these changes it is proper to remark of the preparation of the seed; formerly the seed was cut once in two, while now it is cut to three, two, and often a single eye upon a piece. What has been the effect of this? While the product has not been essentially diminished in quantity, it has been found that the grown tubers are of much more uniform size, and hence better adapted to marketing. A successful farmer has laid it down as a rule, resulting from careful observations, that even if a whole large potato is planted in a single hill, there will be one or two stalks that will get the lead in growth, and that the others must to a greater or less degree succumb to the overpowering influence of the strong, therefore the result must be an average quantity of good potatoes, with a surplus of partially developed ones.

Geo. Hyde, the vice-president of the Connecticut State Board of Agriculture, had taken a new departure in growing potatoes, which promises to be worthy of being followed. The general impression has prevailed that above all things, green stable manure was poorly adapted to man-

uring potatoes in the hill; notwithstanding this, Geo. Hyde has practised the following method. He usually takes old ground, or that has been previously cultivated, and commences to plough upon one side of the field. After ploughing one furrow, which is generally to the depth of six or eight inches, a cart follows, strowing manure, the greener the better, in the furrow, upon which the potatoes are dropped, and the ploughing proceeds until three furrows are ploughed and then the operation repeated, and so on until the field is finished; in this he claims an ultimate saving of time, and is confident that he obtains excellent potatoes. He believes that in consequence of his burying the green manure to such a depth, the process of decomposition is retarded, and all the gases are absorbed into the soil, and the process continues just about as rapidly as the growing potato requires its food, and so cannot prove injurious. The past season even, he tried his method upon a meadow which had been underdrained, but in consequence of the severity of the previous winter, had been so covered with ice, as to kill a greater portion of the grass upon two or three acres; this he turned over as indicated above, the sod completely interlaced with roots, and planted as above, and did not touch the piece with hoe or cultivator afterwards, nor give any further labor until harvesting, and yet there was a rich yield of very large and smooth potatoes, as handsome as are often seen. The cost of production of the crop must have been very light, but the figures are not at hand.

Can it be said that agriculture is not making progress, or that "farming don't pay"?

WILLIAM H. YEOMANS.

Columbia, Conn., Dec., 1875.

Leaves from Farming Experience—No. 4.

Recapitulation of Rotation.

The following is the recapitulation of the revenue from the rotation before described:—

FIRST YEAR.—Twenty acres oats, 70 bushels per acre, 1,400 bushels @ 40 cents, \$560; straw, 30 tons @ \$5.00, \$150.....	\$710
SECOND YEAR.—Twenty acres peas, 33 bushels per acre, 660 bushels @ 70 cents, \$462; straw, 20 tons @ \$8.00, \$160.....	622
THIRD YEAR.—Twenty acres wheat, 30 bushels per acre @ \$1.10 per bushel, \$660; straw, 20 tons @ \$4.00, \$80.....	740
FOURTH YEAR.—Twenty acres oats, 70 bushels per acre @ 40 cents, \$560; straw, 30 tons @ \$5.00, \$150.....	710
FIFTH YEAR.—Seven acres of rye to cut green, valued at \$110; three acres potatoes, 180 bushels per acre @ 40 cents, \$216; turnips after rye, 700 bushels per acre @ 7 cents, \$343; ten acres corn cut green @ \$20 per acre, \$200.....	869
SIXTH YEAR.—Ten acres clover cut green @ \$20 per acre, \$200; ten acres wheat, 30 bushels per acre @ \$1.10, \$330; straw, 10 tons @ \$4. \$40.....	570
SEVENTH YEAR.—Twenty acres hay, 3½ tons per acre @ \$12.....	840
EIGHTH YEAR.—Same.....	840
NINTH YEAR.—Same.....	840
Total value	\$6,741

The fifth crop should have 18 cartloads of good dung per acre, and in the fall, after the eighth crop, 18 loads also. But although all the crop be used as food on the farm, and all the manure used carefully, yet there will be a great deficiency in the supply of inorganic food where milch cows or young cattle are kept. To supply this food to plants, 100 lbs. common salt, 33 lbs. plaster, 4 bushels quick lime, and 50 lbs. superphosphate of lime ammoniated,

or the same quantity of ground bones, also 25 or 30 lb. pearl ash, or 3 bushels ashes must be supplied to every acre every year, \$3.30, cost.

The land to be subsoiled and limed every ninth year at the rate of 35 bushels quicklime and well harrowed 4 times.

The costs of working this farm are about as follows

Two men with horses, 12 months at \$25	\$600
Two " " " " " 7 " " 25	350
Three " " " " " 5 " " 25	375
Two women " " " " " 12 " " 15	360
Cost of seed grain, \$173; grass seeds, \$125	298
Lime, \$120; topdressing yearly, \$137	537
Interest at 10 per cent., \$72; on horses' value \$720; food for horses	591
Interest at 10 per cent. on implements, \$150; rent, \$900	1,050
Taxes, \$75; statute labor, \$15	90

Total costs	\$4,274
Total value of crop unmanufactured	6,741
Cr. by balance in favor of farm	2,467
	\$6,711

JOHN ROBERTSON.

Well's Corners, Ont.

Manuring Potatoes—Ashes—Lime.

EDITOR CANADA FARMER:—I intend planting twelve acres of potatoes next spring, and have on hand eight hundred loads of manure and three hundred of ashes. What would be the best way to apply them to the land for the benefit of the crop. Is there any advantage in retaining seed from limestone soil? My soil is a sandy loam.

I have thirty barrels of slacked lime which I wish to apply to four acres for mangels and carrots, and wish to know if it would be advisable to spread the lime on at present. Will it be slacked so as not to injure the crop in the spring, and by adopting this plan will the land receive the full benefit of the lime?

T. H.

Sarnia, Ont.

It would have been best, beyond doubt, that the manure should have been ploughed under in the fall. As that cannot now be done, the best way will be to proceed thus: After the land has been thoroughly worked and got into condition for planting, open out drills thirty inches apart and along with a waggon or cart and spread the manure and ashes mixed in the drills.

The questions about lime will be found partly answered elsewhere in this issue. For mangolds and carrots, the best way will be to proceed in the manner illustrated in the CANADA FARMER for July last, which we briefly summarize for the benefit of our new readers:—Having got the land in good tilth, sow the lime broadcast. Then row up ridges with a ridging, or double mould-board plough. The act of throwing up the ridge mixes the earth and the fertilizer about as thoroughly as it could be done. Along the channel run the steel drill.

"Mainstay," a New Wheat in England.

In its report of the Smithfield Show, the *Farmer* says:—There were samples of the "Mainstay" wheat, which is certain to become very widely appreciated. It is a new variety of white wheat, possessing very valuable characteristics, and was selected and propagated by the grower (Capt. Delf, Great Bentley) in 1869; it has been carefully cultivated since. The quality of the grain is very fine, white, and transparent; it is held in high estimation by millers—produce of flour in 1874, 82 per cent. Although it is white wheat of very fine quality, it is produced by a plant of very great robustness, the straw is a golden red, of moderate length, very stiff, and of great density; the ear is of average length; square, and the chaff red and rough. The "Mainstay" has been tested year by year by the side of other descriptions of fine white wheat, Essex rough chaff, &c., and has always maintained a great superiority in quality and quantity. It tillers strongly, grows a hardy stout-jointed straw, has the property of resisting unfavorable influences of rapid alternation of temperature, combats successfully the ungenial effects of the frosts of early summer, now so common, resists blight, does not become root-fallen, and will stand the roughest weather in harvest-time, so much so that they may be left

uncut until after the barley is secured, if desirable. This year has established the reputation of the "Mainstay." It is well known to all how disastrously the wheats in this country were rolled and knocked down by the winds and rains of July. Wheat, ever grown, the "Mainstay" stood erect, or only slightly tilted, was free from blight, and produced from 9 to 11½ sacks per acre of good sample while other varieties grown on the same farms, were laid and blighted to such an extent that the produce does not come to more than 6 or 7 sacks of thin, poor grain.

Splitting Wood.

However adept a man may become with the axe, and however proud he may be of his expertness with that indispensable tool, there is one task which sooner or later will cause him to wish he had a coal mine on his premises—and that is, splitting fire wood. Any little hint that may lighten labor will therefore be acceptable to such of our readers as have to keep their own or some other man's woodpile going. The appended illustrations are copied from the *Country Gentleman*, and will be commended by their simplicity. After the wood is cut or sawn stove-length, a simple jack or box, as depicted, will enable the operator to do this splitting two or three times as fast as when he is compelled, after every blow of the axe, to stoop



Fig. 1.

and pick up the wood. Fig. 1 shows how this is done, a portion of a hollow tree being used for the jack. Every block is split in several pieces by successive rapid strokes of the axe, without stopping. A modification may be made as in fig. 2, consisting of a forked log, with an in-



Fig. 2.

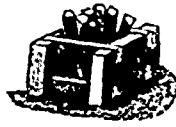


Fig. 3.

serted plank; or it may be made wholly of plank as in fig. 3.

The Necessity for Using Ripe Seed.

Twenty-five years ago, when the Mashanock was the potato, by careful selection, and by planting only the blossom ends, we increased its earliness fully a week, the yield being quite uniform in size, and free from blemishes. For twelve years we made no change of seed, and kept the standard good. This was accomplished by setting aside a certain portion of the crop, from which the seed was to be selected. That from which the seed was again to be saved was carefully sorted, and the balance planted for market. Thus, we always had seed that could be depended on.

The same plan was adopted with seed corn. None but the ripest and farrest ears were saved for seed; and this, again, was sorted carefully, the selections being used for the seed crop, and the rest planted for marketing. So the best of any given variety of grain may be selected by throwing it across a barn floor, from side to side. The heaviest and plumpest seeds will fly farthest, and if saved and passed through a sieve that will retain only the largest grains, these may be sown for the seed crop, and the rest for marketing. Thus, in a few years, you may have crops of superior excellence, and at comparatively light cost. But in no case must any seed be gathered until it is fully ripe; for as surely as like produces like, so surely will immature seed depreciate the quality and diminish the vigor of the plant, until it finally becomes a prey to every disease, or climatic conditions unfavorable to growth; and it perhaps eventually dies out entirely, to be supplanted by something new.

Take wheat, for instance. If perfectly ripe, the starch and gluten is in its best state for being absorbed by the young plant, giving it vitality and vigor, and the bran, or skin outside, will retain its shape for a considerable time. If the seed be unripe or shrunken, the plants come up weak, and never become as vigorous as they should.

There is no doubt but a great deal of trouble from the attacks of insect depredators arises from this lack of vigor in the growing plant; and this is essentially true as

respects its ability to resist fungus attacks and other diseases.

Up to about thirty years ago grain was not harvested until ripe. Then came the mania for harvesting wheat while in the dough state. The evil improved until the reaction came, and now this species of insanity has pretty nearly run its course. It is true that the bran on wheat so cut will be thin and light; and it is as true that the wheat will be soft and the flour sticky.

The bran from ripe wheat is thin and tough, and from unripe wheat is dry and brittle. Ripe wheat grinds freely, and, when ground, is soft and elastic in the hand, and gives off a pleasant smell. The flour absorbs, and continues to absorb water freely upon being mixed and kneaded, and the loaves of bread, when baked, are light, moist and soft.

Unripe wheat, when ground, feels dry, and is more like meal. It lacks the pleasant odor of ripe wheat, absorbs but little water when kneaded—for, the granules being hard, the water lies around it rather than in it, and when baked, the loaf is dry and hard.

Therefore in saving seed grains, it is the wisest economy never, under any circumstances, to save for sowing any but the most thoroughly ripened samples.—*Chicago Tribune*.

Soot.

EDITOR CANADA FARMER:—I wish to get your opinion as to the value of chimney soot. What should it be worth per 100 lbs. How should it be applied to secure best results, and how does it compare with other fertilizers, such as superphosphate, guano, or bone.

A. A. D.

Cobourg, Ont.

We cannot pretend to say what soot should be worth per 100 lbs. As a fertilizer it is of little value. Compared with superphosphate, guano, or bone, it may be said to be nowhere. It is useful in orchards and in gardens, and is a first class absorbent for stables, privy vaults, hen roosts, etc. It is also of value to dust upon turnips and cabbages to prevent the attacks of the fly and grub. The time to do it is when the dew is on the plants.

A Bean Harvester.

Mr Root described at a meeting of the Farmers' Club of Lenawee, Co. Mich., a bean harvester of his own invention, which has given him much satisfaction. He uses a frame, three by four feet, resembling the frame of a wheel-cultivator, which is mounted on wheels, with a seat for the driver, and a lever within his reach for elevating or depressing the cutters. From the forward corners of the frames depend two standards, upon which are bolted two cutters, made of steel, two and one-half feet long, which extend obliquely backward toward the centre, but do not meet, allowing stones or rubbish to pass between. A tongue is bolted to the centre of the frame, and the horses are so spread by long neck-yoke and whiffletrees as to have two rows of beans, 2½ feet apart, between them. The driver mounts the seat and guides the horses between the rows. The cutters run from 1 to 2½ inches beneath the surface, cutting off the roots, raising the surface slightly as it falls over, but leaving the beans standing upright as they grow. They cure much better left in this way than in bunches, as when pulled: dry out much quicker after rains, and may be thrown into bunches with forks or raked together with horse-rakes, he preferring the former way. With this machine he harvested from ten to twelve acres a day, and can harvest and store a crop for \$1 an acre, and shell less than where pulled by hand, which costs \$2 50 an acre for pulling alone. In addition to harvesting the beans, this machine tills the land, cutting up all weeds and leaving the surface mellow.

Classification of Soils.

Soils have a rocky origin. Professor Johnston classifies them according to the clayey or sandy proportions as follows:—

1. Pure clay, from which no sand can be washed.
2. Strong clay or brick clay, which contains from five to twenty per cent. of sand.
3. Clay loam, which contains from twenty to forty per cent. of sand.
4. Loam, which has from forty to seventy per cent. of sand.
5. Sandy loam, which has from seventy to ninety per cent. of sand.
6. Light sand, which has less than ten per cent. of clay.

Sandy soils, then, are those which consist mainly of grains of sand, or silica, or flint, and is called a silicious soil. Nature never bestowed upon man a soil of greater capability of being made lastingly fertile than the sandy, light soil of New England.

Gravelly soils need no decomposition, though there are rich gravels and poor gravels depending upon the rocks of

which they are composed and the substances which are mixed among them.

Clay soils consist largely of alumina, that is, having such an abundance of clay that it is called the "clay metal." Clay itself is a compound of silica (sand), acid, alumina and water. It also contains potash, soda and lime. It forms a compact, fatty earth, soft to the touch, sticky in a moist state and very hard when dry.

Chalky soils have been formed from rocks in which lime was abundant.

Peaty soils need no description, although they differ very widely.

Alluvial soils are formed by deposits of sand, loam and gravel, brought down by rivers. They are often very rich, being composed of a multitude of thin layers of mud, in which all sorts of fertilizing material is mixed.

Loamy soils contain a large portion of decayed matter, humus or muck, as we call it. Woody fibre in a state of decay acquires a dark color, and ultimately becomes mould. Loam contains a variety of ingredients, as clay, sand, lime, in addition to humus. It is a loose, friable description of soil, easy of cultivation, and as to texture, is the most desirable description of land for purposes of tillage.

Soils have the singular property of absorbing, retaining and parting with the elements of fertility without materially altering their weight, bulk or texture. They are fertile or barren, according as they abound or are deficient in the substances which enter into the composition of plants.

Causes of Seed Failures.

The following are some of the principal causes of failure of seeds: 1. Some cultivators, through ignorance or forgetfulness of the fact that the products of a garden, being natives of various soils and climates, require peculiar management, deposit their seeds in the ground at an improper season. The early and most hardy species and varieties should not be planted until the ground can be brought into good condition, as some species of plants that in an advanced stage of growth will stand a hard winter, are often cut off by a very slight frost while young, especially if exposed to the sun after a frosty night. 2. Some species of seeds, such as beans, beet, cabbage, lettuce, radish, salsify, turnip, etc., being from their nature apt to vegetate quickly, are often destroyed while germinating, through variability of the weather, and some are liable to be devoured by insects in forty-eight hours after they are sown, and before a plant is seen above ground, unless a suitable remedy is applied in time to annoy the insects. 3. Some species, as carrot, celery, leek, onion, parsley, parsnip, spinach, etc., being naturally of tardy growth, taking (in unfavorable seasons) from two to three or four weeks to vegetate, are apt to perish through incrustation of the soil, or other untoward and unaccountable circumstances which cannot always be controlled. 4. The failures often occur through seeds being deposited too deeply in the ground, or left to near the surface. Sometimes, for want of sufficiency of seed in a given spot, solitary plants will perish, they not having sufficient strength to open the pores of the earth, and very frequently injudicious management in manuring and preparing the soil will cause defect.

Couch Grasses.

Mr. Mechi lately sent a note to the *Agricultural Gazette*, on the subject of couch grass. A correspondent of the same journal points out that Mr. Mechi does not give the genuine or specific name of the grass commented upon, and goes on thus:—

Now as on our own farm we have gathered the following grasses to which the common name of couch has been applied, it will be seen how necessary it is to understand the real name of the plant intended, though we fancy we hear some people say—perhaps Mr. Mechi himself—"Couch, couch! bless my heart, everybody knows what couch is!"

TABLE OF COUCH GRASSES.

Botanical Name.	Common or Rustic Name.	Remarks.
1. <i>Triticum repens</i>	Common couch	The usual species in heavy soils.
2. <i>Agrostis alba</i>	Florin couch or common squitch	The usual species in light soils.
3. <i>Agrostis alba</i> , var. <i>stolonifera</i>	Common couch of light soils	The usual species in light soils.
4. <i>Holcus mollis</i>	A strong couch grass	Very long and coarse in sandy soils.
5. <i>Poa compressa</i>	A fine couch or squitch in brashy soils	A small wiry couch in brashes.
6. <i>Arthenatherum aviculaceum</i> , var. <i>bulbosum</i>	Onion couch	Bulbold couch.
7. <i>Alopecurus agrestis</i>	Black squitch	Fibrous rooted.

Now it will be seen from this that no less than seven sorts of grass to which the name couch is commonly given, occur

on a single farm, but as we have before described some of these at length, we shall merely refer to the paper, reproducing two drawings in order to show the great differences in the forms of couch. Here the differences in form are just those that pertain to the two-rowed spike of flowers in wheat, and the diffusid flowering panicle as in oats. Now, if we take it for granted that the couch referred to may be one of the two first, we shall find that the foliage of the *Triticum repens*, when bruised, has a disagreeable smell, and the whole herbage is full of bitter extractive and saline matter, properties which probably render it medicinal to dogs. Its culms are hard, brittle, and highly indigestible, and besides these facts, it is a grass exceedingly liable to mildew. There can then be no wonder that



TRITICUM REPENS (COUCH.)

Sinclair should give the preference to the roots for feeding purposes. He says:—"The roots contain a large proportion of nutritive matter; they are esteemed abroad for feeding horses. At Naples they are collected in large quantities for this purpose, and sent to market." The nature of the *Agrostis stolonifera* is altogether different from the above. It is not remarkable for a strong smell or any objectionable flavor, its herbage is sweet, and is relished both by sheep and cattle. Sinclair says:—"The produce of Fiorin, *Agrostis stolonifera*, var. *latifolia*, may



AGROSTIS STOLONIFERA.

be compared with that of the Cock's-foot grass (*Dactylis glomerata*), Meadow Fescue (*Festuca pratensis*), and the Meadow Foxtail (*Alopecurus pratensis*), when it will appear inferior to the two former species, and superior to the latter." This is no mean praise of its feeding properties, and as it occurs in the water meadow, it is then Mr.

Bravender speaks of it as follows:—" *Agrostis stolonifera latifolia*, broad-leaved creeping bent grass or Fiorin. The root of this grass is a troublesome weed, and known as squitch. However, it appears to be an essential constituent, in a smaller proportion, of all fertile meadows, and is an excellent water meadow grass." From these notes, then, it appears to be important to note the species intended, and in the case referred to there is reason to believe that the *Agrostis* is intended; yet there should be no doubt upon the matter where the habits, and properties are so distinctive; and perhaps in no other series of plants can there be found such great diversities, than those to which the name of couch is applied.

The Best Time to Manure Wheat.

Experience has proved that the best time to manure wheat is just before it begins its Spring growth. If those who have sowed wheat will apply to it at once one hundred and fifty pounds of sulphate of ammonia, or two hundred pounds of nitrate of soda, the product will be greatly increased. Within a week after the application, the color of the plant will be changed to a dark green, and it will give surprising evidence of thrifty growth. The sulphate of ammonia should be dissolved in warm water, and poured upon sufficient rotted stable manure or rich earth to absorb it. As soon as dry, it will be ready for application. The nitrate of soda is extremely soluble, and requires merely to be reduced to a fine state to prepare it for application. After the fertilizer is spread the wheat should be harrowed. This harrowing of wheat is equal to a working of corn. A few plants will be torn up, but not enough to do any injury worthy of consideration. After harrowing, the wheat should be rolled. This will press the torn plants back again in the soil, compacting the surface, and will prepare the ground for subsequent mowing.

Clover seed may be sown, four quarts to the acre, at the same time with the application of the fertilizer. On all clay soils, unless in a very dry season, it will be pretty sure of success, the young plants being stimulated by the fertilizer. After the wheat is cut, a bushel of plaster should be sowed to the acre, on the young clover.

Nitrate of soda costs four dollars per hundred pounds, and sulphate of ammonia seven dollars per hundred pounds, in market. If clover seed be not sown on the wheat, the increase of the crop of crab-grass hay after the wheat will considerably more than repay the cost of the fertilizer. Any fertilizer containing an equal amount of ammonia with the substance mentioned, will answer an equally good purpose.—*Cor. Rural Carolinian.*

Land Measurement.

Says a *Southern Cultivator* correspondent:—"Most of the public plans or rules of measuring land seem arbitrary, and require certain numbers used to be remembered without understanding the reasons for their use. Nearly all use feet, rods or yards, and these must be reduced to acres. Gunter's chain reduces all land measurement to a decimal system. Then it is plain, easy, practical, and less liable to errors than any other known way of measuring. If the farmer has not a chain, he can, for 50 cents, procure from almost any store a tape-line with chains and links marked on one side. With this he can measure the length and breadth of any field that is a square or parallelogram. Multiply them together, and, as ten square chains make one acre, point off one place for dividing by ten, and he has the area in acres and decimals of an acre. To illustrate, suppose the field is fifteen chains long and ten chains wide; multiply 15 by 10—the product is 150. Pointing off one place, we have 15.0, that is, fifteen acres. If the field is not regularly shaped, but approximates a parallelogram, measure in several places, get the mean length and breadth, then multiply and point off as above. All of the trouble there can be to any one about this is, when links enter into the calculation, the decimal point must be kept at the right place. Suppose the field 12 chains, 50 links long, and 8 chains, 40 links wide. Links being decimals, multiply 12.50 by 8.40—equals 105.00.00; points of one space; we have 10.500.00 that is, 10½ acres. The farmer need not know there are any such lengths as feet, yards or rods. They only complicate the calculation. In irregular fields, where the exact area is required, the compass must be used; especially if deeds are to be made, following plans.

Lucerne for Forage.

A Rhode Island correspondent writes to the *Country Gentleman*:—"In the spring of 1866, I selected about half an acre of land which had been in hoed crops. The soil was in good heart, although naturally a poor sandy loam overlying white mortar sand not worth cultivating except for early vegetables. About the middle of April, lucerne was sown in drills nine inches apart, came up well and was hoed twice. In September it was cut, as the growth was too heavy to leave upon the ground, and the plants would have matured seed. After this year the field was not hoed.

In 1867, 1868, 1869 and 1870, the lucerne was cut three or four times each season and the yield was enormous. In 1871, I found that many of the plants had died. Grass had grown up in the spaces between the drills and choked

a portion of the plants; others had been bruised and destroyed by the crush of the cart wheels and the tread of cattle in gathering the crop, and the winter had killed it in spots. Lucerne will endure the cold of our winters as well as most of the cultivated grasses when the ground is bare or covered with snow, but if rain falls upon frozen ground, settling into the depressed places, forming ice which remains any considerable time, all the plants under the cake of ice will die. In 1871, 1872 and 1873 a constantly diminishing crop was cut. In the spring of 1874, less than one third of the ground was covered by the lucerne and the field was ploughed, the soil turned up, appearing to have improved in condition. During these years the usual New England droughts occurred, sometimes of long duration, but at no time was the growth seriously checked, and on but few occasions was the foliage wilted. Lucerne will yield a greater amount of good green fodder than any other crop which can be grown upon the same land, excepting perhaps sown Indian corn, and has the advantage of early cutting, but it must be cut before it has attained its full growth. When in full bloom, it has a disagreeable odor; the stems are woody and cattle reject it if any ordinary fodder is within reach, but cut when about two-thirds grown, the buds just developed, used as green fodder or as hay, it is relished by both cattle and horses. To grow lucerne successfully, a piece of light sandy side-hill should be selected, ensuring deep roots and perfect surface drainage.

The Right and the Wrong Shape for the Manure Heap

Some farmers wrote to ask Monsieur Walks and Talks, of the *American Agriculturist*, how he managed to keep his manure pile fermenting all winter. They had tried, but their manure froze as soon as wheeled on to the heap. They are answered that it was probably because the heap was not started early enough, and was not kept sufficiently

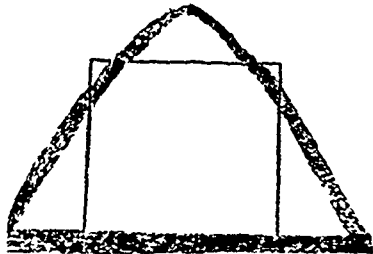


Fig. 1.—WRONG AND RIGHT SHAPE OF PILE.

compact. They are further instructed thus:—If you have ever made a hot-bed, you will know how to start the heap. Get all the horse, sheep, cow and pig manure you can scrape together, and place it in some spot to which it will be convenient to wheel all your manure as it is made during the winter. If you set a man to do this work, he will be sure to scatter the manure too much and draw it in like the roof of a stack, as shown in the diagram, figure 1. If so, the top of the heap should be leveled down, and the bottom narrowed in by throwing the manure on top until the heap is oblong or square, as shown in the figure. The object of this is to keep the top from freezing. If left narrow at top, the wind will blow through and you will have a foot or two of frozen manure. This square shape must be kept during the winter. You will have to attend to this matter yourself, or it will not be done. And it will require constant attention during the winter, or your heap will soon be scattered, and the frost will get in. I place a plank on the heap, and as the stables and pig-pens are cleared out, wheel the manure on top and spread it. Do not forget this latter point. And if your man neglects it do not get too angry. After years of experience I have not found a man who did not need to be told again and again not to leave the barrowful unspread and exposed to the frost.

When it becomes necessary to enlarge the heap, the better plan is to take the manure from the old heap down to A (fig. 2), and commence a new heap with it (B, C) at the

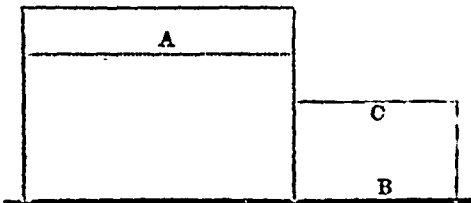


Fig. 2.—ENLARGING A MANURE PILE.

end of the old heap. It would be well to get the manure from the centre of the old heap, where it is fermenting, and then fill up from the sides, and make the top level and square. Do this yourself and it will be well done. The new part of the heap, if started with barn manure, will keep on fermenting, and you can add to it from day to day the fresh manure from the stables, pig-pens and yards. The whole heap will keep on fermenting slowly, and you

can add anything to it that will make manure. The richer you make it, the better it will ferment. If you have any broken bones, or bone-dust, or blood, hair, skin, or any refuse animal matters, mix them with the manure in the heap. They will add greatly to the value of the manure and favour fermentation.

The heap can be extended on all sides in the way recommended above. The larger it is, the less danger there is of the frost getting in and arresting the fermentation. Great pains should be taken to save all the liquid from the animals. It is the most valuable part of the manure. If this is done, the heap will be moist, and there will be no danger of fire-fang. In a heap so managed, there is little or no danger of any ammonia escaping. The manure will be in prime order for use in the spring, and will have a far greater effect on the crop than if it was not fermented.

SMYRNA WHEAT.—Miss Helen Wharton has presented the Michigan agricultural college with two bushels of Smyrna wheat raised at Tiflis, Southern Russia. The grain is nearly twice the size of the common berry, very white, and is said to make the best of flour.

HOW MANY BRICKS FOR A CISTERN.—A cistern 10 feet in diameter, and 10 feet deep, will hold nearly 6,000 gallons. Such a cistern will require 2,000 bricks if set on their faces; if set upon their edges, about 1,100 will make the wall. The floor is not included, as that may be cemented. Set upon their faces, 6 bricks will make a square foot of wall. Set upon edge it only takes 3½ bricks.

WHAT AFTER BUCKWHEAT?—B. B. Oris, of Clinton, Wis., says: "Any other crop than corn should follow buckwheat, as that does very poorly. Such is my experience." And Peter Young, Mendon, Ill., says: "Follow buckwheat with oats: it will not damage your oats the least, and you will never be bothered with the buckwheat. Buckwheat in corn, or any hoed crop, is worse than cockle-burs to keep clean, and damages the crop ten times as much."—*Prairie Farmer*.

SEWAGE CROPS NOT PROFITABLE.—It is already indisputably proved, says the *London Agricultural Gazette*, that sewage will grow grass, and mangels, and celery, and cabbages, and rhubarb, and even strawberries, so as no other manure or agency whatever will produce them; but it has also been ascertained that the cost of the original outlay and of the current labor connected with its use for these purposes has generally more than swallowed up the returns, enormous as they have been.

THE BRUSH HOE.—A correspondent of the *Massachusetts Ploughman*, writing about killing brush, says:—We wish to speak well of an agricultural tool recently manufactured, which we call a "Brush Hoe." It is an improvement on the "Grub Hoe." In rocky land, and in order to prepare new land for the plough, it is worth as much as the plough itself. Its cost (\$1.50) places it at once within the command of every farmer. If a farmer once uses one he will take care to never be without one thereafter.

LUCERNE.—A North Carolinian writes to the *Maryland Farmer*:—For several years past I have practised sowing Lucerne seed broadcast, the last week in September upon rich and well prepared ground, cutting the same the first time during the month of March following, and during the same spring and summer I cut said Lucerne seven times, which has yielded me 180 inches, by measurement, of green forage; and, in my opinion as a practical man, the very best horse and cow feed that can be grown in good ground.

LOOK TO YOUR AXLES.—How many horses suffer by the want of attention to the axles of carts and wagons. We often see the wheels running at an angle ten or fifteen degrees "out of true," the teamster seeming not to realize how much this increases the burden. If the wheels will only revolve, it seems all that is needed by the thoughtless driver. Then, again want of care in greasing the wheels, is another source of unnecessary labor for the horses. It is only fair that while we require reasonable labor from our animals, we shall grant them reasonable facilities for doing it.

FENCES DISAPPEARING.—Mr. S. E. Todd stated at the Farmers' Club of the American Institute lately that the time once was when a good farmer was designated by his fences rather than by his crops. If his fences were "staked and ruted," and were made horse high, bull strong and pig tight, the proprietor was denominated an excellent farmer. But now all over the country the best farmers are pulling down their fences. Cattle are kept in stables and pens, and it was thought to be better economy to mow grass and feed them than to allow them to roam at large. He believed that the day would come when there would be no fences on farms, except around barn yards and pens, to keep the cattle within in proper bounds. Nowadays the farmer who keeps no fences at all, but who feeds all his stock in yards or stables, is said to be a better farmer than he who depends on fences to restrain his live stock while they are grazing.

NIGHT-SOIL.—We wish to bear testimony against the common prejudice that night-soil gives a taint to the vegetables which are grown on soil manured by it. For a dozen years or more our chief reliance for fertilizers has been upon the night-soil obtained from a neighboring village. This has been composted with muck and alluvial

soil, and from it all kinds of vegetables have been raised in a garden of two or three acres in extent, and if any better quality of potatoes, or beets, or onions, or tomatoes, is raised elsewhere we are glad of it. We have certainly seen no taint in those we have raised by the aid of night-soil. Nature's laboratory work in decomposing and re-composing organic substances is too perfect to allow the taints of the disorganized substance to defile the living organism. We have used the carcasses of multitudes of dead horses to enrich our land, but it does not follow that the fruits and vegetables raised on this land were infected with a carrion-taint. If we indulge a spleen against night-soil, we must, in order to be consistent, object to the excrement of all animals as a fertilizer.—*New York Times*.

QUICKENING THE GERMINATION OF SEEDS.—We have before referred to the experiments made with camphor as a means of hastening the germination of seeds. Some time ago, Goepfert attributed a similar property to chlorine, iodine, and bromine. According to the *Comptes Rendus*, these statements have been recently confirmed by the experiments of Heckel. The seeds of *Raphanus sativus*, exposed to the action of pure water, began to germinate after an average interval of eight days; similar seeds, kept moist with iodine water, germinated in five days; with bromine water in three, with chlorine water in two days. The monobromide of camphor was found to exhibit even greater energy than either of its constituents taken separately, or than a simple mixture of bromine and camphor, germination occurring after a mean interval of thirty-six hours. No explanation of this singular property is suggested. The alkaline borates and silicates were found to retard germination, even in relatively small proportions; stronger solutions checking the process for an indefinite period. Arsenious acid and the soluble arseniates prevented germination altogether by destroying the embryo.—*Journal of Chemistry*.

MEASUREMENTS OF AN ACRE, ETC.—To aid farmers in arriving at accuracy in estimating the amount of land in different fields under cultivation, the following table is given:

5 yards wide by 968 long	contain one acre.
10 yards wide by 484 long	contain one acre.
20 yards wide by 242 long	contain one acre.
40 yards wide by 121 long	contain one acre.
80 yards wide by 60½ long	contain one acre.
70 yards wide by 69½ long	contain one acre.
60 feet wide by 726 long	contain one acre.
110 feet wide by 369 long	contain one acre.
120 feet wide by 363 long	contain one acre.
220 feet wide by 198 long	contain one acre.
240 feet wide by 181½ long	contain one acre.
440 feet wide by 99 long	contain one acre.
A box 24x16 inches, 22 deep,	contains one barrel.
A box 16x16½ inches, 8 deep,	contains one bushel.
A box 8½x8½ inches, 8 deep,	contains one peck.
A box 4x4 inches, 4½ deep,	contains a half-peck.

AGAINST MANUFACTURING BONE FERTILIZERS.—We cannot recommend farmers to manufacture their own superphosphates from bones. Having made an attempt to do this, although well acquainted with the dangerous character of the sulphuric acid employed, and having facilities for procuring it cheaply, we found the trouble, the loss from unavoidable accidents with the acid, to tools, clothing, and hands, and the difficulty of completely neutralizing the acid, without rendering the phosphate insoluble, were such as to prevent any repetition of the attempt. Unless the bones are ground fine, the process is long and troublesome, and to grind them fine, requires costly machinery. The acid used is a most dangerous substance, and an accident might cost the loss of one or both eyes, or severe burns upon the body. To make it in small quantities costs more than it can be purchased for, and an inexperienced person can not tell when the process is perfectly performed. In drying the pasty product, there is danger of spoiling the value of it. The process is not described in any book except a costly technical work, which is only useful to a chemist.—*American Agriculturist*.

KOHL-RABI—TURNIP TOPS.—A Derbyshire farmer writes thus to the *Mark Lane Express* of kohlrabi:—Although not belonging to the same order and genera as a root proper according to the scientific acceptation of the term, practically it fulfils a similar purpose in the economy of the farm. Throughout a large area in the midland counties its cultivation is gradually extending, and it is held in high estimation for its superior feeding properties. Besides other qualities, one great advantage its cultivation affords is the division of the labor of the farm at a busy season. Kohlrabi should be sown much earlier than the general swedo crop. On all large farms the labour-bill is now an important consideration. Once fairly rooted in the soil, it withstands the effects of continued drought much better than swedes, and when eaten on the land by sheep, the expenses of pulling up the crop or picking out the hulls, as in the case of swedes or turnips, is saved, as the hulls grow clear of the soil. I observe Dr. Voelcker mentions the injurious effects of common turnips when fed off whilst the tops and hulls are in a green, succulent state. Practical farmers are fully aware of this, and obviate the evil by pulling up the turnips and leaving them exposed to the weather for ten days or a fortnight before folding the sheep upon them. I have never known any ill effects follow this practice, and the sheep invariably make better progress.

Horticulture.

Growing Peaches in Cold Climates.

EDITOR CANADA FARMER:—There is no part of Canada that would not grow peaches (and of course Nectarines), were it not for two opposing influences, namely, "winter killing" of the trees, and destruction of the blossoms in the spring by untimely frosts. As it is there is no part of Canada where the peach crop is certain, and there are only two places of limited extent, namely, the old Niagara Peninsula, and the lands bordering on the lakes Erie, St. Clair, and Huron, where the Peach as a crop is worth growing at all, and there, absolute failure every few years is pretty generally the rule. Fortunately, the tree is a quick grower, rapidly recovers the winter killing, and is either restored to bearing, or what is perhaps as good, or better, new plantations are so easily raised, that they come into bearing time enough to repair the disastrous loss which previous unfavorable seasons have inflicted.

Peaches, in far less genial climes (so far as heat and summer is concerned), are a constant and regular crop, requiring attention indeed, but well repaying all the attention bestowed. There is no gentleman's garden throughout England, and many other parts throughout Britain, in which peaches are not produced in considerable quantity, and in absolute perfection. In Canada and America we are chiefly dependent on two kinds, the early and late Crawford,—these are the best market fruits. There are others grown, but possibly not one basket of them to one hundred baskets of the Crawfords—at least if we may judge by the Toronto Markets

Now the difference between a well grown peach from the walls of an English garden, and the ordinary American market fruit, can only be appreciated by those well acquainted with both classes of fruit. The English grown peach is generally much larger, and altogether infinitely superior. This is of course to be attributed not only to the kind of fruit, but to the fact that the American market fruit is necessarily picked before it is ripe. The English peach remains on the tree until it is too tender to bear anything more than the most careful handling. But when in perfection, a ripe melting peach in September" is really a thing to make a song about.

The plan I propose to adopt in the growing of peaches in parts of Ontario not specially adapted to their almost spontaneous production, or in the districts before named, is the following:—Plant the trees in boxes or tubs, made of cedar or any wood, that will last well in the ground,—bury the boxes even with the surface of the soil,—when winter approaches dig a trench in front of the box, and upset or turn it over until the tree contained in it lies flat on the ground. In the case of standards, lay a tolerably heavy log on the branches to keep them down, and the work is done for the season. Where the snow lies deep, the trees will want no other protection, but where it does not, the branches should be covered with straw, or pine brush, or other material to keep the snow on as long as possible in the spring, and to prevent early growth. Keep the trees in this position in the spring as long as possible, but when the danger of the spring frosts is past, set the boxes back into their original holes, and allow the growth to proceed. This system will defend the trees against winter killing, for no person ever saw a peach tree killed below the snow line. In black winters they will of course be killed at times down to the ground, but in snowy winters the winter killing never extends beyond the line the snow occupied during the severest of the weather,—even branches which naturally grow about the snow, where accidentally or purposely pressed on to the soil are never killed, altho' the whole of the upper branches may be destroyed. The system will also guard against the destruction of blossom in the spring, as you can keep the trees back in their growth, until the danger is entirely past.

Both classes of trees, viz., Wall fruit and Standards, may be grown in this manner.

For Wall fruit the boxes should be about six feet long, but they need not be broad, so that they will not necessarily be more cumbersome than the Standard boxes; to the back of the box a boarded frame should be fastened—to extend from five to six feet high, the full length of the box, and to this frame the branches of the tree can be

nailed and pruned in the same manner as to a wall. When the trees and boxes are turned down for the winter, this boarded frame forms the most efficient defence possible, both against winter killing and in keeping back the trees in the spring,—the boards may be colored black on the front, and whitewashed on the back; the black front will greatly assist in the early maturity of the fruit, and the whitewashed back, will guard against the too early operation of the sun in the spring, while the tree is still on the flat. A few spadefull of earth thrown on the back of the boards, will form a most effectual protection, or a mulching of straw, brush, weed, or long manure, may be added and the effectual protection be secured.

For Standards, the boxes should be nearly square. The advantages of being able to keep the roots of the trees thus under absolute command, cannot be too highly appreciated.

The great drawback to the training of the peach as a wall tree, is the sudden and exuberant growth which so often takes place, and which it is so difficult under ordinary wall fruit treatment to suppress. Trees trained on a wall, never have a sufficient supply of branches to balance the roots,—the latter are necessarily out of sight, and as they spread in every direction, they will sometimes meet with earth particularly favorable for their growth. Then the rampant growth alluded to takes place, and if it cannot be checked either by root pruning or otherwise, the rampant branches seem to rob all the rest of the tree, and goody to the crop of fruit for that year. This fact is well known to all old country gardeners.

Toronto, Ont

E. L. C.

Continued next month.

Securing a Wire Grape Trellis.

In this country of extreme temperatures, the chief trouble with wire fences and trellises arises from the contraction or lengthening of the wires with the cold or heat. Prof. Beale, of the Michigan Agricultural College, furnishes a sketch of the means they take to overcome the trouble in Michigan. He says:—About Monroe and some other parts of Michigan, wires of a trellis for grapes are stretched as follows: They pass through the end post, and then through a 1½ inch board, where they are secured. In winter the board rests against the post. In summer the board is pried off an inch or two, or more, and a little block or stone put in to hold the wires stretched tight, fig. 2. In autumn, again, the block is removed to allow

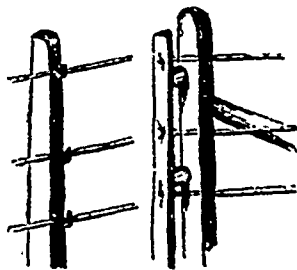


FIG. 1

FIG. 2

the wires to contract without breaking or pulling the posts over. Instead of staples or two nails to hold the wires to the side of a post, they drive a single 8d wrought nail below the wire until it is nearly in, then bend the head up over the wire, where it holds the wire neatly and securely, fig. 1.

The Parsnip—Why Is It Not More Generally Grown?

EDITOR CANADA FARMER,—My memory fails to remember a paragraph or a line written in the CANADA FARMER in reference to the cultivation of the parsnip, its good qualities or its adaptability for a root crop to furnish the farmer with a valuable additional supply of fattening winter food. I have looked over "Liebig's Chemistry" and other works to find an analysis, but I have failed to find one. I must go back some thirty years to the time I was in England. While there I read in some paper of an experiment of a gentleman who took quite a practical way of demonstrating its feeding qualities by feeding an animal with the parsnip, and that alone, till the animal became thoroughly fat.

I have known one gentleman in Canada who knew carrots were good for horses, and, acting on this knowledge, concluded that his horse could not have too much of a

good thing. He gave him nothing else, and the horse soon died. I have known one other farmer who, in the spring, had neither oats nor hay, but had plenty of carrots and straw, and with these two articles got through all his heavy spring work.

In looking through farmers' gardens (not their fields), you will find that about one in eight have got a patch of parsnips for their tables; but in their fields I have yet to see the first row. And why is the parsnip ignored? What vegetable more savory can the farmer have on his table than parsnips with pork? And what root can he have half so nutritious to feed his stock with (including his horses) during the winter? Let the CANADA FARMER show the value of this root, for surely when farmers know (in connection with its good qualities) how easy it is of cultivation, he will never be without his acres of parsnips. They can be easily stored, and unlike any other root, either in the ground or out of it. While in the ground the most intense cold does not harm them, and in this respect they are incomparably ahead of either potatoes, carrots or turnips. With suitable soil and good cultivation, the yield will range from fifteen to twenty tons per acre. In my next I will tell "What I Know of Parsnip Growing."

PUBLICOLA.

A Selection of House Plants.

The following is given by an English paper as a list of plants which will live in a room through the year, if the frost be kept out, and due attention given them in various seasons according to their requirements. All are handsome, some of them pre-eminently so:—

Lomata elegantissima.	Aralia Sieboldi.
" ferruginea.	" variegata.
" salicif. a.	" trifoliata.
" polyantha.	" several other species.
Ner. um splendens.	Ficus elastica.
Dracena terminalis.	Rhopala Australis.
" ferrea.	Arundo Donax variegata.
" Cooperi.	Begonia, of sorts.
" gracilis.	Palms
Aralia leptophylla.	Ferns

Many other things would be quite as tractable in a room, and far more graceful than Ficus elastica. Orchids for example, such as:—

Ærides Warneri.	Leptotes bicolor
Barkonia Skinneri.	Lycaste Skinneri.
Brassavola Digbyana.	" aromatica.
Calanthe vestita.	Mormodes aromatica.
Chysis Limningheli.	Oncidium ampliatum
Cypripedium barbatum.	" flexuosum
" venustum.	" divaricatum.
" insigne.	" cupreum.
Dendrobium nobile.	Pleione maculata
" pulchellum.	Sophranites cerura.
Epidendrum vitaceum.	" violacea.

Vexations of Cranberry Culture.

A New Jersey correspondent writes: The cranberry, like all other fruit, has its enemies, the most destructive of which is that popularly known as the scald or rot, though some separate those two blights. The vines begin bearing the third or fourth year after being set out, the yield increasing each season for double that time. The cultivator finds his whole field or "bog," as it is always called down here, blushing crimson, or about to do so, and he rubs his hands as he mentally calculates the near profits. An acre yields from one to four hundred bushels, which sell from two dollars a bushel to three and four dollars, and during the year the price obtained was three or four times that amount. But before picking time the blight sweeps over the field. A few berries turn a dirty yellow, and in a week the whole bog is badly off.

This scalding has kept up so long that it is becoming monotonous, and not the least remarkable peculiarity is the fact that no one has been able to find out a preventive for the plague. Finally Professor Taylor, the United States Microscopist of the Agricultural Department at Washington, was called in and he visited the bogs here and at Cape Cod, and spent weeks in probing for the cause. His thorough investigations showed that the root of the evil lay in the root of the fruit, or rather in the ground, which, in all cases of the rot, was found to be sour, causing fermentation and decay in the berry. This was established beyond a doubt, and the apparently simple problem remained for determining how the soil should be sweetened. The professor recommended lime, sand and various fertilizers, and never did the cranberry season open upon a more hopeful set of men than were the growers a few months ago. Professor Taylor came down in this county to hear the results of following his advice. Lime had been used more than ever before, and the rot among the cranberries is greater than ever was known. One grower recommended sand; his neighbor, at his elbow, announced that it was worthless; another had tried plaster of Paris, and not a berry was tainted; a red-faced cultivator tried the same thing and declared his crop wasn't worth gathering.

ing. The most famous grower in the association informed the audience, that somebody had recommended salt, and he had staked out a portion of his bog and sowed it with the savory fertilizer. Some time ago he went out to see how the vines liked it, and there was not a vine left. Another enthusiast solemnly asserted that he had nursed a small hog for seven or eight years, and that he had not as yet gathered a sound berry from it.

New Jersey raises one-half the cranberries in the country. The area under cultivation is about 5,000 acres. The crop for 1873 was some 125,000 bushels; for 1874, 90,000 bushels, and this year the yield is estimated at ten to twenty thousand bushels less. This steady decrease in the face of area, is due to the devastation of the rot and scald, which is still uncontrollable, and is likely to continue to rage until, like the potato blight, it shall have run its course and exhausted itself.

Winter Work in the Orchard.

About this season of the year, in many places reached by our paper, the husbandman gathereth about him his hatchet and saw and pruning knife and goeth forth to his orchard to trim his fruit trees. The sight thereof maketh many of our friends to shudder and "prune not all" is heard from various quarters of our land. For our part we sympathize somewhat with those who would stay the farmer's hand; but then we do not by any means regard him as a "tree butcher," or contemptuously style the one a mere "carpenter" who, saw in hand, thinks he can do a little with it towards building up the prosperity of the tree. It may be that as the twig is bent the tree's inclined; but somehow this foresight is not always ready to hand, and it grows as we would not have inclined it; and often when we know better, the tree runs on in its own wilful way, simply for want of time or occasion to put in practice that which we know. We know of but very few orchards that a good pruning in winter will not benefit.

In a large number of cases, where the orchard is of some age, sprouts will come up from the trunk just under the ground, and form a complete bundle all around it. This is the more likely to be the case with trees that have over-born, and have a large number of half-stunted branches; and also in cases where the borer has been working in the tree near the ground. Whatever obstructs the passage of the sap up the trunk, induces shoots to break out from below in this way. Of course we should try to help this by encouraging vigor in the head of the tree, so as to check this tendency to throw out collar-sprouts; but at any rate these sprouts must come away. Many rest with cutting them back to the ground, which merely makes them push stronger the next year. The ground should be opened a little with the grubbing hoe, and with the same implement the sprout rooted clean out. Throughout the tree these sprouts are often common and should be cut away. Unless the main branches show signs of being worn out by disease or overbearing, in which case it is best to cut these large arms away down to the young vigorous sprouts which should thus have a chance to grow up and replace it. Sometimes cutting away these large branches leaves large scars on the trunk when cut off, and the old wood, weakened by disease, soon rots away, and leaves a hollow place for water to collect in, and then the hole soon gets worse. But this is remedied by painting the place over. It makes no difference what kind of paint is used. Anything that will keep out the water from the wood will do. It is because these precautions are neglected that people have a chance to say that cutting off large branches injures trees. Nature herself often seems to ask for the pruning-knife. Branches often seem to be struggling between death and life, as if the tree were begging of some one to cut them off. The trees are always benighted when they are.—*Germanstown Telegraph.*

Notes on Raspberries.

DAVIDSON'S THORNLESS.—This is not so strong a grower as most of the black caps, but with me bears fair crops of good berries and is indispensable on account of its earliness.

SENECA BLACK.—This variety I regard as the best in quality of any of the black caps, and it is also a very vigorous grower, much more so than Doolittle, and it ripens immediately after that variety, and is much larger, sweeter and more juicy.

MAMMOTH CLUSTER.—A very large variety, still later than Seneca, and also a very vigorous grower, but not as juicy or sweet as either of the preceding.

GOLDEN THORNLESS.—A vigorous grower, and very large and beautiful fruit, but I find all the yellow varieties inferior in quality to the black.

ONTARIO.—This variety, which was sent out as remarkably early, proves to be no earlier than Doolittle and much poorer in quality, and its only recommendation is its firmness.

NORWOOD PROLIFIC.—Is evidently a hybrid having the same style or growth as the black caps, and also growing freely from tip, and producing no suckers, and having red berries. It is an extremely vigorous grower, stands the

sun perfectly, and will doubtless be as hardy on sandy soils as black cap. I have only fruited it one season, but it produced abundantly of good sized berries, similar in color to Philadelphia, and to my taste better in quality. I regard it as one of the most promising varieties we have yet tried.

GUSARGAU.—Another hybrid which I have only had this season, but it produced a few berries, considerably darker in color than Norwood, and poorer in quality, and the foliage burns in summer.

AMAZON.—A new red variety from Edesville, Md., claimed to be three or four hundred per cent more productive than any other variety, and as large as a Wilson blackberry. I have only tried this one summer, but it produced a few berries, and both in habit of growth, appearance and quality of fruit, is so nearly like Belle de Fontenay, that I am inclined to think them identical, although I have thrown out the latter, and cannot compare them so fully as if both were growing together.

SOUTHERN SEEDLING, OR THORNLESS RED.—Obtained from Indiana last spring, is much like Philadelphia in appearance of cane and leaf, but less thorny than even that, and the berries much better both in color and quality. I left the old canes about a foot high when planting, and besides making strong growth of new wood, my plants have ripened considerable fruit continuously up to the time of writing this article. I regard this as very promising.—*Gardeners' Monthly.*

THE GOLDEN PIPPIN.—This old English apple was cited half a century ago by Knight and others, as an example of a good variety gone to decay from old age. The London *Garden* says that any one visiting the London market during the fruit season, or any other large markets in the southern or midland counties of England, will find Golden Pippins as perfect and as fine as any figured or described in former times in any country.

KILLING THE PEACH GRUB.—A western paper recommends scooping out the earth around the tree funnel-shaped, four inches from the tree, and a foot deep, and then filling the cavity with salt. "It will gradually dissolve, enter the worm holes, and kill the borers." We have no doubt that it would be effectual, but in a different way. The grubs would not remain long in a dead tree. We have known brine poured at the foot of a tree, to kill it in twenty-four hours, and the continued supply afforded from the salt mass, would doubtless be effectual. It may be tried on a worthless tree.—*Country Gentleman.*

YELLOWS IN THE PEACH.—The inquiry having been made of the *Gardeners' Monthly*, how long after a peach orchard has been killed by the yellows, a new orchard can be safely planted, the editor mentions an instance where the disease was communicated from an orchard growing on the ground four years before. We have no doubt that the period will vary with circumstances. In one instance, an orchard growing on strong and rich soil, was infected at one side, and a few trees died, but with little care to prevent its spread, it entirely disappeared in a few years. In other localities, more favorable to its increase, it would doubtless have swept the whole orchard.

GRAFTING GRAPES.—The *Chicago Tribune* says:—David Robertson, whose vineyard has taken premiums from the Illinois State Pomological Society, writes us he has for years been trying to make something out of several rows of Isabella vines, but with no success, our seasons being too short for them, and has finally decided to make the roots do service in a better variety. He has grafted them to the Delaware. He says: "I have not followed the plan of books exactly, fearing to cut the whole main stock off, lest the channel for sap through a single scion be too small. So I have taken one of the stalks where the vine branches near the ground and grafted it, leaving the others to be cut off when the new scion gets a vigorous start. The scions were put in late this Fall and a good covering of earth placed over the wound. I used no wax, but simply tied the stock where the cut was made. I anticipate gathering in two years a fine crop of Delaware where before I have seen nothing but unripe Isabellas."

PRUNING IN WINTER should be practised only on hardy trees, such as the apple, and it should be performed to a moderate extent at a time on orchard trees. We never recommend heavy cutting away. It is better to allow a tree to remain a little deformed, lop-sided, or dense-headed, for a year or two, till the work can be accomplished gradually. (These remarks do not apply to young nursery trees.) A European cultivator has recently given in substance the following good directions: In sawing off a limb, set the saw below and cut up part way, and then cut from above to meet it. This prevents the limb from tearing away the bark in falling. Or, a better way, saw off the limb freely, leaving a stump about a foot long. Then, holding this stump in the left hand, cut off neatly and carefully. Cut as closely as may be done without making too large a wound; like the skillful surgeon, save skin. Never leave a projecting stump, which will disfigure the tree for many a year before it is grown over. Use sharp tools of the best steel, thus saving much labor, leaving a smooth face, and cutting more accurately just where you want to. Nothing is better than one or two coats of oil paint for covering the wound; and if it is ash or slate color, or having the same shade as the bark, the orchard will not appear defaced by the operation.—*Country Gentleman.*

THE APPLE STORE.—The surest way to mismanage the apple-store is to pick out the decaying apples. The fact is not generally known, so this note may prove extensively useful. It seems so natural to get rid of rotten apples that I cannot feel surprised if some should doubt my word; but where apples are stored in bulk the decaying fruit should be left untouched until those it is in contact with are required, when, of course, necessity makes an end of the matter. It will be observed that the decaying fruit does not communicate decay to the sound fruit next it. But if you remove it, those it has touched begin to decay directly, so that in place of one bad fruit you have now three or four. Our stores are extensive, and it is an essential part of the management to keep the fruit dark and dry, and never to touch them unless to remove them for the supply of the market. I have learned men to explain the case; all I care about is to record the fact for the public advantage.

HOUSE PLANTS do best in rather cool rooms, or at a temperature not so high as 60°. This is the reason that we often see finer plants in the cottages of the mechanic and laboring man, than in the warm, furnace-heated mansions of the rich. In the latter, however, much improvement may be made by keeping the air-chamber of the furnace abundantly and constantly supplied with evaporating water—at least eight or ten gallons daily for a medium-sized furnace, and if the plants still appear to suffer from dry air, hang wet napkins over them. If this attention cannot be given, the plants should be selected from such sorts as grow naturally in dry climates, such as the cactus, selum, &c. House plants are often injured by the accumulation of dust in sweeping, which may be partly remedied by syringing, but more easily by placing large funnels of tissue paper inverted over the plants till the dust settles. Tissue paper is best, on account of its light weight on the plants.—*Country Gentleman.*

THE NEWTON PIPPIN.—The discussion on this apple at the late pomological meeting at Chicago, as reported in the *Prairie Farmer*, was of an interesting and somewhat conflicting character. In Virginia and North Carolina it succeeds admirably, but not on the lowlands. Hundreds of barrels are shipped from Washington. It does not bear well in Maryland. R. S. Ragan, of Indiana, said the green variety was the only one worth anything at the West—the yellow is worthless. Breckenridge of Maryland and Overman of Illinois could not find two varieties. Barry of New York, and Lovey of Boston, thought the two were only different conditions of the same apple. Ragan of Indiana found the trees identical in the nursery and orchard growth, but the yellow variety bears a larger apple, which does not keep so well. To these opinions we may add the remarks of Charles Downing, given elsewhere: "The yellow is handsomer, and has a higher perfume than the green; the flesh is rather firmer and equally high flavored. The green is more juicy, crisp and tender. The yellow is flatter. Both grow alike."

SHEEP IN ORCHARDS.—Having a small orchard of about 60 trees, I have for three years past pastured it with six or eight sheep for the benefit of the trees. Last year, being a non-bearing year in this State, I had more apples than all the neighboring farms together. My practice is to plough shallow alternate years in order to disturb the surface of the ground, and not cut the roots too deeply, which I consider to be against the longevity of the trees, and sow to clover, to be fed one year by the sheep, the next ploughed and sowed again to clover—the sheep kept in another feeding lot till after haying, when the clover roots have gained strength and maturity, so that the close feeding of the sheep will not kill them. Why I plough so often is because the trampling of the sheep is apt to pack the ground around the roots of the trees, preventing their bearing. The sheep eat all the blighted windfall apples, which contain the germs of injurious insects, as soon as they fall from the trees; and they distribute their manure so evenly and finely over the ground that the rains soak it immediately down to the fine surface roots of the trees, causing them to bear every year. The sheep should not be kept in too late in the fall, nor put in too early in spring, when the grass is dead, as they are apt to gnaw the bark off the small trees.—*New-England Farmer.*

WINTERING GERANIUMS.—A lady inquires how to winter geraniums in the cellar; she has often heard that by hanging them up by the roots they will keep all winter in a good condition, but on trying this mode she has always failed. In answer to her inquiry, we may state that the practice of hanging up the bare plants sometimes succeeds, but there are few cellars that have the right degree of dampness. It will usually result in failure. The best way to keep the roots sound and fresh, is the following: Take up the plants, shake off the earth from the roots, trim off the longer ones, and head back the tops freely, and then place as many of these trimmed plants in a box or small tub, as can be crowded in without much pressure, in the same position as they would stand planted in pots. Then pour in among the roots as much dry, clean sand as will compactly fill all the interstices, occasionally shaking to settle the sand, till the tub is nearly full. Place them in a cellar where they can receive as much light as may be, and keep the sand slightly moist by occasional watering. In very damp cellars no watering will be required. Nail-kegs, with a third of the tops sawed off, make convenient tubs for this purpose, costing nothing. The plants will require a little occasional attention during the winter, to see if all is right, and that they are not suffering from any cause which a little experience on the part of the attendant will point out.—*Country Gentleman.*

Live Stock.

Early Maturity.

The Importance of Pure Bred Sires.

There is scarcely any direction in which a penny-wise and pound-foolish policy is so short-sighted and so disastrous in its results, as in the breeding of cattle from an inferior male. And yet there is scarcely anything so systematically practised by many farmers. But a short time ago, in conversation with a prominent Canadian breeder, he mentioned to us an instance of this short-sightedness, which will illustrate the subject. He had a Shorthorn bull calf of irreproachable pedigree for sale—a youngster coming of a sire and dam that embodied all the excellencies of the Shorthorn, and that, if he had happened to be a Duke, would have been worth a cool five thousand, or if he had been his own sister, would have brought \$1,000 or \$1,500. But he was not a Duke, and though being a pure Bates, he was only a bull. The breeder asked \$100 for him. The farmer declined to look at any such figure. Partly from desire to convince the farmer of the profitableness of a thorough-bred bull, and more from a desire to retain the animal in his own neighborhood, the breeder came down by degrees to \$60, the farmer bid up, rising in the meantime from his original \$20 to \$50. Somewhat nettled to find his valuable stock so lightly thought of, the breeder refused to fall any more. The farmer went his way and bought a scrub bull for \$40, thus allowing the little matter of \$20 in the present to keep him out of hundreds in the future.

This is but one case of many that are happening, and it is no wonder, such being the case, that most of the stock in the Dominion is still of a low class and capable of vast improvement. With a good bull, good calves can be bred from very indifferent cows. Presuming that a bull could get, in his second year, twenty-five calves, and after that from six, to seventy calves per annum; and that each of these calves is going to cost less by twenty-five per cent. to bring to maturity, and to be worth more per pound when mature, it is easy to see that there is money in a full bred bull. Now in Ontario, in the year 1873, there were 47,941 working oxen, 638,759 milch cows, and 716,474 other horned cattle. In Quebec there were working oxen, 48,348; milch cows, 406,542; other horned cattle, 328,572. In New Brunswick, working oxen, 11,132; milch cows, 83,220; other horned cattle, 69,335. In Nova Scotia, working oxen, 32,214; milch cows, 122,688; other horned cattle, 119,065. The total of the horned stock of the four Provinces reached these magnificent figures: Working oxen, 139,635; milch cows, 1,251,269; other horned cattle, 1,233,446. Now just imagine all this two million and a half of cattle brought to maturity at twenty-five per cent. less cost, fancy their carcasses larger; the proportion of offal less and the prime meat more on each carcass; and each pound of the carcass worth two or three cents more. It is easy to see that with respect to the improvement of our live stock, there are literally "millions in it."

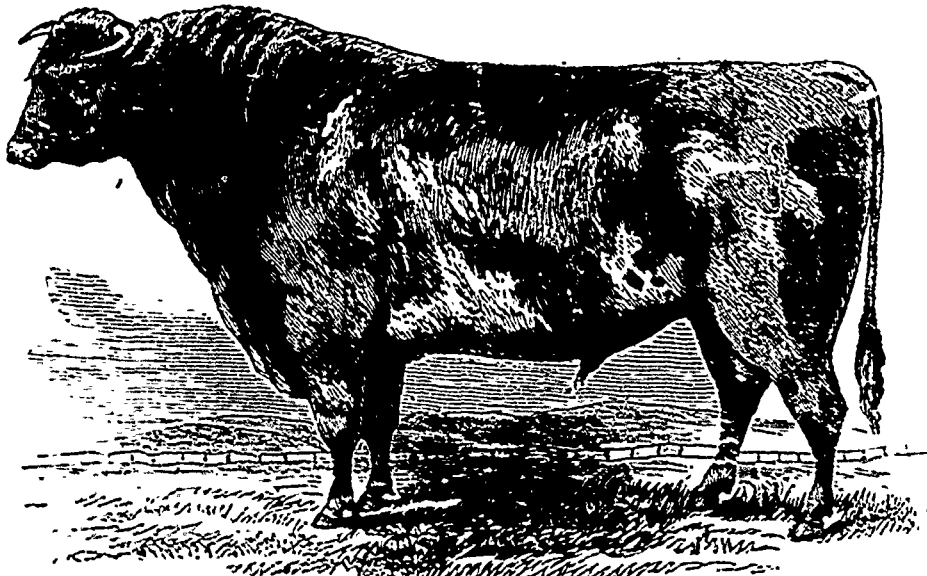
We have, as above stated, over 600,000 milch cows in Ontario alone. Allowing one bull to each 60 cows, it follows that there are about 10,000 bulls in use in the Province. And of these how many are really good bulls? One-tenth? We doubt it. The remainder are under-bred brutes of all degrees of execrability.

Some one who has more time on hand than we have just now, may calculate exactly what would be the saving to the country if each of the animals that is annually marketed could be brought to market a year younger than they are now and in quite as mature a condition. To say nothing about the more food consumed and the interest on

the locked-up money, it would lessen by twenty-five per cent. the risk of losing an animal by sickness or accident. And the difference between good grades and common stock is even greater than one year in four. We have seen Shorthorn steers as mature at thirty months old as some natives could be got at four years. Herefords, too, are early ripeners, and will bring two or three cents per pound more than rough-bred stock. Devons are as paying a breed as any, especially in view of their value as workers. And it would take a long row of figures to demonstrate the rise that would take place in the value of the dairy cattle if dairymen would be enterprising enough to invest money in a pure Ayrshire bull, or in a Shorthorn bull of one of the families in which the original extraordinary milking qualities of the breed have been preserved.

By early maturity, rich, juicy meat is obtained that will always command the highest prices going. Food and capital are thus saved, quick returns are gained, and capital can be reinvested with its accrued interest in half the time than is taken now by many farmers to turn their money.

Of course a farmer with three or four cows cannot afford to keep a pure bull for his own use. But in those days of associated effort, there should be no difficulty in getting a neighborhood to combine for the improvement of their live stock. In this direction the Subordinate Granges can be extremely valuable. The farmers of a township or district can by means of this organization improve their stock at very little cost or risk.



Ayrshire Bull, "PRIDE OF GENEVA," the property of A. P. Ball, Esq.

Feeding Light and Smutty Oats.

EDITOR CANADA FARMER:—My Oat crop this year had a great deal of smut in it, when we cleaned the oats we turned the fanning mill fast enough to blow all the smut grains out, but in doing so we blow out a great quantity of light oats. The stock of all kinds eat this stuff readily enough, but I am afraid to let them have it as I don't know whether it might injure them.

Waterdown, Ont.

W. S.

Probably the light oats will not hurt the animals, but it stands to reason that the more oats and the less smut they get, the better it will be for them. Apparently, our correspondent has been growing oats too long on the same farm without a change of seed. It will be profitable to get seed from a distance, and from a different kind of soil. Be careful also to sow only plump, healthy, grains. There will then be very little trouble from smut.

Sheep Raising.

At a late meeting of the Puslinch, Ont., Farmers' Club, Mr. Robert Beattie read a practical paper on the breeding of sheep. He commenced by giving a few details of the purposes for which sheep are raised in various sections, and continued:—In our locality we find that there are three distinct breeds or their crosses kept by the farmers, that is the Leicesters, Southdowns and Cotswolds, and the

question with us now is, which of these three breeds is the most profitable?—a question that I do not feel able to answer, and I doubt if any one member of the Club is able to answer it, for the simple reason that it would require a person to have had experience in all the different breeds, and have made a careful calculation as regards the profits of each breed, which would require years to accomplish.

But although we may not be able to do so individually, we may do it collectively, for I am confident there are members of this Club who have had experience with all the three varieties named. Our Vice-President, Mr. Anderson, is a well-known breeder of Southdowns, and I have seen some very good specimens of that breed on the farm of our Secretary, Mr. Grant. We have Messrs. Carter, Hles and others who have had experience with Cotswolds, and we have Messrs. Cockburn, Rae, Murray, Laing and Gilchrist as prize-takers with the Leicesters at our Agricultural Shows; so that by getting the opinion and experience of these gentlemen, we may arrive at something like an answer to our question. I think we can see here the benefits derived from meetings of this kind. Our meetings are not merely to promote the social intercourse of the farmers of the neighborhood, but to give us an opportunity of comparing our extending experience with each other, whether it be in grain growing or stock raising, and by so doing we can add something to our stock of knowledge in agricultural matters.

Now, as regards the three kinds of sheep kept amongst us, I have given my preference so far to the Leicesters.

True, I have not a pure bred flock; I have been merely using pure bred rams of that breed. We have in the Leicester a very valuable sheep. It grows to a fair size, and with ordinary care, will clip a large fleece of the very best quality of wool. They are easily kept, are good breeders, and more prolific in my opinion than any of the other breeds. Some are of the opinion, however, that they are not so hardy as either the Southdowns or Cotswolds, but I can say with safety that in over twenty-five years' experience, I have not lost over three or four sheep by disease of any kind.

I might here give the opinion of a well known English agriculturist and writer on stock raising with regard to this breed of sheep. He says that the Leicesters for size, early maturity, aptitude to fatten, length and quality of wool, maintain the highest rank (taking among sheep a position somewhat similar to that taken by

Durhams among cattle). The Southdowns, as a mutton sheep, is said to be the best of any; and for crossing with common ewes, so as to have early lambs for the butcher, another English writer says it is the best of all the English sheep for that purpose. I believe this system is followed to a great extent in the old country and in the United States. Mr. Sheldon, of Geneva, N. Y., who keeps a flock of pure bred Southdowns, as well as Durham and Alderney cattle, stated at one of their agricultural meetings, that he was in the habit of buying common ewes in the fall and crossing them with pure bred Southdown rams, and that he found it very profitable, as the lambs grew and fattened wonderfully. I should think that for farmers, living near large cities and towns, it would be a profitable system to follow. We are very apt to think the Southdown a very small sheep, but I noticed in an account of the Royal Agricultural Society, of England, that in measuring the first prize rams in the three classes of sheep we have under discussion, that the girth of the Cotswold was five feet, the Leicester four feet nine inches, the Southdown four feet six inches, showing us that the Southdown is not much smaller than the others. But until we have more competition in our markets for that description of wool, I doubt if they would pay as well as the long woolled.

I might also give the opinion of Mr. Reynolds, a practical man, and secretary of the State of Illinois Agricultural Society. He attended the Paris exhibition, where there

were sheep as well as cattle from almost every country in the world. Upon his return he read an able report of that exhibition at a meeting of their Society. On sheep he says:—"For mutton of fine quality the English Southdown heads the list wherever known, and for mutton and valuable wool the Improved Leicester of England takes the first rank." And he adds:—"If there be a race of domestic animals indispensable to agriculture on old and partially exhausted lands, it is sheep, and in all judicious efforts to reclaim worn-out soils some variety of the sheep kind are requisite. Their ability to thrive where cattle or hogs would starve, and for the comparatively rich return they make for the food and care bestowed upon them are regarded as of the very first importance. And then with regard to the Cotswolds, they are a large breed of sheep, admitted to be the largest of the present day, but their mutton is not of the best quality. They are said to be easily kept and fattened; they grow a large fleece of marketable wool, though inclined to be a little coarse. They are also allowed to be a hardy race, and if we look at their native place, the Cotswold Hills—a range of hills running through several of the Midland counties of England, and although not so high as the hills in the border counties of Northumberland, Westmoreland or Cumberland, or the more mountainous parts of Scotland—yet sheep on these hills are exposed to cold and rain storms during the winter which we all know to be more hurtful to sheep than severe frosts or even snow storms. And the fact that the farmers on those hills continue to keep this breed of sheep goes to prove that they are hardy; and also the fact that so many of our best and most intelligent farmers in this locality and throughout the Province prefer them, shows that they are not an unprofitable breed.

More about Training Steers.

The *Maine Farmer* correspondent, whose article on training steers we transferred to the *CANADA FARMER* of August last, gives some further instructions as follows:—

My advice has been frequently solicited concerning the treatment of steers which have been accustomed to running away, turning the yoke, hauling apart, springing from under the yoke, &c., which faults are sometimes very difficult to treat with any great degree of success; for in many instances they have become chronic, hence, incurable. In my experience "an ounce of prevention is worth a hundred pounds of cure," and I dislike very much to undertake the training of an animal which has become addicted to any of the above named habits. If the suggestions I made in my article published in your issue of July 10th, were closely heeded, in my opinion but little difficulty would be experienced in training steers for work. If notwithstanding all my caution a team gains an advantage and slips away, I never follow it in hot pursuit, but on the contrary approach lazily, perhaps whistling, assuring it that all is right and satisfactory.

Turning the yoke is usually learned while steers are unaccustomed to wearing it, and I would be careful to give them no opportunity to do so until they have been taught to place themselves properly beside the chain and to remain there quietly; which should be one of their first lessons. Hauling apart is sometimes very difficult to prevent; but I consider the fault to be always with the off steer; consequently the more mild, gentle disposition, usually the more moderate movement, should be placed on that side. In case he then shows an inclination from his driver, I would place him on the near side (which opinion I am aware differs from that of many good teamsters, who would never change the places of their cattle under the yoke) until he becomes handy there and learns to walk close behind his driver. I would also have him thoroughly disciplined without the yoke, and then return him to his own off side, watching him carefully, and calling him to in the same manner as if he were single, in case he attempts his old habit. I frequently hear the remark "that is a pretty steer and possesses an excellent disposition;—wouldn't he make a good near ox?" My reply is I can make a good near ox of almost any steer, but I want a pleasant disposition on the off side. This conclusion I have come to by virtue of the experiment of placing the same steer on either side. If the near steer should show an uneasiness or impatience in unyoking, I would turn his face in the direction opposite that in which he desires to go, and with the bow fitting very loosely in the yoke, remove both so quickly as to give him no opportunity to attempt to extricate himself; and I would never allow him to stop backward from under the yoke. The chain attaching them to the rear cattle should not be removed previous to unyoking, until the off steer has learned to stand patiently.

Controlling Breachy Animals.

It is a fact well known to every contemplative mind that breachy propensities in animals are not the result of instinct but are inherited habits. We are all familiar with the formation of habits. However painfully difficult any movement may be at first, by persevering effort it becomes so easy as to be performed without our attention. We all notice how difficult it is for children to walk at first, to write, read, or to play on a musical instrument. The reason why the difficult movements become easy by repetition is this. Every act dictated by the mind is followed by a change in the brain, although very slight at first and liable to obliteration, becomes deeper by each repetition of the act, until finally it is an established habit, to be given to the next generation, if not in as prominent a character it is at least sufficient to be noticeable. It is a prominent habit among farmers to inclose their pastures with poor fences. The young stock are restrained for a time, but as they get older the habit inherited from ancestors, probably kept in the same inclosure, impels them to seek a wider range. They leap the fence, and every time they clear the inclosure, the furrow or rut in the brain is made deeper and more controlling and the habit more fixed. To obviate this propensity of the animal, the farmer, instead of building a secure fence at first and thereby preventing the formation of breachy habits in his stock, resorts to the fetters and pokes, and thus often spends more money than would be required to keep his fences in a safe condition, and at the same time torments and injures his cattle. There are within 20 miles of my present abode four poke factories, and one of them manufactured and sold no less than \$36,000 worth of pokes last year. What a tax that is on a few thousand farmers and how easily it might be avoided! Farmers, build better fences, and you will soon eradicate all breachy propensities from your stock, which, in return, will bring in more money, and you will be able to live as well and have some spare dollars to invest in books for your family, and a servant to assist your overworked and exhausted wives.—*New York Tribune*.

Suffolk-Down Sheep.

This is a very useful breed of sheep, says the *London Live Stock Journal*, as yet only known to local fame, but rapidly extending in popularity with every successive year. It ranks beside the Hampshire and the Shropshire, and in form, figure, carriage, and general appearance, may perhaps be considered to fall between the two. Visitors to the late Suffolk County Show at Stowmarket, were brought into contact with them, and they were to be met with again at Breatwood last Tuesday and Wednesday. There can be little doubt that throughout the eastern counties either Suffolk-Downs or Norfolk-Downs are propagated numerously. Both varieties ought to be considered as one, for they have pretty much the same origin, and afford no more striking differences in appearance than the Hampshires of the three counties of Wilts, Hants, and Dorset present to view. Those disposed to be very critical may divide sheep into almost innumerable breeds. There are even two sorts of Suffolk-Downs, viz., the more hardy but smaller animals to be found in East Suffolk, which have to browse on the whin-commons of the sand-heath tracts of that region, and the larger, thicker sheep, with dense black faces and sharply chiseled features to be found in the good lands of West Suffolk, and particularly between Bury and Newmarket.

The breed has origin in a cross between the old Norfolk and the South-Down. The former is one of the numerous kinds which were very popular many generations ago, but are now extinct. The light, sandy heaths of Norfolk and Suffolk were less cultivated a century ago than at the present day, and the ancient Norfolk breed was fully acclimatized to the exigencies of the situation. In process of time it became fashionable to keep South-downs, or a cross between the South-Down and Norfolk. Thus the old sort became swamped or swallowed up, just as the Wiltshire-horns were in their native county, and it would be, perhaps, difficult to find true specimens of the type of either at the present period.

But it is not many years since remarked in one of our agricultural journals that, although the pure bred Norfolks are never seen, traces of the old blood are to be found in more than half the flocks to be found in the county of Norfolk. The same may be certainly said of the flocks of Suffolk for, in addition to the Suffolk-Downs proper large numbers of cross-bred sheep are bred and grazed by Suffolk ewes being put to long-wooled rams. On the good lands of both counties no sheep are so popular as "half-breeds" of the true stamp. These derive a large frame, hardihood, strength of constitution, and wonderful milking qualities from the old Norfolk blood, quality from the South-Down, and early maturity, good feeding characteristics and heavy fleeces from the improved Lincoln or Cotswold.

Suffolk-Downs, or, as they are frequently termed, black-

facéd-flocks, are, however, very numerous. On the poor walk lands, where furze, or whin, extensively appears, of which there are extensive districts in both counties, probably no sort of sheep would thrive so well as this hardy, productive one, which has been acclimatized to meet the exigencies of the situation. Flocks of breeding-ewes roam at large on these sheep-walks, who feed almost as much on the young tender shoots of the furze-bushes as the scant herbage of the velvety turf which grows between them. At night the flocks are folded on the arable lands, and often driven for that purpose to considerable distances. They may be folded, as is frequently the case, on a green crop, and almost invariably receive a hearty supper either of tough food, hay, roots, or green produce to make up for the scant fare of the heath browings.

YELLOW PORK.—The peculiar appearance of the slaughtered sow comes from a derangement of the liver. The yellow appearance of the fat and flesh is due to a deposit of vitiated bile. It is analogous to what often occurs in the human family and is one of those cases where slaughtering saves the life of the animal, as it would soon have died of the jaundice if it had been let alone. To use such meat as food may possibly do nobody any hurt, but it should be used for soap-grease.—*N. Y. Tribune*.

HORSE DENTISTRY.—A correspondent enquiring what he should do for a horse that had a decayed tooth, gets the following answer in the *New York Tribune*:—If your correspondent will carefully clean out the decay in his horse's teeth down to the pulp cavity, and will then carefully touch the dental nerve with pure nitric acid, it will effectually destroy all pain and fit the tooth for filling. If the dentine is very sensitive, first touch it, (or pack the tooth) with crystallized carbolic acid. This will blunt all pain in the dentine fibrils. After the decayed bone has been removed, fill the tooth with dentist's gutta percha mixed with silex, or with an amalgam of tin and mercury.

PIG-STICKING.—The *Chicago Tribune* says:—In sticking, do not kill too quickly. The hog lying on its right side, and the head pressed back, if the point of the knife is entered half way from the jaw to the breast, thrust down along the windpipe straight, and the point carried towards the surface by a turn of the wrist, it will divide the left *vena innominata*; if carried still further before cutting outward, it will pierce the aorta leading to the heart. Either of these are good. If the hog be required to bleed more strongly, the knife may be carried down along the lower side of the windpipe, and then an outward turn will sever the right sub-clavian vein and corresponding artery. A little observation while doing the work will enable the operator to quickly learn just the place to touch with an eight-inch blade, the proper length, for thus there is less danger of piercing too deep. Above all things avoid what is called "shoulder stick," by which the flesh is discolored and mangled. If the first thrust is not successful, try again, and immediately. In dressing a hog, a little examination of the vital parts will easily show you how to use the knife for bleeding.

HISTORY OF A MARE.—A Kentucky paper mentions a mare that was foaled in March, 1840, Bourbon Co., Ky., and in 1841 was purchased by Mr. John Holland, her present owner. He kept her until she was 22 years old, when he sold her to Mr. Geo. Rowland, of Louisville. Mr. Rowland kept the mare until she was 29 years old, at which time Mr. Holland bought her again. This mare was sired by an imported Canadian horse, and her dam was by Tiger Whip, a thoroughbred Morgan. The mare has raised twenty colts, which sold for over \$5,000, making an average of over \$250. She was never used for any other purpose than as a breeder and a saddle animal, and for these qualities she has probably never been excelled on the American continent. Mr. Holland has frequently ridden her seventy-five miles in a day, and thinks he could have easily travelled her one hundred miles without materially fatiguing himself or the mare. She was thoroughly trained to go all the gaits of the most approved saddle animals, and could make fast time in any of them; and although she is now in her thirty-sixth year, she has not yet forgotten them.

SOUTHDOWN SHEEP.—The Southdown sheep is of medium size whose live weight, full grown, is from 150 to 200 pounds. Occasionally they run over this. Their fleece is white, and of middle quality; the face and legs are a dark brown or mulatto. They are hornless, very fine in all their points, round, smooth and compact in form. They are very quiet sheep, yet active and hardy. They will thrive and do well on much shorter pastures than the Cotswold and other large breeds. If properly fed, wethers mature—that is, get their full growth—at 18 to 24 months of age. This mutton is very superior, being lean, tender, and juicy—not abounding in gross fat, as most of the large breeds do. Their shoulders and hams, when smoked, are almost equal to dried venison, and can hardly be distinguished from it. Lambs are fit to kill at three months old and above, and command the highest price of any in the market. The Southdown makes the best cross on all other sheep when a superior quality of mutton is wanted. The price of breeding Southdowns varies from \$15 to \$50 each, according to age and quality. Very choice command higher prices.—*A. B. Allen, in N. Y. Tribune*.

The Dairy.

In Favor of Feeding Meal Alone.

Mr John Adams, of Ingersoll, Ontario, writes to Mr. L. W. Miller, of Stockton, N.Y., who has lately become famous in connection with his practice of feeding meal alone to cows, giving testimony in favor of the system. Mr Adams says:—

"In reference to how my cows have done this season, I would say that they have done as well as any season, and that some farrow ones fattened as good and early as any I ever had, and that they are all now with calf as good or better than they ever were, and are now in as good order as at any other season at this time. They did not get a fair chance last winter. My stables are above ground, and usually covered with hay or straw; and as I fed out all my hay and straw before commencing to feed meal, thus stripping them of their covering, they were terribly cold—much colder than they ever were before or ever will be again. We had the coldest winter here ever known, and the intense cold, week after week, was hard on them. I feel thankful that you have experimented so fully and been so successful, and I think you deserve the thanks of every dairyman in America. If we can winter our cows in this way, we can keep more of them, and if our stables are warm and convenient, the labor of feeding them will be almost nothing."

Mr. Miller comments thus upon Mr. Adams' letter in the *New York Times*:—"Mr. Adams also writes that he fed four quarts of meal instead of three quarts, and that his cows did not scour. If the winter had been no colder than common, and his stables warm, doubtless three quarts would have been equal and perhaps more in results than four quarts. Nature gives to all animals the capacity to digest and assimilate food in proportion to their wants. If very cold, as he describes, carbon was the most pressing want of his animals, and I should anticipate that upon his rations of four quarts they might lose flesh. The great amount of oil consumed by the Greenlanders, is an illustration of nature's laws in this respect."

Feeding Meal Alone.

Mr. L. W. Miller, of Stockton, N. Y., has issued a pamphlet on his hobby of meal-feeding, from which the following paragraphs are extracted:

Steaming is a step in the same direction as cutting and wetting fodder, and, in some respects, its effects would be more advantageous, as softening the woody fibre, dissolving the soluble parts, and rendering true digestion more easy and thorough. A saving of thirty per cent. is claimed by this process (cutting). As no nutriment can be added, the saving must be chiefly in mechanical form. These considerations lead us to the question of equivalents in the matter of meal versus hay. A common-sized animal consumes daily three quarts of the former, or twenty pounds of the latter. In the first the miller does the mechanical work; in the latter, the cow. The miller exacts a tenth toll for grinding your meal; but the cow is obliged to take more than one-half for the labor which she performs on your hay!

The constituents of meal and hay, when contrasted as equivalents, are liable to more or less error in results, from the fact that the composition of both vary, different kinds of corn yielding different quantities of any given constituents; some being much richer than others, especially in oil, starch and sugar, while hay also varies according to the soil upon which it is grown, the time of cutting, and the manner of curing. I have demonstrated by my practices, at various intervals for sixteen years, that three quarts of good Indian meal, fed under given conditions, are more than an equivalent for all the good hay you can coax a cow to eat.

I am aware that the best known recognized authorities of the world are against me. Galileo's doctrines were not more radical to his contemporaries, than mine are to-day upon this subject; nevertheless, he was right and they were wrong. Theories are sublime fallacies in the history of our race. Guessing, and taking the most important things for granted has been our bane throughout all the ages. But tests don't lie, and theories have to vanish before them.

Meal for live stock should be ground as fine as possible. Scouring is liable, if it is fed coarse. The gastric juices perform their work upon fine meal readily; and if the quantity fed at one time is not too large, not a particle can escape their action. If coarse meal is, from necessity, fed, it should be thoroughly cooked or steamed, which alone would render it equal to fine. In case it was desired to

lay on flesh or fat, either to improve general condition, or to make beef, the quantity might be gradually increased, if cooked, with but little, if any, danger of relaxation of the bowels.

The corn used should be of the yellow variety, unless oil cake or cotton seed meal is added. There should be from three to four per cent. of oil in good sound yellow corn (white corn, although it may be rich in starch and sugar, seldom contains even one per cent. of oil). This proportion of oil in their food should never, under any circumstances, be diminished, but may with safety be increased fifty per cent.; and if beef is desired, the quantity may be doubled.

The feeding should be at regular hours if possible. Habit governs the appetite and wants of the animal to a much greater extent than is generally understood. Quiet, which is essential if the best results are desired from a given amount of food, can never be secured unless the hours of feeding are regular and uniform. Twice a day, not far from sunrise and sunset, with an average of about three pints to one feed, has been the author's rule; but, if convenient, dividing the meal into three moses instead, might insure better digestion with some animals, and also obviate some of the dangers of relaxation.

As a rule the meal when fed to cows not in milk should be dry. The animal has an abundance of saliva, which is better than water to moisten it and which otherwise will be partially wasted. This also insures a slower passage of the meal into the stomach. Any device by which the time of eating could be lengthened, without diluting the food, would insure a more perfect digestion; but it should be understood that diluting food renders digestion more slow, difficult and uncertain. The dryer the food the longer will be the process of moistening it with the secretions of saliva.

Holstein Cattle.

Isaac Augur, agent of the West Pittsfield, Mass., Shakers, writes to the *New England Farmer* thus:

Having heard, from time to time, comments through the public journals and verbally, some in favour and some opposed, I offer a few remarks which have grown out of actual experience concerning the merit of this noted stock during the past eighteen months. Having owned two bulls and two cows, thoroughbred, and having seen their product in milk and butter, I feel able to say something in their favor.

One cow, seven years old in the spring of 1875, calving March 17, has given, on an average, twenty quarts per day to the present date. I tested her milk in butter from the 13th of June for seven days, during which time she made fourteen pounds of nice butter, with no extra feed and no more than a common pasture.

The second cow, six years old in the spring of 1875, calved Sept. 22nd, 1875, and after four or five days her milk was reserved by itself and set for cream, after letting the calf suck what it would three times a day. From the surplus of seven days, I found, on weighing the butter, thirteen pounds of a fine article, and, in total quantity per day, after three weeks of the time of the calf sucking, she had averaged from twenty-four to twenty-six quarts per day of milk.

November 24th, 1874, I bought a thoroughbred imported Holstein bull, one year old past, and his gain in ten months is four hundred pounds, making an average of forty pounds per month, and not on high feed.

They are a fine growing stock, large, good feeders, and I can say, with all freedom, that they are, in my estimation, the best for market milkers, butter, cheese, oxen and beef of any thoroughbred stock now known in our country. I should be pleased to show these above samples to any and all who may be pleased to call.

Dairy Cattle.

In the course of a long article in the *Mark Lane Express*, on dairy farming, the writer compares the Dutch or Holstein cattle with grade Short-horns, to the disadvantage of the former. As an example of the deep milker, he says, the Dutch cow takes a leading, if not first, position, giving milk, under the influence of good feeding, in extraordinary quantity, and continuing it far into the season. Her milking capacity is so enormous, that she recommends herself in an especial manner to those who supply milk in large quantity to public institutions; with this single feature her usefulness begins and ends, as she is a hard feeder, consuming food in excessive quantity, and scarcely at any age compensating her owner for his trouble and outlay in feeding her.

The exactly opposite quality is found in the Short-horn, the tendency to lay on flesh being in the superlative degree; while the milking property, unless in some exceptional strains of blood, is not to be depended on, the cow of this breed, however freely she may milk for a short time after calving, being extremely apt to run dry long before the expiration of the season. Whatever the alloy, the Short-horn must now be taken as the standard breed

of the kingdom, its blood being largely infused into every herd from which a profit is expected. Where dairy business and the breeding as well as the feeding of stock are all carried on together, a three-quartered Short-horn fulfils as nearly as possible the whole of the conditions necessary to success in each department, as any slight deficiency in one qualification is more than counterbalanced by the extraordinary aptitude to reach early maturity, which is evinced by her offspring. The breed used to somewhat check the running to flesh, to assist the milking capacity, and retain it further into the season, may be found nearly in every district, often under no distinctive name but that of the common cattle of the country, and although somewhat coarse and strong of bone, will not, on that account, prove the less valuable, as their descendants will retain a portion of the hardness of constitution and free milking quality, for which features they were originally selected, long after the unmistakable impress of the Short-horn sire has been indelibly stamped on their outline and general character.

Cheese-Making in Otsego Co., N.Y.

At a late meeting of the Farmer's Club of the American Institute, the following from J. H. Rawlings, Gilbertsville, N. Y., was read:—Agreeably to your request I will tell you how that cheese was manufactured which you so highly complimented at a recent meeting. For a full-sized cheese, which is fourteen inches in diameter and four and a half to five inches thick, we take ten pails or 120 quarts of milk and set it at a temperature of eighty-four degrees, according to the heat of the season. Then annatto is rubbed in the milk, a piece about the size of a walnut. Next about a teaspoonful of rennet is put in, or a sufficient quantity, according to its strength, to coagulate in one hour. It is then carefully broken with a breaker made of wire, the meshes about one inch in size, and allowed to stand one hour for the curd to settle. The whey is then dipped off carefully and the cloth put over a box with holes in the bottom, the curd put in and crushed dry. It is then put in the tub again and broken up fine and three handfuls of Ashton salt are mixed thoroughly in. Then a cloth is put over the hoop and about two-thirds of the curd are put in and crushed nearly dry, then broken an inch or two deep and the remainder added and crushed or squeezed dry. A clean, dry cloth is put on then, the cheese is put in press for twelve hours, taken out and salted and a clean cloth put on and put in press again for three days. Every night and morning the cheese is turned and salted. The press weighs about 700 pounds. The cheese is then taken out and put in strong brine for twelve hours, then washed clean and wiped dry and put in the airing room on shelves and turned every day for three months. After that every other day. But no rubbing or greasing is allowed whatever, if rightly made and well taken care of. If any milk is left over, it is put into pans, then skimmed, warmed and the cream stirred in again and mixed with new milk enough to make another cheese. There are some very essential points connected with cheese making which must be observed in order to be successful. First, it requires good feed and water and plenty of it. Second, that all utensils used in making cheese should be kept scrupulously clean and must be attended to at the right time. Like many other trades, making cheese must be learned by practical experience more than by theory.

THE LARGEST RECORDED YIELD of a single cow that is perfectly reliable and well authenticated, is that of an animal kept in the jail at Leves, England. In eight consecutive years she gave 9,720 gallons, or an average of more than 1,210 gallons a year. She was milked, one year, 328 days, and gave 1,230 gallons, which made 450 pounds of butter, or at the rate of a pound of butter from twenty-two pounds of milk.

THE ESCUTCHEON OR MILK-MIRROR.—Prof. Fuerstenberg says:—In superior milk-cows, which possess a fine skin, the udder consists almost solely of glandular substance; and this is covered with fine, soft skin, coated only with short, fine hair. The escutcheon is large and extends as far as the mammary glands extended backward before the descension of the udder. The mammary glands, if well developed, reach with their posterior branches upward to the vulva, and sideways to the inside of the thighs; hence we find, in animals with large and well-developed mammary glands, the limits of the latter, on those parts named, distinctly marked by a difference in skin and hair, which constitutes the border of the escutcheon. These limit-marks remain on those parts (thighs and perineum), while the udder descends in consequence of the weight of the glandular substance, and of the milk accumulating in the lactiferous tubes, and gains thereby, partially on account of the growth of the animal, a considerably larger extent. We find, therefore, already in heifers which excel afterwards as superior milk-cows, a large escutcheon, for the original posterior (lactiferous) tubes or ducts, and the thereon forming glandular substance, extend far backward and upward.

Veterinary.

Worms in the Liver of Cattle.

EDITOR CANADA FARMER.—Many farmers residing in this vicinity and for miles around lose more or less cattle every year, myself included, from a disease pronounced "Bloody Murrain." I will relate what has come under my notice since living here for the last three years. Healthy looking cattle, apparently are suddenly attacked and in a few hours die. The first symptoms of the disease are: the animal wanders away from the herd, seemingly to get alone, ears drooping, and circulation very much increased. Shortly after attack the beast begins to pass blood either in urine or otherwise, and from that time they become more frequent until death. The animals are in great pain and agony with desire to lie down. Having lost some myself, I had the curiosity and wish to see if I could find any cause. Accordingly I opened a beast and found the bladder extended to full size, filled apparently with blood; the gall enlarged to about three times the natural size, and the liver perforated with small holes. On inspection of the holes I found in them what were apparently leeches. I have seen in one that was killed to put it out of misery, these leeches (or whatever they are) alive in the liver, and crawling, and the liver eaten so full of holes that in places it was almost rotten. Have you heard of the like before? If so what are these things? How do they come there? Is there any remedy? Could cattle in drinking take them into the stomach and they from there get into the liver? I have heard of numbers of people giving same account as I have here.

Waubano, Co. of Lambton.

ENQUIRER.

The disease above described appears to be due to the presence within the liver of worms, somewhat resembling those that are found in the liver of sheep, and producing a disease known as "Rot."

The ovum which finally forms the worm, after undergoing various changes, and passing through certain stages, are supposed to enter aquatic insects, and these insects are taken into the digestive organs by means of the food or water. After entering the true stomach, the action of the gastric juice destroys the sac, and the larvae pass into the duct coming from the liver and thereby gain access to that organ, where they are rapidly developed.

Worms in the liver are most likely to exist in cattle that are grazing on low lying or woody pastures, or where the ground is somewhat swampy—and are likely to be most prevalent either during or after a wet season.

We are not aware of the nature of the evil, and kinds of grasses in the locality referred to, but we have no doubt that the disease is dependent upon some local influence, whatever that may be.

After the acute symptoms are developed as above mentioned but little can be done in the way of treatment, as the disease appears to be so rapid in its course, but possibly close observation would detect some premonitory symptoms not so violent in their character as are exhibited in the later stages.

Something more than treatment must be looked for, and that is prevention; and we have no doubt, as the lands become drained, well cultivated and otherwise improved, the disease will gradually disappear. Until that can be done, or during wet seasons, we would recommend in addition to the natural food, the moderate use of what are sometimes called artificial foods, as Indian corn, linseed cake &c. When animals are susceptible to be attacked, we would recommend the oil of turpentine in one ounce doses, given with two or three ounces of raw linseed oil, every morning and continued for four or five days.

Cattle should also be allowed plenty of salt, and it also might be advisable to apply salt to the pastures, which not only increases the growth of pastures, but might also act as a preventive of the disease. In the disease usually known as "Bloody Murrain" or "Red Water," although the liver is frequently implicated, worms have never been noticed.

SITFAST.—A Country Gentleman correspondent recommends, for sitfast, a plaster made of red oak ooze boiled to a paste, then spread on a cloth the size of the sitfast and applied. It will cut it out—destroy and kill it so it will drop out. Dress, after washing well with castile soap and water, with simple cerate, as other wounds. I have done this 40 years ago. I believe it is a remedy used by some of the cancer doctors. My suspicion was excited some 20 years ago, by an unguentum given to a friend, for a supposed cancer, to take home with him, which I think was made of this medicament.

Prolapsus of Uterus in Cows.

Prolapsus of the vagina occurs very frequently in weak and relaxed cows, especially in such as are good milkers, but in a rather poor condition; and may take place as well before as after delivery. A reposition is, in most cases at least, easily effected, provided the patient is put in a stall or other place, in which the same is compelled to stand considerably higher—say about one foot—with the hind feet than with the fore ones. The operation is also facilitated very much if an abundance of warm water is used for the purpose of cleaning the exposed part, and of rendering the same more flexible. The reposition itself should be made by means of gentle pressure with closed hands. To prevent a relapse, it will often be sufficient to keep the animal in a stall in which the floor is from six to twelve inches higher behind than in front. In some few cases, it will be necessary to make one or two stitches through the external skin of the labia, this, however, is advisable only in such cases in which the prolapsus has occurred after the calf has been born. A prolapsus of the vagina is not dangerous.

Prolapsus of the uterus proper can take place only after the birth of the young. It also occurs most frequently in very relaxed and weak animals, usually within a few days after delivery. At first, the cow, if standing, has to be put in a place or stall, in which she cannot turn around or move aside, and in which she is compelled to stand from a foot to a foot and a half higher with her hind feet than with her fore ones. If it should happen that the patient is lying down, and as is often the case, unable to get up, it will be necessary to raise the hind part of the body about a foot higher than the fore part and to prop it up with straw, etc. so as to bring the whole body in a standing position. After this has been done, a bucket full of warm water (about 100 degs. F.), a towel, a piece of board, and three attentive assistants, are needed. The warm water is for the purpose of cleaning the usually very dirty uterus, and of making its swelled and inflamed mucous membrane more pliant and flexible. After the cleaning, which should be done very carefully by the operator himself, one of the assistants is employed to pour constantly a little warm water over the uterus, and over the hands and bare arms of the operator while the latter is manipulating and working to make the reposition. The two other assistants are employed in keeping the inverted and protruding part of the uterus raised by means of the board, covered on its upper surface with the towel, till the operator has effected the reposition. The board used for that purpose should be from 3½ to 4 feet long, and a foot wide; if it is shorter, the assistants, who have to take their position each on one side of the operator, will be in the way of the latter, and if it is too wide, the width of the board will render the operation somewhat difficult. The reposition itself has to be made by means of gentle manipulations and pressing with closed hands at the sides and all around the inverted organ, close to the body of the animal, till the large part—say two thirds of the same—has been reposed, when the operator may press in the remaining part at once by applying his closed hand at the bottom or end of the uterus. After a reposition has thus been effected, there is seldom any trouble in bringing the uterus in its proper place or situation again. The operator can do this easily if he introduces the whole length of his arm, and manipulates gently with his open hand and extended fingers.

In a great many cases of prolapsus it happens that the uterus is yet covered by the after-birth. In such cases, the latter has to be loosened very carefully with the fingers from the single cotyledons, and to be removed before any reposition is attempted; otherwise the animal will keep on straining till a second prolapsus is effected.

In a majority of cases it will be sufficient for preventing another prolapsus after the reposition has been made, to keep the animal quiet, and to tie her for a day or two in a stall in which the floor is in front lower than behind. Sometimes, however, the straining continues, and then it will be advisable to apply a bandage. The latter may be put on in different ways; that one which I should prefer cannot be described very well without a drawing, hence I omit a description. The main point is, that the bandage, or whatever it may be called, does not interfere with the discharge of the natural excretions, and that it is fastened securely to a sure-iron around the chest of the animal.

A prolapsus of the uterus is a very rare occurrence in cows that are in a good condition, have received suitable food, and have had sufficient voluntary exercise during the period of gestation; but is very common in herds of cattle that are kept the whole winter in stables, in day-time as well as during the night, and have no exercise whatever. Hence it seems the best prevention consists in keeping the cows in a good condition, and in preventing any abnormal or morbid relaxation, by affording them sufficient opportunity for voluntary exercise.

TO CURE A STIFLE.—Take the white of an egg and pulverised alum, and make a paste of them. Rub the joint well and heat it in with a hot iron held near it. I have seen it tried in several cases with perfect success. Two applications a day till there is a decided improvement. I saw one case cured that had been neglected over a week, as the owner did not know what the cause of the lameness was.—*Cor. Southern Cultivator.*

BLACK TONGUE.—The *Indiana Farmer* says:—"This disease has appeared in a few places in the State among the cattle, and in parts of this county is proving quite fatal. The symptoms are inflammation of the mouth; swelling of the head and face. Discharge of bloody saliva, and high fever marks the first stages. Ulcers soon appear under and on the sides of the tongue. Then the throat and neck swell, and if the disease is not checked gangrene ensues and the animal dies. The disease is said to yield readily to early and proper treatment. The following has proved very successful. The animal should be bled from the neck vein. Give him castor oil, one pint, to be repeated in ten hours if it should not operate; then use the following: Powdered burnt alum, 4 ounces; chloride of lime, 2 ounces; corn meal, 2 quarts. Mix, and with this powder swab the mouth frequently.

INTESTINAL PARASITES.—Enthusiastically following up his speciality, looking everywhere for worms, and ascribing to them many and varied ailments, Prof. Cobbold marshals a considerable amount of evidence to show that colic in horses is frequently in this country, as well as in India, produced by the ascaris, strongyl, and other internal worms. Over 1,200 ascarides he mentions as having been removed in a post-mortem examination of the intestines of one unfortunate horse. It is a pity we have no record of the sensations, the gastric arrangement, the thriftless appearance of this much-afflicted animal. What an amount of food these voracious vermin must have devoured; how in their movements they must have irritated the intestines; rolled in masses, as they often are, they must frequently have formed an almost hopeless obstruction. Thankful would this wretched victim be to shuffle off his mortal coil.

BIG JAW.—This is more properly called "dilation of the jaw bones." In horses it is sometimes called "big head;" it is a bony tumor, in which the interior of the bone is absorbed, sometimes leaving a mere shell of bone divided into cells, containing purulent cheesy matter. This is supposed to be caused by a deficiency of phosphate of lime in the food, rendering the bones deficient in this most important element, and the following prescription is often given with good result. Phosphate of lime, 6 oz.; powdered golden seal, 2 oz.; powdered sassafras, 3 oz.; powdered ginger, 2 oz.; oatmeal, 4 lbs; mix. This will be divided into sixteen parts, one given in the food every night. This will have a tendency to restore the missing elements in the bone. And the general diet should be food rich in phosphates. You may get your phosphate of lime by boiling beef bones in lye of wood-ashes, and after it is reduced fine, wash with water and give a small quantity daily in food. The first thing to do surgically is to open it and let out any matter that it contains. Having removed the matter, inject the cavity with weak pyroligneous or weak carbolic acid. This will cleanse it and render healing possible.—*Live Stock Journal.*

SULPHUR OINTMENT.—The *North British Agriculturist* says:—"Sulphur ointment is generally prepared by melting one pint of flowers of sulphur with four or six of lard, palm oil, or other fatty matter. For mange, scab, and some of the simpler inflammatory conditions of the skin of animals, sulphur ointment proves a soothing dressing; but it is by no means the most effectual application for the destruction of those vegetable parasitic growths popularly known as ringworm. For such purposes, if sulphur ointment is used, it is advantageously mixed with about one part of the dark brown, impure carbolic acid to six or eight of sulphur ointment. Silver nitrate, zinc chloride solution, copper and iron sulphates, and other such powerful astringents and antiseptics, applied carefully in tolerably concentrated solution, destroy the vegetable parasite, and thus prevent the complaint spreading. In most cases where the bare circular spots of ringworm first show themselves, they are easily arrested by the in-rubbing of any common oil or saline astringent solution, especially if the animals are not exposed to fresh spores of the disease usually developed amongst damp old straw, and particularly prone to occur where barley straw is chiefly used, whether for food or litter.

COAL FOR SWINE.—Judge Caton, of Illinois, a noted hog-raiser, says in the *Prairie Farmer*:—"I have for many years been in the habit of feeding my hogs with an abundance of our common bituminous coal, preferring the poorest, or that which contains a large amount of sulphur and iron, and I think with the happiest results. Let a farmer who has never tried it, throw in a lump of coal as large as his fist, and he will be surprised to see the hog leave the corn and crunch the coal, as if it were the most luscious morsel. Sulphur has long been known as a valuable remedial agent for hogs, and iron is a well-known tonic, acting specifically upon the blood, thickening and strengthening it. Here, then the hog, by eating the coal, gets other important elements besides the carbon. I have never known a hog well supplied with this coal, to be sick or off his feed for a single day, and although I cannot give figures showing actual results of careful experiments to prove it, I believe hogs thus supplied will eat more and assimilate their food better, will make appreciably more pork, with a given amount of corn, than those which are without it. At least, I am well satisfied with the way in which my hogs thrive—grow and fatten—under this treatment. Coal is cheap, and may be tried at little expense." Charcoal is nearly, if not quite, as good as coal for hogs.

The Poultry Yard.

Silky Fowls.

This peculiar breed of fowls is said to be a native of India, but we have it on good authority that the only specimens to be seen there came from China, Malacca or Singapore. The arrangement of the feathers differs in several respects from that of the ordinary fowl. Both the stem of the feather and the fibres which proceed from it are thin, weak and non-elastic. They do not assume a position opposite each other, but hang about in a lax and undetermined manner. The fibrils are also very weak and thin, besides being very sparse, and extend from the main feather at nearly right angles, and consequently are destitute of that interlocking power so perceptible in an ordinary feather when smoothed down with the hand. "Silkies," says Mr. Wragg in the Poultry Book, "may be classed as purely fancy poultry, having little but their unique appearance to recommend them. Instead of feathers they are covered with an abundance of white silky hair; the wing and tail quills also being hung with long silky fringe. The skin and legs are blue, the face and comb a deep purple color, ear-lobes being slightly tinged with white. The best specimens have five toes and are feathered on the legs. The plumage should be pure white. The cock should have a full prominent breast; neck medium sized; hackle very full, flowing well round the shoulders and on the back; saddle square, and rising upwards to the tail, which should gradually rise a few inches and then droop over. The comb is double, but is wider than long, having a lumpy appearance, with scarcely any points on the top. It should be well on the front of the head and behind it should be a spur or crest of feathers projecting straight out, about two inches in length. The weight of the cock averages about four pounds. The hen is rather small in proportion, weighing only about two and a half pounds. She is very square and compactly built, breast being full and round, neck rather short, saddle square and well cushioned, tail almost buried in fluff, which is very abundant, and a fine small head. From the top of the head should rise a small globular crest. The general style and shape are very attractive."

Silkies do well in an enclosed run, always appearing cheerful and contented, they keep themselves much cleaner than the generality of light colored birds, are excellent sitters and mothers, take great care of their chickens and run a long time with them. They generally lay about thirteen or fourteen eggs before desiring to sit, very rarely more, and frequently only ten or eleven. An excellent cross for sitting purposes is obtained by crossing a Silky cock with a White Game hen, the pullets from this cross are found to be exemplary sitters, excellent mothers, beginning to lay early and after laying ten or twelve eggs sitting, a very valuable thing for those who are desirous of procuring early chickens. Pullets of this breed begin to lay about seven months old; the eggs are of a pretty cream color, but of course rather small. The chickens are easily reared; once hatched, they require but little care. During the last week of incubation the eggs should be kept well moistened, as the inner membrane of the shell of the egg entirely peels off in some cases. Silkies in no way should have intercourse with other breeds, as the color of the skin is very difficult to breed out when once got and consequently spoils birds for the table.

The peculiar formation of plumage of this breed is occasionally to be met with in Cochins, which are then also called Silky, and sometimes Emu fowls. A cross between this variety of Cochin and the Silky might establish a new variety, but inferior to the true Silky.

THOS. MACLEAN.

Timely Hints on Management.

The months of December and January are a trying season for poultry, and at this time of the year the breeder will find it advantageous to exert especial care for his favorite birds, who at this cheerless frigid period need his humane attentions particularly, for their comparative comfort and health.

The fowls have now come to maturity, for the most part. They are, generally speaking, in full plumage. And if of the previous season's hatchings, the pullets are now ready, or have already begun, to lay; older hens, well through

with the annual moult, are also returning to this duty; and to keep them at this work they require good feed, plenty of it, regularly, and of the right kind to assist in the egg-producing process.

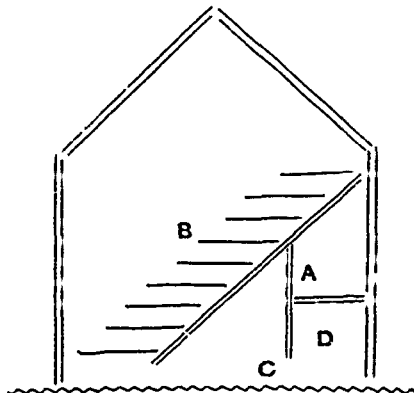
From this time, through February, they cannot come to the earth outside of the hen-house limits, to any extent. The ground is frozen, or covered with ice and snow. The chickens do not like this prospect, and they do not care to quit their warmer sheltered quarters, if the houses be originally tight and comfortable. We must therefore look to it that their quarters are kept cleanly, sufficiently ventilated in the middle of the day, and well closed at night and in the boisterous, windy, stormy days.

Another caution must constantly be observed towards keeping the birds in good condition and thrift, at this usually inclement period; and that is that they be not over-crowded in numbers. More fowls can safely be kept together during these months than at other times, but we should never so limit them in their houses that they will be obliged to huddle together too closely, either by day or by night.

Keep the fowls clean. Supply them with green food, a warm meal at least once a day, ground bone, gravel, crushed oyster-shells, the dust-bath (with powdered sulphur scattered amongst it), fresh tepid water daily and occasionally cooked coarse meat or scraps. Follow this course up diligently, and they will thrive, give you more or less eggs even in these months, and thus reward you for your kindness and attention.—*Poultry World*.

A Sitting Room.

Mr. J. R. Sturtevant sends to the *Poultry World* the following description of a room for sitting fowls, such as he has made use of for a number of years. He says:—In the first place I have a house for my Light Brahmas (those being my sitting fowls), 75 feet long and 16 feet wide, with glass in roof and on the sides. Four feet from the inside side of the building, and running its whole length, I have a planed board partition running at an angle of 45 degrees to the floor, and being one foot from the floor. On the top of this my roosts are placed, six inches from the aforesaid



SITTING ROOM.

A, is the lath partition under the roosts. B, the roosts. C, nest boxes. D, space for the hen sitting to run in when the box is turned round.

slanting plane. In this way I can easily preserve all my hen manure. Underneath this partition or slanting plane on which my roosts are placed, three feet from where it starts from the floor, I have a row of nest boxes, one foot square, moveable. These nest boxes are all placed so as to slide in and out from under a board running the length of the building. From this board there is a partition of lath running at right angles to this board until it strikes the roosts above, leaving a space from said lath partition to the rear wall of my building, about ten feet. Now my hens run under the roost to their nest-boxes to lay, it being dark, they like it. When a hen wishes to sit, I turn the nest-box round with the hen in it, and allow her to sit, giving her a compartment the width of the nest-box made of lath in this space of ten feet before spoken of. Here she may have feed and water, and dust bath, ashes. No laying hen can disturb one that is sitting.

FEEDING FROM HOPPERS.—A correspondent of the *Rural New Yorker* says he has kept from 80 to 300 hens for the past ten years, and has fed from hoppers most of the time, being well satisfied that hens will eat and waste less, as well as thrive better, than by the broadcast system of feeding.

CAPONIZING.—The *Pacific Rural Press* says that capons are sold readily at high prices to the first-class French restaurants in San Francisco. Caponizing instruments are now made so that a person can soon learn to operate, and as the fowl can be lost only by bleeding to death, it is as good, in case of death by the operation, for table or market as if killed in the ordinary way.

FATTENING FOWLS IN TWO WEEKS.—A writer in the *London Field* states that poultry properly fed will acquire all the fatness needed for marketing purposes in a fortnight or three weeks at most. Their diet should be Indian, oat or barley meal, scalded in milk or water—the former is the best, as it will expedite the fattening process. They should be fed early in the morning, at noon, and also in the evening just before going to roost, and given a plentiful supply of pure fresh water, plenty of gravel, sliced cabbage or turnip tops. If the fowls are required to be very fat, some trimmings of fresh mutton suet may be chopped up and scalded with their other feed, or they may be boiled in milk alone and poured over the meal. This renders the flesh firmer than it otherwise would be. When fit to kill, feeding should be stopped for twelve hours or more so that the intestines may become comparatively empty.

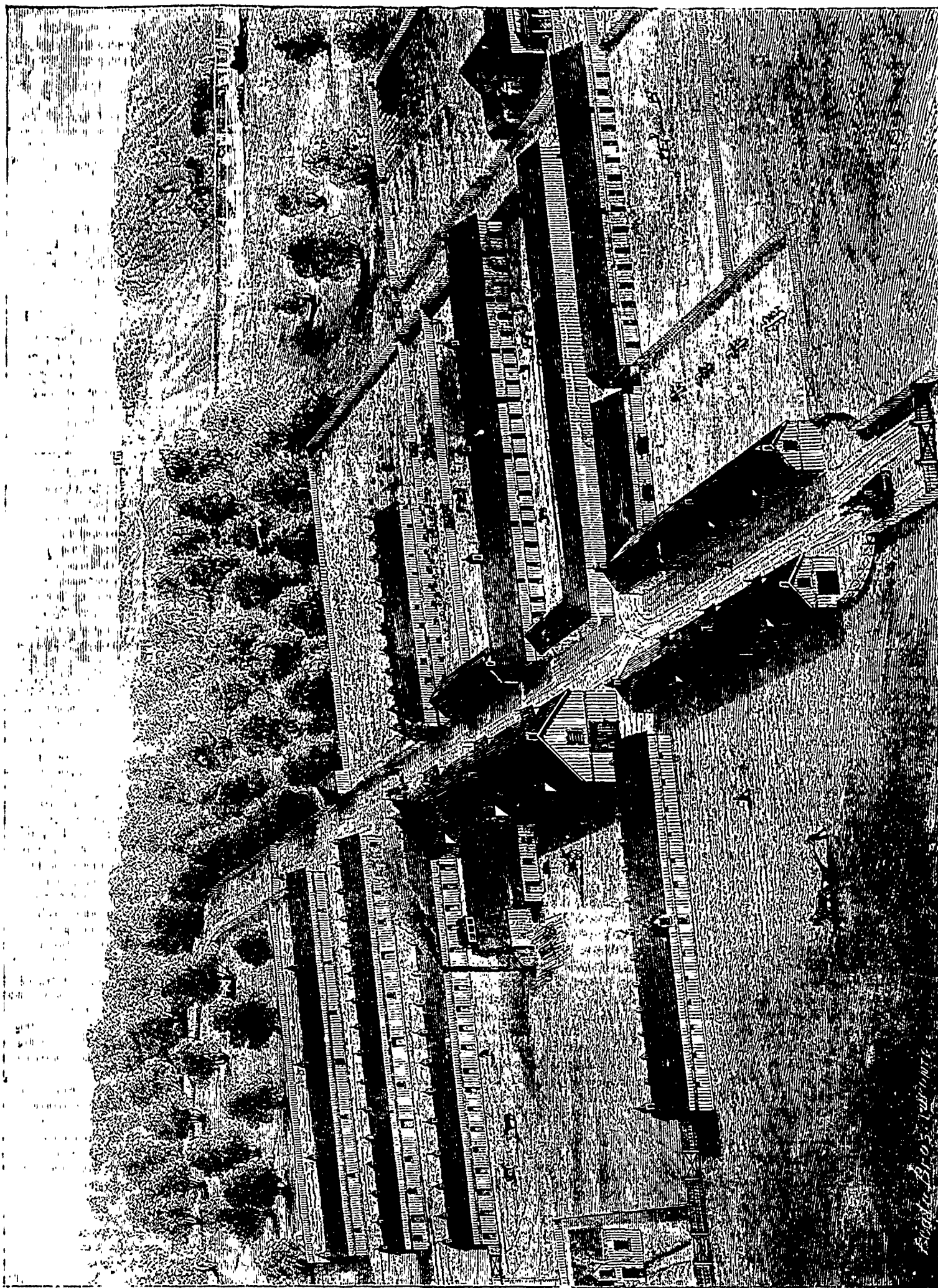
The Apiary.

Bee-Keeping Not Easy for Women and Children.

L. C. Root, at a recent farmers' discussion at Utica, N. Y., is reported as saying: "There are two bee magazines which claim that bee keeping is good business for old women and children, because it is so easy. This is a mistake. The work is very difficult when the bees are kept in large numbers. It is necessary, to do well in bee keeping, to have good stocks. Some swarms are cheaper at \$25 than others are at \$1. A large force will do a large amount of work. You can tell when a hive is strong by lifting it up, and when a layer of bees appears on the bottom board it is a good swarm. Go around in the spring, and see that every hive has a queen. Then, to increase brood, move the frames away from the centre and put in new comb, and the queen will fill the centre. This must not be done too fast, for the cluster must be large enough to warm the hive. While this is going on, bees may have to be fed. Great care must be taken to secure enough available food. The great point in securing surplus is preventing swarming. I watch every hive. The queen's wings are always clipped. When the swarms come out, we go and pick up the queen and cage her, then open the hive and cut out all queen cells and remove one or two brood combs and put in empty frames. We must take out just enough to counteract the desire to swarm. I think there is a class of bees in a hive not old enough to get honey, and are idle. These may be employed by letting them make comb. To reach greatest profit, I believe every apiarian should make both box and extracted honey. These young bees will make comb if empty frames are supplied, which may be used as guide combs in boxes."

ENOUGH OF PATENT HIVES.—Mr. Clark has devoted much time for the past ten years to the honey bee and its ways, and has, as he says, "fooled" with a good many kinds of patent hives with which he has become disgusted and has abandoned, and which any one may have for oven wood if they will haul them out of his yard. After this experience he has settled down upon a simple hive of his own make as the best one he has ever seen; and his opinion in this matter coincides with that of every sensible bee keeper with whom we ever talked, that the simplest hive is the best, and that the nearest and most satisfactory approach to this is a square box which a swarm of bees will fill. The hive which Mr. Clark now uses is 12 inches square by 14 inches deep inside, provided with an excellent feeding arrangement, ample means for ventilation, and three hollow bars in the centre of the box, through which the bees can pass and repass at pleasure. He winters his bees out of doors, the hives being on a bench six or eight inches from the ground, over which is placed a box four or five inches larger than the hive, and one foot higher; the top space above the hive being crowded full of straw. The top of the outside box is made water-tight. In the spring this straw will be found all rotten, but the comb in the hive will be white and clean.—*Maine Farmer*.

SEASONABLE HINTS.—Through the month of January the bees require no care in the cellar house. They only ask to be in darkness and quiet. If they are on their summer stands, and have quilts or carpets over their frames, they will not suffer, though the entrances are blocked with snow. It is well, however, to see that the entrance, during a thaw, does not become stopped with water and dead bees, which a sudden cold wind may convert into ice. While you have nothing to do for the bees directly in this month, it is the time to plan for another season's work, and prepare your hives and honey-boxes. We hope the experience which some of you have had will not be repeated this winter, viz., your bees die at such a rate that you will need no new hives. If you have been careful, we are sure you will not.—*American Bee Journal*.



BOW PARK—FARM BUILDINGS.

Woodcut by G. S. Park 1872

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

CANVASSING AGENTS WANTED.—First-class men, of good address, steady, and pushing, to canvass for the CANADA FARMER. Address, stating employment, previous engagements, age and references, Publishers of the CANADA FARMER, Toronto.

The Canada Farmer

TORONTO, CANADA, JANUARY 15, 1876.

Bow Park Stock Farm.

We have very often been urged to give a detailed description of the Hon. George Brown's great Stock Farm and the operations being carried out upon it; and we have only delayed doing so, until the permanent improvements on the estate were completed and the plans of the proprietor thoroughly developed. It is hardly six years yet since the first purchases of Thorough-bred Stock were made for the place, and since then the extension and improvement of the Herd have been carried out gradually and carefully, as opportunity offered; but already Bow Park has attained wide celebrity at home and abroad, and its Herd for extent, excellence and money value has few rivals here or elsewhere.

The one great purpose of the farm is the rearing of Thorough-bred Farm Stock—shorthorn cattle, sheep and pigs. Everything in the working of the place tends to this end. The great aim never lost sight of is to find in what manner live stock can be best and most profitably carried to the highest perfection—and by what mode of cultivation the largest amount of succulent and healthful food found best adapted for the stock, can be judiciously and economically taken from the land.

The extent of the farm, the large amount of fine stock carried upon it, the liberal employment of capital in its operation, and the systematic manner in which the enterprise has been prosecuted—have given unusually good opportunity for testing a number of important questions in practical agriculture. It is sheer folly to dogmatise in such matters, or to contend that any one system is the best; but this at least may be safely said, that there are some results attained at Bow Park well worthy of earnest consideration by Canadian agriculturists, and especially by stock-breeders.

Description of the Estate.

Bow Park is in the County of Brant, one of the finest counties, if not the very finest, in the rich Western peninsula of Ontario. It lies on the west bank of the Grand River—a large stream that takes its rise in the County of Wellington, and flows into Lake Erie a short way above the Niagara River. It is three miles from Brantford, a flourishing Town of 10,000 inhabitants; twenty-three miles from the City of Hamilton; and sixty miles from the Falls of Niagara.

At this spot the Grand River makes a series of most curious deflections, by which sixteen hundred acres are all but cut off from the main land and surrounded by the river, forming it nearly into an Island. The shape of this peninsula is exactly that of an Ox Bow; and from this it takes its ancient Indian title of the Ox Bow Bend. Bow Park embraces nine hundred acres, forming the head of this Bow—and a more beautiful spot would be difficult to find. For seven miles the Grand River runs round the estate, twisting about in most eccentric fashion, and presenting at every turn jutting points, grassy knolls and wooded banks, highly picturesque. As you enter the property by the macadamized road from Brantford, you find yourself driving along a gravel road on the top of a beautiful wooded bank, with the Grand River flowing peacefully some sixty feet below you. For over two miles this high bank continues, but there it begins gradually to descend, until at last, at the other side of the estate, it is but a few feet above the

level of the river. The width of the property at its narrowest point, is about half a mile across from bank to bank, and at its widest about a mile and a half. At the latter point an excellent road, known as the "Three Mile Circle," has been formed, for carrying on the operations of the farm, and from it access can be had to all the fields. The road is fenced in on both sides with a substantial fence of cedar posts and sawed pine boards, and shaded along a large portion of it by belts of ornamental and useful trees. Outside this circle, and all round it, is a range of large fields, having the river for their other boundary; and inside the circle are several very large fields of great fertility, separated from each other by belts of bush-land, rejoicing in all their primitive luxuriance of oak, elm and ash—walnut, hickory and cherry—hazel, maple and sumac—adorned with beautiful wild vines, clematis and Virginia creeper, and strewed with ferns, roses, and all manner of wild flowers indigenous to the soil. Oak is the prominent tree, of which there are said to be eighteen varieties on the estate; there are several considerable copses of oak trees; all the ornamental belts of timber abound with them; and the whole place acquires the look of an English park from the noble oaks that have been saved from the woodman's axe, and stud the fields in every direction.

The Soil.

Of the 900 acres constituting the estate, 750 are under the plough, and the balance is devoted to roads, building sites, orchard ground, belts of wood for ornament and shelter, with a number of well shaded runs of broken land in all its original wildness, where the cattle take their daily recreation. The whole of the land is loan of most fertile character on a clay subsoil. The fields along the bank on the west side of the estate are light loam, but towards the east they become gradually heavier until the range of rich deep alluvial flats on the east bank is reached. Of course all the fields along the river bank are amply supplied with water from the river, but in addition springs of clear cold water abound all over the estate. The fields are large—from 40 to 110 acres each—they are well-fenced, thoroughly worked and in high condition. Large beds of limestone gravel are found on the place, and render the maintenance of good roads upon it an easy matter. The Grand River is navigable from its mouth to Brantford, and manures, coal and other heavy commodities can be delivered from the boats on the farm bank.

The Farm Buildings.

The first point toward the successful establishment of a great Stock farm is to have land of the right soil, well watered and well shaded; but the second and no less important point, is to have Farm-buildings suited for the special ends to which they are to be applied. Both of these essentials are amply found at Bow Park. The farm-buildings for extent, completeness and convenience are probably unsurpassed anywhere. As he approaches the farmstead, the visitor finds standing at the top of the road leading to the buildings, the snug cottage of the farm manager—and the commanding view obtained from this elevated point, of a large portion of the estate and also of the beautiful and fertile plain stretching out for miles to the westward, will not fail to arrest his attention. Passing through the gate and down the road, the buildings are soon reached. There is nothing of the *shed* about them. They are all substantial frame buildings (mostly two-story), erected on cedar or concrete foundations, thoroughly well framed, boarded with sound pine, with metal eaves-troughs, perfect drainage and ventilation, and finished off with three coats of Carson's fire-proof paint of a uniform and pleasant color. The buildings and the small yards attached to them cover some six or seven acres; and though gradually extended to its present dimensions as necessity from year to year arose, the whole establishment has been got up on a compact and systematic plan. The buildings line the road on both sides like rows of houses in a village, and each has been set down on the spot most convenient for it.

The Implement House.

The first building reached on the left hand side of the road is the Implement and cart house with a corn loft above. It is 200 feet long by 24 feet wide; and is filled with all sorts of implements and machinery for carrying on effectively and economically the daily work of the farm. Useful improvements in this way are promptly availed of—and whenever machinery can be made to do the work, hand-

labor is at once dispensed with. Nearly all the implements are in duplicate, so that the work shall not stand still while a break is being repaired. The corn-loft above extends the whole length of the building, and is of a convenient height from the ground to enable the grain to be received from the waggons or loaded into them by the loft doors.

The Stables.

Passing along the front of the implement house and turning round its north-east corner, you come to the stable, which stands at right angles to the implement house so as to form together two sides of a square, and is 180 feet long by 24 feet wide. There are in it twenty four stalls—all occupied—and a hay-loft above, the full size of the building. The horses used are useful animals, kept in good condition, but with the exception of a few Clyde mares not of special breeding. The intention is that a step in advance shall be soon taken in regard to this department of the farm, by the introduction of a number of brood mares of high class.

The Herdsmen's Boarding-house.

The isolated house at the north end of the stable is the smallest of the two boarding-houses kept on the farm for the accommodation of the single men. This one is assigned to the assistant herdsmen and hostler, in near proximity to the stock under their care.

The Great Barn and Root-cellar.

Coming back from the stable to the main road and going east in a direct line with the Implement house, stands the great Barn. It is 220 feet long by 48 feet wide and of great height. The lower story is built of stone, with concrete floor; and is entirely devoted to the storing of mangolds, carrots and swedes for the winter supply of the stock. It contains over 20,000 bushels of roots, and the ventilation is effectively secured by box-vents carried up to the top of the building, and opened or shut at pleasure. This barn conveniently stands on a gentle descent—so that while the main collar door at the east gable-end of the building is on a level with the ground, the main entrance at the west gable-end to the threshing-floor is also on a level with the higher ground at that end. This upper part of the building is annually filled to the ceiling with sheaves of unthreshed grain; but there are also seven large barns in different parts of the farm where large quantities are stored; and what cannot be got inside is stacked in the barn-yard.

The Crushing and Steaming House.

Attached to the centre of the great barn on its north side, is a building 60 feet long by 30 feet wide, which contains a twenty-horse power engine and boiler, with efficient machinery for cutting into chaff all the hay and straw used on the farm, crushing the corn and oil cake, pulping the roots, cutting the fire-wood, pumping water into the cistern, and steaming the food for the cattle during the winter.

The Short-horn Houses.

Continuing farther down the road on the same line we come successively to three Short-horn houses, each of them 270 feet long, and with enclosed yards on each side of them into which the cattle run. The first one is the winter abode of the cows whose calves have been weaned. It is 32 feet wide, with an eight-foot waggon-passage up the centre from end to end, and a range of boxes 12 feet by 10 on each side. Each box has an outside door opening into the yard; each animal has a box to itself, and none of them are tied up.

The Model Stall-house.

The second of the three buildings is the only remaining stall-house on the place—and it is held to be a model of its kind. It is 34 feet wide, with an eight-foot waggon passage in the centre, a row on each side of 62 stalls, and a foot-way behind each row next the outside walls. The cattle are ranged with their heads to the centre passage, and each stall has a convenient feeding trough and hay rack which are rapidly supplied with food and water from a cart driven along the passage. But experience has shown that boxes are vastly superior to stalls for the accommodation of a grand race of animals. The boxes leave them free to move about at will; there is no strain on the sinews or muscles; the temper is less ruffled; the health is more vigorous; accidents are of rare occurrence; and by the box system only can be assured that free and elegant gait and carriage that stamp the true Short-horn wherever found. Consequently this stall-house is given

up for the present to the Dairy Cows, the working oxen and the more plebeian portion of the herd—with the certainty ere long of being re-modelled into a spacious Box-house.

The Lords of the Harem.

The last of the three buildings is the Bull-house, and it is fitted up with large comfortable boxes throughout for animals of different sizes. There is an outside door to each box; and an open yard for each is now being constructed, to which the animal can resort at pleasure.

The Ice-house.

Let us now cross the road and return upward on the other side. The small building immediately opposite the bull-house door is the Ice-house, in which a hundred tons of Ice, got conveniently from the river, is annually stored and contributes essentially to the comfort and health of the establishment.

The Pig-house.

Passing up the road we come to the Pig-house, where may be seen several scores of Berkshires that would be hard to beat anywhere, luxuriating in their comfortable boxes. This house is 170 feet long by 24 wide, with an eight-foot passage up the centre, and boxes ranged along both sides for 100 hogs. There are runs on each side of the building for the pigs to enjoy themselves, and convenient sliding doors to let them out and in.

The Calving-house.

Next comes the Calving house, a snug erection 80 feet long by 20 wide, with a long tier of large, commodious boxes, and a hay-loft above. At one end of this building is fitted up a comfortable apartment for an experienced headman, who is always on hand and ready at night to start up at a moment's notice.

The Short-horn Cow-house.

The building that comes next is the most attractive part of the establishment to visitors. It is 270 feet long by 34 feet wide, with an eight feet passage up the centre, and 12 x 12 feet boxes ranged on each side. Here the cows and their calves are brought from the calving-house, and here they remain for a period of from six to nine months, according to circumstances. Each cow and her calf have a box to themselves, the cow is amply supplied with nutritious food, and the calf gets the whole of its dam's milk. Every one knows that if you would raise good stock of any kind, you must feed the young ones liberally with the right kind of food. With horned cattle, neglect during the first year can never be made up—and this fact is kept carefully in remembrance at Bow Park. There are fifty-two boxes in the house, usually each of them is inhabited by a cow and her calf, and it is a most interesting sight to pass along the boxes and mark the varied appearance and bearing of the different animals. Some of the cows are dignified and reserved, as becomes an aristocratic race, while others are frank and courteous, like the inmate gentlewoman of high or low degree. Occasionally, too, there happens to get into every herd a mean-looking subject that can't look you in the face, and that you strongly suspect had been convicted (of course before she came into your possession) of stealing her neighbor's newspaper, or some equally heinous offence. But, of course, these improper characters are packed off at the earliest opportunity to be sold to the highest bidder without a shadow of reserve. The calves, too, have their several peculiarities. One eats enormously and then lies down; and you can't stir him with a red-hot poker until he gets hungry again. Another is full of life and fun and will play with you as long and as merrily as you like, while still another is cross and snappish and would bump you if he could. Wonder if Darwin ever observed the striking affinities between shorthorn calves and little boys?

The Open Cattle-sheds.

But pass we on to the long range of substantial sheds that run up the road for fifty feet until they reach the cross-road (on which stands the stable), and then turn south at right angles for 250 feet. These are the open houses that were erected when Bow Park first passed into the hands of Mr. Brown, and which were used to test practically the comparative merits of open air versus in-door cattle-raising, and had a final verdict unanimously recorded against them. They are now, however, found useful adjuncts to a higher and better system.

Mr Brown's Cottage.

The two story frame house, with its summer kitchen and little garden, that stands not far removed from the south end of the building we have just left, is the summer residence of the Proprietor of Bow Park and his family. It is small and unadorned—unless the grass and the flowers and the shrubs be counted in; the furniture is plain as possible; neither painting nor statuary are to be found about it. But it is said there are seven bed rooms and nine beds in the little establishment, though that we can hardly credit—that the mutton and the corn and the potatoes are excellent, and the short-horn cream delicious—that there is a well-filled cellar down stairs even in these days of threatened prohibition,—and that glorious rambles, joyous pic-nics, and a right hearty welcome make amends for the modesty of the establishment. But indeed the proprietor's cottage is only another proof among many that meet you all over the property, of the truth of a remark made by a habitué of the place—that "for improving the Herd, or increasing the fertility of the land, or developing the natural beauties of the estate, any reasonable amount has been freely spent, —but not one sixpence has gone for unproductive work or mere ornament."

The Calf-house.

Let us now cross the road and enter that large door at the south end of the long building next us. It is the calf-house; 200 feet long by 24 wide, with a cart-road up the centre; boxes (smaller than those we have left) ranging along both sides, and a spacious hay-loft above. Into this house are brought the Heifer calves when first weaned; and with a daily run in the paddock attached and good wholesome food, they don't suffer much from the change to it. There are forty boxes in this house, and as Spring approaches the number of inmates increases, and the animals have usually in a good many cases to be doubled up. A visitor to this department in the end of April or beginning of May finds forty to fifty young heifers congregated in it that challenge his admiration, and could hardly be surpassed on any one farm here or elsewhere.

The Sheep-house.

We now pass from the calf-house through the large door at the opposite end from where we entered, and find before us the gable-end of what is the Sheep-house in winter and the yearling Short-horn Heifer-house in summer. It is a substantial two story building like the others, 250 long by 20 feet wide—50 feet of it being on the west side of the cross-road, in line with the calf-house and stables, and the remaining 200 turning to the west at right angles, and forming the parallel building on the south side of the main road to the Implement-house on the north side, with which we started. There is a large yard attached to this building with a never failing well of fine spring water in the centre. On the inside next the yard and facing the south, a large part of the building is open and the sheep use the yard at pleasure. In severe weather, however, there are fittings by which all openings are closed until the storm subsides. The sheep kept are thorough-bred Cotswolds, the flock usually numbers about one hundred. The lambing season is in the end of March or beginning of April, and as soon as that is over, the flock is sent off to pasture and the yearling Heifers come out of their box-house and take possession for the summer of the sheep-house and yard attached to it. These heifers are all sent to the pasture runs for some hours every day; but they are brought home in the afternoon, and well fed when they come in and before going out in the morning. They are kept in good growing condition, and at twenty-two months are drawn off for service and placed with the other young stock "needing attention."

The Herd.

So much as to the Buildings—and now for the Animals. The Herd was commenced by the purchase from Mr. John White, of Halton, of the fine old Woodhill Herd of imported Bates' Stock, established in 1832, which came into his hands on the death of the Hon. Adam Fergusson. The purchase embraced over thirty cows and heifers and has proved a highly advantageous investment. This was followed by the acquisition of nine high-bred Heifers and a pure Booth Bull, from Mr. Torr's famous Herd—all of them born in England and imported by Mr. Cochrane. A little later came the purchase from Major Grog, of Kingswood, of his fine Bates and Booth Herd of forty head,

which proved a most fortunate investment. These purchases have been systematically followed up by others in England, the United States and Canada, whenever opportunity offered of securing a really fine animal of good old pedigree and sound constitution; and when such animals are acquired, they and their progeny are carefully bred and reared as distinct families, to form permanent features of the Herd. For example, the best animals of Mr. Fergusson's Herd have been formed into one family, the females of which are styled *Duchesses of Woodhill* and the males *Dukes of Woodhill*; they are grand cattle, of strong constitution, highly prolific—and will be heard from yet. A lucky purchase too of the fine old cow *Mazurka 8th* at an auction sale hardly three years ago has already resulted in a most valuable little family of three females with a fourth expected. In the same manner have similar purchases of fine single animals resulted in the establishment of prosperous little families of such valuable and desirable Short-horns as the *Brides*; the *Cambridges*; the *Countesses of Goodness*; the *Duchesses of Derham, of Oakland, of Springwood, of Aylmer and of Winfield*; the *Fames*; the *Guavas*; the *Isabellas*; the *Louans*; the *Roan Duchesses*; the *Rose of Sharons*; the *Sanspareils*; the *Craggs*; the *Mantalinis*; the *Sidonias*; the *Barringtons*; the *Rosamonds*; the *Adelizas*; the *Towneley Butterflies*, and many others.

The Bulls now in service at Bow Park have all been imported from England, and are first-class animals. At the head of the Bates stock stands *Duke of Barrington 4th* (30924), with a pure Bates pedigree, and bred by Mr. Sheldon, of Brailes House, Warwickshire, England. He is in every respect a remarkable animal, and his stock are worthy of their sire. At the head of the Booth stock stands *Royal Tudor*, bred by Mr. Hugh Aylmer, of Derham Abbey, Norfolk, England. The six latest crosses in his pedigree are *Royal Broughton*, *Prince Christian*, *Majestic*, *Hamlet*, *Leonard* and *Buckingham*—all bred at Warlaby by Mr. Booth. There are also in service a very fine Bates' Bull of the Craggs family, called *Duke of Springhill*, and two pure Booth Bulls of great substance and quality from the Herds of the late Mr. Torr, of Aylesby Manor, Lincolnshire, and Mr. Chaloner, Kingsfort, Ireland. There are a number of fine young Bulls, of straight Bates and Booth pedigrees, bred on the farm from imported English stock, that are of great promise.

The high-bred Short-horn Cows and Heifers in the Herd at the moment we write, number 210, and the Bulls upwards of 40; the milch cows, working oxen, fattening steers, &c., make the whole number of horned cattle not much under 300 head. And this, notwithstanding the fact that 130 head (mostly males) were disposed of by public and private sale in the year ended on 30th September last. The rapidity with which the numbers increase may be gathered from the fact that out of 210 Cows and Heifers of all ages, 146 are now supposed to be in calf and 26 others are in breeding condition. Of these 26, two had calves in October last, two in November, ten in December, five in the present month of January, and the remaining seven are of full age, but not yet bred.

The good health maintained in the Herd is a remarkable feature of it. Rinderpest, Pleuro-neumonia, and Foot-and-mouth disease, so fatal in Europe, are unknown in Canada. No serious epidemic has ever assailed the cattle of Ontario. The mortality from diseases of all kinds in the Bow Park Herd since its commencement, has not amounted to one per cent. per annum. The dry bracing climate of Canada seems well adapted to the raising of a vigorous race of Short-horns; the cheapness of building timber enables comfortable stables to be provided at much less cost than in other countries; and the comparatively low cost at which fodder can be raised or purchased, gives the Canadian breeder great advantage over his competitors in other countries.

The utmost care and attention are devoted to the daily management of the animals. The feeding, watering, currying and exercising are systematically arranged and seen to at the right time. Every animal is inspected every day; no defective animal is reared; only those are brought up that are of sound constitution, in vigorous health, and well formed. The male animals especially are severely culled. Not only must the constitution, form and vitality of the young Bulls be thoroughly up to the mark, but the style of the animal and his colour must be satisfactory.

to save him from the butcher. The reward of the care bestowed on the animals, is a steady improvement in the character and appearance of the Herd every new year in comparison with the last.

The popularity of the Herd keeps pace with its improvement. Buyers come from all quarters. A drove of remarkably fine Heifers went across the continent two years ago and were shipped at San Francisco by steamer for the Emperor of Japan. The Provincial Government of New Brunswick were purchasers last fall of thirty head of young stock; and Bow Park bred Short-horns have already found their way into many States of the adjoining Republic, and into a large proportion of the townships of Ontario.

The Fodder Supplies.

But how are all these animals fed?—are the products of 780 acres of arable land sufficient to maintain three hundred head of horned cattle, one hundred sheep, one hundred hogs and twenty-seven horses and colts all the year round? The answer is: Not entirely,—but very nearly so—and it is done, and could only be done, by means of the soiling system. From the opening of Spring until the hay and grain are taken from the fields, not a hoof goes on the meadows or arable fields. The animals are kept in the houses or in the sheltered paddocks—and green crops are specially grown for them, and carried and fed to them there. The amount of food that can thus be obtained is enormous; it is only limited by the quantity of manure applied and the promptitude with which the field work is carried on.

The Soiling System.

Let us try to describe as nearly as possible the summer system at Bow Park. When the spring opens, a large amount of the work too often left to be done then has already been accomplished the previous Fall. For example, over four hundred acres were ploughed last Fall, and over two hundred of it sown with Rye. This crop is invaluable on a large stock farm. Its certainty, its early maturity, the large amount of nutritious green food it provides, the great bulk of straw obtained from it when ripe, and the convenience of sowing it in the Fall when the pressure of field work is over, give it a place which no other grain can supply. The green Rye is ready for cutting almost as a regular thing in the first week of May; and by varying the times of sowing, the cuttings can be made to extend over five weeks, or until the second week in June. Towards the end of the time it begins to get hard and it is well to pass it through the chaff-cutter. The volume of this succulent food obtained from an acre varies from 15 to 25 tons according to the season and condition of the soil; and from 23 to 28 acres of it have always been sufficient to carry the whole Herd at Bow Park over the period indicated.

The second soiling crop of the season is Oats, Peas and Tares mixed. The land for it is manured and ploughed the previous fall, and with the first movement of Spring the cultivators, harrows, seed-drills, rollers and plaster sowers, are set to work with all vigor, and from 40 to 50 acres soon completed. The first sowings of this crop are fully ready to cut when the green Rye becomes too hard to be palatable—and the acreage named is usually more than sufficient to supply the entire Herd luxuriously until the end of July. In a moist season, the volume of succulent food obtained from this crop is enormous, and the cattle delight in it.

The third soiling crop of the season is Indian Corn, and whether for use as green fodder in August and September, or as dry fodder from October to May, there is nothing equal to it. At Bow Park, great reliance is placed upon it, and large quantities of it are annually grown. Two kinds of it are used—the eight-rowed yellow Canadian Corn when the grain is to be matured, and the large Western Corn when fodder only is desired. The planting commences with the Western Corn, about the 20th of May and over 100 acres of it are usually sown to be cut late in the season and kept for winter supply. All sorts of ways of planting it have been tried, but that now adopted at Bow Park as the best, is to manure the land very heavily, to drill in the seed in rows 24 to 27 inches apart, with a Batchelder's corn-sower, to sow broadcast over the land with a Seymour's Plaster Machine from 200 to 300 lbs of gypsum per acre, when the plant is fairly up—and to keep the horse-hoes steadily going until the growing corn debars it.

To cut corn for winter supply, it is important to do it at the time when the saccharine matter is at its highest point. An acre of it taken from a large field was carefully weighed at Bow Park and found to contain 36 tons of green fodder. The practice after cutting is to tie it up in bundles, gather these into half-ton stooks, allow the stooks to stand in the field during winter, and draw them in as required. It is estimated that the corn so treated shrinks to one-fourth of its green weight, but its weight and value are very great at that. As the winter advances, the dried corn is cut up into chaff, mixed with Indian corn meal and pea straw, thrown into large vats, and thoroughly steamed by piped into them from the boiler. The cattle eat this mixture with great relish to the last when properly steamed, and three tons per day of it are consumed during the winter.

Early in June the sowing of the Canadian Corn commences, and from 60 to 70 acres of it are usually planted. In the county of Brant it is usually a successful crop, and when it is so, the returns from it in grain and fodder are highly satisfactory. Even when early frosts prevent its ripening, the amount of excellent fodder obtained gives a profitable return.

Immediately after the planting of the Canadian corn, come catch-crops of Western corn for consumption in August and September. The first of these is taken from the land on which stood the green rye first cut. The moment the rye is off the ground, a good dressing of barn-yard manure is quickly applied, the ploughs and planters are set to work, and the same practice followed as already described.

In the same manner, catch-crops of Western corn are taken from the land on which the second soiling supply of peas, oats and tares was grown.

About seventy acres are thus found amply sufficient to carry the whole herd from the first week in May to the last in September, when the after-math of the meadows and the range of the harvested fields furnish abundant supplies until the time arrives for going into close winter quarters. And when that time does arrive, the whole of the early planted Western corn and of the Canadian corn, and the hay, and the Hungarian grass, and the roots, and the oat, pea, barley and rye straw, and the grain from all these crops, are to the fore and more than sufficient for winter necessities.

Oilcake, bran, Indian corn and oats for fodder, and straw for bedding, are the only supplies for the animals that have to be purchased. The whole amount annually thus expended is not a large sum; and it is in great part balanced by sales of rye and barley grown upon the farm.

The Farm Hands.

The number of men, women and boys employed on the farm is about 22 in the winter months, and 35 in summer. The hours of actual work vary of course with the season of the year; but at no season (except at an emergency) is more than ten hours labour per day exacted. The usual hours of summer work are from half-past six in the morning to 12 noon, and from half-past one p.m. to six o'clock. The wages usually paid to good well-trained hands when unmarried is \$14 per month and their board and washing, when employed by the year; \$15 when employed by the season, from 1st April to 31st October, and \$16 when engaged merely from month to month. There are two boarding-houses for the accommodation of the single men, in which comfort and abundance of good food are found. There are five or six cottages on the farm for married men, who get \$200 a year in cash, a garden, milk and firewood, and sit rent free.

The Labour Difficulty.

The common impression that farming on a large scale is all but impossible in Canada from the difficulty of managing the hands, is not sustained by the experience at Bow Park. On the contrary, a conviction is created by that experience, that if farm hands are treated with the same consideration as mechanics—have fair wages, regular hours of work, good food, their evenings to themselves, and kindly treatment—their employer will receive to the full as zealous, conscientious, service as can be had in any other avocation. And far from the extent of the farm being a drawback, the experience at Bow Park has been, that if you want to get field work well, smartly and cheaply done, the best of all ways is to put ten pairs of good horses, with ten good workmen behind them, steadily

at work in one large field, and make them stick to it until ploughing, harrowing, seeding, manuring and rolling, are finished;—and then, but not till then, pass on to the next field. As a general thing, it is found that if you want work feebly and dearly done, your surest way of effecting it is by having small fields, and one hand doing all the operations on each, and spending much time in yoking and unyoking his horses, and in trips to the barn for change of implements. As regards the management of cattle, too, it must be palpably evident to every one that a hundred head of cattle in one byre can be vastly better and cheaper managed by three specially trained men giving their whole time and attention to that special work, than if separated in ten byres, and cared for by ten men giving fitful attention to their wants and comfort, according to the pressure of other work on the farm.

Conclusion.

The Meat question is fast obtaining a very important position in public estimation all over the world. The consumption becomes greater every year and the supply less, and prices keep steadily advancing. Canada is deeply interested in this matter; and with the advancement of prices our farmers will no doubt be induced to enter much more largely and zealously than heretofore into the raising of good cattle and the supply of the European markets. Towards that desirable end Bow Park is already giving a vigorous and healthful impulse; and its capabilities are only beginning to be developed.

Another Verdict Against a Seedsman.

The Court of Errors and Appeals in New Jersey has recently decided a case which is interesting on this side as being one which a judge would take as a precedent. The following is the report:

Woolcot Johnson et al. vs. Mount.—Error.—The plaintiffs sold the defendant a quantity of seeds, stating at the time that they were seeds of a certain kind. They were planted, and, turning out different from what they were sold for, the purchaser lost his crops. The vendor believed, as shown by the evidence, that the seed was the kind he represented it to be. An action was brought on warranty, and judgment was given by the Justice for the plaintiff. The case was appealed to the Common Pleas, where the judgment was affirmed, and the case is here on writ of error. The question is, was there a warranty? An affirmation may or may not be a warranty, according to the circumstances. The tendency of the more modern adjudications has been to regard each case in the light of its own circumstances, and to place a reasonable construction upon them. The question is, in this case, whether the vendor meant by his affirmation to warrant a fact in making a statement, in regard to which the vendee could know nothing. Had he said he believed the seed to be of the kind stated, but did not know, it would have been different from a positive statement from which the purchaser had a right to infer warranty. The judgment below holding that there was a warranty, and giving damages to the amount of what the crops would have been worth, had the seed been as represented, is affirmed. Opinion of Chief Justice Beasley.

Dairymen's Association of Ontario.

The annual convention of this association will be held in Ingersoll on the 9th and 10th February, and the committee hope to make it both beneficial and interesting to dairymen and farmers generally. Addresses will be delivered by several eminent gentlemen, and a large attendance is anticipated. Any parties wishing to attend and become members, may obtain certificates by applying at once to the secretary, Mr. J. C. Hegler, Ingersoll, on presentation of which to the different stations on the Grand Trunk and Great Western Railways, they will be entitled, owing to special arrangements made with these companies, to tickets at one fare and a third the double journey. It is desirable that parties wishing to attend should apply to the Secretary at once for certificates, so as to avoid confusion and delay.

AGRICULTURAL EDUCATION is looking up in Maine. The State Agricultural College has 115 students. In the West the Nebraska College, a young institution, is becoming popular with the farmers. It has twenty regular students at present.

THE SUBJECT OF THE NEEDED REFORM in the method of selling live stock was treated upon editorially in the last number of the CANADA FARMER; and now we are pleased to observe, that eminently practical body of men, the Elmira, N. Y., Farmers' Club, has taken up the same question. A committee appointed to consider the matter has recommended a plan for semi-annual sales, to be held on the State fair grounds, near Elmira, under the supervision of a committee to be appointed by the club. They recommend that parties wishing stock sold at the sale shall be required to enter the same with the Secretary of the committee at an early day, that it may be included in the advertisement, giving kind and number of each lot, together with age, and, if thoroughbred, pedigree in full or reference to number and volume in proper herd book. For the purpose of defraying the necessary expenses of the sale (not including time of members of the committee), there shall be charged for the entry of each head of cattle fifty cents; for each hog, twenty-five cents; for sow and pigs, to be sold together, fifty cents; for each sheep, twenty-five cents. For the same purpose there shall be a charge of one per cent upon all sales, to be paid by the purchaser before the animal shall be delivered. To protect both buyer and seller, each owner shall be present at the sale and state in writing or orally at the time whatever he has to say concerning the animal offered, and his terms of payment. Each owner shall be allowed one reserve bid, which shall be stated by him or for him, and it shall be the standing bid. If not sold, the same percentage on his bid will be payable by him as would be charged to an actual buyer. No in-bidding will be permitted. We shall look with interest for further reports of the success of the scheme.

FAST WALKING HORSES are looking up in the market, the world over. The London *Field* in an article upon the forthcoming American Centennial says.—We sympathize with their determination to give prizes for fast-walking horses. Many of the best judges of horseflesh that these islands have produced were of opinion that if a horse could walk well, he could do all things well. When Teddington, Aphrodite, Breba, The Ban, and Confessor were all yearlings together at Leybourne Grange, Sir Joseph Hawley's stud groom, Tweed, told his master that Teddington would prove "the pick of the basket," as he could outwalk all the others. Fobert, the trainer of the Flying-Dutchman and Van Tromp, was always a great believer in fast-walking racehorses. Every hunting man who has had occasion to jog home at night for twenty miles upon the back of a tired hunter, is aware what a blessing it is to bestride a good walker and sprightly trotter, instead of an animal "who kicks a sixpence before him at every step." Nothing is better known than that proficiency in certain gaits is not less hereditary in horses than are distinctive types of features in human families. Touchstone and Orlando, the grandsire and sire of Teddington, were themselves famous walkers, and if the prizes for walking distributed at Philadelphia tend to draw the attention of English breeders to the development of excellence in this gait, the Centennial will not be held in vain. Be this, however, as it may, a vast majority of the British people watch the recurrence of the hundredth anniversary of American Independence with cordial interest and satisfaction; nor can it be doubted that the contingent of visitors sent next year by England to Philadelphia will far surpass the aggregate contributed by all other civilized nations.

INDICATIONS ARE OMINOUS that English farmers are not going to "stand it" much longer. The representative farmer in Parliament, Mr. C. S. Reid, has resigned his seat in the Cabinet rather than face his constituents after the manner in which Government has cheated them with the Land Tenure Bill. His course has been widely approved and a testimonial is in preparation for him. In North Britain, the widely known George Hope, of Bordenlands, late Fentonbarns, has been asked to stand for East Aberdeenshire. Of him the London *Farmer* says.—Mr Hope is a man of sterling character, a man whose opinions vary not, and they are decidedly set in that direction which must in time secure the farmers a different species of land tenure, a better security for capital than they now have, and a freedom from restraints in stupid leases as to the kinds of crops to grow in one perpetual round and round-about system, after the fashion of a gin-horse in a brick whinsey. Mr. Hope had the sympathies of most of the

unfettered farm-renters in East Lothian; when he stood against Lord Elcho, he had the respect of all who opposed him. He was a prize essayist against the Corn-laws when other farmers thought that abolition would be their ruin. He was more prescient than they. Those who bitterly condemned his views then have lived to acknowledge he was right. Mr. Hope, as a tenant, never could be called an extreme man. He ever expressed his views moderately when he was merely a tenant. Now that he is a landlord, it is presumable he will not become less judicious, though we are quite sure he will be to the uttermost as staunch in the advocacy of the farmers' interests in Parliament as ever he has been in Essays, in Farmers' Clubs, and Chambers of Agriculture. Search Scot'nd through, as a real farmers' friend and no sham, Aberdeenshire could not have made a better choice.

WE SEE IT STATED that from Tennessee, a State which will soon be appropriately called the "The Mother of Agricultural Swindles," a gentleman is sending out a bogus wild goose plum. A New York Herald correspondent says that the "gentleman has by circulars and other means disposed of a large number of his so-called 'Wild Goose plums,' and while he sent out some of the true variety, he sent out many more that were spurious. His reply to why he did this is that he had more of the one than the other. The genuine wild goose plum is a good sized, oblong, bright scarlet plum, ripening in this State from the middle to the latter part of July, a regular and abundant bearer, is not injuriously affected by the curculio, and in my opinion (let it be worth what it may) is of great merit and value. The other (which, as far as I have been able to learn, is much more extensively planted) is a small, round fruit, ripening considerably later, and entirely worthless. The tree is also of more open and spreading growth, very thorny (the other is not), suckers badly and has a decidedly wild appearance. In fact I have been unable to discover any difference in tree or fruit from the wild Chickasaw plums found in the swamps of Pennsylvania and New Jersey. The leaf of the true variety is also quite different, being soft, less pointed and glossy, and of more substance. In a word, they are entirely distinct varieties, more so than Imperial Gage and Green Gage, although undoubtedly one is a seedling of the other, with the Gooses as well as the Gages."

TENNESSEE, AS A STATE, is getting a bad name as the home of agricultural swindles or "wonders," as the wise call them. Having exhausted the plum and pea business, a wondrous wheat has been discovered, and is now being advertised extensively by means of post cards, we presume because no reputable journal cares to advertise it. The wheat is stated to be a spring wheat, and to have had "its origin in Africa. The grain is small, plump and heavy, and weighs 70 pounds to the measured bushel. Its growth is quite different from all other grades of wheat. You plant in rows 3½ to 4 feet apart, two stalks every 12 inches in the row. Cultivate well to insure a large, fine yield. The first crop will be ready to harvest about the 1st of Sept., and another crop ready to harvest two or three weeks later. The heads are large, often yielding 3 bushels of clean wheat, and each stock contains quite a number of heads. One hundred grains of the seed is sufficient for any farmer to plant in order to obtain an abundance of seed the following year. One pint will plant an acre. It is of a very hardy nature, and not liable to rust; it is easily threshed on our common threshers; and the quality of bread made is like that from the best white wheat." All of which we simply decline to believe.

ABOUT "BIG ROOTS," a friend writes to us:—"I observe some notices of 'big roots' in the CANADA FARMER, and something very much like bragging about them. I also notice in the December number that Dr. Voelcker says 'big roots' are a big humbug. Is that your opinion?" No; that is not our opinion. In England where everybody knows that roots can be grown successfully, it cannot be much of an object to grow enormous roots merely to show how large they can be raised. But in Canada and the United States there is a wide-spread opinion, especially among lazy farmers, that "Roots will not pay;" that they "can't be grown here," and such. Now, the fact that big roots can be grown here of a size that will compare, without

need of their being ashamed of themselves, with the English monstrosities, proves that roots can be grown here and that they can be grown to pay. Wherefore, and for other reasons, we do not believe "big roots" to be a humbug.

RAILROADS WITH RAILS OF HARD WOOD instead of iron are in successful operation on several parts of the continent. An account about one in Quebec went round the press a short time ago. Now it is stated that the Granges of a county in Iowa have combined and built a branch railroad through their own land and laid it temporarily with maple rails which are to do duty until the road has earned its own iron. In Pennsylvania, too, wooden rails have been tried and found successful. Seven hundred feet were laid on a curve on the Muncy Creek railroad in that state, and to the surprise of all, it has been found to answer the purpose much better than was anticipated. The rails are of sugar maple, 7 by 4 inches, and about 12 feet in length. The ties are laid down in the ordinary way, notched, and the rails "let into them" about four inches. They are then keyed firmly with wooden wedges driven on the sides, which makes the track very solid and firm. The locomotive and heavy cars have been passed over this experimental track at different rates of speed, and it has been found to work admirably, and gives every assurance of success. The cost of laying wooden rails manufactured out of this hard material, that becomes almost as solid as bone when seasoned, is \$450 per mile, while iron costs \$4,000. No iron spikes are required, as the rails are secured by wooden wedges, and the cost of track-laying is about the same as putting down iron. It may be seen that a railroad is within the reach of the poorest community.

JAMES VICK'S catalogues for 1876 are to hand, and are equal to their predecessors in general get-up and character of contents, and that is saying a good deal. Mr. Vick's address is Rochester, N. Y. Twenty-five cents can scarcely be invested better, by intending purchasers of seeds, etc., than by sending it to him in payment for his "Floral Guide" and catalogues.

D. M. FERRY & Co., of Detroit, issue a splendid catalogue of vegetable and flower seeds, for which we recommend intending buyers to send. The firm is one of the best known of American seed houses, and is one deserving of its reputation.

WE HAVE RECEIVED the 9th Annual Report of the Northwestern Dairyman's Association, from Mr. G. E. Morrow, of Chicago, Secretary. It contains practical papers and statistics of the greatest value to persons connected with the dairy interests.

THE CANADIAN ALMANAC for 1876, Copp, Clark & Co., Toronto, is a publication without which it would be difficult for a Canadian business man to exist. It is crammed with information relating to the Dominion.

Correspondence.

THE PRICE OF CANARY SEED.—In our last issue, in answer to a correspondent, we stated that canary seed could be bought in Toronto at from 8 to 10 cents per pound retail. It is some time since we had occasion to buy canary seed, and we did not know, as is really the case, that the price of the article is now about double those figures. The rise results from the almost total failure of the crop last season, and from the fact that the price had been so low in former years as to render the crop unremunerative.

BEES.—R. T. R.—The words "leave the bottom open," page 191, last volume, were intended to be "have a bottom opening." The *American Bee Journal* is published at Des Moines, Iowa, and together with such works as those of Quinby, Kidder, Langstroth, will no doubt be sufficient for a beginner.

THREE HORSE EQUALIZER.—In the November No. of the CANADA FARMER you have given a design showing a good mode of attaching the lines for driving three horses abreast. Would you be good enough to give a design of whiffletrees for drawing with three horses abreast?

W. WEST.

The April number of the last volume contained a good design which anybody can carry out for a three-horse equalizer. Probably we will give other sketches shortly

The Short-Horn Sales of 1876.

From the Short-horn Reporter we condense the figures below, giving the result of the public sales of Short-horns on this continent during last year:—

No. OF SALES.	No. OF ANIMALS.	AVERAGES ON			TOTAL.
		BULLS.	COWS.	ALL.	
Illinois..... 27	1908	\$295	\$300	\$312	\$372,050
Indiana..... 2	121	103	83	445	63,795
Iowa..... 14	709	212	354	314	244,030
Kentucky..... 23	1553	292	456	429	605,930
Massachusetts..... 2	40	23	214	222	10,210
Michigan..... 2	125	602	600	607	70,800
Minnesota..... 1	23	87	103	140	4,095
Missouri..... 8	220	274	370	310	80,937
Nebraska..... 1	11	104	211	145	1,600
New York..... 1	30	140	692	625	19,915
Ohio..... 1	10	83	70	72	1,163
Tennessee..... 4	21	89	180	153	3,230
Vermont..... 1	35	1,323	1,743	1,003	66,050
Wisconsin..... 1	20	100	314	200	5,206
Totals..... 115	3073	\$100.57	644.25		\$1,504,632
Canada, (gold)..... 17	369				237,731
	115	4317	\$421.53		\$1,532,333

The Country Gentleman compares the above with the record of previous years, as follows:—

1874..... 63	2,070	\$335.00	\$1,031,053
1875..... 49	1,890	631.83	690,527
1872..... 27	1,014	312.87	317,250
1871..... 15	407	290.00	137,914
1870..... 10	495	343.00	109,557
Totals, 6 yrs.....	10,775	\$412.50	\$4,444,000

In the table of Sales for 1875, from which we condense the foregoing figures, the State to which each herd belonged is credited with the Sale, without reference to the locality where it was held. Thus the Sale credited to New York, is that of the Conger herd sold at Chicago. The herd of Sumner & Hilton we put with the Canada Sales, however, not only because it was sold at Toronto, but also for the reason that, like other Canadian sales, the prices made were understood to be in gold instead of currency.

Even with some allowance for the fact that the table for 1875 is probably more complete than those for the preceding years, the increase shown is very remarkable. And it is not less noteworthy that the average for the year 1875 is somewhat larger than that of the whole six years included above, in view both of the stringency in money matters that has prevailed of late, and of the very extraordinary figures which have swelled the averages of some preceding years, especially those of 1870 and 1873.

It is true that 1875 has also had exceptional cases of a similar kind. Its largest averages (excepting that of Hon. M. H. Cochrane—\$5,133 on 6 head) were those of Mr. A. W. Griswold—\$1,693 on 33 head, and Messrs. B. E. Groom & Son—\$1,694 on 72 head. Others not far behind were B. F. Van Meter, with \$1,595 on 35 head; J. H. Pickrell with \$1,265 on 23 head; Sumner & Hilton with the same figures on 15 head; J. C. Jenkins with \$1,242 on 15 head; Beattie & Miller with \$1,228 on 34 head; J. B. Taylor with \$1,209 on 9 head; J. H. Spears & Son with \$1,163 on 40 head, and J. R. Craig with \$1,097 on 43 head.

Formation of a Long-horn Society.

At a meeting at Birmingham, England, last month, of breeders of Long-horns, the chairman, Mr. Prinsep, stated that the gentlemen present had been called together to discuss the merits of an old breed of cattle. It was unnecessary for him to enter into a description of the Long-horn breed of cattle; but, as an outsider, coming from a county where they were unknown, he should like to bear his testimony to the great worth of the breed. His wife and himself were perfectly surprised at the cheese they made from the milk of Long-horn cows; the cheese was in variously of good quality, and the flow of milk generally very great. He concluded by moving a resolution to the effect that "in consequence of the increased interest manifested in Long-horn cattle, and in order to secure for the breed its proper position amongst English cattle, the meeting was of opinion that it was desirable to form a Long-horn Society." This was unanimously carried.

Mr. Townley Parker moved that "As complete purity of breed is of essential importance, this meeting is further of opinion that the pedigrees of Long-horns should be duly authenticated and recorded, which object shall be best obtained by establishing a Long-horn Herd-book." The resolution was carried.

From a volume on the table a good many particulars of Bakewell's favorite cattle could be gathered. It is curious, for example, to learn that in 1811, at the sale of Mr. Thomas Prinsep's herd (grandfather to the gentleman who was chairman of the meeting) the prices realized for some of the animals were as high as those that are now paid for Short-horn cattle of good breeding. One animal (a bull) sold for 220 guineas, another for 200 guineas, a third for 125 guineas, and a fourth (a bull calf) for 160 guineas.

Stock Notes.

PICKERING LAD, Short-horn bull, has been sold by Mr. John Miller, to Mr. J. S. Ireland, Chatham, Ont.

THE RACING STALLION Tubman, has been purchased by Mr. J. P. Dawes, of Lachine, of Col. McDaniel.

MR. McTAGGART of Clinton, has bought the Short-horn Duke of Hamilton, a Bloom bull.

VIKING, by Star of the Realm, has been sold by Hon. M. H. Cochrane to G. M. Coulter, Reesville, O.

100 POUNDS OF PEPPERMINT distilled at Lyons, Ionia county, Michigan, this season, sold at from \$4 to \$5 a pound.

THE IMPORTED AYRSHIRE cow Medora has been sold by Mr. J. Drummond, Montreal, to Mr. O. Brown, Rhode Island.

RIBY PEKRESS, one of the best cows sold at the Aylesby sale, has had to be slaughtered, having fractured her thigh-bone.

A LARGE EXPORT of polled cattle has been made from the herd of Mr. Lumsden, of Aberdeenshire, for North Germany.

MR. HODGSON, of Myrtle, and Messrs. Birrell & Johnston, recently sold some Cotswolds to T. P. Dickson, Clark, Pa.

MR. MANNING of Hullett, has become possessor of Oxford's Butterfly, a first-class bull, that took a prize as a calf at Toronto last year.

COL. SIMMS, of Kentucky, has bought of Col. Holloway, the 11-month calf 4th Duke of Hillhurst for \$12,000, and has since refused \$18,000 for him.

THE SHORT-HORN BULL, Florestan, has been sold by Hon. M. H. Cochrane to M. Ketchum, West Port, Conn. The bull is one of the Booth Tarr Flowers

THE BERKSHIRE BOAR SAMBO has been sold to Mr. Wm. Smith, Detroit, by T. S. Cooper, Pennsylvania, for \$500. Sambo won a first prize at the Royal last year.

LORD DORCHESTER died lately. He was a noted race-horse owner. Cruiser, the savage brute that Rarey tamed and that died in Ohio lately, was bred by him

THE POLLED ANGUS BULL, Legie the Laird 3d, was recently bought by Col. Ferguson of Aberdeenshire, for £100, probably the highest price yet given for a yearling of that breed.

AT THE LATE SALE in England, at Burton on Trent, of Mr. Meakin's Shorthorns, Cleopatra brought 400 guineas from Mr. Foster; Cleopatra 2nd, 360 guineas, Mr. R. Bleyard.

IT IS NOW SAID that more "Jersey" cattle are imported into the United States each year than are shipped from that island to all countries combined! A paradox with fraud at the bottom of it.

THE NATIONAL LIVE-STOCK JOURNAL has been partly purchased by Mr. J. H. Sanders. Mr. Geo. W. Rust, the former proprietor, will remain with it, though having parted with the major part of his interest.

FROM THE AFTER EFFECTS of foot-and-mouth distemper, Mr. Outhwaite has lost his fine two-year-old bull Prince of Bainesse, the son of his two celebrated Royal first prize-winners, Vivandiere and Royal Windsor.

MR. WM. RODDEN, of Montreal, Canada, has sold to E. D. Pearce, East Providence, R. I., the Ayrshire bull Carleton Chief, own brother to Scarborough Chief, recently sold for \$1,000 to Mr. Peter Cratts, of California.

THE FIRST FULL BLOOD Devon cattle of which we have record as having been brought to America were six heifers and a bull presented by Mr. Coke to Robert Patterson, of Baltimore, in 1817. Mr. Coke was afterward earl of Leicester.

AYRSHIRE BREEDERS' ASSOCIATION.—Mr. J. R. Stayveant has resigned his position as secretary of that body, and has been succeeded by Mr. J. D. W. French, of North Andover, Mass., to whom all communications in future must be addressed.

D. E. ADAMS, Esq., of Woodstock, Ontario, has lately bought the imported Norman stallion, Duke of Normandy, from Dillon, of Illinois, for \$2,500. The horse is four years old, dapple grey, and will weigh, when in condition, about 2,000 pounds.

THE IMPORTED BERKSHIRE, Sovereign Lady, has been bought by Mr. Gentry of Missouri, from John Snell's Sons for \$500; Royal Duchess, for \$400, and Mr. Snell's famous prize boar Lord Liverpool, for \$700; or, in other words, \$1,600 for the lot.

A BIG OFFER FOR A DUCHESS.—Hon. M. H. Cochrane, Compton, Canada, has refused an offer of \$25,000 gold, for one of his Duchess cows. Our informant thinks it was for the 10th Duchess of Airdrie, roan, calved June 9, 1868, by Royal Oxford 826, out of 7th Duchess of Airdrie, by Clinton Duke 124. The 10th Duchess of Airdrie is the dam of the 4th Duke of Hillhurst, recently purchased by Col. Wm. E. Simms, of Paris, Ky., for \$12,000.—Live Stock Record.

MR. W. O. HARROT, of Ohio, has recently bought from Mr. Holden, the imported Ayrshire bull, Pride of the Hills and eight other cattle of the same breed. The same gentleman has also bought from Mr. Geo. Roach, some Berkshires imported by Mr. Beattie.

MESSRS. STEWART, Lobo, have sold to M. W. Terrill of Connecticut, six Seraphinas, three Bates heifers and one b. c. at good prices; and have purchased, to stand at the head of their herd, the bull Udora's Oxford, bred by Richard Gibson, got by 7th Earl of Oxford, dam Udora 2d, by 3d Duke of Airdrie.

HIGHEST PRICE FOR A WATERLOO COW.—The Duke of Manchester has purchased from Lord Fitzhardinge a very handsome two-year-old cow Waterloo 33d, at the long price of 1200 guineas. She is to be left at Berkeley for service by Duke of Connaught, the 4500 guinea bull at the recent Dunmore sale.

A SHORT-HORN BULL, purchased at the Auction Mart, Perth, by Mr. J. Cuthbert, Freuchie Mill, in March, 1874, and bred by Colonel Williamson, of Lawers, has since that date begotten 209 calves, at the same time growing to the weight of 80 stone, and selling for more as butcher meat than he cost as a stock animal.—London Farmer.

MR. PAVIN DAVIES lately refused 1,200 guineas for a heifer calf from Marchioness of Oxford, purchased at the Dunmore sale of 1872 at 1,010 guineas, and by 3rd Duke of Clarence, in the possession of Mr. Bowly. The offeror was a well-known English Shorthorn fancier. Col. Kingscott has refused 1,500 guineas for a young Oxford female.

IN AUSTRALIA a terrible disease has "broken out" among horses, the papers stating that in one district horses are dying on every side, ploughing for fallow is temporarily suspended, and up to the present time no remedy has been discovered to check the progress of the malady. The disease can first be noticed by the mouth and tongue swelling, after which the lips rot and fall off in small pieces.

VALUE OF ONE COW.—The history of the Shorthorn cow, Duchess 66th which was sold in 1853 at Earl Ducie's sale, in England, to Colonel Morris, of Fordham, for 700 guineas, or \$3,675, is remarkable as showing the actual value of one good breeding animal. From this cow, which was calved in November, 1850, there may be traced in direct descent a number of animals which have sold for about \$500,000.

AT THE SHORT-HORN SOCIETY MEETING in England in December, after some deliberation, it was resolved:—That Colonel Kingscote, C.B., M.P., Mr. Beauford, 3rd Harward, Mr. H. Chandle Pole-Guil, and Mr. Jacob Wilson, be a committee to consider and report upon the desirability or otherwise of acquiring "Thornton's Circular," or of issuing some other similar publication, and also to confer with Mr. Thornton thereon.

ONE OF THE FEW CONNECTING links between the present and the early days of Short-horn breeding, was lost by the death of Mr. Wiley, late of Brandsby, on the 12th inst. Mr. Wiley was in his 99th year. He died at Winterfield, and was buried at Brandsby on Friday last. For the breeding of Leicester sheep, as well as Short-horns, Mr. Wiley long enjoyed a wide fame. Many will hear of his death with regret, though few with surprise, considering his great age.

THE FOLLOWING is the average realized by families at the Toronto Sale, last month:

2 Kittlevingtons, av.....	\$3,200.00	Total.....	\$ 6,520
5 Rose of Sharons, av.....	2,600.00	do.....	13,400
3 " " (Calms), av.....	370.00	do.....	1,110
7 Craggs, av.....	2,200.00	do.....	15,910
2 Peris, av.....	1,537.50	do.....	3,175
6 Seraphinas, av.....	600.00	do.....	3,600
3 Gwynnes, av.....	1,016.50	do.....	3,050
2 Constances, av.....	1,550.00	do.....	3,160

THE 17TH DUKE OF AIRDRIE.—It will be remembered that this splendid Duke bull was purchased at the recent Toronto sale by M. Alex. McClintock, of Millersburgh, Kentucky, and we learn that he has arrived at his Kentucky home all safe and in the most excellent health and condition. He is nine years old, but can show as much vigor and style as any young Duke bull in the country. His present enterprising owner has our best wishes for good luck with him.—Ohio Farmer.

27TH DUKE OF AIRDRIE.—The famous 9th Duchess of Airdrie, by Royal Oxford 486, out of 4th Duchess of Airdrie by Fordham Duke of Oxford 220, the property of A. J. Alexander, Woodburn, calved the 15th inst., a fine red-roan bull calf to 14th Duke of Thorndale 827, for which he claims the name of 27th Duke of Airdrie. The 9th Duchess of Airdrie is the dam of the 24th Duke of Airdrie 1723, and the 20th Duchess of Airdrie, purchased last Spring, at Woodburn, by Mr. George Fox, of Wilmslow, England, for \$30,000.—Live Stock Record.

IMPORTATION OF LIVE STOCK INTO ENGLAND.—The following figures from an English contemporary will show that the outcry recently raised about the oppressiveness of the English laws relating to importation of live stock, was not justified: The returns of the value of live stock imported show that last month the imports cost £877,883, as against £540,893 for the same month last year, a gain to the foreigner on last month's stock of no less than £336,990. The live stock imported during the nine months was to the value of £3,634,627 this year as against £3,769,760 for the corresponding period ending with September last year, the gain in amount to the foreigner being no less than £1,074,867.

Capital in England and in Canada.

EDITOR CANADA FARMER:—In England, whenever a man has a large unemployed capital, he seeks for land and buys with the knowledge of receiving a very low interest for his money, but in consequence of the security in the investment, is satisfied with the small return.

In Canada there are large tracts of country which might be bought for a mere trifle and could be brought into as fine a condition for renting out to tenantry as any estate in the first mentioned country. Or under present prospects any moneyed man could make fifty per cent. by holding it in his own occupation for a few years and afterward renting it. This is easily explained, for there is a great demand for meat in England, and means of exporting it alive will be forth-coming as fast as beef and mutton can be raised and fattened. This will cause an extraordinary revolution in farming, and those who are first prepared will reap the first reward. By consuming corn, grain and oilcake on his land for the purpose of giving the animals the ripe and finished fattening, so necessary for the English market, this corn, &c., would go over in the shape of meat at one-tenth of the cost in freight, so that there would be an extra profit on the price per pound over and above the increased weight accumulated; moreover, the manure being so enriched by the oilcake, &c., the soil would be kept up in the very highest condition.

At first thought it may appear as if a great outlay would be required beyond the purchase of the land, but no such expenditure is needed beyond the buying of stock, as the timber is becoming scarce and enough may be sold to pay for the erection of farm buildings, and the faster the timber is cleared, the sooner would the grass come and be pasture for the cattle and sheep. Horses, also, would pay exceedingly well for raising if the right kind of sire was used.

The pastures in Canada are full of good varieties and by good management some of the fields could be shut up from July or August, thus giving a quantity of good grass for the cattle and sheep to run over and gain more than half a living. At the present moment I have horses fat and which have gained flesh on a pasture which was grazed by cows in the summer, and last winter which was so very cold, they were not up in the yards more than ten or a dozen nights.

After laying a fine tract of land out in good farms and organizing a good one by having grass and arable fields in convenient situations, there would be no reason why the estate should not bring in a regular income the same as English domains do. In a short time the sending of meat and mutton, &c., will be as easy to send from here to London, England, as it was when I was a boy, from the Midland counties there, and all the difference in favor of that country will be the cooler weather in summer and the milder time in winter.

Capital may give a great distinction to men in Canada as it does to the titled ones in England, if they would only go the right way to work, and tenant farmers, with wholesome restrictions as to sticking to a good system of farming the arable land, and to continuing the pastures safe from the ravages of the plough, would prosper far better than the natives do now.

G. G.

WALKERTON, ONT.

The Prevalence of Highway Robbery.

EDITOR CANADA FARMER:—The remarks of "Farmer" in your last issue respecting the closing of the Banks at one o'clock on Saturday afternoons, are certainly correct. The inconveniences of closing at such an early hour on the principal market day to both farmers and merchants, are certainly great. The Bank employes ought to have a half holiday sometimes as well as other people, but any other day than Saturday would be less inconvenient to that very important personage, the General Public! I do not consider "Farmer's" objections to depositing the price of a load of grain in a Bank are well founded, as, if he has so many small payments to make twenty miles from town, any store-keeper in his neighborhood would readily cash a cheque for him.

As the law stands at present, a magistrate has no power to enforce the Vagrant Act, unless he has reasonable ground for suspicion in any case. If the loss of money were all, that would not be so bad, but these scoundrels of highway robbers do not hesitate to knock a farmer on the

head, if they cannot accomplish the robbery in any other way; and when the case is either kill or be killed, the maxim that "self-preservation is the first law of nature," must be allowed due weight. Perhaps if the Government were to appoint an active man as Police Magistrate in every city or town in the Province, with a sufficient salary to make it worth his while to give his whole time to the efficient discharge of his duty, with power to direct the police to arrest any suspicious characters who might be lurking about, he could do very little good. Experience has proved that whenever a crime is committed, the apprehension of the offenders is a very difficult matter. I have seen a statement that even if a murder were committed, and the murderer contrived to make his escape at the time, the sheriff of the county is unwilling to direct a strict pursuit, as he would have to defray the expense out of his own pocket. Criminals generally find escape so easy that they would be out of the country before detectives, who could be despatched in pursuit only after intelligence of the crime had reached Toronto, could arrive at the scene of the crime. Hence the necessity of having a Police Magistrate in every city and town in the Province, with ample authority to act in any emergency that might occur. As for fortune-tellers, they can evidently live by their profession, and pay for the expense of advertising also. No amount of education can ever eradicate those feelings of superstition and the desire to pry into the secrets of futurity which seems to be inherent in human nature. The insertion of such advertisements ought to be prohibited by law, as well as those advertisements of American Patent Pills, which are so often used for improper purposes. Only those papers which are hard pressed for support would disgrace their columns by the insertion of such trash

SARAWAK.

On Trees and Tree Peddlers.

Mr. Peter Shisler, of Stevensville, an old time friend of the CANADA FARMER, writes as follows to the *Welland Tribune*:—It is certain that it is cheaper for a person to profit by another's experience than by his own, therefore I would advise all farmers to take an agricultural journal, and I know of none that gives better information, for the same money, than the CANADA FARMER. In subscribing for it there is also this advantage, that the money is left in the country. At this date we can get nearly all our machinery in Canada. And if we wish to plant fruit trees, we have no need to run the risk of being gulled by those strangers from across the line, when we can go to any reliable nurseryman in this Province and obtain from them a guarantee that we get from them such fruit as we order. I am sorry to see that agents from the States take more orders for fruit trees than do our own nurserymen or their agents, but I believe it is because, like all "Yankee notions," they have the fruit pictured in great style, and make the public believe they can do much better for the purchaser than he can do in Canada, —but I know that to be a great mistake. I could give you many instances where people have been defrauded most shamefully, but I will not weary your readers with such at present. But I would like to see more interest taken in fruit growing and our own nurserymen better patronized, as it is fallacy to suppose you can do better with those Yankees. If you purchase from nurserymen here, you can prosecute them if they give you bogus fruit.

If your land is not in a proper state of cultivation to receive your trees, I should by all means advise you to leave it for another season or two, than merely stick them in the ground at random. I read in the CANADA FARMER where trees were planted, and the nurseryman was complained of, as they did not grow, when he examined the trees and had them raised higher, and for experiment some were left as they were, and those that were raised were larger in five years after than the others were in ten; and I can show fruit trees fourteen years old, on clay soil, that are ahead of trees that are twice that age which have been merely stuck in the ground. As I have so frequently given my plan of transplanting, I will not further allude to that subject at present. Orchards, like anything else, would be better never undertaken, than neglected. They should be looked after every day through May, June and July; and not neglected any other month in the year. Finally, if you wish to save money in buying trees, about the last of April go personally to the nursery and select the trees for yourself. By doing so you are almost certain to get straight trees and such as you can rely upon, and you can see that they are kept moist till they are transplanted; and you will get them enough cheaper to pay well for your trouble.

System and Order in All Things—Farm Accounts, Grange Work, etc.

EDITOR CANADA FARMER:—Every thing that is created by nature has its existence according to a fixed law or order. System is the first law of nature. Nature works by the same rule in small matters as in large ones. All of her affairs are carried on under the same general rule of order, from that which governs the universe at large, and keeps worlds in their proper system of worlds and in their proper spheres, to that which governs vegetable productions, decomposition and reproduction.

Systematic order is the watchword to success. In all affairs of political economy its essentiality cannot be overlooked; but to particularize would simply include all things material, hence the impossibility, and a few cases cited must suffice. Take, for instance, the government of a nation. In all its branches, from the advisory to the executive, all must conform to that inexorable law of systematic order or chaos will be the result. Let the advisory be founded on truth and justice with systematic order strictly adhered to, and success is sure. The legislative will be wholesome and honorable, and the executive will be equitable.

All commercial transactions are or should be conducted on systematic principles, and those most so are the most successful. All banks and banking institutions adhere to rules of order, devoting a certain amount of time each day to the transaction of certain kinds of business. Hence their ability to report their exact standing at the beginning or close of each day. Merchants conduct their business on a system which enables them to readily know their own standing and that of every person doing business with them.

Mechanics, as a rule, are systematic in their manner of keeping their business accounts. Those most systematic are most successful.

Farmers, as a class, do not conduct their business on any regular system, as to debit and credit. This need not and should not be. Every farmer should keep a strict account of all business done, not only debit and credit of the farm, but an individual account with every person with whom he has any dealings. Open up an account for the business done with the merchant, whether done strictly on the cash system or otherwise. If this were done, there would be fewer disputed accounts and the business would be every way more satisfactory. The person so doing is often surprised at the amount of his store bill, but having kept the account himself, knows it to be correct and the storekeeper is held guiltless, which, of itself, would more than compensate for all the labor of keeping the account, whether any doubts are entertained or not as to the integrity of the merchant. Then, if he had any proclivity to dishonesty, he would be restrained from exercising them, knowing there was an account kept besides his own.

Open up an account for the blacksmith, whether strictly cash, or cash, trade and credit combined. Keep an account of all hired labor, whether on the farm or in the house. Open up a cash account in which enter the amount of cash on hand, and that received from time to time as Dr., and cash paid out from time to time as Cr. The balance of these accounts will at any time show the state of the farmer's finances, which will be a great satisfaction, besides furnishing data on which to calculate intelligibly for future business.

Some may object to this on the ground that it is book-keeping and that it requires a scholar to keep books. But it may be done by any one who is able to read, write and cast up amounts in simple addition, by observing the simple rule: to debit what costs value, and credit that which returns value.

There is another item of business in which many farmers and land holders are remiss and we deem it of so much importance that it must have mention in this article, and that is this:—Many contracts for labor and lease of land are made simply verbal, and left to a diversity of minds and memories to retain them in their accepted forms. On settlement they have as many versions as there are memories interested, and they are often so adverse as to cause great trouble and to result in cases of having litigation, which are always disastrous to all parties concerned save and except the legal fraternity.

As a preventive from this calamity, let all contracts for

labour, lease, &c., be reduced to writing, thus relieving treacherous memories of a great responsibility. Take, for instance, a farm labourer, a young man who is the owner of a horse. He wishes to hire with a farmer and have his horse under his control, wishes to hire pasture and feed, and offers as a partial or a whole compensation the use of the horse to the farmer at such times and for such work as most needed—all of which is talked over and agreed in a manner satisfactory to both. Now let this be reduced to writing before any labour or service of any kind is rendered on the contract; else there is danger of a difference which might not be adjusted to the satisfaction of all concerned.

Another case: A land-owner leases land to a tenant, to be farmed on certain terms and conditions as to quantity of land and the amount for each different kind of crop, the manner of cultivation, the share of each, time, place, and condition of delivery, &c., in detail, is talked over and agreed upon. Now, let this be written down and signed by all parties interested. This will almost preclude the possibility of a misunderstanding on settlement. But should there arise a difference, and grow into a damage to either, the written agreement will be a witness against the offending party, who must, as he should, suffer the consequences. One more case—the last but by no means the least requiring systematic order; and that is, some of the common work of the Grange. The laws governing the common work of the Grange are the same throughout the United States and Canada, but are sometimes so differently administered and executed as to give rise to the belief among outsiders that there is a lack of similitude in different Granges; that all are not on the same footing, but running somewhat independent of each other. A case to the point: The initiatory fee for male members is five dollars. Now, some members who are in for membership in their respective Granges have made the offer, in order to secure members, to reduce this fee to two or three dollars, not telling that the whole amount will be paid into the treasury by somebody, and that the remainder of the five is a donation to the candidate. If any member sees fit to make a present of five dollars to a friend to induce him to join, and thus admit him free of any initiatory fee, let it be so understood by all, and not deceive the candidate and the people at large, all to the detriment of the Grange.

Another point requiring more uniformity and systematic order is—the admission of Members to the Order. It would not have been difficult in the dark days of farming interests, before the light of the Grange illuminated some of the dark places of the earth, to decide who were interested in agriculture. Would the physician who owns a farm, but practises his profession, and derives no revenue from the farm, have been considered interested in agriculture?

The time was when farming was not considered so honourable as it is now. At that time it would not have been difficult to have determined whether the retired merchant or steamboat man, &c., would have been entitled to membership in the Grange. "Consistency is a jewel." Let us have system and order.

WM. FERRIS,

Lecturer of Goshen Grange, No. 159, Goshen, Ohio.
Pleasant Plain, Warren Co., Ohio.

PROBABLY EVERY STOCKBREEDER in Canada is personally acquainted with Mr. Simon Beattie, and will be pleased to hear that a movement is on foot among the United States breeders to get up a testimonial for presentation to him on his leaving this continent to take up his permanent abode in Scotland which it is his intention to do immediately after his sale next June. Mr. G. W. Rust of the *National Live Stock Journal*, Chicago, is engineering the movement. That journal says of Mr. Beattie: He has been on his own account and on account of others, one of the largest and most enterprising importers of Short-horns, having made about twenty-three or four round trips across the Atlantic. And when to his own importations are added those selected by him for others, it may be said for him that he has probably selected twice as many animals for importation to America as any two other persons who have ever been identified with the history of Short-horns in this country. Nearly all the later exportations of animals from this country to Europe have been made under his direction, and probably a majority of them at his instance.

Social and Intellectual Features of the Grange.

EDITOR CANADA FARMER.—The Grange, as a society, made up of farmers and their families, whose comparative isolation has heretofore excluded them from the enjoyment and benefits of each others' society, is destined to produce a great revolution in their several relations, by affording them an opportunity of meeting more frequently for social intercourse and exchange of ideas and opinions. Composed to a certain extent of different classes of society, embracing among its members persons of experience, ability and cultivation, as well as the inexperienced and less cultivated, it gives the one a chance to distribute his abundance of mental wealth and experience to his less bountifully supplied neighbor; and the other to gather of his abundance and place to his future advantage.

We learn of the future by the past. The fact has been clearly demonstrated that a congregation and commingling of different minds and tempers, particularly where both sexes are included, frequently converts what would oftentimes be a rude observance into a pleasing, beneficial and moral atmosphere. We speak here of both sexes, as the Grange, unlike other similar societies, includes both, and in this particular at least must command the respect of all, as the moral and refining influence of the female mind is necessary for the success of any undertaking.

The gifts of heaven are not all bestowed upon one individual, nor has each one always a share of the same. Some are rich in one gift, some in another; and some have had better opportunities for cultivation than others. God in His providence has diversified our talents, but at the same time given us powers of cultivation for all, thus showing it to be our duty to improve these faculties when opportunity offers. And what better way can there be for improvement than by mingling in social relations with those of learning and experience.

In the Grange we have the opportunity of associating with the various minds and profiting a little by each, and at the same time assisting others by imparting some knowledge we possess. How different would society in general be if all were willing to communicate their knowledge and all were willing to receive. Giving would neither impoverish nor diminish the share of the one, but rather increase it with the using, while the other by receiving willingly and gratefully would increase his share and help himself onward in knowledge and usefulness.

But pride and jealousy are too often in the way, and how deplorable it is that such a spirit has so strong a hold upon all classes of society. If one is possessed of more riches or knowledge than his neighbor, he considers himself too great to associate with him who has less, and the latter scorns with jealous care to accept any proffered good from him who thinks himself superior. This condition or state of mind we hope to ameliorate amongst the agricultural community at least. In the Grange all are upon a level in the work of the Order, which is one step towards the object in view, and as time rolls on, the meeting and current interchanges of kindly thoughts and sentiments will do much towards binding together in the bonds of unity and friendship all in our Order.

With this object in view, due consideration should be given to the admission of members that those only should be accepted with whom we are willing to associate. While as a society we earnestly desire to do all the good we can, we do not wish to be compelled to mingle with the unprincipled and dishonest, but if such are in the Order we trust the salutary influence of pure minds will convert what have been rough and unprincipled lectures into ornaments of society.

Faithfulness in brotherly love, charity to all, and an ever abiding trust in God, are the ruling elements of the Order, and if we are true to these, what nobler incentives can rule a social gathering?

W. PEMBERTON PAGE,
Secretary Dominion Grange

New Granges of Patrons of Husbandry.

The following new Granges have been recently constituted:—

Division Granges.

23. BEAVER VALLEY.—
24. PRINCE ALBERT.—Robt. Gardner, Master, Farquhar; James Gillespie, Secretary, Cromarty.
25. ONTARIO.—Andrew Orvis, Master, Whitby, W. V. Richardson, Secretary, Pickering.

Subordinate Granges.

279. MONO.—John Rusk, Master, Mono Mills; Henry Carson, Secretary, Mono Mills.
280. SPRINGFIELD.—George Vickers, Master, Griersville; E. E. Knott, Secretary, Griersville.
281. WILLOWDALE.—W. Goulding, Master, Newton Brook; J. R. Lindsey, Secretary, Newton Brook.
282. KELVIN.—William Freeman, Master, Scotland; A. Freeman, Secretary, Kelvin.
283. SILVER HILL.—E. W. Siprell, Master, Silver Hill, John Hunter, Secretary, Silver Hill.
284. CRAIGLEITH.—Andrew Fleming, Master, Craigleith; John Penhall, Secretary, Craigleith.
285. KENDALL.—Neil Stewart, Master, Kendall; John Henry, Secretary, Kendall.
286. ROND EAU.—A. R. McRichie, Master, Morpeth; Wm. Reynolds, Secretary, Morpeth.
287. SOUTH STUKELY.—Wm. R. Knowlton, Master, South Stukely, Quebec; N. D. Jenne, Secretary, South Stukely, Quebec.
288. MAPLE VALLEY.—J. Dick, Master, Maple Valley, Ontario; H. A. Hay, Secretary, Maple Valley, Ontario.
289. HOWARD AND ORFORD UNION GRANGE.—J. H. Eberley, Master, Palmyra; Colon Luxton, Secretary, Palmyra.
290. CHERRYWOOD.—John Thom, Master, Cherrywood; James Lauchlin, Secretary, Cherrywood.
291. BROUGHAM.—E. Barclay, Master, Brougham; N. T. Stevenson, Secretary, Brougham.
292. QUEEN OF THE LAKE.—James Sudden, Master, Lakelet; R. H. Ferguson, Secretary, Lakelet.
293. VENUS STAR.—John McClure, Master, Churchville; James Dale, Secretary, Churchville.
294. BALDOON.—Robert Rankin, Master, Chatham; Donald Angus, Secretary, Chatham.
295. UNION.—Wm. Sollitt, Master, Cayuga; W. T. Anthony, Secretary, Cayuga.
296. EVELYN.—James Evans, Master, Evelyn; John Mooney, Secretary, Evelyn.
297. ADELAIDE EXCELSIOR.—William Brock, Master, Strathroy; John Chorthy, Secretary, Strathroy.
298. OAK GROVE.—William Clement, Master, Mount Bridges; John Bond, Secretary, Mount Bridges.
299. SHIRLEY.—John Mowbray, Master, Shirley; Wm. McGill, Secretary, Prince Albert.
300. ELGIN.—John Ferguson, Master; Daniel McKillop, Secretary.
301. CARRICK.—John Bachard, Master, Clifford; Jas. Johnson, Secretary, Mildmay.
302. ORO.—Luke Pearsall, Master, Mitchell Square; W. H. Rathborne, Secretary, Mitchell Square.
303. RUGBY.—Duncan Anderson, Master, Rugby; H. G. Lister, Secretary, Rugby.
304. MITCHELL.—George Johnson, Master, Mitchell; Ephraim Bradhouse, Secretary, Mitchell.
305. SILVER CREEK.—Dugald Currie, Master, Collingwood; Charles Clarke, Secretary, Mitchell.
306. PRETTY RIVER.—James Taylor, Master, Nottawa; Andrew Jardine, Secretary, Nottawa.
307. RISING STAR.—E. Williams, Master, Mitchell; William J. McLagan, Secretary, Mitchell.
308. CENTREVILLE.—D. A. Lucas, Master, Centerville; C. A. Carscallen, Secretary, Centerville.
309. MOSCOW.—James Switzer, Master, Camden East; C. N. Lucas, Secretary, Moscow.
310. COLBORNE.—Alexander Glen, Master, Carlon; John S. Karso, Secretary, Carlon.
311. Henry Johnson, Master, L'Amaroux; Wellington Clark, Lansing.
312. NEW ENGLAND.—D. K. Ellis, Master, Kimberley; John Wiley, Secretary, Kimberley.
313. FARMERS' RELIEF.—Thomas Clark, Master, Watford; William Fuller, Secretary, Watford.
314. HARRISTON.—William Arnold, Master, Harriston; Thomas Carscaddan, Secretary, Harriston.
315. UNITY.—James Rushton, Master, Ridgetown; Reuben Mattice, Secretary, Ridgetown.
316. AVON.—Lorenzo Moses, Master, Avonton; Thomas Armstrong, Secretary, Avonton.
317. BALMORAL.—Simeon Chimes, Master, Balmoral; John H. Best, Secretary, Balmoral.
318. BROCK.—Adam Shier, Master, Cannington; Chas. Duncan, Secretary, Cannington.

Executive Committee, Dominion Grange, Meeting.

The Executive Committee of the Dominion Grange will meet in Brantford on Tuesday, February 1st. It is the intention of the Committee to do all in their power to further the object of the Order, and to this end, ask for, and will gladly receive, suggestions and information from members throughout the country, believing that it is by the hearty co-operation of all that we can expect to obtain the full benefits of the Order.

They will also welcome correspondence from manufacturers and dealers, with a view to the general benefit of all. Correspondence, in relation to the above, addressed to the Secretary, will be acknowledged, and laid before the Committee for consideration.

W. PEMBERTON PAGE,
Sec. Dominion Grange.

THE OFFICERS for 1876 of Triumph Grange, No. 152, are:—Hiram G. Suckling, Master, St. Mary's; George C. Lennox, Secretary, St. Mary's.

Corn and Oats Classification in New York.

The Committee on Grain of the Produce Exchange has decided to establish the following grades of corn under the new grading rules:

White corn shall be sound, dry, plump and well cleaned; an occasional colored grain shall not deprive it of this grade.

Yellow corn shall be sound, dry, plump and well cleaned; an occasional white or red grain shall not deprive it of this grade.

Mixed corn shall be sound, dry and reasonably clean. Low mixed corn shall be sound, dry, reasonably clean, but in color unsuitable to grade "mixed corn."

Steamer corn shall include corn of the above named grades in quality. In condition it may be slightly soft or damp, but must be cool.

No-grade corn—All soft, damp corn, warm, or inferior to the quality described as "steamer corn," which shall be called no grade.

The revised classification of oats will be as follows: White oats shall be bright, sound, clean, free from other grain, and shall not weigh less than 32 pounds to the measured bushel.

Light mixed shall be three-quarters white, and equal to No. 2 in all other respects.

No. 2 oats shall be sound, reasonably clean, and reasonably free from all other grain.

No. 3 oats shall be fit for warehousing, but otherwise unequal to No. 2.

No-grade shall include all oats damp, unsound, dirty, or from any other cause unfit for No. 3.

WOOD AND ELECTRICITY.—A piece of wood cut from a tree is a good conductor; let it be heated and dried, it becomes an insulator; let it be baked to charcoal, it becomes a good conductor again; burn it to ashes, and it becomes an insulator once more.

BATH BRICKS.—The celebrated Bath bricks known in almost every commercial market and house as "brick dust," are manufactured from the deposits of the river Parrett, Bridgewater, Somerset, England. As far as known, this peculiar kind of deposit has never been found elsewhere.

WHAT'S IN A SNOW FLAKE.—In a drop of water obtained from a single snowflake and magnified five hundred times, were found pieces of coal, fragments of cloth, grains of starch, sandy matter, and an immense variety of other substances, not a fragment of which exceeded in diameter the three-thousandth part of an inch.

WATER-PROOF DRESSING FOR LEATHER.—A dressing for rendering leather water-proof, made as follows, as proposed by Hager, has been found to answer the purpose: Dissolve 1 part of India rubber in 5 parts of illuminating petroleum, by digestion for a day, and add 20 parts of paraffine to the pasty mass, and digest again for half a day, with repeated stirring, and then mix it with five parts of oil and five of tallow, and finally add 10 of petroleum, or enough to give the mass the consistency of butter.

TO PREVENT GLUE FROM CRACKING.—Glue frequently cracks because of the dryness of the air in rooms warmed by stoves. An Austrian cotemporary recommends the addition of a little chloride of calcium to glue to prevent this disagreeable property of cracking. Chloride of calcium is such a deliquescent salt that it attracts enough moisture to prevent the glue from cracking. Glue thus prepared will adhere to glass, metal, &c., and can be used for putting on labels without danger of their dropping off.

PRESERVATION OF TIMBER.—A German chemist, Sigismund Beer, has found that by using borax as a solvent, the coagulation of sap was prevented, and that it could be effectually removed by boiling, without injury to the tissues. The wood is rendered thereby closer in grain, and is said to become impervious to decay. Wood so prepared is improved both in color and texture, and is free from the danger inherent to impregnation with creosote or other oils. By not washing out the borax the inflammability is said to be much decreased.

HYDROGEN A METAL.—Strange as it may seem to those who have not been posted with the more modern investigations of chemists and who only know hydrogen as a gas, the lightest of all known substances; yet scientists are gathering more and more proofs every day that hydrogen, or hydrogenium as it is proposed to call it, is a metal. Graham, who discovered its power of combination with iron, palladium and platinum, first considered it to be a metal, and now M. Tröost and Hautefeuille found that it combines with potassium, sodium, nickel, cobalt, manganese, lithium and thallium.

CHALK.—Most people looking at this substance would take it to be a sort of hardened white mud. Such is not the case, as the microscope shows that it is nothing but the agglomerations of creatures almost invisible. Bearing this in mind, one is astonished at the power of organic life, which can produce masses that form a rampart to the coast of England. Their minuteness is such that a single visiting card covered with a white layer of chalk contains about 100,000 shells. These are forms of carbonate of lime, and are so small that 10,000,000 are required to weigh a pound, and 150,000,000 to make a cubic foot of the same material.

AMERICAN PEDIGREE OF THE CAMEL.—Though the evolutionary pedigree of the horse may be distinctly traced in the tertiary strata of our western Territories, nevertheless the horse as he at present exists, is not indigenous to this continent, but has been imported from Europe. The pedigree of the camel may also be constructed from materials supplied by American paleontology. Prof. Cope has recently unearthed a number of genera which must be regarded as the ancestors of the camel. And it is worthy of note that, although the more prominent genera of the series which resulted in the horse, for instance *Anchitherium* and *Hippotherium*, have been found in European formations, no well-determined form of the ancestral series of the camel has up to the present time been found in any formation of the Palearctic region. "Until such are discovered," says Prof. Cope, "there will much ground for supposing that the camels of the Old World were derived from American ancestors."

EFFECT OF LIGHT.—Dr. Moore, the metaphysician, thus speaks of the effect of light on the body and mind: "A tadpole confined in darkness would never become a frog; and an infant deprived of Heaven's free light will only grow into a shapeless idiot, instead of a beautiful and reasonable being. Hence, in the deep, dark gorges of the Swiss Valais, where the direct sunshine never reaches, the hideous prevalence of idiocy startles the traveller. It is a strange, melancholy idiosyncrasy. Many persons are incapable of articulate speech; some are deaf, some are blind, some labor under all these privations, and all are misshapen in almost every part of the body. I believe there is in all places a marked difference in the healthiness of houses according to their aspect in regard to the sun, and those are decidedly the healthiest, other things being equal, in which all the rooms are, during some part of the day, fully exposed to the direct light. Epidemics attack inhabitants on the shady side of the street, and totally exempt those on the other side; and even in epidemics such as ague the morbid influence is often thus partial in its labors."

GREENLAND DOGS.—Two of these dogs can drag as much as one man. Nothing can be more exhilarating than dog sledding in the Arctic regions on a fine day. The rattling pace of the dogs; their intelligence in choosing the road through the broken ice; the strict obedience paid by the team to one powerful dog whom they elect as leader; the arbitrary exercise of authority by the master dog; the constant use of the whip and the running conversation kept up by the driver to the different dogs who well know their names, afford constant enjoyment. However useful they may be, these Arctic dogs seem to be deficient in that affectionate disposition which endears their species so much to man. A traveller once said that he believed the Esquimaux dogs to be the most ungrateful creatures in creation. He had travelled several hundred miles by sledge; and for six weeks it was his duty regularly to feed the dogs, but after only a few weeks' absence, on the conclusion of the journey, they would not recognize him in the slightest degree. It is impossible to domesticate these creatures, as under tender treatment they sicken and die.

1874 Versus 1842.

"Penury all doth purge melancholy and doth comforte the stomacke and the spirites of man; Isope (Hyssop) cleanseth viscus flemme, and is good for the breste and for the lunges; Roosmary is good for palses and for the fallynge sykenes, and for the cowghe, and good aganst colde; Roses be a cordyall, and doth comforte the herte and the brayne."—Roore's *Dietary of Health for 1542*.

Fellows' Hypophosphites, by giving tone to the nerves, removes melancholy and restores the spirits, promotes expectoration by strengthening the muscles of the chest, and is consequently the remedy for congestion and inflammation of the lungs, cough and cold. From its great nerve strengthening properties it is found to prevent a return of epileptic fits, it gives power of endurance to the brain, and strengthens the action of the heart.

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. It is by the judicious use of such articles of diet that a constitution may be gradually built up until strong enough to resist every tendency to disease. Hundreds of subtle maladies are floating around us ready to attack, wherever there is a weak point. We may escape many a fatal shaft by keeping ourselves well fortified with pure blood and a properly nourished frame."—*Civil Service Gazette*. Made simply with boiling water or milk.—Each packet is labelled—"JAMES EPPS & CO., Homoeopathic Chemists, 45 Threadneedle Street, and 170 Piccadilly, Works, Euston Road and Camden Town, London."

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 Euston Road, London.—See article in *Cassell's Household Guide*.

OIL-PAINT FOR FLOORS.—None but earth-colors should be used in painting floors, and the rapid wearing off of a coating of oil-paint on a floor is a sure indication that white lead has been mixed with the paint. This is generally the case, since it causes the paint to cover better and spread easier. Even the employment of a varnish that has been boiled with litharge should be avoided, and one boiled with borate of manganese, preferred. It is also very important that the first coating should be perfectly dry before a second is laid on.

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