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THE

Canadian Agriculturist,

OR

JOURNAL AND TRANSACTIONS OF THE BOARD OF AGRICULTURE

OF UPPER CANADA.

VOL. XIV. TORONTO, MARCH 16, 1862. No. 6.

The Cultivation and Preparation of Flax.

Flax-culture is a subject that has already received attention in the pages of this Journal, particularly in the volumes of the last and preceding years. As the matter is daily acquiring more importance in Canada, and has already assumed a practical character in more than one locality, we shall proceed, in accordance with instructions received from the Board of Agriculture, at its last meeting, to throw together some plain and practical observations on the most approved methods of the culture and treatment of flax; to which both the soil and climate of Canada are generally well adapted.

Flax of one kind or another has been cultivated and employed for textile purposes from remote antiquity. It is several times mentioned in the Bible. The Greeks were well acquainted with the uses of the plant; and most of the writers on Roman husbandry distinctly refer to it, sometimes with considerable detail, particularly Pliny, who treats with great minuteness of its culture, and subsequent preparation. After the fall of the Roman Empire, but little can be learnt respecting it till the twelfth century, when we learn from documents that have come down to us, that flax has been regularly cultivated both in the British Islands, and the continent of Europe. Much curious legislation took place in reference to the culture and manufacture of this plant during several centuries, some of which would be both amusing and suggestive to our readers, if space would permit us to descend to particulars.

There are several species of flax, some of which are to be found either cultivated or indigenous in countries in each of the four quarters of the world; and also in Australia and New Zealand. Most of these possess fibres more or less suitable for textile purposes; but only a few have attained to any agricultural or commercial importance. The only species that can be said to have any claim on the farmer's attention for general cultivation, is the *Linum usita tissinum*, or common flax; "which is an annual plant, with delicate branching, round stem, from 18 to 24 inches, covered thinly with narrow glaucous, thin ribbed leaves, and bearing at the ends, pale, blue, shining flowers. The flower heads possess four, or more commonly five sepals; the petals are always equal in number with the sepals; the stamens are also equal in number, and alternated with them. The flowers are succeeded by a seed-pod, or ovarium, agriculturally known as the "boll" or "capsule," with ten divisions, or rather five perfect cells, which are again separated by an imperfect partition, extending from its outward wall. In each of these cells is found a single seed, of a flattened oval shape, of a more or less dark brown colour, mucilaginous to the taste, and containing a large proportion of a brown-

ish yellow oil, possessing the peculiar though slight smell characterizing linseed oil. This oil is readily obtained by pressure from the seed; the residuum being the well known feeding substance termed 'linseed cake.'

Soils suited to flax.—This plant may be said to have a wide range both of soil and climate, and is therefore well adapted to an extended course of husbandry in most of the countries occupying, at least, the temperate zone. It can be grown by judicious culture on sands, gravels, marls, and clays; alluvial or swampy lands when thoroughly drained and cultivated will often produce heavy crops. In Ireland, flax is sometimes successfully raised on peat-bog lands, with a clay substratum. But the best soil is a sound, dry, deep loam, resting on a somewhat porous and calcareous clay, otherwise termed marl. The good wheat soils of Canada are well adapted to the growth of flax. It should be borne in mind that stagnant water in the soil or subsoil is particularly injurious to the roots of this plant; and in such a case, thorough underdraining would be an essential condition of success.

Preparation of the soil.—Land intended for flax should be deeply ploughed in the fall, and well water-furrowed, that the surface be kept dry. This precaution will be necessary, even if the ground be naturally dry, or rendered so by underdraining, since in this country water will be sure to stagnate in low places in spring, whether the soil have covered drains or not. The ground should be again cross-ploughed in spring as soon as it is sufficiently dry; care being always taken not to get upon it when in a wet state. Instead of using the plough in spring,—provided the land had been deeply ploughed in the fall, the cultivator is considered by many to be preferable. This instrument, if sufficiently strong and heavy, will pulverize the soil 8 or 10 inches, and keep most of the dry, friable matter of the surface still at the top, which the plough will of course turn under, and bring to the top earth in a less favorable state for the seed bed. At all events, a deep tilth is always desirable, and the surface for several inches deep should be fine and mellow for flax seed to germinate and start advantageously. Such a surface our long and intense winter frosts naturally produce in spring. Harrowing and rolling must be had recourse to as often as circumstances require to get a fine, deep tilth. The roots of flax being of a fibrous character, extend laterally and vertically to a considerable distance in search of food, frequently from 2 to 3 feet, where the soil is suitably prepared.

Depth of tillage always adds to the feeding ground of a crop, and places increased supplies of mineral food at its disposal, and thus aids materially the developement of its bulk. Although soils rich in organic matters are not generally so suited for flax as those of a medium class, still it is always desirable that the soil should be in good heart and condition, as the flax crop occupies the ground only a short time—fourteen to sixteeen weeks, and must find its needed supply of food within a limited range, and in an available form. This condition of the soil is materially affected by the state of the division of its particles; a fine tilth, by exposing an extended surface to the action of the air, and of the rootlets of the plant, assists directly in the preparation of the food, and also in giving the plants better access to it. * * * Keeping the ground *perfectly clear of weeds* is of essential importance to all crops, especially so to the flax crops, as the plant in its cultivated state is of a delicate and slender habit, but ill fitted to rough it in the fields, with the stouter and stronger indigenous plants, of a quick habit of growth, and of perhaps less powers of assimilation than those of our other ordinary crops; therefore, if we wish to carry on a successful cultivation, we must assist it by those means which experience and a proper knowledge of the requirements of the plant have shown to be usually followed by satisfactory results."

It is not deemed generally advisable to supply manure directly to the flax crop; strong manures especially, produce a coarse, and therefore less valuable fibre. Yet it should be remembered that a heavy and remunerative crop of flax cannot be grown upon poor ground. It succeeds best after a crop that has been liberally manured; particularly a

heat or other cereals, which have been pre-
eded by clean and deep cultivation. Flax
as long had the reputation of being a very
chausting crop to the soil, and in many
ases in the old country, it is absolutely ex-
uded, or so fenced in by conditions, as to
mount practically to exclusion. This, no
oubt arose, in great measure, from the old
actice of cropping land too frequently with
x, thereby lowering its standard of fertility
much the same way as thousands of acres
originally productive soils in Canada have
en reduced by the too frequent repetition of
eat. But there can be nothing *peculiarly*
hausting in flax; all crops—especially the
reals, are exhausting,—particularly when
h grain and straw are sold, and not return-
in any form to the land. If flax is allowed
ripen, and both seed and fibre taken away,
ecomes, no doubt, a "*scouring*" crop, par-
ularly so if it has b:en heavy; but the same
mark is more or less applicable to wheat,
ley, turnips, potatoes, &c. If the seed of
flax be used in the feeding of cattle, though
whole of the straw may be sold off the
n, the increased richness of the manure
go far to restore to the soil those elements
fertility which the crop removed. It is
generally considered advisable by some
row flax on the same land more ferquently
n once in ten years; not because it exhausts
soil more than other crops, but because
l flax cannot be produced at short inter-

In Belgium, where this crop is cultivat-
xtensively and with great skill and atten-
it usually follows a grain crop, particu-
oats. The following rotations are men-
d with approval by the committee of the
*l Society for the promotion and improve-
of the growth of flax in Ireland*—
rotation that would bring flax once in
ars:—First year, potatoes; second, bar-
aid down with grasses; third year, cut
oiling; fourth year, pasture; fifth year,
or the one half might be better in flax,
ther in oats; so that, with the return of
otation, which would be five years, the
ould be put on the ground which, in the
otary course, was under grain, throwing
e of ten years between the flax crops
coming into the same ground. A gentleman of much practical knowledge, recommends the following as being the most profitable:—1. Oats, after grass and clover; 2. flax, pulled in August: then ploughed and harrowed in with 2 cwt. of guano, and 2 cwt. of gypsum, (plaster), then sown with rape; 2. potatoes or turnips, well manured; 4. wheat sown in spring, with clover and rye grases; 5. hay and clover; grazing; 7. oats; 8. flax, and winter vetches; guano as before mentioned; 9. parsnips, well manured; 10. barley, sown with rye-grass and clover; 11. clover and hay; 12. grazing; 13. oats. In Belgium where the climate is warm and dry, somewhat resembling that of Canada, the two following rotations, with slight occasional modifications, are considered good:—1. potatoes; 2. wheat; 3. rape; 4. oats; 5. Flax, with grass seeds; 6. grass seeds; 7. barley. On the better sorts of light lands, not well adapted for wheat, we find: 1. rye and turnips; 2. oats; 3. roots, (parsnips or carrots); 4. rye and turnips; 5. flax; 6. grass seeds. In Ireland the practice is somewhat similar. The following represents the prevailing rotations in the best flax growing districts;—1. roots, (potatoes or turnips); 2. wheat; 3. flax with grass seeds; 4. seed hay; 5. grasses grazed; 6. grasses grazed; 7. oats; 8. flax. Or: 1. oats; 2. flax; 3. roots; 4. wheat with grass seeds; 5. grass seeds cut; 6. grass seeds grazed.

Special Manure for Flax.—Recent chemical investigations have shown that the fibre of flax does abstract from the soil certain matters, although not in so large a proportion as several other commonly cultivated crops. To supply to the soil all the matters which the plant requires, with the exception of what is abstracted by the seed, which should be returned by saving the latter, and applying the manure of the cattle fed upon it, or an equivalent, if the seed be sold, so as to leave the land in the same state of fertility as before, the following compound has been proposed by Professor Hodges, of Belfast, (who has devoted much attention to these matters), as a manure which may be sown broadcast on the land, prior to the last harrowing before sow-

ing the flax seed—For a statute acre of land.—

	s.	d.
Muriate of Potash, 30 lb—cost about	3	0
Chloride of Sodium (common salt) 28lb	0	3
Burned gypsum (plaster) powd'rd, 24"	0	6
Bone dust, 54lbs.	3	6
Sulphate of Magnesia (Epsom salts) 56"	4	0
	11	3

Selecting Seed, Sowing, &c.—It is a matter of great moment in the successful cultivaton of Flax that firm, plump, and uniformly ripened seed should be obtained, as much inconvenience and often considerable loss is sustained by negligence in this particular. Foreign seed, it is said, is universally preferred in Ireland, and the Belgians always select Baltic flax for their seed purposes. "For heavy soils the Dutch seed is frequently used, which is the produce of Riga seed once grown in Flanders. The American seed was at one time tried, as being somewhat cheaper; experience however, has shown that the plants had a tendency to grow branchy instead of a single erect stem and although good for seed purposes, a large portion of the fibre was necessarily lost in scutching. Riga seed is everywhere considered the best for seed purposes. This, however, as is the case indeed with all foreign samples, is too dirty to admit of being used directly for the flax crop; as the amount of weeds mixed up with it would not only materially lessen and lower the value of the produce, but stock the land to the prejudice of after crops. The best plan to pursue is to obtain foreign seed sufficient merely to reproduce the quantity of seed required for the flax crop; and to sow this separately in wider drills, not less than 12 inches apart, so that it may be kept entirely free from weeds, and thus furnish a clean sample for the crop of the following year. This practice is generally followed in Belgium and in Ireland, where it is commonly known and sold as seed "one year from the barrel." The seed varies, of course, considerably in price; the Riga is, however, always the dearest: the Dutch and American being offered at a lower price, are consequently preferred by some growers."

Sowing.—The time for sowing flax will vary according to the season and the state of the land: the earlier it is done the better, provided the necessary conditions are favorable. It can seldom be done in this country before May. Something depends upon whether the object be for fibre or seed; if the former, then the sowing should be done as early as possible; if the latter, or seed and fibre combined, the operation may be deferred a few days. In this country, vegetation is so rapid in its processess in the summer, and the crop grows so quickly, that the plants sown late have not time sufficient to mature and consolidate their tissues, which is so necessary for the production of good fibre, and which the slower vegetation of the spring months generally secures to those sown at an earlier period.

It is important to bear in mind, that land intended for flax should not be meddled with till the surface, at least, is thoroughly dry, and that a fine deep tilth is a necessary, as most advantageous condition;—and the surface should, by repeated harrowings, &c., be made as even as possible. The proportion of seed should vary; if fibre only be desired, the sowing should be thicker than when seed merely is required. In the former case, from 2 to 2½ bushels per acre may not be too much, while in the latter, or when both the fibre and seed are sought, the quantity may be reduced. It is better, as a general rule, to sow too thick than too thin; as in thick sowing, the stems grow tall and straight, with only one or two seed balls on each at the top, and the fibre will consequently be found much finer and superior to that produced from thin sown flax which grows coarse and branches out, producing much seed, but a very inferior quality of fibre. For this reason, it is better to sow flax broadcast, than in drills; since the plants in the latter case, by having too much late exposure, are apt to grow coarse and branch and consequently producing flax of inferior quality. If drilling be adopted, a mode which certainly affords greater facilities for weeding, the rows should not be placed more than 8 or 10 inches apart, so as not to allow the plants much room for lateral growth. Which mode is adopted—(broadcasting at present better suited to Canada) care should be taken to cover the seed at a uniform depth, otherwise it will not germinate and the crop ripen

the same time. This uniformity of depth can generally be better effected by the drill, than sowing broadcast. Cover the seed with a light brush harrow, say from half to three-quarters of an inch deep, and if the weather be dry, give a finish to the surface by rolling.

"Both in Ireland and in Belgium, clover seeds are frequently sown down with the flax, and in the latter country, carrots are also met with, sown in the same manner. This practice, though very commonly seen, even in well managed farms, is only admissible when both the land and the seed are perfectly clean, and free from weeds. Even then, it cannot be recommended, as the two crops thus sown together have to struggle for the food which ought, under ordinary circumstances, to be devoted to one; and as the flax has so complete its growth long before the other arrives at maturity, it must suffer the most; while the operation of harvesting the flax cannot be effected without injury to the crop left behind it in the soil. The only attention the crop requires after it has been well got in, is to be kept clear of weeds. This, when it has been drilled, is done by hoeing carefully by hand or the expanding horse-hoe; when broadcasted, however, it must be either left untouched, or carried out in a different manner. In the British Isles, it is generally left to take its chance. In Belgium, where manual labor is far more largely and commonly employed than with us in farm work, and where the extravagance of our weed-growing farmers is rarely to be seen, the operation of hand weeding is never omitted, and is effected in a manner peculiar to the crop. As soon as the plants have acquired a certain growth, and the weeds begin to show themselves, suitable weather, of course being selected for the work, children are sent on to the field for the purpose of clearing it of all surface weeds. The work is done by them on their knees, which are well padded, to prevent them from crushing or injuring the young and tender plants; a small basket, or bag suspended from the neck, receives the weeds, which are collected from time to time by the overlooker and carried off the field. As this operation can only be done once, it is important that it be done effectually, and every weed is by these means removed from the field. Care and consideration are required as to the best time for the work, as if left too late, the plant is liable to be injured by the pressure of the weeders; the precaution, too, is always taken of working against the wind, in order to give the young plant the advantage that might arise from the action of the wind in assisting it to resume its erect position as quickly as possible."

Pulling.—Flax is a plant of rapid growth, and in about ten weeks, if the soil and season are favourable, it will commence flowering, giving to the field a very pretty appearance. In case the ground has been properly prepared, and a sufficiency of soil uniformly deposited, both as regards distance and depth, the stems will grow erect with a few flowers chiefly at the top, all the plants attaining much the same height. The flowers are soon followed by the "capsules," or "bolls," as they are more familiarly called, containing the seed, which when fully ripe, should appear plump, shining and heavy. It is a matter of nicety and of much importance to determine the precise time when flax should be pulled. All agree that the fibre is in the highest condition for manufacturing purposes before the seed becomes quite ripe, or rather as soon as the lower part of the stem has assumed a decidedly yellow hue, which will generally be the case soon after inflorescence, or when the seeds are beginning to change from a green to a pale brown colour. In this case it is obvious that only a small quantity of seed can be obtained, and that not fully ripened, but such seed will be useful as food for cattle. Indeed linseed, whether steeped, crushed, or in the shape of cake, after much of the oil has been expressed by pressure, constitutes one of the most valuable and healthful cattle foods which the farmer can command. It promotes alike the growth of fat and muscle, and when given in moderation with drier food, such as hay, grain, &c., admirably serves to keep the bowels in healthy action.

When both fibre and seed are desired, which will be the case more or less with most Canadian growers for some time to come, great attention is required, as much will depend upon the exercise of a sound judgment not only as regards the quantity, but also the quality of the crop.

"The seed-vessels or capsules are of a globular form, with the top surface slightly drawn up to a point. On opening them, from six to ten, (more commonly the latter number) cellular divisions are seen, each occupied by a seed, which at first is a colourless integument, envel oping a watery mucilaginous matter. On examination in a day or two, it will be found to have assumed a more solid consistence, and the seed to have changed to a pale green colour. This the first point to be noticed, and not a day should now pass without observing the changes that take place, as these changes form the criteria by which the period of harvesting the crop should be regulated."

In Belgium, where flax culture has long been practised with distinguished success, the mode of proceeding may be briefly stated as follows:—A full-grown plant is selected, and the best matured and ripest capsule is taken. This is cut across with a sharp knife, and the section of the seeds examined. If they have become firm inside, and the outside has assumed a good deep green colour, the plant is considered fit for immediate pulling. At this time the entire plant will exhibit signs of its approaching maturity, —the bottom of the stalk will be seen to have assumed a yellowish tint, and have become much harder to the touch than it was before, good indications of an interruption to the circulation of the juices of the plant. If this altered condition be allowed to go on by the plant remaining in the ground, the change of colour will rapidly make its way up the stem until it reaches the capsules, and then the seeds will be found to be fully matured, quite hard, and to have assumed the dark colour with which we are so familiar in the market samples. The next stage of the plant, wold be the bursting of the seed vessels and disjection of their contents, and the decay of the entire plant; but to preserve both seed and fibre, the plant should be harvested at the earlier stage, at which time the fibre is at its best condition. If left until the seeds are quite matured, the stems get hard and woody, and the fibre is apt to get much broken in the subsequent process of separation. Long experience has proved that this is the most profitable time to pull the flax; for although the seeds at that time are not fully ripe, yet if allowed to remain in the sheaf, they will absorb from their integument a quantity of sap to render them sufficiently mature for the purpose of vegetation, though perhaps for commercial purposes their market value may not be so high as if allowed to stand a little longer in the field.

In order to get the greatest length of fibre, which is a matter of great importance, flax, unlike all other cereal crops, is pulled up by the roots; an operation performed by hand, and unless the operator is accustomed to the work, it becomes tedious and expensive. "The flax is pulled, each hand singly grasping a small handful carefully by the neck, just below the seed vessels, and drawing it up out of the soil, and laying it in rows across the other. These are allowed to remain lying open on the ground for a certain time, generally one or two days; they are then collected together, and bound into small-sized sheaves or bundles, care being taken that the band shall be placed just under the seed-heads of the plant, and the bottoms or butts left unconfined and open. If the crop has been irregular in its growth, and the stems are of unequal lengths, it is desirable, as far as it can be managed, to pull them in different bundles, according to their length, as both in steeping and scutching much fibre is otherwise lost. It is also desirable, in binding them, that the butts should be gently pressed on the ground, in order to regulate the length of the different stems. After the sheaves, or "bundles," as they are termed, are bound, they are arranged in small stooks, usually of four, five, or six each, placed in a circle, the butts being well spread out, so as to admit the air freely to their centres,—the weather, and the condition of the crop when pulled, of course regulating the period they have to remain on the field."

We have heard of a machine worked by horse power, for pulling flax, in the western States, but no information as to its efficiency has come to our knowledge. In the case of level land and the surface left rolled down after the seed, a good careful mower, with a scythe suitably equipped, might cut the flax close to the ground so as to leave but little fibre behind. The cost of hand pulling is considerable, even in Europe, varying from 15s. to 25s., sterling, per acre, and in this country the cost will be high, particularly where people are unaccustomed to the work. A more expeditious and cheap

thod of pulling the crop than is generally ractised is an important deisderatum, which odern mechanical ingenuity, it is hoped, will long supply. When the flax in the field med into shocks is sufficiently harvested, it be taken into the barn or sheds, or made o a rick sufficiently protected against the ather, till it is required for steeping and tching.

(Concluded in next number.)

Elgin Flax Association.

St. Thomas, C. W., March 10, 1862.

the Secretary of the Board of Agriculture.

ir,—The growing importance of Flax cul- has induced the farmers and the land owners his neighborhood to form an Association for moting the culture of it, and I beg to enclose wspaper report of the first meeting.

ou will observe that it is not intended to en- directly in the practical culture of Flax, the Association will devote its energies in lying seed, machines and instruction to those ding to engage in the cultivation, and in ring the improved machines for scutching furnishing models or patterns to persons would become purchasers from the grower. is the object of the Association to call into nce a class of Flaxmen the same as the er" of France, who will purchase the stalk raw from the grower, and will then prepare proper state to be sold to the spinner.

district has long been known for its pe- aptitude as regards soil in producing flax e quality and in good yield per acre, and far fortunate for the cause that an asso- of this nature shall have been here organ-

rienced hands in flax farming were the settlers in this county, but beyond grow- ll patches for domestic use; no extent re has been engaged in, but if the farm- find a market for the stalk or straw, it is ned that they will willingly give it a per- place in their rotation as a crop.

Association in its present state of infancy every assistance to carry out its purposes is in the power of your Board to lend y any grant or contribution of money or any other valuable influence which your existence commands, it will render no uable service to an agricultural enter- great importance to this locality.

I have, &c.,

B. WALKER,
Secretary.

is the Report of the meeting above

FLAX CULTURE.

nd influential meeting of the Farmers lturists of the County of Elgin, was held at Hutchinson's Hotel, in this town, on Saturday the 1st instant, to take into consideration measures for forming an Association for promoting and encouraging the culture of Flax in this county.

Samuel Eccles, Esq., was unanimously called to the chair, and Mr. Walker was appointed Secretary.

Amongst the gentlemen present were George Claris, James Armstrong, Stephen Wade, Thomas Williams, Dr. Geo. Southwick, Hugh McIntyre, E. M. Yarwood, William Lipsey, John Marlatt, Richard Nicol, William Parker, James Mitchell, John Black, John Lanning, P. Bobier, John Rae, James Vansickle, Jacob Miller, John McCully, and many others.

The Chairman, in opening the proceedings, said: That the importance of Flax culture was attracting great attention througouht the Province, and he thought that it was very desirable to bring the matter more closely to the notice of the farmers and land owners, by organizing an Association such as the one at present contemplated. He saw present a great number of gentlemen who had been flax growers in the old country, and should be glad to hear their opinion on the subject. He had derived a great deal of information from the *Canadian Agriculturist*, and also from the letters of Mr. Donaldson. He then read some very interesting extracts, showing the value and importance of flax culture. He also called the attention of the meeting to an improved machine for scutching flax, invented by Messrs. Rowan, of Belfast; and concluded by calling on the gentlemen present to express their views on the object of the meeting.

Mr. Stephen Wade next addressed the meeting, and stated that there could be no greater proof of the importance that was felt in the flax culture than by the large and influential assembly of gentlemen then met. He then moved the first resolution, seconded by Mr. Rae, of South Yarmouth, which was unanimously adopted.

Resolved, that the persons now present be the first members of an Association for the purpose of encouraging and promoting the culture of flax, to be called the "Elgin Flax Association," and do hereby constitute themselves an Association accordingly. And that all persons who shall hereafter subscribe and contribute towards the objects of the Association, be members thereof.

Mr. Rae, a practical and experience flax farmer, produced some very fine samples of his own growing and preparing, and in a lengthened address, urged the value and importance of flax culture. He showed the greater profit to the farmer, than in the present crops of wheat and other grain. He also stated his intention of extending its culture in his rotation of crops.

The second resolution was moved by James Armstrong, Esq., seconded by John Lanning, Esq.:

Resolved, That the intentions and objects of the Association are: to promote the culture of

flax in the County of Elgin, First, by publishing information and instruction to those willing to engage in the culture.

Second, by procuring and distributing Seed.

Third, by procuring improved machinery for scutching, and furnishing patterns and models to parties who would become purchasers from flax growers.

Fourth, by other means which may appear desirable to the managing Committee to be now appointed.

The third resolution was moved by Wm. Parker, Esq., seconded by John Marlatt, Esq.

Resolved, That the Managing Committee be composed of Samuel Eccles, E. M. Yarwood, George. Claris, Stephen Wade, George Southwick, Thomas Williams, William Lipsey, John Rae, Jas. Mitchell, Richard B. Nicol, and Charles Roe, with power to add to their numbers, and with full powers.

The fourth resolution was moved by Jacob Miller, Esq., seconded by John McCully, Esq.

Resolved, That the means for carrying out the objects of the Association, be furnished by voluntary contributions and subscriptions; and that George Claris, Esq., be the Treasurer of the Association.

A subscription was then opened, and contributions in aid of the Association made, and the Company then separated.

The Agricultural Statute.

The following draft of an Act, to be submitted to Parliament for adoption, in amendment of the Consolidated Statute, 22 Vic. Cap. 32, has been prepared by the Committee appointed by the Agricultural Convention, held in the city of Toronto on 30th January last, in accordance with the resolutions passed at that meeting. It will be observed that this draft refers to the Agricultural Societies of Upper Canada only.

AN ACT TO REPEAL CHAPTER THIRTY-TWO OF THE CONSOLIDATED STATUTES OF CANADA, AND OTHERWISE TO PROVIDE FOR THE ENCOURAGEMENT OF AGRICULTURE, ARTS AND MANUFACTURES.

Her Majesty, by and with the advice and consent of the Legislative Council and Assembly of Canada, enacts as follows:

I. The Bureau of Agriculture and all Agricultural Societies, Associations, and Boards of Agriculture lawfully organized or established shall contitue to exist, except in so far as the said Bureau, or such Societies, Associations or Boards are altered or affected by this Act.

BUREAU OF AGRICULTURE.

II. The Bureau of Agriculture shall continue to be attached to one of the Public Departments, and the head of that Department shall be charged with the direction of the said Bureau and shall in respect thereof be known as the Minister of Agriculture.

III. The said Minister shall be *ex-officio* Member of all the Boards of Agriculture at any time established in this Province.

IV. The said Minister shall also receive all applications, drawings, descriptions, specifications and models for or relating to Patents for Inventions in this Province, and shall keep the records thereof.

V. The said Minister shall also be President of the Board of Registration and Statistics, and shall, under the general direction of the said Board, have charge of the Census and of the Statistical Returns.

VI. It shall be part of the duty of the said Minister to institute inquiries and collect useful facts and statistics relating to the Agricultural, Mechanical and Manufacturing interests of the Province and to adopt measures for disseminating or publishing the same in such manner and form as he finds best adapted to promote improvement within the Province, and to encourage immigration from other countries; and he shall submit to Parliament, within ten days after the opening of each Session thereof, a detailed and succinct Report of his proceedings.

VII. All Boards of Agriculture, Agricultural Associations, Agricultural Societies, Horticultural Societies, Municipal Councils, Boards of Arts and Manufactures, Mechanics' Institutes, Public Institutions, and Public Officers in this Province shall promptly answer official communications from the said Bureau of Agriculture, and shall make diligent efforts to supply such information on all questions submitted to them respectively;—And any officer of any such Board, Society, Council, Institute, or other public Institution, refusing or wilfully neglecting to answer any question, or to furnish any information relating to the Agricultural, Mechanical, Manufacturing interests, or to the Statistics of this Province, whenever required so to do either by the said Minister, or by any person duly authorised by him in that behalf, shall for every such offence incur a penalty of dollars, which shall be recoverable by any person suing for the same before any court of competent jurisdiction, and shall be paid to Her Majesty.

VIII. The Minister of Agriculture may at any time, and from time to time, appoint any person or persons to inspect the books and accounts of any Society in the Province receiving Government aid, and being in any way in connection with the Bureau of Agriculture, and all officers of every such Society, when required so to do, shall submit such books and accounts to such inspection, and truly to answer all questions put to them in relation thereto or to the affairs of such Society.

IX. Out of the whole amount voted for the ncouragement of Agriculture in Upper Canada, wo and a half per cent thereof may be appro- riated and devoted to the promotion of Agri- ultural instruction and information by the oard of Agriculture in that Section of the rovince.

2. The Board of Agriculture may in its Re- orts to the Government indicate in what man- er this sum should be employed;

3. Of the amount granted for the encourage- ent of Agriculture, ten per cent. in Upper anada shall be placed at the disposal and in e hands of the Board of Agriculture for the urpose indicated by law.

BOARDS OF AGRICULTURE.

Members and Officers.

X. The Presidents and Vice-Presidents for e time being, of the Agricultural Associations reinafter mentioned, and all Professors of Agri- lture in Chartered Colleges, Universities, and her Public Educational Institutions, and the ief Superintendents of Education in Upper d in Lower Canada, shall respectively be embers *ex officio* of the Board of Agriculture that section of the Province in which they ide.

XI. Six members of each Board shall retire nually, and cease to be members thereof, un- s re-elected, each seat being vacated every ernate year; but retiring members may con- ue to exercise all their functions until their cessors have been duly elected, as hereinaf- provided; and the names of the retiring mbers shall be published in the Agricultural rnals of the section of the Province in which y reside, or in such other public newspapers he Minister of Agriculture may direct.

XII. The several County Societies in Upper ada, shall, at their Annual Meeting, as here- ter provided, each name two persons to act elegates, who shall, at the meeting of the Pro- ial Association, at its Annual Exhibition, e each a voice in the election of members of Board of Agriculture, and the election of members shall take place on the evening of sday, in the first week of the exhibition

XIII. The first election shall take place at the al Meeting of the Provincial Agricultural ciation in one thousand eight hundred sixty-two, and the six persons so elected replace the four members then next retir- rom the said Board respectively; the next ion shall take place at the Annual Meet- in one thousand eight hundred and sixty- , to replace the remaining four members, e term of service will then next expire.

XIV. Neither of the said Boards shall pay or any sum to a member thereof, for acting ch member, except the amount of his ac- ecessary expenses in attending the regular ings of the Board; but each of the said ds may appoint a Secretary and Treasurer from among its members or otherwise, and may pay a resonable salary for such services. The Treasurer shall give such sureties as the Board may require.

MEETINGS AND FUNCTIONS OF THE BOARD.

XV. The regular meetings of the said Boards shall be held pursuant to adjournment, or be called by the Secretary at the instance of the President or Vice-President, or upon the written request of any three members; and at least five days' notice of such meeting shall be given to each member:

2. The members of each of the Boards of Agriculture shall elect from among themselves a President and Vice-President at their first meeting after each annual election;

3. In the absence of the President and Vice-President, the Board may appoint a Chairman *pro tempore;*

4. Five members of the Board shall be a *quorum.*

XVI. It shall be the duty of the said Boards respectively:

1. To receive the Reports of Agricultural Societies, and before granting the certificates hereinafter mentioned, to see that they have complied with the law;

2. To take measures, with the approbation of the Minister of Agriculture, to procure and set in operation a model, illustrative or experimental farm or farms in their respective sections of the province, and in connexion with any public school, college or university, or otherwise, and to manage and conduct the same;

3 To collect and establish, at Toronto and Montreal respectively, an Agricultural Museum and an Agricultural and Horticultural Library;

4. To take measures to obtain from other countries animals of new and improved breeds, new varieties of grain, seeds, vegetables, or other agricultural productions, new or improved implements of husbandry or new machines which may appear adapted to facilitate agricultural operations, and to test the quality and usefulness of such animals, grain, seeds, vegetables or other productions, implements or machines;

5. The Boards of Agriculture may pass by-laws and adopt measures to allow persons desirous of practising as veterinary surgeons to undergo an examination; and upon proof to the satisfaction of the Board that they possess the requisite qualifications, may grant certificates of capacity to practise as veterinary surgeons to such persons.

XVII. The said Boards shall keep a record of their respective transactions, and shall, from time to time, publish, in such manner and form as to secure the widest circulation among the Agricultural Societies and farmers generally, all such Reports, Essays, Lectures, and other useful information as the said Boards respectively may procure and adjudge suitable for publication:

2. And if the said Boards, or either of them' publish a monthly Journal, or adopt as their channel of communication with Agricultural Societies, the Agricultural Journals now published in Upper and Lower Canada respectively, then all Agricultural Societies receiving any share of the Public Grant shall give, at least, one month's notice of the time and place of holding their exhibitions in the Journals so published or adopted by the said Boards respectively.

XVIII. The said Boards shall transmit to the Bureau of Agriculture a copy of their resolutions, By-laws or other formal proceedings, immediately after the adoption thereof, and at the commencement of each year a detailed statement of receipts and disbursements, and a full statement of all property and securities held, made up to the thirty-first December of the previous year.

XIX. Each of the said Boards shall continue to be a body corporate, and may acquire and hold land and personal property for the purposes of its incorporation, and may sell, lease, or otherwise dispose of the same.

BOARDS OF ARTS AND MANUFACTURES.

Members and Officers.

XX. There shall be, in and for Upper Canada, a Corporation, composed as hereinafter provided, and called "The Board of Arts and Manufactures for Upper Canada."

XXI. There shall be, in and for Lower Canada, a Corporation, composed as hereinafter provided, and called "The Board of Arts and Manufactures for Lower Canada."

XXII. Each of the said Corporations may acquire or hold real or immoveable property for the purposes of the Corporation, and may sell, exchange, lease, or otherwise dispose of or depart with the same from time to time; but no property shall be sold or otherwise alienated unless by authority of the Board, granted for that purpose, at a meeting held after special notice shall have been given of the business to be transacted, and by a vote of at least two-thirds of the members present at such meeting.

XXIII. The said Corporations shall respectively be composed of the Minister of Agriculture for the time being (who shall be *ex officio* a member of each); the Professors and Lecturers in the various branches of Physical Science in the Chartered Universities, and Colleges affiliated with Universities, in Upper and Lower Canada respectively; the Chief Superintendents of Education in Upper and Lower Canada respectively, for the time being, *ex officio;* the principal or staff officers of the Principal or Geological Survey in that section of the Province in which they may be respectively residents; the President for the time being of, and one delegate from each of the incorporated Boards of Trade; and the President of, and delegates from each Mechanics' Institute, or of any incorporated Arts Association, qualified as hereinafter mentioned, in Upper and Lower Canada respectively—such delegates to be chosen annually as hereafter provided; and the Faculty of any institution of learning, of Collegiate rank, composed of at least five Professors or Lecturers—one of whom shall be a professor or lecturer upon Physical Science,—may, in the month of December in each year, elect one of such professors or lecturers to represent such College or Faculty upon such Board, and the President or Principal of such College or Faculty shall certify to the Board the name of the Professor or Lecturer so appointed.

XXIV. The incorporated Boards of Trade in each City and Town in Upper Canada respectively, shall at its last general meeting in each year, or at any special meeting held in the month of December, elect and accredit to the Board of Arts and Manufactures for Upper and Lower Canada, (according as its place of meeting is in Upper or Lower Canada) one of its body as a member thereof.

XXV. Each incorporated Mechanics' Institute in Upper or Lower Canada respectively shall, at its last general meeting in each year or at any special meeting held in the month of December, elect and accredit to the Board of Arts and Manufactures in Upper or Lower Canada, one delegate for every twenty members on its roll, being actual working mechanics or manufacturers, and paying an annual subscription of at least one dollar each to its funds.

2. Each incorporated Arts Association in Upper or Lower Canada respectively, expending not less than one half of its annual income for the promotion of the Fine or Industrial Arts in Canada, shall, at its last meeting in each year or at any special meeting held in the month of December, elect and accredit to the Board of Arts and Manufactures in Upper or Lower Canada, one delegate for every thirty members on its roll, who are paying an annual subscription of at least two dollars each to its funds.

3. But no Institution or Association shall be entitled to send more than fifteen delegates to either of the said Boards; and in case a vacancy occurs in the representation of any Mechanics' Institute, Board of Trade, or Arts Association entitled to send delegates to either of the said Boards, such Institute, Board, or Association may, at its first meeting thereafter, elect a delegate or delegates to fill such vacancy.

XXVI. The names of the delegates elected together with the names of the Presidents of such Mechanics' Institutes, Boards of Trade, or Arts Associations, as aforesaid, shall be forthwith transmitted by the Secretary of the Institute, Board or Association electing them, to the Secretary of the Board to which they are elected, who shall thereupon inscribe their names upon the roll of the members of the said Board, for the year about to commence.

2. With the names of the delegates so transmitted by the Secretary of a Mechanics' Institute or Arts Association, there shall

transmitted a statement, under the corporate seal of such Institute or Association, and verified by the written declaration of the Secretary transmitting the same, of the names of all the members on the roll of such Mechanics' Institute who are working mechanics or manufacturers, and are paying an annual subscription of at least one dollar each to the funds of such Institute; and the names of all the members on the roll of each Arts Association, who are paying an annual subscription of at least two dollars each to the funds of such Association.

3. If it appears by the said statement that any Mechanics' Institute or Arts Association has elected too many delegates, then the Secretary of the Board shall abstain from recording any of the names of the delegates of such Institute or Association, and shall submit the matter to the Board at its first meeting; and the said Board may, if they see fit, adjudge that such Mechanics' Institute or Arts Association shall not be entitled to any delegate for the year then next ensuing, or may decide by vote or ballot which delegate or delegates shall be rejected, and in this latter case the names of the remaining delegate or delegates shall be forthwith inscribed on the roll of members.

4. The wilful making of any false statement or declaration required or authorised by this Act shall be a misdemeanor, punishable by fine, in the discretion of the Court.

MEETINGS AND FUNCTIONS OF THE BOARD.

XXVII. The said Boards of Arts and Manufactures shall meet at the Cities of Toronto and Montreal respectively, twice in every year, that is to say, on the last Tuesday in the month of January and July, if such Tuesday be not a holiday, but if it be a holiday the meeting shall take place the next day thereafter, not being a holiday.

2. And the President of either of the said Boards, and, in his absence from the Province, or in case of a vacancy in the office of President, the Vice-President, whenever he deems it necessary or is required by any ten members thereof so to do, shall call a special meeting of the same, in the interval between any two meetings.

3. But no such special meeting shall take place until seven clear days after a written or printed notice signed by the Secretary of the Board, and specifying the day, hour and place of meeting, and the object or objects for which same is called, has been mailed to the address of each enrolled member of the Board.

XXVIII.—Each of the said Boards shall, at the regular meeting in January in each year, elect from among its members a President, Vice-President, and a Secretary and Treasurer, to hold office for the ensuing year, or until the election of their successors; and shall also elect a Council of not less than five nor more than nine of their number for the management during the year, of such affairs of the Board as may by any by-law be entrusted to them.

2. The President and Vice-President shall be *ex officio* members of such Council, and the Secretary and Treasurer shall be *ex officio* a member of such Council, when elected or appointed from among the members of the Board, and not receiving any salary for such services; and a majority of the members of such council shall be a quorum for the transaction of business.

3. But the said Boards, or either of them, may at any time they shall see fit so to do by a by-law for that purpose, appoint some fit and proper person whether a member of such Board or not, to be the Secretary of said Board, at such salary and upon such terms as to the said Boards, or either of them may seem proper, and may remove such Secretary from time to time, and may appoint another in his stead and place; and the said Boards or either of them, may in their discretion require the said Secretary, so to be appointed as aforesaid, to discharge the duties of Treasurer for the said Board, in addition to the duties pertaining to the office of Secretary.

4. In case of a vacancy occurring in any of the said offices in the course of the year, either by death, resignation or otherwise, such vacancy shall be filled up by election as aforesaid at any regular meeting of the Board, or, in the interval, by the Council at any regular meeting thereof.

XXIX.—It shall be the duty of the said Boards of Arts and Manufactures:—

1. To take measures, with the approbation of the Minister of Agriculture, to collect and establish at Toronto and Montreal respectively, for the instruction of practical mechanics and artizans, Museums of Minerals, and Material substances, and Chemical compositions, susceptible of being used in Arts and Manufactures, with Model rooms, appropriately stocked and supplied with models of works of art, and of implements and machines other than implements of husbandry and machines adapted to facilitate agricultural operations; and also free Libraries of Reference containing Books, Plans and Drawings, selected with a view to the imparting of useful information in connection with Arts and Manufactures.

2. To take measures to obtain from other countries new or improved implements and machines; (not being implements of husbandry or machines specially adapted to facilitate agricultural operations) to test the quality, value and usefulness of such implements and machines.

3. And generally to adopt every means in their power to promote improvement in the Arts and Manufactures of the Province.

XXX.—The said Boards, with the consent and approbation of the Minister of Agriculture, may establish in connection with their respective Museums, Model Rooms and Libraries, and Schools of Design, on the most approved plans,

and furnished and supplied in the most complet, and appropriate manner that the funds at their disposal will admit of, regard being had to the claims thereon of the other objects for which they are hereby estabished.

2 And the Minister of Agriculture may cause duplicates or copies of models, plans, specimens, and drawings, and specifications, deposited in the Patent office, and upon which Patents of Invention have been issued, to be made from time to time, and placed in the Model Rooms, Museums or Libraries of the said Boards of Arts respectively.

3. The said Boards may also found Schools or Colleges for mechanics and artizans, and may employ competent persons to deliver Lectures on subjects connected with the Arts and Sciences, or with Manufactures, in such manner and place as the said Boards may from time to time direct.

XXXI.—The said Boards shall keep records of their respective transactions, and shall from time to time publish in such manner and form as to secure the widest circulation among the Mechanics' Institutes, and among mechanics, artizans, and manufacturers generally, all such Reports, Essays, Lectures and other literary compositions conveying useful information as the said Boards are respectively able to procure.

XXXII.—The said Boards respectively may make and ordain such By-laws, Rules, Orders and Regulations, not being contrary to this Act or to the laws of the Province, as they may deem necessary, touching the disposition and management of their funds, property and affairs; the holding and management of exhibitions of Works of Art and Mantfactures, and the execution of the duties and the powers entrusted to them by this Act; and from time to time may repeal or alter the same and make others in their stead.

2. Copies of all By-laws, Rules, Orders and Regulations, and of the minutes of the proceedings of the said Boards, shall be transmitted forthwith after they are respectively made to the Bureau of Agriculture.

XXXIII.—All Mechanics' Institutes and Arts Associations receiving grants of money from the Government, shall be placed under the general supervision of the Boards of Arts and Manufactures for Upper and Lower Canada respectively, in like manner as the County Agricultural Societies are placed under the supervision of the Boards of Agriculture; and the said Boards shall receive from the Government, and pay over to the respective Mechanics' Institutes and Arts Associations any grants of money to which they may be entitled.

2. And it shall be lawful for each Board to retain for the use of its periodical Exhibitions, one tenth part of all such grants; and no Mechanics' Institute or Arts Association in Upper or Lower Canada shall be entitled to receive any grant of money from the Government, unless such Institute or Association has become incorporated under the general "Act respecting Library Associations and Mechanics' Institutes," chapter 72 of the Consolidated Statutes of Canada, or by special Act of Incorporation; nor unless such Institute or Association shall have transmitted to the Board of Arts and Manufactures for Upper or Lower Canada, a properly certified copy of its Annual Report for the past year.

3. And it shall be the duty of the respective Boards of Arts and Manufactures to send Agents to visit each incorporated Mechanic's Institute and Arts Association in Upper Canada respectively, whose duty it shall be to ascertain and report on the progress each Institute or Association is making in carrying out the objects for which the grants from the Government are made; and no Association or Institute shall be called a Mechanics' Institute within the meaning of the provisions of this Act, unless it shall have at least twenty members *enrolled as working* mechanics or manufacturers, who are paying a subscription of at least one dollar each per annum to its funds.

AGRICULTURAL ASSOCIATIONS.

XXXIV.—The members of the Boards of Agriculture and of the Boards of Arts and Manufactures; the Presidents and Vice Presidents of all lawfully organized County Agricultural Societies, and of all *Horticultural Societies*, Incorporated Mechanics' Institutes and Arts Associations, and all subscribers of one dollar annually shall, in their respective sections of the Province, be, and constitute an Agricultural Association for that section.

XXXV.—The Members of the Board of Agriculture and the Council of the Board of Arts and Manufactures, and the Presidents and Vice Presidents of County Societies, Mechanics' Institutes, Arts Associations and Horticultural Societies, (or any two members whom a County Society, Mechanics' Institute, Arts Association or Horticultural Society may appoint instead of its President and Vice President) shall be Directors of such Agricultural Association.

XXXVI.—The said Associations may hold an annual or biennial Fair or Exhibition which shall be open to competitors from every part of the Province.

3. The Directors shall hold a Meeting during the week of the Exhibition, and shall at such meeting elect a President and two Vice-Presidents, and shall also elect a Treasurer, who shall be paid a reasonable salary for his services; shall appoint the place for holding the next following and Exhibition of the Association, and shall appoint a local Committee of Management for the place where such Exhibition is appointed to be held.

4. And the said Boards of Directors respectively, may make such rules and regulations not being contrary to the laws of the Province, as may be deemed necessary to prescribe the powers and duties of such local committees, and

roper management of such exhibitions; and for e disposition and management of their funds, roperty and affairs, and the execution of the uties and powers entrusted to them by this act; nd the same from time to time to repeal or ter and make others in their stead.

5. But no repeal or alteration shall be made any rule or regulation, unless one month's otice of such proposed repeal or alteration shall ve been given in any Journals that may at the ne be published by the respective Boards of griculture and Boards of Arts and Manufactures.

XXXVII.—The Board of Agriculture, and e President and Vice President of the Board Arts and Manufactures, and one other member the Council of said Board, to be elected annuy by said Council, shall be the Council of the sociation, with full power to act for and on half of the Association between the annual etings thereof; and all grants of money, subptions, or other funds made or appropriated or for the use of the Association, (except ney collected by or granted to any local comtee for the local expenses of an Exhibition,) ll be received by and expended under the dition of the said Council.

). And the President of the Board of Agriture, and the President of the Board of Arts Manufactures, shall be respectively *ex officio* sident and Vice President of the Council of Association, and the Secretary of the Board Agriculture, together with the Secretary of Board of Arts and Manufactures, shall be *fficio* joint Secretaries of the Association.

XXVIII.—All contracts and all legal proings, by, with, or concerning the Associaton, l be made and had with the Council of the ciation in its corporate capacity, and no contracts, agreements, actions or proceedshall bind or affect the Association.

XIX.—The Council of the Association l have power to grant licences to parties to refreshments upon the premises enclosed for hibition.

HORTICULTURAL SOCIETIES.

L. Any number of persons, not less than y-five, may organise and form themselves a Horticultural Society for any City, Town, ge, Township or Parish, or Union of two ore thereof together, either in Upper or r Canada, by signing a declaration in the of Schedule A to this Act annexed, (but the necessary alteration as to the name of ociety,) and subscribing a sum of not less forty dollars annually to the funds thereof.

I. Such declaration shall be in duplicate, ne part thereof shall be written, and signa the first page or pages of a book to be by the Society for recording the minutes of oceedings during the first year of its exist and the other part thereof shall be written gued on a sheet of paper or parchment, l forthwith be sent by Post to the Min f Agriculture, who shall, as soon as may be after the receipt thereof, cause a notice of the formation of such Society to be inserted in the *Canada Gazette*.

XLII. Upon the insertion in the *Canada Gazette* of the notice of the formation of any such Society, it shall become a Corporation for the objects and purposes hereinafter mentioned, by the name applied to it in such notice, which shall be the same as that in the declaration transmitted by such Society, and may acquire and hold, lease and mortgage and alienate property, real and personal, for the purposes of such Society

XLIII. Every Horticultural Society incorporated under this Act may make By-laws, not being contrary to the laws of this Province or to this Act, for prescribing the mode of admission of new Members and election of Officers, and otherwise regulating the administration of its affairs and property.

XLIV. Every such Society shall hold a meeting in the first week of the month of February, in each year, besides meetings at such other times as may be prescribed or provided for by its By-laws; and at such annual meeting a President, who shall also be a Director, a Secretary and Treasurer, and not fewer than three nor more than nine other Directors shall be elected.

XLV The said Directors shall prepare and present to the annual meeting of the Society a report of their proceedings during the year, in the same manner as herein directed for County Agricultural Societies, and containing information under the same heads, save and except those which relate to Agriculture,—the object and purposes of Horticultural Societies being the same as those of Agricultural Societies, as hereinafter mentioned, but with reference to Horticulture only, and the said report shall be transmitted to the Secretary of the Board of Agriculture for that section of the Province in which the Society is situated, on or before the first day of April in each year.

XLVI. "Every Horticultural Society in any city, town, or incorporated village, incorporated under this act, or which may have been incorporated under any other act of the Provincial Legislature, shall be entitled to a public grant, equal to the amount subscribed by the members of such society and certified by their Treasurer to have been paid into his hands in the manner provided by the section of the act relating to Agricultural Societies, provided that the whole amount granted to any such society shall not exceed £100 in any year."

AGRICULTURAL SOCIETIES IN UPPER CANADA.

County or Electoral Division Societies.

XLVII. An Agricultural Society may be organized in each of the Electoral Divisions of Upper Canada for the purposes of Representation in the Legislative Assembly, in which there was not one embracing the limits of such Electoral Division already organized on the tenth day of June, one thousand eight hundred and fifty-seven,

Whenever fifty persons have become Members thereof by signing a declaration in the form of the Schedule A to this Act annexed, and paying each not less than one dollar annually to the Funds of the said Society; and a true copy of the said Declaration shall, within one month after the money has been so paid, be transmitted to the Board of Agriculture.

XLVIII. The object of the said Societies, and of the Township or branch Societies in connection therewith, shall be to encourage improvement in Agriculture or Horticulture, or both:—

1. By holding Meetings for discussion, and for hearing Lectures on subjects connected with the theory and practice of improved Husbandry;

2. By promoting the circulation of the Agricultural Periodicals published in the Province;

3. By importing or otherwise procuring Seeds, Plants and animals of new and valuable kinds;

4. By offering prizes for Essays on Questions of Scientific Enquiry relating to Agriculture or Horticulture, Manufactures and Works of Art;

5. And by awarding Premiums for excellence in the raising or introduction of Stock, the invention or improvement of Agricultural or Horticultural Implements and Machines, the production of grain and of all kinds of vegetables, plants, flowers and fruits, and generally for excellence in any Agricultural or Horticultural Production or Operation, Article of Manufacture or Work of Art;

6. The Funds of the Societies, derived from subscriptions of Members, or the Public Grant, shall not be expended for any object inconsistent with those above mentioned;

7. And the Directors of every such County Society, at any meeting, called by written notice as hereinafter mentioned, and in which notice the object of the meeting has been specified, may make, alter and repeal By-laws and Rules for the regulation of such Society and the carrying out of its objects.

XLIX. The first Meeting for the formation of a County Agricultural Society in Upper Canada under this Act, shall be called by the Warden of the County or Union of Counties in the third week of January in each year, at which Meeting the Election of the various Officers shall take place, and the Society so organized shall be deemed the County or Electoral Division Society and shall be entitled to receive the Provincial Grant hereinafter provided; and all subsequent Annual Meetings after the first Meeting shall be called and held as provided in the next following section of this Act.

L. The said Societies shall hold their Annual Meetings in the third week of the month of January in each year, and shall at such meeting elect a President, two Vice Presidents, a Secretary and Treasurer, and not more than seven Directors.

LI. The Presidents of the several Township Agricultural Societies, within the County Electoral Division, shall, in addition to those before named, be *ex officio* Directors of the County Society, provided that each such Township society shall have upon its list of members at least ten persons who are also members of the County Society, and paying not less than a dollar each, or that such Society shall otherwise have contributed ten dollars annually to the funds of the County Society; and the said Directors shall, for the year next following the annual meeting, and until the election their successors, exercise all the powers invested in the County Society by this Act.

LII. The Meetings of the Officers and Directors shall be held pursuant to adjournment, or called by written notice given by authority of the President, or in his absence, the Senior Vice-President, at least one week before the time appointed; and at any meeting five shall be a quorum.

LIII. The said Officers and Directors shall, in addition to the ordinary duties of managers, cause to be prepared, and shall present at the Annual Meeting a Report of their proceedings during the year, in which shall be stated the names of all the Members of the Society, the amount paid by each being set opposite his name, the names of all persons to whom premiums were awarded, the amount of such premiums respectively, and the name of the animal, article or thing, in respect of which the same was awarded, together with such remarks and suggestions upon the Agriculture and Horticulture of the County, and Arts and Manufactures therein, as the Directors are enabled to offer;

2. There shall also be presented to the said Annual Meeting, a detailed statement of the receipts and disbursements of the Society during the year;

3. The said Report and statement, if approved by the meeting, shall be entered in the Society's Journal, to be kept for such purposes, and signed by the President, or a Vice-President, as being a correct entry, and a true copy thereof, certified by the President or Secretary, for the time being, shall be sent to the Board of Agriculture, on or before the first day of April following.

LIV. The County Society shall receive the Reports of the Township or Branch Societies, and shall transmit them to the Board of Agriculture, with such remarks thereon, as may enable the said Board to obtain a correct knowledge of the progress of agricultural improvement in the County or Electoral Division.

LV. The said Officers and Directors shall answer such queries and give such information as the Board of Agriculture, or Minister of Agriculture, may, from time to time, by Circular Letter, or otherwise, require, touching the interests or condition of Agriculture in

ounty or Electoral Division, and generally hall act as far as practicable upon the recom endations of the Board.

Township Societies.

LVI. A Township or Branch Agricultural ciety may be organized in each Township in pper Canada, in which there was not one already ganized on the tenth day of June, one thous d eight hundred and fifty-seven, or in any two more such Townships together, whenever a fficient number of persons, not less than twen five, become Members, by signing a declara n in the form of Schedule A, to this Act nexed, and subscribing a sum not less than ty dollars annually, to the funds thereof; and rue copy of the said Declaration, certified by President or Vice-President of such Society, ll be forthwith transmitted to the County ciety.

LVII. The said Societies shall hold their nual Meeting on the second Thursday of the nth of January in each year, and shall elect a sident, Vice-President, Secretary and Trea r, and not fewer than three, nor more than e Directors.

. In the event of the Secretary or Treasurer g or resigning office during the term for ch he has been elected, it shall be the duty he Directors and they are hereby empowered ominate and appoint a fit and proper person ll the office for the unexpired term of the on so dying or resigning as aforesaid.

VIII. The said Officers and Directors shall are and present to the Annual Meeting of Society, a Report of their proceedings dur the year, in the same manner as hereinbefore cted for County Societies, and containing mation under the same heads, and shall mit a true copy thereof, certified by the ident or Vice-President, to the Secretary of County Society, in time for the Annual ing thereof in the month of January.

RAL PROVISIONS RELATIVE TO AGRICULTU-RAL SOCIETIES IN UPPER CANADA.

X. The Exhibition of the County Society be held wherever the majority of the Di s, or of a quorum thereof think fit, giving nd public notice thereof:

And two or more County and Township ies may, by agreement between the Direc thereof, or a majority of Directors of each Society, unite their Funds, or any portion f, for the erection of suitable buildings in to exhibit Articles of Produce or Manu e or Work of Art, or for Annual or Extra , or for Ploughing Matches, or for any purpose likely to promote the welfare of ne or more Counties or Townships, in lture, Horticulture, Arts or Manufactures, ay acquire, by purchase or lease, and hold nt land for this purpose, from time to and may exchange or sell the same.

LX. Whenever the President and Secretary of the Board of Agriculture, certify to the Minister of Agriculture, that any County Society has sent to the said Board, Reports and Statements, as required by this Act, for the year then last previous, and also certify that the Treasurer or other officer of the said Society has, on or before the first day of July, of the current year, transmitted to the said Board, an Affidavit, (which may be in the form of the Schedule B, to this Act annexed, and may be sworn to before any Justice of the Peace,) stating the amount subscribed for that year, and paid to the Treasurer of the County Society by the members thereof, and by the several Township Societies of said County, the Governor may issue his Warrant in favour of such County Society, for a sum to be paid out of any unappropriated moneys in the hands of the Receiver General, equal to three times the amount appearing by the said affidavit to be in the hands of the Treasurer:

2. But no grant shall be made unless one hundred dollars be first subscribed and paid to the Treasurer:

3. And the whole amount granted to any such Electoral Division Society shall not exceed eight hundred dollars in any year;

4. Except that each of the Counties of Lennox and Addington, Huron and Bruce, separately, shall be entitled to receive a sum not to exceed eight hundred dollars, on the conditions specified in this Act, and that the Counties of Prince Edward, Welland, Haldimand, Grey, Halton, Kent, Carleton, Essex, Lambton, Lincoln, Norfolk, Peel and Perth, shall each be entitled to receive as heretofore a sum not exceeding one thousand dollars in any year, and on the conditions aforesaid.

LXI. The City of Toronto,—the City of Kingston,—the City of Hamilton,—the Town of Brockville,—the Town of Niagara,—the Town of Cornwall,—the City of London,—and the City of Ottawa, as bounded for purposes of Representation in the Legislative Assembly,—shall each be entitled to receive a sum not exceeding four hundred dollars for the encouragement of Horticulture, Agriculture, Manufactures, and Works of Art within their respective limits:

2. Provided, that a sum equal to one third of the amount to be so paid by the Government, is subscribed and paid to the Treasurer of a Society to be formed within such Electoral Division, in the same manner as County Agricultural Societies under section forty-seven of this Act, and to be called "The Society for the Upper Canada Electoral Division of ," or as the case may be.

LXII. Every Township or Branch Society organized according to the Act sixteenth Victoria, chapter eleven, or to this Act, and sending a report of its proceedings to the County Society, as hereinbefore required, shall be entitled to a share of the grant to the County Society, in pro-

portion to the amount subscribed by the members of such Township or Branch Society, and deposited with the Treasurer of the County Society, on or before the first day of May in each year, as compared with the amounts so deposited by the other Township and Branch Societies of the County; and the sum so deposited by any Township or Branch Society shall be repaid, along with its share of the Public Grant, so soon as the said grant is received by the County Society:

2. Provided that three-fifths and no more of the sum so received by any County Society shall be subject to division among Township or Branch Societies; and provided that the declaration mentioned in section fifty-six shall be deemed a sufficient report for the first year in which any Township or Branch Society has been organized, and that no Township or Branch Society shall thus receive more than three times the amount so deposited by it as aforesaid;

3. And provided that nothing in this Act contained shall be construed as admitting any member of a Township Society, in virtue of his subscription thereto, and without further subscription to the County Society, to any of the privileges of a member of such County Society.

LXIII. The Board of Agriculture shall receive from Government, and pay over to the County Societies, the Public Grants, to which they are respectively entitled, and the said Board may retain for the use of the Agricultural Association, one tenth part of all such grants.

LXIV. Any Treasurer or other officer of any County, Township or Branch Society, who makes affidavit that a subscription, or any sum of money, has been paid to him for the Society, when it has not been so paid, or who returns any such subscription, shall forfeit and pay to Her Majesty the sum of forty dollars for every such offence, and shall be guilty of perjury and be held liable to all the penalties with which the law visits that crime.

LXV. The several County Societies organized according to the provisions of this Act, or of the said Act sixteenth Victoria, chapter eleven, or of any Act thereby repealed, shall be and continue Bodies Corporate, with power to acquire and hold land as a site for Fairs and Exhibitions, or for a School Farm, and to sell lease, or otherwise dispose of the same; And, any Township or Branch Society, lawfully organized as aforesaid, may, at any Regular Meeting, adopt a Resolution that the said Society is desirous of being incorporated, and upon filing the said resolution with the Secretary of the Board of Agriculture, such Society shall thenceforth be and become a Body Corporate, and shall have like powers with County Societies.

LXVI. Any County or Township Society, or the Municipal Council of any County or Township of Upper Canada, may purchase and hold land for the purpose of Establishing a School-Farm to instruct pupils in the Science and practice of Agriculture; And any Society and a Municipal Council may purchase and hold a School-Farm conjointly or otherwise, and make all necessary rules and regulations for the management thereof, *provided that not more than* one hundred acres of land shall be so held by any Society or Council, whether conjointly or otherwise.

LXVII. Whenever any property, real or personal, in any one or more of the Electoral Divisions, originally belonged to the County Society of the County of which the said Electoral Division formed a part, the said property or the value thereof shall be equitably apportioned or divided by Arbitrators or a majority of them, one to be appointed by the Directors of the Society in each such Electoral Division, and another Arbitrator to be chosen by the Arbitrators *so appointed*.

LXVIII. The word "County" in the section of this Act applying to Agricultural Societies in Upper Canada, means "Electoral Division," except where such construction is inconsistent with the express enactment in which such word is used; And the words "Electoral Division," whenever used herein, mean a Division for purposes of representation in the Legislative Assembly:

2. And the provisions of the said section with regard to grants and Electoral Divisions, conditions of grant, &c., &c., shall extend to any new Counties or new Electoral Divisions to be formed in Upper Canada; *except that no* Electoral Division shall be entitled to more than eight hundred dollars.

MUNICIPAL AID TO AGRICULTURAL SOCIETIES IN UPPER AND LOWER CANADA.

LXIX.—The Municipality of any City, Town, Village, County or Township in this Province may grant money or land in aid of the Agricultural Association for that section of the Province to which the Municipality belongs, or to any Agricultural or Horticultural Society whatever duly organized under this Act, within the limits of such Municipality.

SCHEDULE A.

We whose names are subscribed hereto, agree to form ourselves into a Society, under the provisions of the *Act for the encouragement of Agriculture, Arts and Manufactures*, to be called the (County, Electoral Division, Township, *or* Branch *as the case may be*,) Agricultural Society of the County (*or* Electoral Division of the County *or* Township of); and we hereby severally agree to pay to the Treasurer yearly, while we continue Members of the Society, (any Member being at liberty to withdraw therefrom, upon giving notice to the Secretary at any time before the annual meeting, of

h so to do,) the sums opposite our respective es; and we further agree to conform to the les and By-laws of the said Society.

NAMES.	$	cts.

SCHEDULE B.

NTY OF }
TO WIT: }

I, A. B., of the (Township) of
asurer of the County Agricultural Society of , make oath and say that the of has been paid into my ds, since the first day of February last, by Township Agricultural Societies of the said nty, as and for the Members' subscriptions this year; and that the sum of been paid into my hands, as subscriptions this year, by members of the said County iety; and that the said sums, making in the le the sum of . now remain in y hands, ready to be disposed of, according w.

m to before me this }
of A. D. 18 . }
A. B.

C. D.
Justice of the Peace for the
County of

Growth of different kinds of Wool.

he following interesting paper from a recent ber of the *Mark Lane Express*, will afford y useful suggestions to our readers. The lar of the Wool Supply Association, with imens of different kinds, wasreceived by our d of Agriculture, and some notices thereof be found in our last volume. We are of ion that with perseverance and sound judg- a great deal more in the production of the er sorts of wool may be done in Canada than nerally imagined.—ED.]

short time since we drew attention to the increased demand for long wool by the worsted trade, which has led the manufacturers and Bradford Chamber of Commerce to enter into direct communication with the several wool-producing countries, in order to stimulate greater exertion in the production of that class of wool. Our observations were then directed specially to the Cape wools and to the temper in which the suggestions had been received by the Cape flock-masters. But the whole subject has a far wider range of application than one colonial district, since our foreign supplies of wool are drawn from a great number of quarters, and every description of climate. As our journal is most likely to pass into hands abroad that have not been reached through the official channels by which the circular of the Chamber of Commerce for the worsted district was issued, we shall draw attention prominently to their requirements, and pass under review the different producing districts and the peculiarities of the wool they supply.

The increase in the imports of foreign and colonial wool in the last five years has been very large. In 1856 we received 124¼ million pounds; in 1860, 145½ million pounds; and in the eleven months of the past year 127¼ million pounds. There is a new item in the Board of Trade returns this year, nearly 15 million pounds of "woolen rags, torn up to be used as wool."

The increased supplies of wool have been, however, almost exclusively of a nature to adapt them to the woollen rather than to the worsted manufacture. Those interested in this latter branch of industry are anxious to stimulate the growth of wool suitable for their wants. The qualities they require give to the wool a higher marketable value for all purposes of manufacture, and are therefore well deserving the attention of growers, collectors, and shippers of wool.

The wool (the increase of which they desire to promote) should have a staple from four to seven inches long, according to its fineness, and should, as far as possible, be uniform in quality throughout its whole length; bright and lustrous in its appearance, or soft and kind to the touch, of good spinning properties, free from burrs or other vegetable fibre. It should also be well washed before it is clipped; or where this is not practicable, care should be taken that it be not cotted or felted in drying. It is most desirable to retain the whole natural length of the staple, by only clipping the lambs or sheep once during the season's growth, unless local causes render it absolutely necessary to do so oftener. It is also very important that a proper classification of wool should be made in packing, and that the packing should be thoroughly trustworthy and fair.

An improvement is already manifested in the wool of some countries, and it is thought this might be made general, if proper care were taken in the selection of breeding sheep, particularly of the rams, and, where necessary, by the introduction of new blood. The flocks

should, as much as possible, be pastured upon succulent grasses, similar to those grown in Great Britain. The destructive effects of drought or cold, or other climatic causes which check the growth of the grasses, by depriving the sheep of their necessary supply of food, and rendering the staple tender, ought to be prevented by a constant supply of food throughout the whole year.

The Wool Supply Association, in their circular, pass over in succession the different countries where wools suitable to the worsted trade are cultivated, and point out the faults belonging to each description. We shall quote some few of these practical observations, supplementing at the same time such statistics as will serve to show the quantity we import from these quarters. The wool imported from Portugal, which now amounts to about 4¼ million pounds, is long-stapled and bright, but with a sprinkling of grey and reddish hairs, which depreciate the value and limit the competition. The sheep, also, for want of attention, are apt to produce cotted and yellow-tinged fleeces, which only realize here about two-thirds of the value of free open stapled white wools. The receipts from Oporto have increased considerably of late years; but a good portion of the increase consists of wool from a lower breed, and is called here "Mountain Oporto." This description is part long, very coarse stapled, and the other part of the fleece is short and dull-looking wool, unsuitable for the same purposes as real Oporto, and realizing twenty-five per cent. less price. By attention this mountain wool might be raised to an equal character with the usually good description received from Oporto.

In Iceland the effect of a cold climate acting upon sheep left to nature, has been to produce a wool consisting of a long spiry coarse top, with a fine downy bottom, which for English consumers is very objectionable, and reduces the value. The annual production in the island is probably about 8,000 to 10,000 packs, and we import of Danish and Iceland wool about 2¼ million pounds.

If the Russian sheep farmers continue as they have hitherto done, to increase the numbers of their flocks rather than to improve their breeds, it may safely be predicted that their export of wool will decline from year to year. It is a notorious fact that the washing and assorting of wool in Russia—operations of great importance—with a few laudable exceptions, are performed with such consummate slovenliness as to be elsewhere unparalleled. Indeed, such is the absurdity and desire for gain of some flock-masters, that they speculate on the increment of weight from dirt, and wash their sheep in muddy water, in the expectation that the fleece will thus bring in more money; the fact being that the price offered by the merchant, who is quite alive to the trick, is in consequence so small, that the advantage redounds to him, and not to the farmer. Again, in assorting the wool, no separation is made of the different parts of fleece. Sometimes, too, the wool of dead mals is thrown in among that shorn from liv ones; and for ordinary wools, the product of ferent breeds is indiscriminately mixed. T negligence is detrimental, not only to the sale wool abroad, but also to the fabric of their ho manufactured cloths, especially in regard to t receiving the dye. In packing and transport the wool, the negligence exhibited is as great in any other department, and forms a strik contrast with the care bestowed upon those cesses in other countries. The wool is of found to contain a mixture of heterogene trash, such as waste of hay and straw, fr ments of bags, grain husks, &c. It is also b in coarse bags of bad quality, which are ea torn, and as the bales are exposed to the wea during the transport, nothing is easier than moisture to penetrate them.

Deterioration of breeds has been manife in Russia for some time past, not only in merinos, but also among the indigenous sh There are in that country several sorts of th common breeds, some of which yield such co wool that it can only be used for the manu ture of the most inferior felts, or in the caulk of ships. But there are also others, of wh the wool is employed for several sorts of c nary cloths, and might be improved, at least to a certain point, by judicious crossing more careful management. Instead of be regenerated by coupling with rams of a be breed, they are allowed to mix with races a inferior still; and their scanty nurture in win in connexion with the inclemency of the sea likewise has a tendency to render their w coarser. Out of about 50,000,000 of sheep Russia, there are not more than one-fifth a woolled sheep. The Donskoi sheep is prob in a state of nature, or at least partially so, the Crimean entirely so. Both these admi great improvement, and by care for a few ye a long-stapled good combing wool of fine qu might be produced, upwards of 30 per cent m valuable. At present we receive about 8¾ lion pounds of wool from Russia.

The wools from Turkey (Asiatic and Europ provinces), which now reach us to the extent 1,000,000 lbs., are usually very scurfy and ken both of which serious faults may be eradica by attention. It seems as if most of the w got no care at all. There is the basis of ca combing wool, even if the growers cross their own selected rams, without the introdu of English sheep.

The Egyptian wool, of which we import a 2,000,000 lbs., possesses many of the prope sought for by the consumers here. The st might be long enough if the native colle and growers did not induce the practice of sh ing twice in the year. The wool is bright, so and silky, but is sometimes spoiled by a spa ling of grey hair; also by the admixture of

-d, rough, fuzzy wool, known in trade as rian.

The wool received through Mogadore—under 000,000 lbs.—is deficient in lustre, kempy, d of a brownish colour; but, by judicious ssing with English blood, it could be brought resemble our breeds, and find a large and re-unerative market.

In the East Indian and Persian wools, of which siderable supplies are now coming forward pwards of 20,000,000 lbs. per annum) im-vement has already commenced, and a large ld awaits further development. Each year's ports are collected from a wider range, and we penetrate into a more temperate region find wool of a longer and sounder staple, as-ilating more closely to our English descrip-ns than the short hair wool that is usually wn near the tropics. East Indian wool has tendency to be burry and scurfy, with a slight ixture of gray hairs. The staple is generally short.

Our supply of wool from China has been on decline, as it found little favor here. The ports have dropped from 300.000 lbs. to about e-fifth of that quantity. It is unusually soft, ort-stapled wool, looking neit her like fleece r lamb, and is very cotted, kempy, and yellow. attention seems to be bestowed upon it by the wers, but when a regular demand arises, the inese will, no doubt, give more attention t and effect desirable changes. From the ex-ordinary fecundity of the sheep, large quan-es might be produced.

It is gratifying to see that the Central Farm-' Club has the growth of lustre wool on the rd for this year; while the correspondent of ocal paper thus refers to the home growth; The lustre wool is not much in request, and I ould be especially glad of a well-reasoned and horitative opinion as to whether or no its ular production could be depended on upon the ht farms of Hants and Wilts? My own inion is that a flock of Lincolns would, if the were always brought from Lincolnshire, d the flock regularly fed on turnips, &c., re-the lustrous character of their fleece."

Changes of the Atmosphere.

(From the Mark Lane Express.)

The mutual dependence of the various phe-mena exhibited within the limits of that vast ial ocean, the atmosphere, and the modifica-ns that each meteorological process undergoes ough the agency of all the rest, has tended retard, and render extremely difficult, its ctical application to the wants of every day The complexity of the causes which dis-b our atmosphere is so intricate, that it be-mes a nice and delicate task to determine what cause and what effect, so completely does the seem to take the place of the other, accord-to the point of view from which we make our observation. For this cause meteorology seemed rather to belong to the region of specu-lative philosophy than to rank as one of the ex-act sciences; and the only persons by whom it was much followed seem to have placed their faith in the very problematic power of empirical predictions, rather than attempt to trace causes from observed effects. As an example of the many and different modifying processes through which nature works, let us spend a few minutes in considering the causes which operate on some of the currents of air, so regular within certain limits, yet so varied in our own latitude. Suf-ficient attention has not been paid to the subject of the winds, either by the agriculturist or the philosopher; a fact in a great measure owing probably to the want, till late years, of self-re-cording anemometers. A good trustworthy wind vane is a very useful thing in any case, and should be often consulted; but we can hardly hope for any very concise results, unless we have the means of tracing, through a long period of time, every movement and change in the direc-tion. It is only from an uninterrupted series of such records that we can expect to establish, finally, the periods of so apparently erratic an ele-ment as the wind. One can scarcely realize the fact that the gentle air as it fans the bronzed cheek of southern Europe, and with a soft per-suasion wafts the tiny skiff over the unruffled waters of some placid lake, is the same element that, when acted upon by certain forces, unseen, yet not the less powerful, hurls destruction over land and sea, turning the calm waters, where the ship like "a painted thing upon a painted sea" rides at anchor, into a raging and furious flood—a remorseless and quick destruction alike for ship and human life. The fiery simoon and sirocco of the Indies, the pestilence-bearing winds of western Africa, the tempestuous gales that crush and tear to atoms the floating homes of hundreds, filling the coasts of more northern climes with death and horror, are all of one family with the soft breeze that wakes with gentle murmur a summer morning, or the cooler airs that, as the shades of night draw on, seem to sigh for the departing day. Truly we cannot tell "whence it cometh or whither it goeth," and can only trace its course over a limited space by the marks of its iron foot-step, or by the more refined appliances of science. But who can tell the place of its birth? The human mind can hardly conceive by what Titanic forces the light and buoyant air is acted upon, that in its headlong course it overturns the strongest monuments of human art, as well as the giant inhabitants of forests, whose seeds, perchance, had germinated under the same sun that cheered our Saxon forefathers.

We shall better understand the various dis-turbing causes which exert their influence on the atmospheric pressure, if we commence by examining what would be its state if but few of the causes existed. Let us suppose our earth

covered with water of an equal depth, then there would exist but little variety either in the force or direction of atmospheric waves. The only causes which would under these circumstances, owerate to give the air motion would be the rotary motion of the earth round its axis and its position in regard to the sun. In addition, suppose the sun to be always in the equinoctial; in that case, we should have a system of winds like those existing at certain times of the year at the tropics called he "trades" which would be invariable, the mean line of direction prevailing at the equator, whilst the earth's motion would modify the currents as we went towards either pole gradully. But this constancy is wisely upset by two main causes, viz., the movement of the sun in declination, which tends to carry the middle line below or above the equator, according to the season, by 23½ degrees; the other disturbing cause is to be found in the existence and peculiar form of the continents. There are many other causes of wind of a local character: the variation in colour of the landscape, and, consequently, the unequal radiating power of different tracts of land, will tend to disturb the atmospheric equilibrium; whilst the difference between the radiating and absording power of the sea and neighbouring land causes those diurnal currents experienced by the sea, especially in tropical regions, known as land and sea breezes. During the day the land acquires a temperature higher than that of the adjacent ocean; the atmosphere above it consequently becomes rarified, and the air from the sea flows towards the land, to occupy the partial vacuum produced there. In proportion as the heat of the land goes on increasing, the force of the sea breeze increases also; and this continues up to about 2 or 3 p. m., varing slightly with the season. After that time, the land more readily giving off the heat which it received during the morning hours, the land cools much more quickly than the sea, and the sea breezes cease about sunset. During the night the land continues to cool, and the air over the sea comparatively warmer; and the air therefore. sets from the land, where it is denser towards the sea.

Now, when we consider how many causes there are combining to make the sun's action very unequal over the surface of the globe, and the consequenee in the temperature of the air lying over it, we can hardly fail to see the reason why the currents of air coming to us are so diversified both as regards strength and direction; our removal from the limits of the "trades" being another reason of our not experiencing the periodicity of the tropics. Hitherto, as we have remarked, the observations relative to the phenomena of the wind have been very inadequate for the purpose of determining much about the laws by which they act in our latitude, owing to the number of disturbing causes. What is a *cause* in the tropics becomes an *effect* in our latitude; the cause existing yond our limits. For example, the tempera is the cause, perhaps of a certain wind in tropics. Now with us, it frequently happ that the *wind* is the cause of a change in temperature. The element of meteorology w no doubt, as observations become more nu ous, be much better understood than it is present; and as the wind affects the climate our globe to so large an extent, by bea moisture and heated air to regions remote fr the places of their birth, and also by cau the circulation of differently heated oceanic rents, a better knowledge of its force, direct &c., both as regards the more extended m ments, as well as the influence of local peculi ities, is much to be desired.

The Parsnip.

The parsnip is one of the most valuable r that can be grown. In the Island of Jers is used almost exclusively for fattening h cattle and swine According to La Couteur weight of a good crop varies from thirteen twenty-seven tons per acre. When parsnip given to milch cows, with a little hay, in winter season, the butter is found to be of fine a colour and excellent flavor as when animals are feeding in the best pastures. parsnips contain six per cent. more muc than carrots, the difference may be sufficie account for the superior fattening as well butter-making quality of the parsnip. In fatteniug of cattle the parsnip is found sup to the carrot, performing the business with a expedition and affording meat of exquisite highly juic flavor; the animals eat it w much greediness. The result of experi has shown that not only in neat cattle, bu the fattening of hogs and poultry, the ani become fat much sooner, and are more hea than when fed with any other root or vegeta and that, beside, the meat is more sweet delicious. The parsnip leaves being l bulky than those of carrots, may be mown before taking the roots, and given to c cows or horses by which they will be gre eaten. Another thing in favor of parsnip this country is, that the frost does not in them. They may remain in the ground spring, when they make a splendid feed, time when every other kind of root or g thing is scarce, or they may be slightly bu where they can be obtained almost any during the winter. On account of their l growth when young, the weeding is less tro than weeding carrots.

CUTTING SEED POTATOES.—The effects of viding potatoes as seed have often been dis ed, some stating it as their belief that the was good, others as vehemently insisting

-as wrong in principle as it was bad in ·ice. Certainly, reasoning from analogy, ·tter seems to have the best of the argu- t. May not the dividing of the seed year ·year be stimulative of disease—at least by ·ening the powers of germination of the plant ispose it to disease? The following is the lt of an experiment on the growing of pota- The experimenter planted 27 holes with le potatos; 23 with cut potatos, three s in each hole; 23 holes with cut potatos, pieces in the hole. The seed used was ·ged by weight and size. The holes of un- ·otatoes yielded 55¼ lbs., the 23 with three in each 27½ lbs., and the 23 holes with two 39½ lbs. The treatment as regards manure, &c., was alike for all the plots.

Agricultural Intelligence.

Spring Shows.

e are informed of the following Shows to place this Spring. We request secretaries gricultural Societies to inform us of the of their exhibitions at as early a date as ible, so as to admit of publication in time ·of use to those interested:—

·llarton, Logan, and Hibbert Agricultural ety, at Mitchell, April 2.

est Riding of York Agricultural Society, at ton, April 23.

ing Township Show and ploughing match; etlleby, April 22.

Italian Pigs.

om a letter describing the animals at a re- agricultural exhibition in Italy, we copy the wing:

A few of the pigs seen here were small, ·r fat, pig like cleatures; but the greater of them were enormous, boar-like monsters, white, some black, some very hairy, some tusks,, some without; all of them the most t, long legged, diabolical looking brutes inable. The little round fellows were of ·ineso breed; the hairless frights were from ·ovely Val d'Arno; the most formidable tusks from Contentino and Sardinia; the most ly prized appeared to be the Tuscan Gentil, Forestieri, black giants, almost wild, living e woods, weighing from 600 to 700 Tuscan ds, with long, boar like, black bristles, long , and legs like stilts: bold enough to attack veller, and ferocious enough to give him ·d deal of trouble, but furnishing pork of a ·ior flavor, and hams which appear to oc- a high place in the affections of Italian *mets*. Some of these brutes were seven long, without counting their long snouts, longer tufted tails. Prince Orsini, Prince Demidoff, and a numerous company of dukes, marquises, counts and barons, seem to have devoted their energies with especial zeal and success to the development of the procine genus."

Horticultural.

Dwarf Standard Fruit Trees.

To the Editor of the Agriculturist.—I saw a report in your valuable paper of February 1861, of a Fruit Growers' Association for Upper Canada being formed, for the purpose of collecting all the information possible, to advance the interests of fruit growers in this section of the Province.

This appears to be a step in the right direction, for as Horticulture is only in its infancy in Canada, the time cannot be hastened on too fast that every one may sit under his own vine and his own fruit tree, to enjoy the fruit of his labour.

I would like to become a member of the enterprising Fruit Growers' Association, to help along so good a work, but the distance is so great between us that I fear we will seldom meet, unless it should be through the columns of the Agriculturist. And these long winter evenings should be the time employed for the purpose of giving our experience to those that wish to be benefited by it.

Dr. Beadle calls on me in the February number of '61 to give some further particulars on some points than I did in my essay. This I should have done long ago, but being such a poor hand at putting my experience on paper is my only excuse. If Mr. Beadle should call on me sometime when at my plough or at work in my orchard, I could sit down and tell him much better my experience in fruit culture. But such as it is you must accept, otherwise throw it under the table. Mr. Beadle makes the remark that, I say in my essay that it is the hot sun of July or August that causes the disease I mentioned in the body of the trees. This I still believe is the first cause, followed up by the extreme heat and cold of March causing the disease to break out and fully develop itself as described in the essay, by the bark pealing from the body of the trees.

Mr. Beadle enquires our mode of trimming and cultivating the low top trees. This I think we described in our essays, which you can turn to in the July number of '59. But the advantage is not only in the protection of tender trees from the diseases before described, but also in the convenience and ease in their management, such as trimming, when you can remain on the ground to do the work, instead of climbing gorilla-like in high trees, marring and bruising every limb you step your hard nail bottomed boots upon, or poised upon a ladder, subject to falls and bruises. You often likewise wish to have the

company of your children to assist in gathering the fruit. But if a large apple should fall 10 or 15 feet from some high limb, and strike one of the little urchins on the head, it might leave him senseless on the ground, besides there is the loss of all such apples being bruised and unfit for market. But the advantage in favor of low trees is not only in the protecting of their bodies and in trimming, but also in the fruit being protected from being blown off by the winds, the convenience and ease of gathering the apples, bringing them in the barrel sound and fit for market, in keeping the plough away from tearing the upper and best roots, and the whiffle trees from rubbing off the bark from the side of the trees, the trees bearing fairer fruit, and in making the labour much less in scraping and washing their trunks. Mr. Beattie recommends the bodies to be 3 or 4 feet, but I want the limbs to branch out from the ground, then snow covers up their short bodies in the winter and protects them from the frost and sun, one of the most important points. Your committee has informed the public on one very important point, in publishing the hardy kinds, all others should be abandoned. One half of the apple trees published in the American catalogue should never cross the water, or be planted this side of Toronto. for when so many fail it has a tendency to discourage men from planting. We must search for more hardy varieties, by testing new kinds that have been introduced. I shall plant out 50 or more new kinds this spring, and if I get one or two out of that number that proves hardy, I shall be well paid for my trouble. Without doubt there are more hardy kinds, and we must find them.

R. B. WERDEN.

Picton, Feb. 27th, 1832.

On the Culture of the Vine in the Open Air.

[Read before the Hamilton Horticultural Club, by D. A. McNabb, Esq., March 4th, 1862.]

MR. PRESIDENT: SIR.—Your Secretary has assigned to me, the production of an Essay on the cultivation of the Vine "in the open air."

So important a subject he should have placed in the hands of a member more competent, and numbering, as our club does, so many practical gardeners, this would have been an easy task; such a course would also have brought out the fullest information, information that would convince any one having unoccupied ground 12 feet square, that it is his own fault or the time is not far distant when he can sit down under his own vine and enjoy the fruit thereof.

You (Mr. President) may be assured that it has puzzled my wits considering what course to pursue in framing such an essay—that it might be plain, simple, and to the point. The conclusion come to, is to give you *the course* I annually pursue, convinced that course when followed by others will pr the same results, making Western C what it ought to be, a grape producing try.

Select a piece of ground having a r east aspect, and sometime during su trench it 2 feet deep, (if not let it be perly drained) trenching in as much to as can be procured from any old pasture, fully avoiding animal manures of all ki

Prepare a lot of stalks 6 feet long a number according to the quantity of vi be planted, commence 4 feet from the r insert the stakes 18 inches in the grou feet between each stake and 15 feet bet each row. In September or first week in tober, having obtained good strong l (one year old) commence planting. I going to say cut your layers back to 3 but your nurseryman will do that fo if *you purchase the best varieties*. Take inches of soil around each stake in a equal to the vine's roots to be planted, vine on the south side of the stake, car extending the main or larger roots in str lines from the stake, arranging the smaller in their natural position, with a trowel in' commence at the extreme end of the roots cover them with the earth taken fro circle and from the alleys, take sufficient to cover the roots with 4 inches of soil, ing it firmly with the foot, which will fini planting. I would here urge the impor of spending some little time even in mi placing each root and rootlet in its n position; if this is carefully done, not vine in one hundred but will take root establish itself before winter sets in. No now remains to be done but to protect the with evergreen branches, and where such not be obtained, corn stalks or any *clea litter* will be suitable.

Second Season. If the vines have covered with any kind of litter liable to they should be examined shortly after first mild weather, taking such decayed away and re-covering the vines with dry straw. During this season little re to be done more than keeping down and when ground is an object many ki vegetables or root crops may be put in, done a circle 3 feet in diameter around vine should on no account be dug.

About the middle of May the vines be examined, and where more than one b started pinch back the second to one and the one next the ground rub clean.

During summer as the vines grow, back the later branches to one leaf, tyi vines up to the stakes. About the mid July mulch the ground around each vine fresh stable manure 3 inches deep forn circle around each vine 3 feet in diamet

-ring the first week in October fork over ground turning in the mulching and any *soil* from properly decayed manure. In ember examine and Fall prune the vines, if they have ripened 6 feet of wood a ll crop of fruit could be taken from them -g the third season, in which case the -ls should be cut back to the fruit buds, the canes cut back to 3 feet, but as is not desirable I would advise cutting the canes to 3 buds and protecting them ng winter as directed in the treatment for season.

ird Season. The treatment this season be same as the second, for vines cut back to buds, and for those allowed to fruit course will be pointed out in the treat- t during the fourth season except in fall ing; the canes should be cut back to 5 6 inches.

ourth Season. The vines having ripened 5 feet 6 inches, about the first of May, rlier if the buds are pushing out tie each up to its stake, rub off all buds that ap- on the first 10 inches of the cane from ground, thus giving ventilation under the The next two buds should be allowed m, that is they should grow without hing unless it be to pinch any blossoms may show. When the remaining buds leaves beyond the blossoms, begin at the of the vine, and rub off all leaves except before you come to the leaf opposite the blossom, leaving one leaf after the last om, pinch back the fruit-bearing-branch. y be here stated pinching is done with humb nail and forefinger, and when the er pruning is done at the proper time--is nly scissors required during the season of ner pruning. The end of May or beginning ne the laterals will begin to push out, these back leaving one leaf—and at the of being considered moon struck on the question, I would state—Each new indicates the proper time for pinching laterals, for at such a period in each h, you will find the vines pushing out laterals which are easily pinched back to af. About the first of July perform the operation, and about the fifteenth mulch ines with fresh stable manure 3 inches in and in circles 4 feet in diameter around ines. On the first of August pinch back laterals, and on the first of September rm the same operation for the last time g the season.

e fruit will now begin to color and dur- at period the vines should not be prun-

the first of October your grapes should , varietes requiring a longer period to e are not worthy of cultivation around ocality and much less north of Hamilton. quently the crop should now be gather- ed, and when done the ground should be forked, adding rich virgin soil as proposed in the first part of this essay.

During November the fall pruning should be done, and as there are so many styles of pruning and training the vine, I would refer to any work on the subject, that such style as pleased the fancy might be adopted. If the upright system is selected the main cane and the two leaders produced should have all laterals cut back to the fruit bud, and the leaders cut back to 5 feet each from the main stem, those leaders will give a crop the following season.

During the fifth and following years two side branches should be added annually, say 14 inches apart, that the last two would be at the top of the main stem, thus giving four branches on each side of the upright or main stem. whem the vine is complete.

In after years the side branches may be worked upon the renewal system, or, as I have found suitable for this climate when the spur system failed during cold winters, the vines can be fruited upon what is known as "*old wood*" that is wood of more than one year's growth. When this system is adopted the vines should be pruned back in the fall, leaving only the upright and side branches, or what is known amongst gardeners as, the "walking stick system."

In May following when the vines are tied up to the trellises it will be found half a dozen buds have pushed at each joint. Begin at the top branches next the upright, select two of the largest buds out of the remaining ones and leaving 13 inches between each pair of buds, or as near that distance as can be arranged—thus go over all the branches.

In four to five days after this operation the buds will shew fruit blossoms, then go over the vines again, rub off the weaker one of each pair of buds. and follow up the treatment as directed for summer pruning during the fourth season.

I cannot close this essay without urging the necessity of taking every care to protect the surface roots of the vine, never using a spade nor digging of any kind during spring or summer, such a course will in a great measure prevent mildew as also increase the sources of supplying the vines with nutriment to produce and mature the fruit. You (Mr. President) will perceive in the foregoing remarks that nothing has been said in favour of making vineyards or vine borders, a receptacle for every discription of filth. At the same time when earth formed from decomposed bodies, whether fish, animal or vegetable, can be obtained, no doubt such is very desirable, and when forking the ground in fall a reasonable quantity should be forked into the ground, thereby preparing a fund from which to draw a future crop of grapes, if there is an

exception to this rule the article is bones, those may be added in any quantity.

Nothing has been said regarding vines most suitable for cultivation, perhaps such is hardly within the province of this article. However, the Fruit Growers' Association have recommended the new varieties and no doubt such will be the general favourites until more suitable Canadian seedlings are produced, an event many would be pleased to see, and which may not be far distant, as many besides practical gardeners are giving this matter their attention.

As regards climate, there cannot be a doubt in the minds of those who have given this subject any thing like a fair trial, that grapes can be produced, and that in large quantities, nor is the time far distant when the shores of Lake Erie and the banks of the Detroit river will produce grapes in quantity and quality, making it at least unnecessary to import them from Kelly's Island or any other part of the United States. Now Mr. President, as you have the little I know regarding vines in the open air, I trust your Secretary will place this matter in such hands next year, that still further information will be placed before the club, information which will produce vineyards around this and other localities, making Canada as I said before a Land of Vineyards.

Tree Wounds.

Young and vigorous trees, when injured or wounded, soon begin to heal of themselves, and in time the wound is healed or covered over by the successive layers of alburnum that each year forms and converts into wood. Very many of these wounds, however, will heal over a great deal quicker if a little care be taken in cutting away any dead wood or projecting splinters and covering over the wounded parts by some composition, such as grafting clay or grafting wax, or with a plaster of mortar made of slaked lime, sand and pulverized burnt bones, or even by a plaster of hydraulic lime.

Any one who passes through an orchard that has been subjected to the common tomahawk pruning will learn a good many lessons of nature in regards to her efforts to heal up and heal over the wounds that have been inflicted. You will see that where a limb has been cut down smoothly and level or even with the body from which it started, nature, in a year or two, has closed it up, leaving only a neat, compact cicatrix. But where a stump has been left sticking out two or three inches, you will see the efforts of nature have been in one sense, thwarted. The end of the stump still projects out dry and hard, while several layers of alburnum have been laid up one upon the other, and working inward as if endeavoring to climb over and enclose and hide it from view. If the life and vigor of the tree continues long enough, will be accomplished, but in many instances fails of doing it, and the naked stump continues to project for a while as an evidence of the folly of the man who cut it off, and then the weather begins to destroy it, and decay commences. The wood rots and falls out and an unsightly hole or cavity is the result. The lesson to be learned from this is—cut limbs smoothly even with the body from which they start, and then cover over the wound with some preparation that will prevent the decay of the wood exposed, and at the same time allow the layer of alburnum or sap-wood to be lapped over year by the natural process.

Oftentimes these unslightly wounds can be sooner healed, by cutting down the dead wood to a level with the bark, or by a gouge, a little below, so that each successive layer of sap-wood formed after this shall roll inward and close and over the cut instead of having to climb, as it were, over the projecting stump before can begin to hide the cut across the limb. A very little observation and care in these matters will soon give one an insight into the laws which nature operates in her healing process, and by following nature, you can not only prevent much loss of her valuable labor, but can hasten, in many instances, her labors and effect the results desired.—*Maine Farmer.*

Wild Vine.—It has often asked why wine could not be extracted from the wild grapes that grow spontaneously in many parts of Canada, and the same question may be presented itself to many of our readers, while strolling in the vicinity of Montreal, as observed in the autumn, tempting clusters of this indigenous fruit bearing down branches of young trees, or peeping out from the high foliage of the stately denizen of the forest. Mr. Courtenay, who has passed many years of his life in vine growing countries, lately leased Mr. Sewell's villa near Cap Rouge, where he had the opportunity of becoming acquainted with the wild vine of Canada. Being familiar with the art of wine-making he succeeded in extracting from 10 lbs. of fruit produced by one vine, bottles of wine of a beautiful color and taste like Bordeaux; of these, three bottles were a first quality and seven of a second; besides five bottles of vinegar. It is said Mr. de C. intends to plant ten acres next spring with Canadian vine.

A Spring Tart, Rhubarb.—Does any one doubt, or not know the desirableness of this vegetable! Then we pity him. It is one of the finest things in the world to make a pie or spring tart. Apples often give out in April or May, and those which remain are withered and tasteless. Man's stomach longs for something more crisp and juicy. The pie-plant affords that very thing. It forms a connecting link in the

chain of articles for pie making Think, of the doctor's testimony, that it is "one of most wholesome, cooling and delicious subces that can be used for the table. For ntery in children, it is an infallible remedy, ed, seasoned with sugar, and eaten in any ality with bread." We have tasted samples sir wine made from this plant. It is also d for jellies and jams.

lode of culture.—Procure a few crowns, h roots attached, and set out only one in a e. Rhubarb will live in any kind of soil, to get large, succulent stalks; the soil must deep and rich. Five or six plants are ugh for an ordinary family. Lay off a bed feet long by 4 wide. Remove the top soil; k up and manure the subsoil heavily, and n return the top spit to its place. This last uld be enriched with a light dressing of old nure; and if the land is stiff clay, a little sand uld be worked in. Then set out the crowns a line, four feet asunder, leaving the plump, kish buds an inch or two below the surface. 's work may be done in the Fall or early in ing. New roots will soon form, and the wth will rejoice the eyes of the planter.

he after culture is very simple. Keep the und free from weeds. Pluck no leaves the t year. In the Fall, put a peck or more of rse manure around each plant; this will proct the roots and furnish nutriment for the next r's growth. In the second summer the leaves y be plucked in moderation, and after that te freely. Let the plants, however, have ir autumnal dressing, to be forked into the the following Spring. In our own grounds, have pursued this course several years; and the stalks and leaves of our plants are so fficient, we are often asked the name of new and improved varieties. We uniformly ly by pointing to the manure heap.

Forcing.—If any one wants to get a very early t or pie, he should, towards the end of this nth, set a barrel or rough box—head'ess and ttomless—over the crowns of several early nts, and surrounded the same with fresh manfrom the horse stable. Put a few forkfulls ide of the barrel, and a bushel or more oute. This will soon generate a local climate of ° or 60°, and give the plants a start, while se not so treated are yet asleep. The barshould be kept nearly or quite covered for days, and then gradually opened as the sea- and all plants progress. Add a little fresh ure outside the barrel after the first week. soon as the other plants are fit to cut, the forced ones should be uncovered and allowto rest.—*American Agriculturist.*

Ventilation of Forced Plants.—Probably, e most delicate of all the requsite operations tte proper regulation of the supply of moisre to root and branch. A certain amount of isture is essential to the health of all plants, and this amount varies in different cases; but with few exceptions, certainly as a rule in the case of flowering plants, this must not approach to the state of wetness. Formerly it was thought that these plant cases, or Wardian cases, required to be kept constantly closed, and then the plants were continually in a vapour bath, and as a consequence, they were as continually "damping off." It is now better understood that ventilation is absolutely necessary to the growth of plants in glass cases; and one object of ventilation is to regulate the atmospheric moisture by carrying off the excess, which would cause the flowers and leaves, and, in extreme cases, the stem itself, to rot. Experience alone, but experience soon to be gained by an intelligent and watchful eye, can teach a safe lesson as to how much moisture is necessary in particular instances. Probably, the safest rule is to allow the plants only the smallest quantity of water which will keep them from drooping, and in winter, at least, it will be found that within the shelter of the glazed covering the soil will dry so slowly that weeks may intervene between the waterings, especially if the pots are plunged in some such material as dry sand, which is desirable. When artificial heat is employed, as when bulbs are forced into bloom, a greater amount of moisture will of course become necessary.

Keeping Celery in Winter.—A correspondent of the American Agriculturist says:—I carefully lifted my celery with as much earth as would adhere to the roots, and set the plants close together in the milk trough in my springhouse, and at once put in and have maintained about 6 inches water in the trough. The celery shows as much vigor of growth now (Jan. 15), as before transplanting, being much larger now than when it was dug up, bleached nicely, and the new growth is very fine and crisp.

Domestic.

Hints for Clear Starching.—Collars, under sleeves, or handkerchiefs, of very fine muslin or lace, will not bear much squeezing or rubbing when washed. They can be made perfectly white and clean without either, or by the following process:—Rinse them carefully through clean water, then soap them well with white soap, place flat in dish or saucer, and cover with water; place them in the sun. Let them remain two or three days, changing the water frequently, and turning them. Once every day take them out, rinse carefully, soap and place in fresh water, The operation is a tedious and rather troublesome one, but the finest embroidery or lace comes out perfectly white, and is not worn at all, where, in common washing. it would be very apt to tear. when they are white, rinse and starch in the usual way.—*Germantown Telegraph.*

Veterinary.

Pleuro-Pneumonia.

Report of a committee appointed by the Mussachusetts Board of Agriculture to enquire into the state of this destructive disease among horned cattle, published in a recent number of the *Boston Cultivator*.]

The undersigned, a Committee appointed by the Board of Agriculture to prepare a statement of facts for publication in relation to the cattle disease, would respectfully report that—

Having good reason to fear that the disease known as pleuro-pneumonia (so fatal in its ravages among the neat stock of North Brookfield and vicinity in the years 1859 and 1860) has again made its appearance in several towns in the county of Norfolk, they feel it the duty of this Board to warn the farmers and others, owners of neat stock in the Commonwealth, that the time has arrived for them to take every precaution to prevent the spread of this scourge; and in view of its contagious nature they would urge the necessity of the greatest care being taken by all interested in purchasing or permitting strange cattle to come in contact with their herds.

The disease now claiming our attention made its appearance in the town of Quincy last April, breaking out in two herds nearly simultaneously. Eight animals from one of the herds were sold to a person in Randolph, in the month of September, for $85 for the lot. One of these animals died before reaching the home of the owner and three months shortly after. The other four have been lost sight of. One herd in Milton, and also one herd in Dorchester, have been affected for some months. Four animals from one of these herds, which had been sick during the summer of last year, but had apparently recovered, were taken to Brighton in the fall and sold. Four of the other herd have since died or been killed—all presenting a seriously diseased appearance. On examination by the veterinarians conversant with the Brookfield complaint, they pronounce it identical, so far as they could judge. There are four or five animals still left of this herd, some of which are either sick or showing symptoms of contagion. There are also other cases which have not been examined—the Selectmen of the towns waiting the action of the Legislature in passing a law authorizing a new commission. The law has now been passed, and the commissioners appointed, and we would respectfully urge upon the gentlemen composing that commission, the great importance of immediate measures to investigate the disease, and if necessary applying the remedies placed by the law in their hands, that the ravages of this fearful pest (which there is little doubt is identical with the Brookfield dis- and which can be traced to that neighborho- may be stayed.

There being doubters in the community a- the existence of contagious pleuro-pneumo- earnest attention is called to the thorough- convincing report of the first Board of Com- sioners, with accompanying document-, publi- ed in the report of the Secretary of the Boar- Agriculture for 1860.

We believe that no person, however preje- ed he may have been, who has been present the examination of affected animals, has fa- to become convinced of the contagiousness this disease; and it would seem impossible th any one can doubt this fact who will take trouble to examine the various reports that h- been made in Europe and in this country on- subject.

HENRY H. PETERS, of Southborough,
PHINEAS STEDMAN, of Chicopee,
FREENAN WALKER, of No. Brookfield,
Committee.

Boston, Feb. 27th, 1862.

Miscellaneous.

A Chapter on Clouds.

(FROM THE BOSTON CULTIVATOR.)

The study of clouds is interesting and use- A knowledge of their changes, the phenom- which they present, the endless variety of sh- and size which they assume, their formation- dissipation, their varying colors, all combined render them objects worthy of investigati- They are intimately connected with the hu- affairs of the world. Their appearance in- morning influences the business and pleasure- the day; their changes during the day com- the plans and often frustrate the wishes of m- their character at night is consulted in arrang- the operations of the following day. The b- iness of all classes is influenced more or less the changing clouds. The farmer daily obse- them and plans his work according to their- dications. It is of the utmost importance t- he should understand their character, the l- which govern their formation and dissipati- and the beneficent purposes which they con- ually accomplish in their varied movements.

A classification of clouds was made by L- Howard in 1802. He divided them into th- primary classes; cirrus, cumulus and stra- with intermediate forms passing into one an- er under the names of cirro-cumulus, cirro- tus, cumul-stratus and a composite form, re- ing from a blending of the others, under- name of nimbus. Cirrus clouds appear like- allel fibres or loose hairs extending in ny- all directions. When the streamers point- ward the clouds are falling and rain may a-

-ected; but when they point downward, -ather is at hand. Cumulus clouds are convex or rolling or globular masses resemble volumes of smoke, or huge -ains piled upon one another. When they -cy and sail against the wind apparently n upper current, they foreshow rain; when ome up with the wind and their outline is defined fair weather is near. If they -h in size near sunset, the following day e fair; if they increase, it will be foul. s clouds are those which fly along near the -of the earth, widely extended, horizontal They are thin and misty, and such arise eds of moisture in low lands soon after The cumulo-stratus clouds are those assume all kinds of gigantic forms; a vast towers, piles of rocks, &c. In the y of the White Mountains, their appear- wild and romantic. Travellers have l the strange sublimity which hangs a- the clouds in this region. The majestic ng of these vast mountain piles urged on winds and electric forces just before a is grand and imposing. Cirro-cumulus are heavy masses, edged with long streaks "mares' tails." They foretell dry, hot r. When combined with the cirro stratus hich is called a "mackerel sky," they al- dicate rain and wind. Nimbus clouds n-clouds, and are without any definite

ds are formed by the condensation of the le moisture in the air by colder currents e wafted in masses from one region to by the force of winds. They give the sombre hue. I verily believe there is olding about cloudy days than all other combined.

ds are transitory visitors. They come "wings of the wind," arrayed in fantas- pes. Their forms greet us with seeming as they vanish in "dissolving views." It asant thought to imagine them chariots la. On Olivet's sacred mount a cloud the Holy One and bore him away from of the wondering disciples. They part- r the Jordan and out from the azure of heaven came the baptismal words my beloved Son." The holy records lete with imagery of which clouds are ium. My thoughts are often attracted leasing phenomena of the canopied hea- the material uses of the clouds to man.

- are dissipated by warm, dry currents hich absorb and render them invisible. their notions are influenced by electri- -ctions and repulsions. The friction - causes the electricity in the clouds, -y be called the manufactories where -s grind it out to supply the never-ceas- -s of Nature. The electrical displays - thunder cloud have been witnessed since the earliest ages; and the investigations of science have thrown a halo of interest around the "frowning barriers of heaven," whose glitter- ing artillery was once regarded with fear and trembling, as the expressions of the Divine dis- pleasure; but now transfused with a brighter glow as they have been brought down to the earth and tamed for the service of man.

Who has not beheld the indescribable glories of our New-England sunsets? What illimitable fields of cloud scenery! What exquisite pencil- lings they display'd! What displays of magnifi- cence and splendor! If beheld but once in a century men would gaze, as upon the very throne of the Eternal. And yet these scenes of beauty, so unspeakably fair, image a higher beauty which no man can look upon and live.

The shaded tints of purple which are impress- ed upon the irregular edges and surfaces of clouds are caused by the red rays of sunset, which, being the least refrangible are the last to disappear. They indicate fair weather, for they show that the vapor is not condensed into clouds by the cold of the evening. Our Saviour re- ferred to this prognostic in the following words: "When it is evening ye say it will be fair weath- er for the sky is red." Their appearance in the morning denotes a wet or a fair day. Hence our Saviour's observations, "In the morning ye say it will be foul weather to day, for the sky is red and lowering."

The clouds are the great store-houses of rain, the uses of which are so apparent, I need not refer to them. The arrangement for its inex- haustible supply in proper quantities and at the right time, through the medium of the clouds, excites our wonder, admiration and gratitude. Again they temper the heat of the sun's rays and prevent a too rapid evaporation of the moisture from the earth's surface. They also arrest the radiation of heat from the earth; in consequence its surface remains warmer than in clear weather; hence the reason why there are no frosts in cloudy nights. What splendid pro- tectors to the grain fields and fruit orchards are the clouds! How admirably do they wrap up the earth as in swaddling clothes, disarming the frost of its power! They mitigate the severity of a northern winter, and moderate the excessive heat of summer. Without them the earth would be a Sahara. Vegetation would die; springs would dry up; rivers cease to flow; fam- ine and death would hold undisputed sway and the "earth would melt with fervent heat."

WM. A. WHITE.

DESCENT OF THE EAGLE.—In *Forest Creatures* by Charles Boner, we have an account of the re markable power possessed by the eagle of instanta neously arresting himself while dropping through the air at a certain spot, with folded wings, ev en when descending from a height of 3,000 or 4,000 feet. "When circling so high up that he sho ar

but as a dot, he will suddenly close both wings, and, falling like an aerolite, pass through the intervening space in a few seconds of time. With a burst his broad pinions are again unfolded; his downward progress is arrested, and he sweeps away horizontally, smoothly, and without effort. He has been seen to do this when carrying a sheep of twenty-six pounds weight in his talons; and from so giddy a height that both the eagle and his booty were not larger than a sparrow. It was directly over a wall of rock in which the eyrie was built; and while the speck in the clouds was being examined, and doubts entertained as to the possibility of its being the eagle, down he came headlong, every instant increasing in size, when in passing the precipice, out flew his mighty wings; the sheep was flung into the nest, and on the magnificent creature moved, calmly and unflurried, as a bark sails gently down the stream of a river."

An Alpine Land Slip.—The Steinberg cliff, a rocky wall of several millions of cubic fathoms, with all the forest upon it, and the nagelfluh wall of the "Gemeinde Marchi" sinking like a terrace more than 100 feet below, had given way. This was the signal for universal destruction, for then began a tragedy which can be compared to no other phenomenon for its fearful sublimity. In the wildest confusion blocks of rock and splinters of stone, mud and turf, foliage and trees, sometimes whirled up into the air, sometimes, enveloped in clouds of dust, chased each other over the mountain shoulders of the Valey of Goldau. The chaotic fall of the vast masses, the speed of their descent, the universal confusion, increased every moment. Mountain blocks as big as houses, with pines fixed to them, hurried, as if slung by a demon's fist, with three bounds like flying birds, high through the air. Other masses of rock ricochetted like shots from a giant cannonade, striking from time to time only to bound up again into the air. Others were crushed by their companions on their path, and splutterred like white-hot iron rods shooting out sparks under the hammer. It was a scene from the Titan's battle of Greek mythology..—*Berlepsch's Alps.*

An Elephantine Actor.—Sir Emmerson Tennent, in his Natural History of Ceylon, says the elephant occasionly feigns death in order to regain its freedom. Of a recent captive he writes—"It was led from the corral as usual between two tame ones, and had already proceeded far towards its destination, when, night closing in, and the torches being lighted, it refused to go on, and finally sank to the ground, apparently lifeless. Mr. Cribbs ordered the fastenings to be removed from its legs, and when all attempts to raise it had failed, so convinced was he that it was dead, that he ordered the ropes to be taken off and the carcass abandoned. While this was being done, he and a gentleman by whom he was accompanied leaned against its body to rest. They had scarcely taken their departure and proceeded a few yards, when to their astonishment the elephant rose with the utmost alacrity, and fled towards the jungle, screaming the top of its voice, its cries being audible after it had disappeared in the shades of forest."

A Word about Serpents.—There is another little serpent, says our old friend, who is prodigly active in his movements, and a master of the science of projectiles. He springs upon his prey from beneath shrubs, &c., after having turned himself rapidly round and round upon the ground to obtain that rotary motion for his flight which alone insures accuracy of aim. He is quite a Yankee in his way, is this little serpent, the *Jararaca*, and brings down his men at twenty cubits distance. The *Paubera* secures his prey with a hook, which is fastened to the end of his tail. He swallows oxen alive and entire, and consequently suffers severely from indigestion on account of the horns. Our old friends the rattlesnake, vipers, boas, anacondas, cobras and rattlesnakes figure in this strange company, and we read many novelties concerning their nature and use. You would not imagine, now, that from vipers "many noble medicines are prepared," that "a wine from their flesh is singularly restorative, leporous, and scorbutic cases," or that "they afford also a volatile salt, the most powerful cordial in nature." Great is the power of simple things. If ever dear reader, you meet a rattlesnake, dont run away, but get a bunch of wild penny-royal; then, having fastened it to the end of a stick, present it to the creature's nose, and if it be only of the family, one of which was so dealt with by Captain Silas Taylor, in the year 1657, it will turn and wriggle, labouring hard to avoid the potent herb, and die in less than an hour from its mere scent.—*Once a Week.*

Fairy Rings.—An accidental circumstance occurred to me on a journey to visit the famous and beautiful monastery of Batalha, in Portugal. On our road we were overtaken by one of those tremenduous thunder-storms incident to hot climates, and which bear no comparison to the slight movements in the elements of our temperate atmosphere. Whilst taking shelter from the fury of the storm, the forked lightning struck two objects not far from us. Soon afterwards I observed several rings of smoke and gas ascending slowly in the air, which, preserving their circular form, enlarged and diminished alternately until they ultimately settled in that form on the spot before us. In a day or two afterwards, on visiting the same spot, I observed on the sward two circular rings, densely green, two or three inches wide, the grass of which (circumferences or rings) had grown full an inch in that short time, and were beginning to make their appearance. This must have been some very fertilising property in the gas; and it has struck me that the same

place in the new experiments for promoting tation by electric rods and wires In the try I have always observed that these rings e their ap earance after thunders' orms; and ver yet met with a better solution of the nomenon than that which accident afford d to as above related. Nor have I ever seen any who had seen a fungus, or fungi, spring up, a ring to radiate from it. But I have observ- ese rings to last for two or three years, and large, in the course of time, which is not suf- it to establish the truth of the mere theory, these rings are caused by spawn that radi- from a common centre.—*Gardners' Chronicle.*

FLUENCE OF ELECTRICITY —The injurious ef- of a sudden increase of electricity is very gly marked upon the young of all animals, urtful influence being in proportion to the th of the victim. Eggs are peculiarly sus- ble to the influence of electricity, and, even the chick is partially matured, are often ' by a passing thunderstorm. In climates thunderstorms are frequent and violent, the lands which are inhabited by the hum- -birds, it is needful that the eggs should be cted from the deadly influence, and we ac ogly find that the nests are oval or rounded ape, and are made or substances which are conductors of electricity.—*Rouhledge's Il- ated Natural History.*

AS WITH POTATOES.—In a letter in the *Ag- ural Gazette*, an English paper states that gle pea inserted into each piece of potato planted, will produce a large crop of peas, nd to check disease in the potato. It is tice with some to plant peas with potatoes, The potato stems answer a good purpose e pea vines to run upon.

E HUNDRED YEARS AGO —In the last of the eighteenth century appeared, nearly same time, the edicts of Turgot for the chisement of labor, and the book of Adam on the nature and the cause of wealth. early the same epoch, Lavoisier laid the ation of the discoveries which were to rm chemistry; Watt took his first patent perfection of the steam engine, and Ark- t obtained a patent for spinning by rolls. events contain the germ of the principle. f the means adopted by modern industry m chemistry gave birth to numerous in- l processes; the perfected steam engine d a motive force applicable to the most mechanisms; mechanical spinning and g replaced the ancient mode of manufac- tissues and multiplied the production of labor; finally, the ideas until that time t gave place to notions more just and exact on the nature of wealth and on the of developing it.

FARMERS AND THE WAR.—This country be able to support a very large number of men through an indefinite period of time if the peaceful industry of the community was directed to this end. It would simply be necessary to divert the labors of those who are no engaged in making superfluous luxuries t the production of food and clothing. This diversion of labor will be gradually effected by a decline in the price of luxuries and an advance in those of the necessaries of life. This already begins to be felt; while works of art, books, jewellry, &c., are of a very slow sale, the coarser styles of woolen cloths and satinets have advanced some 30 per cent in price in such colors as are adapted for military purposes. If the community is intelligent, they will anticipate this change in the in the market demand for articles, and will by a prudent forecast, save us from a scarcity of products absolutelo essential to existeane. This applies with especial force to farmers. Let them sow their seeds with perfect confidence that there will be a certain demand for their crops, which will bring better prices than in preceding years. Above all things, let us not have the horrors of famine added to the trials of war —*Scientific American.*

Editorial Notices, &c.

THE BRITISH REVIEWS FOR JANUARY, 1862.—*Republished by L. Scott & Co., 51 Gold St., New York.*

We have received through Mr. Rowsell, Bookseller of this city, copies of the American Edition of the *Quarterly, Edinburgh, Westminster, & North British Reviews*, commencing the volumes of the present year; also *Blackwood's Magazine* for January and February; for which we take this opportunity of thanking the attentive and enterprising publishers. Referring to the influence of these Reprints on the American mind one of their own critics well observes:—

"The best talent in England is employed upon them, and although the circulation of some of them, is actually less in Great Britain than in the United States, they are to a certain extent the organs of the advanced opinions within their several spheres of influence, corresponding in some degree with the gradations of American sentiment in religion, philosophy, and statesmanship. This fact accounts in some measure for the daily increasing circulation of the British reprints in the United States, and the estimation in which they are held in enlightened and educated circles here. They likewise sound a depth of profound thought comparatively unknown to our literature, and pursue abstract and practical investigations to a point seldom attempted by American critics and reviewers. This quality renders them the more valuable to us, as study which develops the radical diversity in the mental methods of John Bull and Brother Jonathan

—a study which cannot be closely pursued without a modification to an extent of some of our rapid Yankee characteristics. There is no doubt that the imperceptible mingling of the two nationalities now going on is effecting a favorable result upon both, and nothing will tend to increase the ameliorating process like a free interchange of sentiment through the current literature of Great Britain and the United States. The republication and extensive circulation of the British Reviews in this country has to a great extent effected this object, and through their columns a mutual interest in the affairs of both countries has sprung up and ripened into important and healthy results."

In *British America* how desirable it is that these recognized standards of British Literature, Science and Politics should be extensively known; and we are therefore glad to learn that their circulation of late has been much increased both in Canada and the other Provinces. The views entertained by British writers on the civil war that is now unhappily afflicting the great neighboring Republic, may be readily learnt from these periodicals, which correctly represent the opinions of the various leading parties of the empire. It should be borne in mind that these are not pirated editions; Messrs. Scott & Co., have arrangements with the British publishers for advanced sheets, which enable them to reproduce these invaluable periodicals and place them in the hands of their numerous subscribers throughout this vast continent within two or three weeks after their publication in Britain, and that too, for one third of the original price!

The present is a favourable time to commence subscribing, as the new volumes for 1862 began with the January numbers. The terms per annum for any one of the four Reviews, or Blackwood, are $3. For any two, $5; and for the whole only $10; thus placing the recognised exponents of British learning and statesmanship within the reach of individuals interested in such matters either singly or by clubbing.

BOARD OF AGRICULTURE.

THE Office of the Board of Agriculture has been removed to 188 King Street West, a few doors from the late location adjoining the Government House. Agriculturists and any others who may be so disposed are invited to call and examine the Library, &c., when convenient.

HUGH C. THOMSON,
Toronto, 1861. *Secretary.*

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