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STATE OF THE CROPS.

Halifax, 2nd Sept., 1869.

In order that we might be able to give reliable information respecting the actual condition of the Crops throughout the Province at the present time, we applied by letter to some of the leading agriculturists in the various counties, and now furnish our readers with the substance of replies received.

CUMBERLAND.

From Hon. Alexander McFarlane, we learn that in Cumberland, the Hay crop is far in excess of that of any previous year, fully a third more than in good average seasons. Winter Wheat has done remarkable well, last winter having been favorable for it. Spring Wheat also will give a good yield, the weevil not having touched it. One farmer sowed 60 bushels Spring wheat this season, and the crop is all that can be desired.

[From T. D. Dickson, Esq.]

Parrsboro', Aug 31, 1869.

I received your letter of the 19th inst. on the 28th inst., wishing to know the state of the crops in this district.

I have to report most favorably of

them. The hay crop has been harvested and was never more abundant here. It is probably 50 per cent greater on the uplands than it was last year, and nearly all got in good condition. On the meadows or low grounds it is said not to be so good as it is generally. Potatoes look well everywhere and promise a large yield; no blight has attacked them here yet that I have heard of. Oats and buckwheat look well. Wheat, wherever sown, is ripening and filling well, and not affected by rust or weevil. Turnips and other vegetables are growing well. Apples will be a light crop. The wild fruits, viz., cranberries, blackberries, strawberries and raspberries have been most abundant.

PICOU.

Picton, 26th August, 1869.

I am in receipt of your esteemed favor of 19th inst., and am happy to inform you that from all that I can see and hear, concerning the crops in this county, there never was a more promising appearance at this season of the year.

The Hay crop is all or nearly all housed, a better crop than we have had for many years and put in prime order.

Wheat, Oats, Barley, and Buckwheat, all look exceedingly well, the only fear

is that in consequence of the wet backward weather in seed time, some fields look as though they would be late, but if the weather continues favorable for a few weeks there will likely be a very abundant harvest.

Potatoes and Turnips look uncommonly well and as yet there is no appearance of the much dreaded potato blight.

W. H. HARRIS.

[From James M. Patten, Esq.]

Lower Barney's River, Aug. 30, 1869.

I received your letter in regard to the state of the crops in our district, and in reply would beg leave to state,—That all field crops, so far as I can learn, are good. Early wheat, particularly the Fyfe imported by the Board, is very good—the late sown, I hear, is more or less affected with weevil; the Scotch or Mummy is a good crop, and I think is better suited to light gravelly soil than the Fyfe—the latter is better suited to clayey heavy land. Oats are a good crop. Grain heavy and straw good. Barley is also a good crop. Potatoes have a fine appearance, and I have heard of no appearance of rot. Hay crop I think is about an average. All root crops and garden vegetables promise well,—in fact all the crops present a good appearance where there is an effort

made for improved cultivation. There will be a surplus of all kinds of crops, but the want of a market is our great obstacle to improvement; throw us open the markets of the United States and we will hear no more talking of our young men emigrating. I think it would be a wise arrangement for the Board to import a small quantity of winter wheat for next season to give it a trial; and also to import more early spring Fyfe, it has made a great improvement, but the quantity was so small when distributed that a further supply is needed. I would like to hear, through the next issue of the *Journal*, some account of the Alsike clover, if it has been sown by any of our farmers, and how it has yielded. We are making an effort to increase our subscription to the society; the want of money was never so much felt in the meantime.

COLCHESTER.

[From F. R. Parker, Esq.]

Statement of crops at Shubenacadie.

The season has been all that the husbandman could desire and the hay has been more than a usual crop, being with many one-fifth more than last year, and got into the barns in the best of order and with little expense to what it used to be formerly owing to the usefulness of machinery in many ways. Grain promises very well, there being a much larger quantity sowed than last year—it is generally one foot higher or longer in the stalk than formerly, some fields of wheat will average about five feet high—some show symptoms of midge, while others have none or very little. All other grain looks as I said, very well. All roots look well, but the blight has just commenced with the potatoes, to do its old work. Turnips and carrots promise very well. Indian corn which has been planted by many (and which of late years has not been raised) looks magnificent, some being to the height of eight feet. Many of our farmers have commenced under-draining by putting pipes in, which can be got at the brickyards, and they at once show the advantage to crops, which in a few years must pay, besides the advantage of working the land much sooner after a rain.

Shubenacadie, Aug. 27, 1869.

KING'S COUNTY.

[From Dr. Hamilton.]

Cornwallis, August 27, 1869.

Agreeably to your request of the 9th inst., I beg to state for your information, that the present season, on the whole, has been a very favorable one for the growth and cultivation of all kinds of farm crops. The spring, it is true, was rather wet, but not as much so as last year, and while it prevented the early cultivation of some of the more loamy and clay soils, most of the crops were got in at or near the usual

time of planting. The continued dampness brought the crops forward very rapidly, and to a state of growth and perfection which prevented them from being injured by the subsequent dry weather. The wet spring and continued rains during the months of May and June have produced more than an average crop of hay of excellent quality; and I scarcely ever knew a finer season for securing it than the present one. There was no very hot weather; scarcely any wind, and only a few showers of rain, which were of short duration. I do not think the hay crop was ever secured in as good order. I am sure it was never of better quality, there being a fair proportion of timothy and clover.

The improved machinery, consisting of mowers, tedders for turning, horse rakes of an improved kind, with forks for pitching into the barn by horse power, render the operation of getting in the hay crop a trifling one compared with former years. Most of the grass on the dyked marshes, meadows, or intervals, and much of the upland, are now cut with the mowers—the improved Buckeye seeming to take the preference.

You may judge that we have some pretty good hay lands when I tell you that Mr. Levi Eaton, of Canard, took from ten acres of dyked marsh on the Wellington dyke, forty-one tons of hay by weight; the hay being weighed when it went into the barn well made and cured.

In reference to wheat, I am sorry that I cannot report a larger breadth sown. Of winter wheat I only know of one person trying it besides myself. I only sowed about 100 rods of ground and harvested forty-four stocks of wheat, of as fine a growth of straw and as well filled and as perfectly free from the ravages of the weevil as I ever saw. The berry is nearly equal to the seed which was imported from Ontario in 1866, and that was the second prize winter wheat at the Toronto Exhibition of that year. Several persons have applied for wheat for seed, and I am in hopes that it will be more generally cultivated in Nova Scotia.

Summer wheat as far as I can learn is filling pretty well, and but little injured by the weevil. I had a small quantity which was sown in April, and it escaped the fly and is very fine.

Winter rye is good, and I think there is but little summer rye sown this year.

Oats much more than an average crop this season, there being a much larger quantity sown than usual, and the weather has been all that was desirable for their even ripening; the cool nights and cloudy days have prevented any serious consequence from the dry weather.

Potatoes, as usual, are planted very extensively, and are looking remarkably well—a rather dry season being more

favorable for their growth and perfection than a wet one. The early kinds are exceedingly fine in quality and really taste like the potatoes of by gone years before the disease affected them. I hear of no complaint about the disease, and should the weather continue as at present, rather dry, there will be no danger of it affecting them this season. More attention is being paid of late years to the cultivation of garden vegetables, onions, beans, corn, &c., and I am in hopes that until we can obtain a more permanent market for our supplies of potatoes, that the farmers will cultivate more grain, vegetables, or something of the kind, which will be more remunerative and advantageous than the prospect for the potato is just now.

As regards the fruit crop, I hardly know what to say. Upon the whole, however, I think the crop will not be as good as last year; and unless there are more seasonable rains from this time forward, they will be less in size than usual.

The August or Harvest apple, the Early Joe, and the Astracan are now ready and are being sent to market. The Early Bough, a splendid apple, is but little cultivated, and would come in after these mentioned, and before the Gravenstein; and I would advise any person setting out a young orchard, to select a fair proportion of this sort. They bear moderately every year, and are a large, handsome, and very fine eating and cooking apple. The prospect is, that plums will be plenty. The Nectarines are already marketed and the Washington is now nearly ripe. The Green Gage is the next most important plum on the list. Old pear trees are bearing well, but from some cause or another few pear trees seem to grow or come to any size nowadays.

The canker worm, which destroyed the crop of fruit in Messrs. C. F. and Levi Eaton's orchard in Canard last year, were prevented from doing any mischief this year, by the timely application of tins and boxes around the trunks of the trees last autumn, which prevented the fly from ascending the tree to deposit their eggs. It is remarkable that no other orchard in the place was injured but these two, both young, healthy and vigorous. I am in hopes that the worms are completely checked, and that we will not suffer in this county as we did about twenty-eight or thirty years ago, when for three years the trees were stripped of their foliage, until they looked more like being scorched with fire than anything else. Many of the trees were so injured by stripping them of their foliage in the heat of summer that they died, or never recovered their vigor and productiveness.

The weather of late being very dry, the after feed on the dykes and meadows will be rather short.

HANTS COUNTY.

[From W. H. Blanchard, Esq.]

Windsor, Aug. 31, 1869.

In reply to your circular of the 20th inst., I may say that the hay crop in the county of Hants is considerably better than an average. Better as regards quality as well as quantity. The dry weather has enabled our farmers to get the crop without the slightest damage, and I have no doubt that the advantage of getting hay up in good condition will be amply shown in feeding out the present crop. The dry haying, however, has made the *after-feed* almost a total failure. The cereals are looking very well, and I have no doubt give a fair result—many fields are already white unto harvest. We have very little good winter wheat in this county, and I have not heard how far what has been sown has been affected by the weevil. The root crops generally, are looking well. I have seen some appearance of the blight in the tops of the potatoes, but I have not heard any complaints of the tubers being affected yet. The cool weather of the present month has no doubt operated favourably on the potato crop. The turnip fields that I have seen are looking very well. Strange to say, but few persons raise either mangold wurzell or carrots to any extent. A. C. Thomas, Esq., of Windsor, has shown on his model farm that these crops can be raised with great profit by a fair outlay in under-draining, &c.

LUNENBURG COUNTY.

[From B. Zwicker, Esq.]

Mahone Bay, Aug. 28, 1869.

The season has been one of the finest and best that we have ever had. The weather has not been near so warm as some seasons, we have only had two or three warm days; generally cool morning and evening, with seasonable rains every four or five days, and then very moderate, which brought on the crops so bountifully. Some seasons, the fore part was very good, until the first part of July last year for instance, all June was fine growing weather until the first of July, from that to the first of August there was very little rain, small light showers, but not enough to wet the soil and consequently the crops were checked, and the hay and grain did not yield as they would if they had had more rain, therefore the hay last year was not of a good quality. The seasonable rains this year, kept the grass green all through haying and therefore the last made hay was as good as the first, and we never had a larger crop or better quality than this year of upland hay but the marshes failed this year. The grain of every kind, I think, never was better. The yield of barley never was better, the stalk is very tall, very large heads and full kernel.

There is very little wheat sown, one of my neighbors has some very good, very stout and the kernel very full. Winter rye is also very good. The potato crop, I think will be more than double what it was last year—the rot is not general; the early's have all been dug, and a very good yield; the late ones are somewhat green yet and the cool dry weather will, I think, be the means of saving them in a great measure. The apple crop, I think will be very good, and also plums; we must therefore pronounce this a most bountiful season. We have great reason to be thankful to the Giver of all Good for it, and thank him for casting our lot in one of the healthiest and best countries in the world, and ruled by one of the noblest Sovereigns that ever swayed a sceptre.

SHELBURNE COUNTY.

[From R. H. Crowell, Esq.]

Barrington, Aug. 31, 1869.

Yours of the 22nd inst. at hand, and I beg to reply as far as is known.

Hay is good; fully an average crop, and housed in good order. Potatoes, to all appearances will be a fair yield, quality good, some indications of rot by some. The Early Rose, imported by the Society, are of a superior quality and an abundant yield, no indications of rot. Garden vegetables are looking well, and to all appearances will be a fair crop. Peas very good. Oats are fair, and in some cases barley looks well. The wet weather in the spring kept back and injured the crops, and accounts for many things being late in maturing.

CAPE BRETON COUNTY.

[From H. Davenport, Esq.]

Ashby, Sydney, Aug. 30, 1869.

Your note of the 19th, only reached me on last evening, it affords me very great pleasure to reply to you.

The season set in both cold and wet, farm work was in consequence delayed fully a fortnight later than usual, and the mines offering no inducement for the farmers' sons to leave home, an unusual crop has been put in.

Hay has been gathered in very fine weather and turned out very heavy, although in some poor districts deficient, it has been on the whole the heaviest for some years—there is also some surplus from last year on hand.

Potatoes have suffered some little from long drouth, and at one time there was an apprehension of blight, which is very slight and not spreading, recent rains and unusually cold weather for the season, is in their favor, and as this crop is 100 days in the ground, I look upon it as getting out of danger, allowing 120 days as the time to become fully ripe, the quantity planted is large and so far promises well.

Oats, from drouth, will be somewhat deficient in straw, the breadth sown larger than usual and since the rain give promise of an abundant yield—there is also a surplus from last year.

Wheat is sparingly sown, but some small patches look very well, the same may be said of barley. Buckwheat has almost gone out of cultivation in this neighborhood.

Turnips are almost universally bad, the fly and drouth united have done for turnips.

Carrots and parsnips are not so good as usual, whilst cabbages through the country look shy.

Of fruits there has been a very large supply of wild—the grubs and insects have destroyed gooseberries and currants. Apples and plums are very bad, partly from insects and in part from weather.

At present we are suffering from unusual cold, the thermometer ranging at night $1\frac{1}{2}^{\circ}$ above freezing to the same below, and the general character of the season has been cold.

THE HORNED CATERPILLAR.

Rosette, Aug. 2, 1869.

DEAR SIR,—I enclose two insects, known here as the "horned Caterpillars," which are doing great injury to many orchards, not only eating the leaves but the fruit as well. Notwithstanding we had an abundant show of blossoms, it is thought that the crop will be below an average. The grain, hay, and potatoes are looking well and promising an abundant yield.

A waiting your reply, I remain, &c.

W. G.

[The Caterpillars enclosed were effectually squeezed in the Post Office, before they reached us, but enough remained to enable them to be identified as the larva of the American Vaporier Moth. These caterpillars have appeared in vast numbers this season in various parts of the province, and have proved very destructive. They are swarming on the alder bushes and trees of both hard and soft wood in the forests, but they are chiefly addicted to the apple tree, and other *Rosaceæ*, and soon strip off the leaves. However, nothing in the way of shrub or tree seems to come amiss. Even the English laburnum and larch are greedily eaten, and the haccatack or juniper has suffered severely. We print this month, a full account of the history of this noxious insect, as it has been traced by Dr. Fitch in New York State.

CROPS IN ENGLAND.

AUGUST, 1869.

The crop reports are more than usually uncertain, indefinite, and unsatisfactory. It has been much more difficult than usual to speak confidently of our harvest pro-

pects. A cold May and June made it impossible that we should have a good Wheat crop; and, from the clay soils especially of our chief wheat-growing districts, the reports were very gloomy. During a few hot weeks in July the appearance of the grain crops generally, however, very greatly improved, but the cold and rain which have since befallen us, have done harm. In hardly any year have we had so many second returns sent in correction of the first report, which had been more favourable than subsequent examination could allow. On the whole it will be seen that nearly half our Wheat returns state the crop to be below an average—less than half the returns report an average—and only one-tenth of our correspondents are able to state that the crop in their neighborhood is over average. The Wheat crop, then, we can hardly doubt, must be considerably below its usual productiveness.

Of the returns of the Oat crop, 80 put it as below the average, 72 declared it to be average, and 22 put it at beyond an average crop. And Barley, too, though our reports of it are not so unfavourable as those of the other grains, can hardly be pronounced an average crop. Seventy of our correspondents, indeed, do so pronounce it but of 91 others only 31 put it as being over average, and 60 declare it to be under average. It at one time promised to be a great Bean and Pea year; and probably these crops are better than we generally have them; but they have both become covered with aphid during the past few days, and neither of them will yield so well as was at one time expected.

The following is the tabular account of the reports with which our correspondents have favored us; and we place it alongside the corresponding figures for 1868, that the great contrast, especially in the Wheat crop, may be seen:—

	1868.			1869.		
	Over Average.	Average.	Under Average.	Over Average.	Average.	Under Average.
Wheat.....	126	67	13	18	75	28
Barley.....	51	146	140	31	116	116
Oats.....	37	138	22	72	72	116
Beans.....	0	129	137	26	75	116
Peas.....	6	72	41	8	58	72

As regards all succulent growth, we believe the country may be congratulated. There is a capital plant of both Mangel Wurzel and Swedes, and recent rains have saved much that seemed ready to die. There has been a great hay crop, and though pastures are somewhat bare just now, there is no such complaint as there was last year. The Potato crop promises to be good and healthy.—*Gardener's Chronicle.*

HINTS FOR AUGUST AND SEPTEMBER.

FLOWER GARDEN AND PLEASURE GROUND.

Annually as the seasons roll round are we impressed with the great fact which we have been for years urging on the American public, that the European styles of gardening so commonly adopted in America, in our best places, are alto-

gether wrong True art was made to minister to man's wants, not that man should be made to serve it; yet our best specimens of Landscape gardening make it a divinity, and human nature a sacrifice offered up to it. Recently we visited a tract whereon money had been lavished with an unsparing hand to make it beautiful. The walks are measured by miles; and we walked with the proprietor some hours through the grounds. Except that the curves of the road and the surface contour, or the size of the trees and shrubs were not *exactly* the same, we are not conscious that we imbibed one new fact, or had one new idea inspired by that weary walk that we did not receive during the first few moments there. We are quite sure that we should have derived more pleasure from a few hours stroll through some wild wood than we could ever get from such weary wonderings under a sultry sun, no matter how magnificent such "art" might be deemed.

We have before said in these pages that for a month or two in spring, when all nature is gushing forth joyously into life, we are content to look on and enjoy the wondrous sights; and when, in fall, the whole universe sparkles in autumnal tints, we gaze on the splendid pageant passing away without a selfish thought; but broiling, sweltering, roasting under our August suns, we feel that our garden art must do something more for us than show us beautiful sights like these.

We have learned to protect ourselves from cold wintry winds, but the art of making a place cool in summer is yet in its infancy. There is nothing accomplishes this better than *plenty of grass*, and the neat deciduous tree foliage. The making of flowerbeds with box edgings and gravel walks suits Dutch and French gardening, but it is too hot for us.

The beds should be cut in grass. The walks round about a place should also be in grass as much as possible; only those likely to be frequently used should be gravel walks. Even these, where tan can be obtained, are much cooler when this material can be used, than when gravelled. In the planting of roads, art, as we read it in the books, plants only in corners, and makes its most striking effects to be seen from the drives; but American art as it should be, plants all the chief drives with deciduous shade trees, and yet allows you to look through beneath them to the beauties beyond.

The best kind of deciduous trees for this purpose are the Silver, Sugar, Sycamore and Norway Maples; American, and where the borer is not troublesome, the English Linden; and American and European Ash, Horse Chestnut, and Oaks of all kinds. For farm roads the Cherry, Black English and White Walnuts, Chestnuts, and even the Pear may be employed. Besides these in the South there are the

Mimosa, the Melia Zederack, Magnolia grandiflora, which though an evergreen has the lightness of a deciduous tree besides Live Oaks, &c.

But besides the selection of trees for drives, weeping trees should be liberally introduced, some of which like weeping ashes, make cool and shady arbors preferable to any the carpenter's hand could make. Of these are the large varieties of Weeping Willow, Weeping Sophora, Weeping Birch, Lindens, Elms, &c. though none equal the Ash for arbor purposes.

Then again very much may be done by planting two or three trees together so that as they grow up, they will form natural seat backs. For this purpose there is nothing like the Oak tribe.

Sometimes we cannot get the coveted shade because we have planted slow growing trees—generally the prettiest and best worth waiting for,—this may be effected by planting liberally of Alders, Poplars and similar ephemeral trees, to be cut away as they gradually interfere with the permanent kinds.

The planting season will soon come round, and now is the time to look about and select the durable kinds, and to decide on the proper places to set them.

The latter end of August is one of the best seasons of the year to transplant evergreens. The young growth of the past season has got pretty well hardened so as to permit of but very little evaporation,—and the earth being warm, new roots push with great rapidity, and the tree becomes established in the ground before cool autumn winds begin. The chief difficulty is that the soil is usually very dry, which prevents much speed with the operation; and the weather being very warm, the trees have to be set again in the ground almost as fast as they are taken up; so that it is not safe to bring them from a distance. It is as well, therefore, to make all ready in anticipation of a rain, when no time may be lost in having the work pushed through. Should a spell of dry weather ensue,—which in September and October is very likely,—one good watering should be given, sufficient to soak well through the soil and well about the roots. A basin should be made to keep the water from running away from the spot, and to assist its soaking in. After being well watered the loose soil, should be drawn in lightly over the watered soil, which will then aid in preventing the water from drying out soon again.

As soon in the fall as bulbs can be obtained, they should be planted—though this will not generally be the case till October,—but it is as well to bear in mind that the earlier they are planted, the finer they will flower.

Towards the end of the month, and in September, evergreen hedges should re-

give their last pruning till the next summer. Last spring, and in the summer, when a strong growth required it, the edge has been severely pruned towards the apex of the cone-like form in which it has been trained, and the base has been offered to grow any way it pleases. Now that, in turn, has come under the scissor, so far as to get it into regular shape and form. It will not be forgotten that, to be very successful with evergreen edges, they ought to have a growth at the base of at least four feet in diameter.

FRUIT GARDEN.

In our last number the Editor gave his views on fall planting strawberries, and reasons why in some cases the practice is to be commended. When it is to be done, the ground will have to be prepared about the end of August or early in September.

After a piece of ground is dug at this season for Strawberries, roll it well with the garden roller. When ready to plant make holes with a dibble, fill the holes with water, and when it soaks away, put your plant which has been kept in water to prevent wilting. But, in putting in the plant do not plant too deep. "Too deep" kills 99 hundredths of all the Strawberries that die in the year from transplanting. "Too deep" is when any thing but the small fibres are buried under the surface.

In the story books we sometimes see pretty pictures showing how Strawberry roots are to be "spread all around nice." A little cone is made in the middle, the plant is set on the apex, and the roots running like mountain streams down the cone on every side. This is a very pretty plan, but will give us no more Strawberries. There is little romance in a Strawberry fibre. They push out, pump water into the plant for a few months and then die. No Strawberry root lasts twelve months. New ones push and old ones die daily.

All things considered, for an amateur garden the best plan is to set the plants in line six inches apart, the rows eighteen inches apart, and every fourth row omitted, as it were, to form an alleyway between the beds; on this plan, as the plants grow, they can either have their runners cut off, or they may be allowed to go together in bed form, according to the kinds grown or views of the grower.

The grapo-vine at this season will require attention, to see that all its leaves are retained healthy till thoroughly ripened. It is not a sign of healthiness for a vine to grow late; on the contrary, such late growth generally gets killed in the winter,—but the leaves should all stay on, to insure the greatest health of the vine, until the frost comes, when they should all be so mature as to fall together. Frequently heavy syringings are amongst

the best ways to keep off insects from out-door Grapes, and so protect the foliage from their ravages.

Many kinds of fruit trees that have arrived at a bearing age, may perhaps be growing very vigorously and producing very little or no fruit. Those who have read our remarks in past numbers will understand that whatever checks the wood-producing principle, tends to throw it into a bearing state. For this purpose summer pruning is often employed, which by checking the most vigorous shoots, weakens the whole plant, and throws it into a fruitful condition. The same result is obtained by root-pruning, with this difference, that by the last operation the whole of the branches are proportionately checked,—while by pinching only the strong growing shoots, the weak ones gain at the expense of the stronger ones. Pruning that the branches have been brought into a satisfactory condition in this respect, root-pruning may now, this month, be resorted to. We cannot say exactly how far from the trunk the roots may be operated on, so much depends on the age and vigor of the tree. In a luxuriant, healthy tree, one fourth may be safely dispensed with. In a four year old standard Pear tree, for instance, the roots will perhaps have reached 4 feet from the trunk on every side. A circle 6 feet in diameter may then be cut round the stem, extending two feet beneath the surface. It is not necessary to dig out the soil to accomplish the result; a post spade, or strong spade of any kind, may be driven down vigorously, describing the circle, and doing the work very effectually. Of all trees, the Peach is as much benefited by root pruning as any.

VEGETABLE GARDEN.

As soon as your vegetable crops are past kitchen use, clear them out. Never suffer them to seed. In the first place a seed crop exhausts the soil more than two crops taken off in an eatable condition; in the next place, the refuse of the kitchen is likely to produce degenerate stocks. Good seed saving is a special art by itself, always claiming the earliest and best to ensure a perfect stock.

Celery will require earthing up as it grows, to get it to blanch well. It is not well, however, to commence too early, as earthing up tends, in a slight degree, to weaken the growth of the plants. Take care, also, not to let the soil get into the heart in earthing, or the crown is apt to rot.

As fast as Endive is desired for Salad it should be blanched. Matting thrown over is the best for this purpose, as the plants are not so liable to rot as when the pots or boards are employed.

In cold or mountainous regions, Melons are hastened in the ripening process, and

improved in flavor, by a piece of tile being placed under the fruit.

Keep weeds from your compost heaps, as they exhaust the soil, and bear seeds for future brow-sweatings.

Sow Lettuce for Fall crop, thinly and in deep and very rich ground.

Cucumbers, Squash, and other similar plants, often suffer from drought at this season. Cold water does not help them much, but a mulching of half rotten leaves strengthens them considerably.

Cut down straggling herbs, and they will make new heads for next season.

Towards the beginning of the month, a sowing of Spinach may be made in rich soil, which will come in for use before Winter. That desired for Winter and early Spring use, is usually sown in September in the South. A few turnips may also be sown but will be hot and stringy unless the soil is very rich.

Corn Salad is often sowed at the end of August. It does not do so well in damp soil or low situations.

HOT AND GREENHOUSE.

Many kinds of green house plants, as Oranges, Lemons, Camellias, etc., may be inarched or budded at this season. The process of inarching is simple and consists merely in bringing the shoots of two different plants together. The bark is very lightly shaved for half an inch or more on each shoot, which are then both tied together, and in about two months the union may be examined, and if found sufficiently strong, the scion may be separated, and suffered to go for better or for worse with the stock you have selected for its helpmate through life.

Preparations must now be made with a view to stocking the houses for next Winter and Spring's use. Geraniums of all kinds may now be readily struck. A frame in a shady place, set on some light sandy soil in the open air, affords one of the best places possible for striking all kinds of half-ripened wood. A partial shade is at all times best for cuttings at the start, though the sooner they can be made to accustom themselves safely to the full light, the better they usually do.

Seed of many things may also be sown for Winter and Spring blooming, Cineraria, Calceolaria, Pansy, Daisy, Chinese Primrose and some of the Annuals. Great care is necessary with the Calceolaria; the seed is so small, that it rebels at the smallest covering of soil. The best way is to sow it on the surface, water well, and then cover it with a pane of glass until fairly germinated; this prevents evaporation and consequent drying of the seed. Almost all kinds of seeds germinate most readily in partial shade; as soon as possible after germination, they should be inured to as much light as they will bear.

Many plants as Begonias, Gloxinias, etc., can be raised from leaves. Cut the

leaf off down to near its junction with the parent stem; insert it down to near the blade of the leaf in pots of well drained light sandy soil—peg the blade of the leaf down on the surface of the soil, and set the pot in a shady place,—if with a little bottom heat, all the better

To the Editor of the Journal of Agriculture.

THE AGRICULTURAL EXHIBITION AT EDINBURGH.

DALKEITH, AUGUST, 1869.

Mr. Editor,—“For the purpose of improving the condition of the Highlands” was the motto with which the Highland Society of Scotland started some three fourths of a century ago. But as time rolled on its influence and operations increased, and it now ranks as one of the most flourishing societies in Britain. Instead of looking after things poetical and political, its operations are devoted solely to the advancement of agriculture. And one of the means taken in order to attain this end is the holding of agricultural shows in the principal towns and market-places in Scotland. Edinburgh was the chosen place this season, and the inhabitants of that fine city did all in their power to advance the interests of the show. The scene on entering the yard was very pleasing. Standing out in bold relief in the back ground was Authur's seat like a lion couchant, while on the right and left were belts of ornamental trees, which helped to relieve the gay and gaudy tints of the flags of many nations, whilst the machinery resplendent in copper, steel and brass, threw back the rays of the sun on the many fair faces that adorned the scene. Then the noise was perplexing, pleasing and puzzling—the crunching of the stone-breaking machines, the pulling of the engines, the whim of sewing machines, the buzz of winnowing machines, the lowing of cattle, the neighing of horses, the bleating of sheep, the crowing and cackling of poultry, the performances of a fine band relieved occasionally by the shrill notes of the bagpipes, the uproar occasioned by twenty thousand human beings on the tip-toe of excitement. Talk about monster concerts, even Brother Jonathan's last effort in that line was eclipsed. After pacing the yard which I found to be 700 yards in length by 150 in breadth. I commenced a survey of the machinery, but as there was something like 1600 entries I can only give a few of the most prominent features and objects. The many

implements to which steam is applied as a motive power was truly astonishing—mowing, raking, hoeing, ploughing, winnowing, thrashing; and the most novel and one that drew a great number of spectators was the stone-breaking machine, which reduced stones of good size in a very few seconds. The great drawback to most of the steam-machinery is the high price, and until something is done to remedy this, farmers will have to content themselves by jogging along in the old way. The machines requiring horse-power consisted of both good and bad examples, some of them looking as if Tubal Cain had lent a helping hand. What is the reason for making such ponderous implements I cannot see the why and the wherefor. Nevertheless, there were some good specimens of ploughs, harrows, grubbers, mowers, rakers, and potato-diggers, which were ordered for trial. The carriages were really handsome, being light and well made, and everything that could be desired in regard to fitting and finish. Carts also were in abundance, and mostly intended for heavy work. They would never do for the Nova Scotian breed of horses. Hoes, rakes, spades, shovels, and forks were well represented by both British and American manufactures, but Jonathan is far ahead of John in this section, both in style and finish, and (as far as my small experience extends) durability. Wire-fencing, hurdles, and iron gates occupied a considerable space; but as they are not likely to be required in Nova Scotia for some time, I need not say more on that score. Excellent specimens of harness were also shown, and looked as if they would stand some wear and tear. Grindstones also had a place, and I found by referring to the catalogues, that they came originally from Nova Scotia, and on inquiring I was told that they had been sent from there to the United States, thence to London, and from the last named place to Edinburgh. How is it that they could not be sent from Nova Scotia direct, and thus give the benefit of all profits to the original producer? There were also some very nice horse-shoes,—one in particular struck me as being just the thing required in Nova Scotia. It consists of a narrow shoe of wrought iron, and an Indian rubber web which covers the whole foot, excepting the frog. Amongst the many advantages claimed for it is that horses shod with it do not require sharpening in frosty weather. Will not some of your enterprising coach and cab proprietors give it a trial. That essential department devoted to domestic economy is well supplied and we may add well patronized. With what eagerness do the buxom dames and bonnie lasses examine the novel churns, the easily-worked mangles and washing machines, and the many different forms

of sewing machines,—all of which are warranted to do their work effectually and well. Even the juveniles are not forgotten, for at a stand many a jolly-looking farmer purchases for his darling one of those latest inventions in the way of tops, called a gyroscope. Leaving the implements we pass the refreshment booths, take a glance at the stands occupied by the Edinburgh nurserymen, pass by the post office, telegraph office, press office, and committee-room, give the police office a wide berth, and we find ourselves amongst the short-horned cattle which are fully represented, excepting cows. Most of the animals are fine examples of pure breeding, the broad and expansive framework being evenly and well covered. Moreover they stand touching well, and many a good pole they got. In the classes devoted to the Highland breeds there were some excellent examples of that shaggy and useful race. Galloway cattle were but sparingly represented; but polled cattle were really superb. In the classes devoted to fat stock there were some extraordinary examples of what can be done by careful breeding and feeding, their well-shaped frames being evenly covered with flesh of the most appetizing nature. The 212 horses exhibited were very fine, especially the draught horse: What wonders a few such animals would work in Nova Scotia. Sheep, black and white faced, long and short-woolled, Cheviot, Leicester, &c., were first-class, and proved one of the most attractive features at the show. Swine, although deficient in quantity, were A1 in quality. Last, but not least, the poultry was a fine show, being in excellent condition, and all classes well represented. The grand total of animals in the yard was 1985. The amount of premiums offered was £1600 stg. The show lasted three days, and the total receipts were about £4000 stg.—certainly a great advance since the year 1822, when the amount offered for prizes was £78 stg., which sum brought forward 59 head of cattle and 8 pens of sheep. Here then is encouragement for the farmers of Nova Scotia to go and do likewise. Do not be frightened by folks saying that such shows will do very well in Britain, but Nova Scotia is too young a country. Look what has been accomplished by the great Provincial shows; but they do not take place often enough. Instead of so many local shows, let a Provincial show be held yearly in some central locality—let the farmers one and all unite, and take a pride and interest in the “Annual Provincial Agricultural Show,” and I have no doubt that the public will throw aside all local and petty jealousies, and do all in their power to make such a show a success.

Yours,

HALIGONIAN.

RECENT AGRICULTURAL HISTORY,

[We extract the following description of English Agricultural History, and of the share which the late John C. Grey, of Dilston, had in the promotion of agricultural improvement, from the recently published memoir of Mr. Grey, by his daughter Josephine E. Butler*.]

In my father's account of Northumberland, he indicates the primitive style of husbandry common in the last century. Bits of land were slowly reclaimed, and were applied almost exclusively to the growing of Wheat, which is a crop so exhausting to the soil that after a year or two that locality had to be left to rest for several years, and fresh portions of land subjected to the same exhausting treatment. It somewhat resembled the wasteful ways of the cotton growing slave-owners of the Southern States, who were forced by the conditions of that unnatural engine, slave-labor, to be ever making fresh aggressions upon new lands and to leave once-used lands a wilderness. In some parts of Russia, husbandmen still practice this primitive wastefulness. In this stage of agriculture, manure is not thought of, except as inconvenient refuse, to be got rid of by any means. Thus, on the outskirts of the Roman Campagna, not many years ago, might be seen whole hills of dung carted out to a distance from the city, rotting accumulations from stables and posting-houses, spreading pestilence around; and on the shores of the Wolga there is a similar sight. Dung heaps are brought down by the farmers along the shores, and carted on to the ice when the river is frozen over, and while the winter cold makes it safe to stir up the refuse. When spring comes, the thaw sweeps the whole yearly collection down to the Caspian Sea. The same thing occurred, though on a smaller scale, in England, when the farmers used to make drains to carry down their refuse to some river, or to a pond, which would stand reeking in the sun, and poisoning the neighborhood. The sight of such thriftless expedients always vexed my father, for he knew the worth of that which people were trying to get rid of.

The next stage in agriculture was the simplest form of rotation of crops (a custom, however, as old as Virgil's time), and this sprang from the necessity of growing corn more frequently from the same soil. Farmers could not afford to let the land be idle; and if it could not be granted time to recover itself, means must be found by which it should be restored without delay. The soil must be renewed by giving to it some equivalent for what had been taken out of it. Thus as the wants of the soil, under the pres-

sure of higher cultivation, became greater and more complicated, chemistry came to the rescue. But of that by-and-by. At first it was found that a simple rotation did a good deal. My father said that "the introduction of green crops into Northumberland tillage was the beginning of a new era in the history of agriculture," and it was a very marked era, for with green crops came in the large increase of cattle as agricultural produce.

Before this sheep and cattle were very little cultivated in comparison with wheat. They were generally poor lean beasts, left to wander at will on hill-sides and wastes; not used as agents in the system of rotation; and of course butcher meat was a scarce luxury among the laboring population. But many benefits followed the introduction of green crops. Cattle were kept in greater numbers, and, fed upon the root-crops, were quickly transformed into very profitable beef and mutton, which became cheaper and more attainable by the poor, and this prevented so great a drain upon corn, and so exclusive a subsistence on bread and porridge. But these animals also manured the land, and while feeding upon it enriched it to such a degree that more corn would grow upon the same extent of surface than before. The farmer now took not less but more grain to market than in the days when he cultivated wheat alone. This was profitable both to the producer and consumer. Sheep have been called "the animals with the golden hoofs," not only because of the value of their wool and mutton, but because they enrich the soil they are fed upon more than anything else does. More poor dry land was thus brought by means of alternate crops and eating off with sheep, to yield constant and good returns.

Green crops produce much manure, but they also require much; hence the manure of the towns came to be in great request, and this opened out more practically the connection between agriculture and chemistry. It began to be conceived that that which produces pestilence and fever, which shocks our senses and destroys life, might be used towards the very support of life, and that "our sanitary researches might provide an ample supply of the first requisite of increased production." And, indeed, not long after this was understood, and a hard pressed agricultural community began to see the development of the resources of the land was becoming the grand economical feature of the day,—urged by great necessities into that rank,—we read that some kinds of manure reached "famine prices," so eagerly were they sought, and so hard was it for the supply to keep pace with the demand. Bones and other

portable manures became so much in request that in Sweden it was complained that bones were not to be had by the home-farmer, because of the high price given for them by English importers.

But further wants began to be felt. The great diversity of soils has to be taken into account in the application of fertilising substances, and independently of the geological structure, the physical geography of a district affects the actual chemical composition of the soil, and consequently modifies the chemical treatment of it. A farmer can see with his own eyes that one side of a hill much exposed to rains which wash away part of its saline substances, or to prevailing winds, will yield a different crop from the side which is more sheltered; but he needs science to teach him how to make each side equally develop to the utmost its own capabilities. Thus it was seen that the sciences of geology, mineralogy, botany, and meteorology, were all needful handmaids to agricultural progress. The higher the farming became, and the greater the surface of land reclaimed in elevated districts, the greater became the demand for extraneous and light portable manures, as it was difficult to cart up to high grounds the heavy farmyard refuse. All known manures were first eagerly sought. The refuse of the currier, the maltster, the tanner, the sugar boiler, the glue manufacturer, were all bought up, and every bone mill had its staff of humble scavengers, who sought through all the towns and villages. When these were exhausted we turned to foreign countries. Dealers in foreign manures sprang up in all the seaports. The whole seaboard of Europe was put under requisition. Fleets of merchant ships crossed the Atlantic and brought back their precious cargoes from Buenos Ayres and Monte Video. So great became the demand for these manures that they rose, as I have said, to "famine prices" and and at one time it was only the farmers who lived nearest the seashore who could afford to buy them. Commerce and agriculture worked together, and carried a good influence to distant countries, the inhabitants of which wondered how the refuse of their coasts, and the droppings of the sea birds which whitened their rocks, should be held of such high value in England. This awakened their minds to new ideas, and stimulated them to unwonted industry. In the United States the impulse was especially felt. There are consolatory reflections connected with this subject of manure—not a very dainty subject, perhaps, but one which plays an important part in the world. The rubbish and debris which, when not used rightly, becomes a simple pest, every way disgusting, has asserted for itself its place and use in creation, and has come to be held in esteem! There are regions in

† Not actually cheaper, but relatively so, to the advanced rate of wages received for almost every kind of labor.

* Edmonston & Douglas, Edinburgh.

which waste, destruction, misuse, and the pestilence which follows, are infinitely more terrible than they are in the material world; but God's whispered messages in the material world tell us that there may be—may, must be—a divine chemistry, through whose mysterious action we shall some day see a positive good, a quiet beneficence in the place of a festering evil.

Each step in the advance of agricultural science seemed to become more difficult, and perhaps it may continue to do so. My father was not one of those persons who believe that science, or rather man's power of applying it at every fresh emergency, will so keep pace with the increasing necessities of the world as to afford a complete answer to our ever recurring difficulties. He did not think, with certain modern philosophers, that man can perfect his own present existence, and drive away by the aid of science, sickness, disease, poverty, crime, and every existing evil from the land. He availed himself, and continually urged others to avail themselves, of the aids which God has placed at our disposal—powers known or hidden, in the natural world, for the diminution of evil and pain; but he believed in no reign of peace short of the final destruction of the principle, deeply seated in the soul of man, which is the primary source of the perturbation of all beneficent social laws, nor of prosperity short of the advent of the "Desire of all nations." That trouble will block our way, that every matter planted by us will, however careful we be, "grow up with the unseen seeds of its own decay within it," he was prepared to see. He was a man of a mournful cast of mind; he was a man of progress, nevertheless, sustained by a constant hope.

Even the large importation of foreign manures not being sufficient for increasing needs, chemists began to work more closely at the subject. Professor Johnston, of Durham, was a great benefactor to the North of England Manufactories of artificial manures sprang up. It was needful that theory and experiment should go hand in hand. On the side of the farmers there was at first some jealousy of the chemists and their theories, and "book-farming" was spoken of with contempt, while the "theorists" were too apt to look on the farmers as a thick-headed race, so long used to be guided by empirical rules that science might knock in vain at their door. But when it was found that a multitude of quacks sprang up, who imposed upon the farmers by their vaunted stuffs for doctoring soils, the farmers perceived that they must arm themselves against these by some knowledge of their own, while the true chemists acknowledged the necessity of consulting the long-practised

farmer; for, indeed, they knew they could not benefit agriculture by experiments in their own laboratories only; they must do their work with the farmer, under sun and wind, rain and hail, thunder and lightning. When Professor Liebig visited Dilston, he was in the habit of questioning my father in the most keen and eager manner, of his experience making notes of his answers at the time. When my father's conclusions about any matter differed from the chemist's, they would go forth into the fields together, and there the solution of the difficulty would often be found in something peculiar, perhaps to Northumberland, its climate or soil, which Liebig had not taken into account. Liebig was a very pleasant guest. He took much to the children of our family, and had that modesty and simplicity of manner which are so often found in true men of science.

Thorough draining must be next noticed as a great means of advancing agriculture. It was in Scotland that the thorough draining of clay lands was first made a national question. It was Mr. Smith of Deanston who first demonstrated its importance. The subsoil plough succeeded to thorough draining. I have before said that it became apparent from the evidence given before the Committee of Inquiry into Agricultural Distress in 1836, that the only safe foundation for agricultural prosperity was in the growth of an increased produce on a given area. One great object of tillage then was to create an increased available surface within the soil, and the gain was great when by drainage and subsoil-ploughing, fields were made wholesome to a double depth, and stores of nourishment were unlocked below, so that crops which before had to draw their sustenance from 6 or 9 inches of soil, could descend for more than twenty, and find fertilising properties.....

This brings us to the era of improved agricultural implements, and to the extended application of mechanics to agriculture; for mechanical science is as needful to agriculture as to any other of the arts of life, and, indeed, the application of ingenuity in the variety and usefulness of agricultural implements has been very beautiful. I recall the enjoyment which we sometimes had in going out—the whole family—to see a trial of some wonderful new machine, which appeared as if instinct with life, and busily and eagerly intent on fulfilling the special end of its creation; and the interest we took in watching the operations of the clever clod-crushers, pressers, grubbers, drill machines, turnip-slicers, straw-cutters, steam threshing-machines, steam-ploughs, reaping-machines, &c. The management of these complicated tools requires far more intelligence than the simple old method of "following the

plough," or handling the sickle and scythe. Mr. Holland, M. P., and Mr. Stratton gave an account of their experience in steam-ploughing at an agricultural meeting at Cirencester in 1859, in which they said they found the intelligence of their workmen greatly increased by the work.—*Agricultural Gazette.*

(To be continued.)

HISTORY OF THE HORNED CATERPILLAR AND ITS RESPECTED PARENT—THE VAPORER MOTH.

From Fitch's Insects.

Eating the leaves, in July; a slender caterpillar with pale yellow hairs and tufts and black pencils, its head and two small protuberances on the hind part of the back bright coral red.

In winter, clusters of white eggs and a dead leaf adhering to a whitish cocoon attached to the twigs and limbs.

The AMERICAN VAPORER MOTH, *Orygia leucostigma*, ABNOT and SMITH.

The term "caterpillar" is applied to a worm which is clothed with hairs; and we commonly associate this term with something that is ugly and repulsive in its appearance. But many caterpillars are far from meriting this prejudice, being in reality objects of much beauty. This is eminently the case with one which may frequently be seen in the month of July upon apple trees, and also in our yards upon rose bushes. We cultivate the rose for ornament; and nature, as it to further our designs, places upon the leaves this neat prim little caterpillar, which is a more delicate, elegant object than the handsomest rose that ever grew. I well remember the first time I noticed one of these caterpillars. It was in the hayfield, in my boy-hood by one of the laborers, who had little taste for any of the beauties of nature—a man of that class of whom the poet sings,

A primrose by the river's brim
A yellow primrose is to him—
And it is nothing more.

In stooping for a handful of grass to wipe off his scythe, his attention was arrested by one of these caterpillars. Taking up the leaf on which it was standing, he was for several moments absorbed in contemplating its bright colours and the artistic arrangement of its elegant plumes. Then as he was laying it down he said to himself, "That is the prettiest thing I ever saw!" Let us not murmur, if the leaves of our rose-bushes are somewhat gnawed and eroded, when they hereby produce for our admiration objects far more beautiful than we look for them to yield.

These caterpillars are an inch or more in length, slender, sixteen footed, and have the skin of a cream yellow color with a black stripe along the middle of the back and a broader brown or black one upon each side.

The body is thinly clothed with pale yellow hairs which radiate from small wart-like elevations, and in a row on the fore part of the back are four brush-like tufts of a deeper yellow color. On the hind part of the back are two little knobs or bosses of a bright coral red color, or like sealing wax, and the head is of the same color. Projecting upward from the hind end of the back like a camel's hair pencil is a bundle of long black hairs, and inclining forward and outward from each side of the neck is a similar pencil. The hairs of these pencils are minutely bearded through their whole length, and each hair has a small knob at its end, which is formed of a tuft of minute bristles. The pencils have a jointed appearance, from their hairs being in sets of different lengths. The yellow hairs are also bearded, but have no knobs at their ends.

I have, on willows and on basswood, met with caterpillars differing from the preceding in having the head yellow, no red knobs upon the back, a black spot behind each of the brush-like tufts except the first, and beyond these a deep yellow instead of a black stripe, and no brown stripe along the sides. Whether these are a distinct species, or only a variety, I am unable to say, two individuals which I reared having proved to be wingless females.

These caterpillars do not associate together in companies, nor form any web for their protection, but live solitary, exposing themselves openly upon the leaves in the glare of sunlight, as if they thought that no creature would have a heart to injure anything so pretty as they are. They eat irregular notches in the margins of leaves, and where they are very numerous they consume the whole of the leaf, leaving nothing but the mid-vein. They feed upon many different kinds of trees, the elm, the maple, the horse chesnut, the oak, &c., but they appear to be most fond of the apple, the plum, the rose and other perennials belonging to the family ROSACEÆ. They attain their growth and spin their cocoons mostly during the latter half of the month of July. The cocoons are attached to the twigs and limbs of trees, and sometimes to the leaves, and also to the posts and rails of fences, it probably being some of those caterpillars which are to produce male moths which select the latter situations. The cocoons are formed of whitish silken threads so loosely woven together that the enclosed chrysalis can often be seen. They consist of an outer and inner covering or tunic. The outer covering is formed partly of two leaves, which are bent and tied together in such a manner as to make a kind of roof, sheltering the cocoon from rain, the lower leaf being overlapped by the lower edge of the upper one. There is considerable diversity however, in the mode in which the leaves are attached to the cocoon. Sometimes they are drawn around it in the form of a cone with its point upwards. Sometimes but a single leaf is used. I once met with one of these cocoons upon

the upper surface of a butternut leaf, the sides of which were drawn upwards so that the leaf formed half of the exterior portion of the structure. And as if the worm were aware of the brittle attachment of the leaf to the main stem, and conscious that its own weight added to that of the leaf would inevitably cause it to break off and fall should a gale of wind arise, it had spun several threads to the main stem, thus securely tying it thereto. It is impossible for us to conceive how this worm came to possess such knowledge. The main stem would have fallen with the fall of the leaves in autumn. This cocoon produced a male moth. The female caterpillars undoubtedly place their cocoons, in every instance, where they will remain upon the tree through the winter; whilst the males are indifferent in this matter, caring for their safety only for the short time they remain within them. This is a signal instance of the harmony of nature, as will appear when we come to see where the eggs of the female are deposited.

Woven into the cocoon are numerous black and pale hairs, derived from the body of the caterpillars; and the remains of plant-lice are sometimes interspersed, probably from these stupid creatures having wandered over the cocoon at the time of its construction, and becoming inextricably involved in its meshes. The cocoon is about an inch and a half long. The inner tunic is about half the size of the outer, the space between being occupied with single threads crossing each other in every direction, and with the shrivelled remains of the caterpillar lying in the lower end. This inner covering is a closed sack of a regular oval form, smooth on its inside, and a little larger than the chrysalis which reposes within it. The cocoon is placed indifferently either in a perpendicular, an oblique, or a horizontal direction.

The *chrysalis* is of an oval form, twice as long as broad, measuring from 0.60 in to 0.70 in length. It is rounded anteriorly and drawn out into a little hornlike point at its hind end, furnished with minute hooks at its tip, which are fastened into the threads of the cocoon. It is of a brown color with pale clouds and the under side of the abdomen whitish. Sometimes it is black and shining, with scarcely any trace of whitish. Upon the head, back and sides it is thickly covered with rather long fine white hairs. The three anterior segments next to the head have each upon their middle, above, an oval or square transverse spot of a pale clay color, formed of scales which resemble little collapsed vesicles or bladders, and each of these spots is crossed by a slender line upon its middle. The wing-sheaths appear to be of the same length in both the sexes, reaching to the anterior edge of the first abdominal segment. On breaking open a female chrysalis, its inside is found filled with eggs which appear to be grown to their full size.

In each instance when I have bred

these insects, the moth made its appearance on the thirteenth day after the cocoon was spun. It therefore begins to appear abroad upon the wing about the first of August. We sometimes, however, meet with the chrysalis unhatched in the cocoon in the winter. These are doubtless individuals which have been later in completing their growth and from which moths will be given out early in the following spring. From the gay appearance of the caterpillar one would expect a very pretty moth to be produced by it, and will be disappointed on obtaining a dark sooty brown thing, little variegated with spots or streaks. These moths may sometimes be seen resting on the door posts or the shady side of buildings, with their fore legs stretched out in front, and their antennæ elevated. They frequently enter open windows in the evening, attracted by the light. They fly also in the daytime. Their mode of flight is peculiar, consisting of short jerks or in a flitting manner. This has probably obtained for insects of a similar kind which occur in England, their common name vaperer moths, a term indicating something of a volatile, peevish, hysterical, disposition. They pertain to the genus *Orgyia* in the family ARCTIIDÆ and order LEPIDOPTERA, and this species is named *leucostigma* or the Pale vaperer moth, in the splendid work of Abbott and Smith upon the insects of Georgia, plate 79. The epithet "pale," however, is inappropriate for these moths as they occur in the State of New York. Indeed the specimens which I meet with in Washington county, fifty miles north of Albany, are so uniform in their character, and so unlike the insect figured and described by Abbott and Smith that I should deem them a distinct species, were it not that the caterpillars, which are so peculiarly colored and clothed, appear to be identical with those of Georgia, and specimens of the moths from the vicinity of the city of New York are intermediate in their marks, between the more northern and the Georgia insects, thus indicating that their is a gradual transition from one to the other.

The *winged moths* as they occur in the Southern States, appear from the representations given, to be of a pale gray or ash color, the fore wings with a white crescent near the inner hind angle, and crossed by two conspicuous curved black bands, the hind one of which and the black spots upon these wings are nearly as in the following variety.

The intermediate variety (*O leucostigma* var. *intermedia*) which occurs in the southern part of New York measures 1.40 across the extended wings. The fore-wings are ash-gray, their basal third smoky-brown, paler on the inner side and crossed by a faint wavy pale band, which is confluent outwardly with an ash-gray cloud which extends from this band to the base. A blackish crinkled band commences on the inner margin behind the

middle, running inward and then curving backward, until it approaches the outer edge, when it abruptly turns forward almost at a right angle and extends straight in an oblique direction more than the tenth of an inch to the outer edge. In the middle of the pale gray space forward of this band is a slender black crescent having some resemblance to the letter *L*, with a dot between it and the outer margin, a slender black line sometimes reaching with a curve from the crescent to the dot. The wing back of the band is pale smoky brown, except toward the outer margin, where it is pale gray, with a rhombic black spot on the margin immediately behind the band, this spot being cut across longitudinally by a slender gray line. Inside of this spot and much nearer the hind edge are two smaller blackish spots or streaks. Near the inner hind angle is a large white comma-like dot having its tail towards the inner edge, from this dot a pale streak often extends across the wing, parallel with the hind margin. The fringe is smoky, crossed by pale lines at the tips of the veins.

In the northern variety (*O. leucostigma* var. *borealis*) which is met with in the more northern sections of the State, the wings when spread measure from 1.20 to 1.30. Both pairs are alike in color, being dull smoky or dingy brown. The upper ones have a large ash-gray patch on the middle of the outer margin, which commonly extends to the tip, and is crossed by an oblique blackish streak, which is all that can be perceived of the band noticed in the preceding variety. Immediately back of this is a blackish spot, commonly of a rhombic form and sometimes crossed by a pale line. The base of these wings is somewhat clouded with ash-gray; and near the inner hind angle is a roundish white spot which is sometimes faint and almost effaced. Sometimes a row of small dark brown crescent-shaped spots is perceptible along the apical edge at the base of the fringe. The specimens which I have gathered in Washington county have uniformly been of this variety.

The antennae of these moths are about a third of the length of the wings. They are gray, with a double row of dark brown branches resembling the teeth of a comb. Each branch has a row of very fine hairs, like eye-lashes, along each side, and at its tip three bristles, one of which is much longer and directed inward towards the head. The body is gray, with a small black tuft near the base of the abdomen. The under side is paler and the legs are variegated with blackish.

It is the male insects which we have described above. The females are totally different objects, to appearance, being destitute of wings, and having in place of them two small scales the tenth of an inch long and half as broad, situated upon each side of the thorax. The vaporizer moth therefore analogous to the canker worm in this respect, the females in both species resembling worms more than perfect insects. The body of the female vaporizer moth is short and thick when it first crawls from the cocoon, and longer and more cylindrical after the eggs have been deposited, being over half an inch long and a third as broad. It is of an ash-gray color from the hairs with which

the body is densely covered, and often a broad dusky stripe runs the whole length along the middle of the back. The colors become more dull and obscure after the eggs are deposited. The antennae in this sex are short and not branched as in the males, merely presenting a row of saw-like teeth along their inner side, each tooth having a short bristle at its apex.

The females merely crawl from the inner to the outer side of their cocoons, and their remain awaiting the approach of their mates, who invariably find them immediately. The instinct of the males for discovering the opposite sex is remarkable; and collectors are accustomed to avail themselves of it for obtaining specimens. By placing a box in which a newly hatched female is enclosed, in the haunts of this species, dozens of males will sometimes be attracted to it. Thus the females commence depositing their eggs often within a few hours after they have left the chrysalis state. The eggs are from one to two hundred in number, about the size of a mustard seed, white and round with a small depression in the summit. They are placed upon the cocoon from which the female came, and are developed in a large quantity of frothy milk-white, viscid matter, causing them to adhere securely to the cocoon and to each other. They are extruded in a continuous string, which is folded and matted together so as to form an irregular mass. I once pierced one of these females with a pin while she was in the act of depositing her eggs; and so tenaciously did she adhere to them that for a time it was uncertain whether the body would not tear asunder before it would separate from the string. Within a day or two after she comes out of the cocoon the female has completed her labors. Her body which was at first plump swollen and unwieldy, is now shrunken and flaccid, and she is so exhausted that she soon lets go her foothold, falls to the ground and perishes. The designs of nature in giving to these insects the habits which they possess are very evident. Having no wings by which to escape when menaced with danger, were these worm-like females to crawl about the limbs and trunk of the tree, as the canker worms are accustomed to do, their pale gray bodies would cause them to be discovered and devoured by birds. The canker worm runs no risk of this kind, as it makes its ascent in the winter and early spring when the birds are all absent upon their migration to a warmer climate. The vaporizer moth coming out in August, by remaining stationary upon its light colored cocoon, is but little liable to be noticed. Still, there being even here some risk of its discovery, it hastens to fulfil the purpose of its existence immediately upon coming out of its cocoon,

lest some mishap should befall it were it to remain longer in this exposed situation.

The white frothy matter with which the eggs are covered becomes dry and hard and impervious to wet, thus protecting them through all the storms and vicissitudes of autumn, winter and spring. Nor will a bird be inclined to pick off and devour these eggs with this foam and the hairs of the cocoon adhering to them. They are thus shielded from harm although placed in such an exposed situation, until the return of warm weather brings out a crop of leaves for the subsistence of the worms; whereupon they hatch from the eggs, early in May, and grow up till they become the gay caterpillars which we first noticed above.

But though the vaporizer moth is able to guard itself and its progeny from destruction in several directions, it is not thus fortunate in other particulars. It is exposed to the attacks of parasites. These are minute bee-like insects pertaining to the Family *CHALCIDIDÆ* in the Order *HYMENOPTERA*. They puncture the skin of these pretty caterpillars dropping an egg therein, from which hatches a minute maggot which feeds internally upon the fatty matter of the caterpillar, thus exhausting and eventually killing it. I once gathered two of these caterpillars which I placed with some leaves in a box. Two days afterwards one of them was found to be dead, and the other being lively and vigorous was removed to another box. Next day what appeared to be the ends of little worms were seen protruding from the body of the dead caterpillar. Upon the following day these worms were found to be seventeen in number. They had all left the dead carcase of the caterpillar and just above it upon the side of the box they had arranged themselves in a circular row, and had changed to pupae of a milk white color, 0.12 long and half as broad, hanging by their tails with their heads downward and their backs against the side of the box. This was upon the last day of July. Next day they had changed to a pale red color and had somewhat shrivelled, each having discharged a little cluster of clay yellow grains which were adhering to the side of the box at the tip of their bodies. They subsequently altered to a black color, and on the sixth of August they hatched the winged insects, which were of a brilliant brassy green color, with a blackish purple abdomen and white legs, and about the same size as the pupae. In an account of the vaporizer moth which I published in the Country Gentleman in reply to enquiries respecting it from some of the subscribers of that paper, I named this insect (vol. vii, p. 235) the vaporizer-moth parasite (*Trichogramma? Orgyia.*)

The Orchard and Garden.

PRACTICAL HINTS TO FRUIT-GROWERS.

BY H. T. WILLIAMS.

Benefits of Mulching.

There are so many instances of beneficial results from mulching, applied to all kinds of fruit, that I would like fruit-growers to pay more attention and practice to the subject. It is so simple, so practical, so easy, and so excellent in increasing the health and productiveness of fruits, that, notwithstanding its moderate expense, fruit-growers will find it one of their most efficient aids.

No man should spare time or trouble in horticulture, if he wishes to save his fruits and increase their crops.

That good man, Downing, said, "If we were asked what practice founded on principle had been most beneficially introduced into our horticulture, we should answer, *Mulching*—suggested by the need of moisture in our dry climate, and the difficulty of preserving it around the roots of fruit-trees."

In this peculiar climate of ours, furnishing at one period of the year the scorching rays of the sun to wither and exhaust the vitality of many of our best plants, and then succeeded by the frosts of a stormy and severely cold winter, trying all varieties and putting them to the severest of tests with alas! too little comfort and success, I see one way by which we can maintain the life of a majority of our plants, and increase their health, vigor, and productiveness—namely, *careful mulching*.

Mulching means any sufficient covering of the surface of the earth; and its object is three-fold—

- 1st. To protect and preserve the plant from the excessive heat of the sun.
- 2d. To equalize the temperature, and preserve the soil and atmosphere uniformly moist around the roots.
- 3d. To keep the plant secure from the repeated frosts of the winter.

With all newly-planted trees or vines, a uniform degree of moisture is necessary; and the more perfectly this is furnished, the better will they flourish. If absent, however, they will languish for the need of it.

It makes but little difference as to the kind of fruit to apply it to. Strawberries love it, perhaps, better than any other, and give generous returns for the care bestowed. Raspberries are highly benefited, and many varieties are successfully grown this way that could be grown in no other. All kinds of standard and dwarf trees are greatly benefited, and large orchards are frequently saved by its use. Currants and gooseberries have

yielded better crops, and been more healthy and vigorous, while to vegetables and evergreens, the effects are no less marked and advantageous.

The materials to be used are very various; but the following are cheapest and most efficacious.

Decaying leaves. Almost every farmer or fruit-grower can obtain abundance of these from the woods usually so near at hand. It is quite an easy matter to harness up the team and cart, and drive into the woods, and with hoe, rake and shovel, scrape up hundreds of loads of forest refuse. It is the very best of all mulches, as it is not only a protection, but contains the highest kind of fertilizing material, to be absorbed quickly by the plant.

Sawdust. Very many live where they can obtain an abundance of this. It may splash some on the plants during the heavy rains, but it is better to apply it than nothing at all. It has the merit of cleanliness, and may be incorporated in the soil as a fertilizer or ameliorator.

Tan-bark is also excellent. I have used it with excellent success. Applying it one inch deep to strawberries, it formed a handsome path up and down between the rows, perfectly clean and free from weeds—forming a nice bed for the fruit to rest upon when ripe, and easily heaped over the hill at commencement of winter. The tannic acid it is said to contain, be it little or much, is assuredly quite a benefit. If used around evergreens, it should be applied two inches deep.

Even **stones and boards** have their uses. I have seen trees growing up from stone-heaps, and I could not help but notice and admire the size, vigor, and luxuriance of their stalks. Also, I have observed other trees growing by the side of a heap of boards loosely thrown about, or out of a lot of rubbish, or heaps of brushwood, that were far more thrifty than those in richer ground but more exposed.

Salt hay is probably the best and cheapest where it can be obtained. It is usually sold at a price of \$5 to \$10 per ton, according to distance from seaboard for delivery, and four tons per acre are needed for a good dressing. Those who are fortunate to live near at hand can get it by simply cutting and hauling with their own teams.

Straw, which some farmers waste far too freely, is also one of the cleanest and best; but, like old hay, it is liable to the objection of concealing the seeds of weeds, which, in course of time, will grow and take possession of the soil.

When mulch has been used more than one season and gets old, after the plant has done fruiting, either remove it, or apply manure upon it and fork it into the soil.

The use of mulch is a *great saving in*

labor. If the ground is well mulched, no labor is necessary to till it; If strawberries are cultivated, the fruit will be more abundant, will be cleaner, easier, and faster picked, and of a more uniform size and agreeable flavor. These considerations alone determine the value of its use by all those who grow for market.

On the score of economy, it costs no more to mulch an acre than to pay for the labor of cultivation a single season.

The Raspberry.—Very few have made use of mulching for the raspberry, and yet no treatment, however good, will do better. The treatment was tried this season by one of the Oneida Community, who says:

"I mulched a row of the Franconia, and also one of the Philadelphia, side by side. The effect was very marked. While the Franconias which were *not* mulched were literally scorched, and the leaves crumpled in the sun, the row which received mulching carried through nearly double the crop of fruit. The yield of the Philadelphia was also very much increased in quantity, and in the size of the berries.

"In my experiment I used old, half-decayed buckwheat straw. Some buckwheat came up, but this was quickly disposed of by the use of the lawn-hook. After stirring and cultivating the ground in the spring, the first of June is soon enough to apply the mulching. By that time the ground will have become warm, and the new cane will have made a good start. In case straw or other material is scarce, coarse grass, brakes, or flags, that grow in swales or swamps, will have grown sufficiently for the purpose. The material used may also, as it decays, be counted on as of considerable value to the land, in keeping it in good heart."

The best time for application, in my judgment, is just at the beginning of summer; but it often happens that the material for mulch is scarce at that time, and there is no resource but to wait till a later date. September usually finds an abundance in every direction, and a very convenient time.

Method of application.—For strawberries, apply between the rows, covering the ground completely; on the approach of frost, take a fork and cover the plants well. In the spring uncover, and allow the mulch to cover the ground again. It is well, once in May and once in September, to push the mulch aside and pass up and down with the cultivator. It has the effect of stirring the soil and increasing its power of absorption; and also prevents it from becoming hard and stagnant.

For raspberries, spread evenly over the ground, and allow it to remain undisturbed.

For trees, if the entire ground can not be covered, then apply all around under

the branches of the tree, and a little out beyond the extreme edge of the outer branches. Let the earth slope like a little mound or rise of an inch or two, toward the trunk. Do not let the mulch come within six inches of the trunk. It is well to stir this mulch and the soil beneath at least twice during the season.

Although mulching is a very simple operation, yet beginners may err in applying too much to trees, and thus promote the growth of fungi or other diseases. Two inches is usually sufficient if the mulch is of a compact nature. But three inches at all events is an abundance. More than this can not be recommended.

Many of our best fruit-growers who have used mulching for trees consider it so important that they would omit any other point of cultivation than this.

Mulching, in nearly all cases, answers the purpose of watering. It is an excellent preventive against droughts, which so often injure newly-planted trees, and it is a good substitute for mellow culture.

For cherry-trees, it should never be omitted. One fruit-grower, who had planted one hundred and fifty trees, mulched fifty of them. Those that were mulched all lived. Of the hundred not mulched fifteen died. In other cases, the losses have proved frequently more serious.

If trees are transplanted late in the spring, they will either start late, or, even if a good start is made, will often fail at midsummer, from the parched condition of the earth around the roots. Watering even will often fail to save them. Indeed, watering is usually an injurious practice; for the roots are stimulated at one time of the day by the moisture and consequent coolness, and are only rendered more liable to the action of the hot sun at another; the surface of the ground is rendered more hard and less porous, and the free access of the air is cut off.

But if mulching is used at the time of planting, they will never need the necessity of watering.

Uniform temperature and a constant supply of moisture are the prime elements of success in fruit culture. Mulching enables us to accomplish this.

Mulching acts beneficially in other ways. It prevents, to a great degree, the cracking of fruit, and causes those varieties which are generally spotted and defaced to become clean and covered with a rich bloom.

I remember an instance which appeared several years ago, where a large pear-grower in New Jersey used a thick mulch of old chips and iron waste; it acted as a preventive against cracks in fruit, also imparted a superior flavor, and increased the smoothness of the bark.

Native grapes, too, were tried in the

same manner, which had previously been much injured by rot and mildew, and were saved from such diseases by using mulch alone.

It was applied very thick, five to six inches—a thickness which I think too heavy for health to be used constantly.

It may be safely said that a tree with only one half or one third its original roots, (if the top is shortened in proportion,) such a tree as would, nine times in ten, die with the usual treatment of planting and watering, may be invariably saved by mulching.

But, after all, remember one thing—that, if once commenced, it must be continued.

If omitted for a season, the innumerable tender fibres which have been encouraged to come to the surface will be exposed to the disastrous effects of parching sun and severe cold of the frosty fall and winter. Your tree will no longer live or bear fruit. Mulching should be either constant or neglected altogether.

Of all our fruit-trees, none require mulching so positively as the dwarf pear. The quince roots are fibrous and lie near the surface; if we wish for a handsome and vigorous top, we must have abundance of sap and moisture.

Tolerable care in planting, with suitable mulch, will insure the safety of at least eight out of ten, while ten to fifteen per cent. will die every year, or fail to do well, without it.

If those persons who have experienced so much dissatisfaction in the cultivation of dwarf pears will stir up the ground well, and apply a good mulch, they will find, after one season's trial, they have hit upon the *Golden Rule*.

We love all fruit;

"It ministers delight to man,
And beautifies the earth."

But to have it in constant, steady abundance, you must care for the trees as you would for the health and life of your own children. Mulch your *young* trees, if you want them thrifty and luxuriant. Mulch your *old* trees, if you desire fine foliage and fair, large fruit. Imitate nature in the woods and fields as she gathers the beds of leaves and moss around her trees.—*Horticulturist*.

RAISING VEGETABLES BY ARTIFICIAL HEAT.

Yesterday afternoon we paid a visit to Mr. Power, of the Tanneries, for the purpose of inspecting a large vegetable house which he has just erected for the purpose of raising garden stuff from seed, by artificial heat, instead of the ordinary forcing frame with manure. The house is in reality a large forcing frame, about 85 feet long, with an avenue of two feet wide down the centre, and beds about 4 feet 6 inches wide, raised four or five feet from the ground. Running along the

right side on entering is a bed made on the ground, in which is a large quantity of fine rhubarb beneath the raised bed or shelf devoted to raising plants from seed. The roof and front are of course glass, the latter being three feet high from the ground. In the raised beds are about 1,386 healthy lettuce plants, and an equal number of radishes, besides cucumbers, cauliflowers, and other plants. This house is heated by a brick furnace four feet square by six feet high, containing the coils of iron pipe in which the water is heated. It is sunk some five feet in the ground, and upon the top of it is a bed for growing mushrooms. From the coils of pipe contained in the furnace, two large main pipes proceed, carrying the heated water from the furnace along the vegetable house, the water again returning to the furnace by a number of small pipes to be reheated, and thus being continually kept in circulation. It is ultimately intended to extend branch pipes from the same mains to three other frames 85 feet long and 11 feet wide. The heating apparatus was put up by Mr. Greene, of John street, Montreal, who has fitted up several large public institutions, private houses, &c., on the same economical principle. Since the 24th December last, 30 cwt. of Cow Bay coal, at \$1.50 a ton, has been sufficient to heat the place. Under ordinary circumstances with manure, which would have to be bought and carted from town, operations could scarcely have commenced till the 8th of January, and it is calculated that the cost of purchasing and carting manure for two years would pay for the apparatus. The hot water, moreover, diffuses a more equal heat, and one more readily under control, as in mild weather the manure is apt to become too hot, and so burn the roots of plants, while in more severe weather it is apt to become too cold. The furnace house also supplies a warm place where the glass sashes may be repaired during the winter, and the butt of warm water in connection with the pipes used to allow of any undue expansion, is always useful for making warm washes for cattle, &c. Hitherto, Mr. Power has been generally first in the market with fresh vegetables, but by adopting the new system he hopes to be nearly a month earlier than usual.

We believe to-day a number of members of the Horticultural Society intended visiting Mr. Power's new forcing frames, as well as some other gardeners in the neighbourhood, with regard to the hot water apparatus erected by Mr. Greene. We may state that all danger from the use of a steam boiler is entirely avoided, and all that it requires is to see that the fire is kept going. This renders it peculiarly adapted for private houses. The more especially as the same hot water is used over and over again with great economy.—*Montreal paper*.

To the Editor of the Journal of Agriculture.

GRAND NATIONAL HORTICULTURAL SHOW.

MANCHESTER, MAY, 1868.

It thinks that I hear some acute merchants, who have crossed and recrossed the stormy Atlantic, season after season, declaring that a flower-show in Manchester is impossible—that the only plant he has seen is cotton, and the only flowers

are those on the calicoes, cottons, and chintzes. If there be such a doubter let him, the next time he visits Manchester, take a walk about three miles from the Exchange—I care not what direction he takes—he will be sure to find himself in a half town, half country, studded with charming cottages, with their trim hedges and neat flower-plots, stately mansions, with their fine walls enclosing well kept grounds, and a score or two of glass houses filled with the choicest exotics; and, if he should be fortunate enough to gain admission to some of these I think that he will be convinced that in busy, smoky, bustling Manchester, they have sufficient at hand to make a first-class show.

And as the merchant princes of Manchester are famed for their honesty, energy, and liberality in all transactions, (and horticulture is no exception to the rule.) it follows that the "National" could not be otherwise than a decided success. The schedule was most liberal, offering prizes to the amount of £1000 stg., and the entries in the various classes were numerous, and comprised subjects sent by the leading nurserymen, gardeners and amateurs in England. The show was held in the Botanic Gardens, to which place we were directed by our friend, Robert of X Division, and it was now we could see the point of the rhyme, that we used to be so fond of shouting, in the palmy days of school-life, concerning the usefulness of the individual in question. Amid a shower of rain we reach the garden-gate, tender our shilling and pass on. The lawns on our right and left are covered with a large and varied assortment of garden articles, of which, notwithstanding the wet, we take a good survey. Here we have garden engines of all shapes and sizes, warranted to throw water by gallons or yards. Mowing machines are in great force; and if you feel inclined, you can try their respective merits on the lawns. Rollers are well represented, and are of all sizes, from one that a boy can draw to that requiring a pair of horses. Boilers for heating glass structures, &c., are here, but I only saw one that I thought would be of any use in Nova Scotia. It was patented by Jones of Manchester, and is called the terminal saddle boiler; but there is much room for improvement, and if some of the enterprising mechanics of Nova Scotia would take the matter in hand, I think it would prove a good investment. Spades, rakes, hoes, &c., are in abundance; but to my idea, far too clumsy and heavy. They seem to try how much timber and metal they can use. It would be well for British manufacturers to take a lesson from the Americans on that score. Garden seats of every conceivable shape and size, and made of wood, plain and rustic, metal,

cast and wrought, and seated for the lonely bachelor, the wooing lovers, and the family of five, ten, or a dozen. Wheelbarrows have also a place, but are made in defiance of all the laws of mechanics. How strange it is that you seldom find a neat, portable wheelbarrow. Summer houses are very neat and pretty, and made to suit all purses and tastes. Garden vases are very handsome and chaste, some of which are filled with flowers. Nothing looks better when well filled, and it requires great skill and taste to choose and fill them so as to correspond with surrounding objects. Last, but not least, in the eyes of some folks, there is a velocipede; what it has to do with gardening I know not. Perhaps the "good time is coming" for gardeners—in fact, I gave vent to that expression at the time; but a Yorkshire gardener who had been trying the machine and came to grief, interrupted me by saying "I reckon nout." Leaving the utensils we come across a lot of conifers, all classes being well represented, and I noticed in particular that most of the species indigenous to Nova Scotia were in the collections. Much might be done to improve your coniferæ by hybridising, grafting, inarching, &c. For what can be better to plant around your mansions, homesteads, and villas. In summer they have a green and refreshing look, and in winter, when all other trees are bare, they give shelter and add comfort to the dwelling; therefore, I advise those who have evergreens around their dwellings, to spare—those who have not, to plant. Entering the large temporary erection, which is covered with canvass and encloses an area of about twice the size of the Halifax drill-room, the interior being laid out in the gardenesque style, which is far preferable to the old fashioned tables covered with green baize, the plants acquiring a fresh look when placed on the grass banks and terraces, and when well arranged cannot be equalled for effect. Standing on the grassy bank at the entrance, the scene spread out is both pleasing and effective. The stiff and formal appearance of the Azalies, Rhododendrons, Geraniums, being relieved by graceful tree-ferns, palms, crotons, &c., whilst the gay throng who filled the winding walks testified to the encouragement given by the good citizens of Manchester to horticulture. The roses shown although well flowered, consisted chiefly of old varieties. Azalies, although large, and covered with bloom, were, to my taste, too stiff and formal, but it is the fashion, and it is no use to kick against it. Ferns were very fine, especially *Goniophlebium subauriculatum*, with pendulous fronds about six feet in length. Palms made a good show, and several good specimens were shown that had been grown in a greenhouse. I think they

might prove very useful to those who require something ornamental and easily wintered. Geraniums, fancy, stage, zonal, gold, silver, bronze, and tri-color were well grown and flowered. Leaving this lovely and interesting spot we enter by a serpentine walk into the marquee, in which are placed ferns hardy and British, and among the many varieties exhibited I saw two which are very common in Nova Scotia, *Osmunda regalis* and *Claytoniana*. Bedding-out plants were also well represented. Alpine and herbaceous plants had also a place, and amongst them were some real gems. Who would have thought to find *Epigæarepens* in the Mayflower so dear to every true-horn Nova Scotian. Turning to the left we enter the conservatory, a building of considerable dimensions, of the architecture of which I am doubtful, but would think Chinese. It is laid off in the interior in the following manner: The centre table is filled with new and rare plants, which consist principally of stove plants, amongst which are some fine crotons sent out by Veitch & Son, London. The orchids are placed on a side stage, and consist of many costly and rare varieties, their estimated value being £3000 stg. There are also several collections of ornamental foliage plants, as well as a large number of stove and greenhouse plants,—all of which bear ample proof of skill and patience. The great attraction of the show consists of the two collections of plants staged for the prize of £50 stg., offered "for the best and most effective group of 50 plants, not less than 25 to be in flower." This prize was carried off by Mr. Baines, who showed a fine collection, every plant being a perfect specimen—conspicuous amongst which were the following: *Ixora coccinea*, *Clerodendron Balfourii*, *Azalea Magnificent*, *Erica ventricosa coccinea minor*, *Epacris Eclipse*, *Eriostemon nerifolium*, *Boronia pinnata*, *Sarracenia flava*, *Croton angustifolium*, and a fine pan of that plant so common in our swamps, *Sarracenia purpurea*, or Indian cup. As I stood beside this plant a feeling of sadness came over me to think that he from whom I first learned its name and structure was now no more. The horticulturists of Nova Scotia have lost a friend and an advocate in the late Dr. Forrester. And as one of his pupils I may be permitted to testify to the zeal and enthusiasm with which he sought to advance the horticulture of his adopted home. Of the many plans and projects that have emanated from his master mind the great Provincial Exhibitions bear evidence of his great skill, prudence and foresight, and with what care and patience did he watch the progress of the horticultural department from year to year, labouring and waiting patiently for the fruits thereof. Let us then as horticulturists be like him, "learning to labour

and to wait," doing all in our power to advance the interests thereof.

Yours, &c.,

HALIGONIAN.

Reports of Agri. Societies.

YARMOUTH COUNTY AGRICULTURAL SOCIETY.

4th May, 1869.

Quarterly meeting. A fair attendance. The President in the chair. Minutes of last meeting read and approved. Number of members for 1869, to date, 124; amount subscribed, \$325. Since the last quarterly meeting, the Government grant had been received, \$195, less half grant to exhibition, \$50 = \$145.

The Secretary reported that the seed voted to be bought had been all procured, with the addition of 1 bbl. onion, lettuce, &c.; 100 golden pippin apple trees; 1650 root graft apple, pear and plum; 1100 apple scions. All of the fruit trees, grafts, &c., had been disposed of at cost, though not so widely distributed over the county as was desirable. There remained above half a barrel each of Early Rose Potatoes and Norway Oats, 6 bbls. Ower Potatoes, and 20 bush. Barley.

Upon the suggestion that the remaining seed might be sold at cost to some few of the members, with the agreement to take the produce at a certain rate in the fall, Mr. Dennis C. Nestor offered to take 20 lbs. Rose Potatoes to grow for 90 cents per bushel, and 8 qts. Norway Oats to grow for 100 cents per bushel. Several other members agreed to take the remainder on the same condition.

Voted that the amount appropriated to the exhibition in October be increased to \$300.

Moved a committee of three to prepare a premium list, to be printed and distributed to members, subject to amendment at the quarterly meeting in August.—Charles E. Brown, Walter Churchill, Henry Burrill.

The Secretary reported correspondence in reference to Ayrshire and Alderney stock.

Voted, that an Ayrshire heifer be procured, if practicable, as well as a bull.

Voted, that premiums be awarded to animals of full blood, bought for breeding purposes, if entitled to premiums, notwithstanding less than three months ownership.

Some extracts were read from the report of the transactions of the Middlesex Agricultural Society of Massachusetts for 1868. The Treasurer's account showed the chief source of the funds to arise from the sale of tickets to exhibitions; nearly four times as much being received from this as from any other source. A sufficient lot of land, with a building and fixtures for stock, all well enclosed, would establish any county society, even in Nova Scotia, on a much higher place than any at present occupying, and should make it nearly self-supporting.

A well-managed exhibition ought certainly to attract as large an attendance as a circus or a menagerie. Our efforts should therefore be directed to attain this end as soon as possible.

CHARLES E. BROWN,
Secretary.

On the 14th May the Secretary bought, in St. John, N. B., 1 full blood Ayrshire bull, 2

years old, at \$80; 1 full blood Ayrshire heifer, 2 years old, with full blood bull calf, 5 days old, \$60; total, \$140. They were shipped same day, per steamer Linda, were landed in good condition, and having been duly advertised in the Herald, were sold at auction on the Parade, on Saturday, 22d May. Calf sold to George S. Brown, \$14; heifer, to ditto, \$45; bull, to ditto, \$95; total, \$94. The bull was bid off by Mr. Reuben Perry, residing at the extreme northern limit of the county, but Mr. Perry considerably gave up the bid when it was objected that it would be taking the bull too far away, where but few members of the society could derive any benefit from him. The stock was sold under the same conditions as before, that the purchaser should not dispose of them except at public sale advertised in Herald.

The Secretary, having written some months since, to D. W. L. Arrowsmith, residing in Jersey, requesting him to send prices of stock on the island, received on the 19th June, a Jersey paper dated 22d May, 1869, containing the following:—

"The Price of Jersey Cattle.—Recent sales of Jersey Cattle have been favorable to the seller:

Mr. John Arthur, of St. Marys, sold 2 heifers for	£20 0 0
Barabuy Golfrey, St. Clements, " 1 "	50 0 0
Clement Falot, St. Saviours, " 1 "	60 0 0
" " " " " 1 "	40 0 0
" " " " " 1 "	20 0 0
" " " " " 1 bull,	50 0 0
Joshua Neel, St. Martins, " 1 heifer for	50 0 0
Jas. Lo Tompler, St. Clements, " 2 "	60 0 0
Ph. Bree, Growville, " 1 "	30 0 0
Ph. Bauldains, St. Clements, " 1 "	20 0 0
" " " " " 1 "	25 0 0
" " " " " 1 cow,	30 0 0
	14
	£255 0 0

An average of £37 10s. per head. This, with the cost of importation, would exceed the present means of Nova Scotian agricultural societies.

CHARLES E. BROWN.

30th June, 1869.

RULES AND BYE-LAWS OF THE ANNAPOLIS AGRICULTURAL SOCIETY.

1. The object for which this Society has been organised, is the improvement of Agriculture, of stock, of farm management and rural economy, in all their various branches.

2. Any person to become a member shall pay an annual subscription of \$1, and no member may compete for a premium unless his subscription shall have been paid in before the first day of June the current year.

3. A general meeting of the members shall take place annually on the first Tuesday in December, when the Office Bearers of the Society for the ensuing year shall be chosen.

4. The Society shall have a President, Vice President, Treasurer, Secretary, Assistant Secretary, and a General Committee of Management.

5. The General Committee shall consist of nine members, viz.: the President, Vice President, the Secretary and Assistant Secretary and five other members of the Society, the three first on the list retiring annually, to be replaced by three others chosen at the annual meeting; five shall form a quorum, and there shall be a quarterly meeting.

6. The General Committee shall be empowered to act for the promotion of the general designs of the Society, shall have entire and sole control of all property belonging to

the Society, excepting money, and shall make the yearly list of premiums.

7. There shall be no appropriation of the funds of the Society by the General Committee of a greater sum than \$8, for any purpose or purposes, except premiums, unless notice be given of such intentions and the purpose of the appropriation be mentioned at least three months previous to the day on which the appropriation is made, and then only at a regular quarterly meeting.

8. The President may at any time or season call a meeting of the General Committee or Society by directing the Secretary to advertise the same at least ten days previously to said meeting, and the advertisement shall mention the exact purpose for which the meeting shall be called.

9. At the annual meeting in December a yearly report of all proceedings shall be read by the Secretary and submitted for approval. The Treasurer's accounts audited—and such other business brought before the Society as the General Committee has not power to do.

10. Every order upon the Treasurer shall be signed by the President and Secretary.

11. The judges for awarding premiums shall be members of other Societies, and be nominated by their own Presidents, and shall be five in number; but three may make an award in the absence of the others.

12. At all meetings of the Society or of the General Committee no member shall speak more than once on any one subject without special permission from the chairman.

13. That none of these rules be altered or added to, except by a two-third vote at an annual meeting, and then only after a written notice of such proposed alteration has been handed in at a previous annual meeting.

BYE-LAWS OF THE GENERAL COMMITTEE.

1. The List of Premiums for the season shall be drawn up at the June quarterly meeting and published as soon thereafter as may be practicable.

2. There shall be an Agricultural Exhibition every year, if approved of by a majority of members present at any regular meeting of the Society.

3. The Exhibition shall take place between the 1st and 20th days of October, the precise day and hour to be fixed upon by the Committee at the quarterly meeting in June, but the Exhibition of Grain shall take place the first Saturday after the fifteenth day of December.

4. No means beyond the ordinary process of winnowing, shall be employed in cleaning grain and corn, and those who compete for the premiums offered for the largest quantity shall produce an affidavit with two signatures, one of which may be that of the competitor himself.

5. None of these bye-laws shall be altered or added to, unless by a two-third vote of the General Committee at a regular quarterly meeting, and then only when a written notice of such proposed alteration was handed in three months previously.

REPORT OF THE ONSLOW AGRICULTURAL SOCIETY FOR 1868.

The Officers of the Society in making their Report, have much pleasure in assuring the members that the affairs are in a flourishing condition. Since our last annual meet-

KEEPING HAMS.

My hams are thoroughly dried, and I have them wrapped in paper bags, and hang them in the garret. They are not smoked, and look deliciously clean and sweet, as they have been kept in paper since coming from the salt. Mary watched me arrange them with apparent interest. She wanted to know when we should have some for the table. I told her not yet, as it is my intention to keep them until the green peas are ready, as I think they go excellently well together. I have always kept hams and bacon in paper bags, and prefer it to other methods. It is impossible for flies and other insects to attack them through the paper, and the atmosphere cannot have free play as it does through the bags of cotton, which of course is an advantage. My mother used to keep her hams in a bin of malt or barley. Of course that would not be practical with many, as all are not fortunate enough to have a bin of barley; but I should think they would be very nice if kept in dry bran, oats, or wheat. I think broiled ham is much nicer if the slices are cut very thin. When ham is very salt, a little soaking will improve it; but if it has been properly salted, this will not be necessary.

WATERING HORSES WITHOUT STOPPING.—A Jersey genius has invented a device for watering horses when travelling or at work, by which their thirst may be assuaged without stopping. It appears to be more particularly designed for the benefit of the draught animals or city street cars. The bit of the bridle or head-stall is made hollow, and has attached to it a flexible tube connected with a tube carried in or on the vehicle. By pulling a string the water is caused to flow into the bit, and thence through a suitable orifice into the horse's mouth.

CURE FOR A SPRUNG-KNEED HORSE.—When it is caused by a contraction of the muscles or sinews.

Treatment—Remedy.—Pare down the heels of his feet as low as possible, have him shod with a toe upon the shoe, and no corks. Use a penetrating liniment, which will cause the sinews to stretch. Take half pint of spirits of wine, 1 oz. bear's oil, 1 oz. neat's foot oil, 1 oz. spirits of camphor, 1 oz. oil of origanum, 1 oz. oil of sassafras, 1 oz. laudanum, mix it all well in a bottle; rub it in well with the hand. This is a very penetrating liniment and will effect a cure.

SHRUB.—The rind of half a lemon and half an orange pared quite thin; put it into a pint of rum, and let it remain three hours, when it should be removed. Add to the rum a small wine-glass of strained lemon juice, and the same of orange juice, 1 oz. of lump sugar dissolved in a pint and a half of water. Mix all together and bottle.

GINGER BEER—TO MAKE A SMALL QUANTITY QUICKLY.—Over ½ lb. loaf sugar, 1½ oz. sliced ginger, and the peel of a lemon, pour a gallon of boiling water; when lukewarm, add a spoonful of yeast and the juice of a lemon.

STATE OF CROPS.

(Continued from page 443.)

ANNAPOLIS COUNTY.

(From O. M. Taylor, Esq.)

Middleton, Sept. 1, 1869.

The hay crop here has not been as large as it is some years, but of better quality. The grain promises a good yield. All kinds of root crops never did fairer to give a heavy crop. Fruit will only be an average yield this season. It is believed that the frost killed the blows, but although less in quantity, the quality will be good.

(From W. E. Starratt, Esq.)

Paradise, Sept. 1, 1869.

In answer to your letter I would say that, the crops are represented to be universally abundant throughout the whole district, with some exceptions; and the probability is, that we shall have a large surplus of all productions of agriculture over last year. Indian corn suffered by frost in the early part of summer, and, owing to the season being much cooler than usual, it is feared that this crop will prove deficient.

The undermentioned will be a true statement of the crops in this district:—Wheat, both spring and winter, good. Barley, good. Rye, good. Oats, very fine. Buckwheat, good. Potatoes promise a fine crop. Hay, a reasonable quantity and housed in fine condition. Pumpkins, light. Apples, an average crop, but quality good.

Our Agricultural Society obtained from Canada, ten bushels of seed wheat; it was sown about the first of June—it is well filled and will, I think, give good satisfaction.

INVERNESS COUNTY.

(From Geo. C. Lawrence, Esq.)

Port Hood, Aug. 31, 1869.

I am happy to report that the crops throughout this county are looking well. The hay crop, which is now nearly all secured, is good, more than an average, and secured in good order. Wheat has not been sown to a large extent for some years back, but what was sown, promises at present a good yield. Oats and Barley look well, but owing to the backward spring, are late. Potatoes are generally throughout the country looking well,—no appearance of blight in this neighbourhood. Turnips not generally sown to any extent, but what are, look uncommonly well. Fruit is not much attended to throughout this county. Our farmers seem to think it a loss of time and money. Large numbers of fruit trees were purchased some years ago, but many of those who purchased never took the trouble to put a fence round them, consequently it was money thrown away.

ADVERTISEMENTS!

FOR SALE.

EIGHT Berkshire PIGS, from Sire and Dam of first prize Sows at Exhibition—price \$4 each.
6 Cotswold Ham LAMBS, \$10 each.
10 do. Ewe do. \$10 each.
1 Durham HEIFER, \$20.
HENRY E. DECIE,
Sept, 1869. Wilnot.

AN INCREASE OF RICH MILK AND BUTTER

is produced in every case where the

ARABIAN SPICE

is used. Horses run down and in low condition are soon brought round. Ragged, beggarly looking Sheep are clothed with a fleece of valuable wool in an astonishing short space of time. The squealing Pig soon becomes fat and happy when fed on food seasoned with the Arabian Spice.

The ARABIAN SPICE is warranted to surpass anything yet introduced for Poultry.
Sold in tins 37½ cents and \$1 each.

Wholesale from WOOLRICHS' English Pharmacy, Upper Water Street, Halifax.

ALFRED SAUNDERS,

(Late Secretary Royal Jersey Agricultural and Horticultural Society. Formerly of the Royal Botanic Gardens, Kew, London).

SEEDSMAN,

168 Argyle St., opposite J. Northup & Sons, HALIFAX, N. S.

CALLS particular attention to his newly imported stock of Alsike and other Clovers, Grass Seeds, Mangels, Swede and other Turnips, Peas, Beans, Vegetable and Flower Seeds, comprising all the most esteemed varieties in cultivation, which he is prepared to sell at the lowest remunerative prices. Agricultural Societies liberally dealt with, and all orders promptly executed. Descriptive Catalogues on application.

AGRICULTURAL BONE MILL

THIS MILL is now in full operation, and large quantities of Bones are offered for sale.

The Mill is under supervision of the Board of Agriculture of Nova Scotia, and all Bones sold at the establishment are genuine.

PRICES.

Half inch Bone..... \$24.00 per ton.
Finely-ground Bone..... 30.00 "

Delivered free of charge, on board the Cars at Richmond Depot.

Purchasers will save trouble by sending their own bags, which, together with orders, may be left at Stanford's Leather Store, 36 Water Street.

JAMES STANFORD.

Halifax, N.S., June, 1868.

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