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THE
ONTARIO FARMER;

A MONTHLY JOURNAL OF

Agriculture, Horticulture, Country Life, Emigration, and the Mechanic Arts.

VOL. I.

TORONTO, JUNE, 1869.

No. 6.

DEATH OF THE REV. PATRICK BELL.

We learn from recent British papers that the inventor of the first really efficient reaping machine, died in the manse of Carmyllie, Forfarshire, on the 22nd of April, after spending a quiet and most useful life, extending to three score years and ten. The cutting of grain by machinery is by no means a modern idea, attempts more or less successful having been made at irregular intervals from almost the commencement of the Christian era. It would appear, however, that mechanical science had not succeeded in any part of the world in bringing machinery to a general and practical application in the cutting of grain, till Mr. Bell invented his machine in 1826, and which is described in Loudon's Encyclopedia of Agriculture as "the most perfect invention of this description." But the invention was before the time when British agriculturalists felt its necessity, and, consequently, both the inventor and his machine remained a number of years in a state of obscurity. It is true that Mr. Bell's brother, an extensive Scottish farmer, continued to gather his grain crops by this machine for a period of twenty years with satisfactory results. Yet, in consequence of the abundance and cheapness of labour, and the natural shyness of farmers to change old practices, harvest work in Britain was generally carried on by means of the sickle, reaping hook or scythe, till the first World's Exhibition, held in London, in 1851, when American reapers and mowers, in a more advanced and perfect form, attracted universal attention. So little was the public acquainted with what Bell, and others before him, had done in this direction, that most people re-

garded the reaping machine as purely an American invention. This, however, was a grave mistake; but we must award to our cousins across the lines the great merit, next to the invention itself, of adapting it to their wants and circumstances, and of giving to it a practical and widespread application.

In 1852, the Highland Society instituted a very elaborately competitive trial between Bell's machine and one constructed on the principle of *Hussey's*, an American machine, deservedly held at that time in the highest repute on this side of the Atlantic. Taking into consideration all the circumstances of this trial, the judges unanimously felt warranted in awarding the premium to Mr. Bell, for the following reasons:—

1st. For the decided superiority of his machine in economising time and expense, owing to the greater breadth cut by it with the same horse power, the difference being as 10 to 6½.

2nd. For the character and quality of the work performed by it, as being cleaner cut, producing less waste or shake, and laying the swathe with a regularity better suited for binding in sheaves, than when laid off in unequal bundles.

3rd. For being less liable to choke, and to the consequent stoppages.

4th. For being mechanically adapted to deposit the grain in rows, performing the operation in a superior manner, and saving, in the opinion of the judges, the labour of two men, as compared with *Hussey's*.

5th. For the advantages arising from its having the means of laying off the grain to the right side or the left. This feature, combined with that of being propelled instead of being drawn, enabling it to enter on either side or into the

centre of a field without any previous clearing, and to continue the cutting without interruption, while the cut portion of the crop was lying on the ground.

6th. For greater efficiency when operating on a crop partially lodged."

With reference to the influence which Bell's machine had on the subsequent improvements effected in the United States, Mr. Slight, the eminent machinist of the Highland Society's Museum remarks:—

"That at least four specimens of it had been carried to America, and that from the identity in principle between them and those now brought from thence, [to the World's Exhibition of 1851], with other corroborating circumstances, there is little doubt that the so-called American inventions are after all but imitations of this Scottish machine."

It is now but little more than a year since Mr. Bell was the recipient of two distinguished honours. The Highland Society inaugurated a subscription to the inventor of the first efficient reaping machine, which ultimately amounted to one thousand pounds sterling, and the University of St. Andrews evinced its desire to patronise useful learning by granting him the honorary degree of LL.D. Mr. Bell, like many others, both in the English and Scottish Churches, and doubtless in other communions, found that the study and promotion of agriculture and its cognate subjects, was not incompatible with a diligent discharge of the higher and more sacred duties of a parish minister. The parish clergy of Scotland have, as a body, been distinguished in the rural districts for the promotion of education and the industrial arts. Rham, Smith, Berry, and others that might be mentioned, occupy a high standing in the practice and literature of English agriculture, but they have not, on that account, been less distinguished as parish clergymen for their fidelity to the pastoral care. Of Mr. Bell, (who resided, we understand, many years ago in Canada, with the late Hon. Adam Fergusson) the *North British Agriculturist* remarks:—

"Few of those who were present when the testimonial was presented to Patrick Bell, would have imagined that the diffident gentleman before them possessed many of the most amiable features of character. These were best known

to his personal friends. He was a loving and most loveable man, whose tolerant spirit inclined him to the belief that the time was not far distant when there would be less religious strife, and when, charity abounding more and more, the true spirit of Christianity would pervade the minds and actions of all professing Christians to a much greater extent than it has hitherto done. Under the influence of this sentiment, and before the agitation in reference to the Irish Church commenced, he strongly expressed to us the opinion that the connection of Church and State would soon cease to exist. In the discharge of his duties as parish minister of Carmyllie, he displayed the same Catholic spirit; and though not what is termed a popular preacher, he commanded the respect of all with whom he came in contact."

The *London Daily Telegraph*, in a eulogistic article on the great services rendered by the deceased, thus concludes:—

"In an age when science does so much for agriculture, and every day witnesses the perfection of some new device to substitute the swift and unerring action of machinery for the clumsy processes familiar to our ancestors, the death of the first inventor of aids to scientific farming deserves a passing notice. Dr. Patrick Bell, a minister of the Established Church of Scotland, better known as the inventor of the first [efficient] reaping machine ever constructed, died last week at his quiet manse in Forfarshire. In him we have lost the earliest labourer in a very fruitful field. The son of a farmer, and thus practically acquainted with agriculture from childhood, he used his acquired knowledge of natural philosophy, and his taste for mechanics, to aid the agriculturist in securing some share of those advantages which science was then conferring on nearly every other industry. More than forty years ago he constructed a reaping machine so good that it is scarcely even yet superseded; indeed, so thoroughly had he mastered the right principles of construction, so carefully had he provided for every conceivable need, that all the progress made since by American inventors and others has hardly resulted in any change or improvement upon the original design. But Dr. Bell, unwittingly, perhaps, like many other pioneers of useful reforms, did more than discover a reaping machine; he inaugurated a change of system. His discovery was chiefly useful in shewing how much more might be done to aid the work of the field than merely to cut down the nodding harvests. If we can reap by machinery, why not sow? Why not "speed the plough" by the help of that potent vapour which the child Watt saw puffing uselessly from the tea-kettle? So by degrees—first slowly, then in a gush—came a long succession of new mechanical appliances in aid of the farmer. The reaping machine was the parent of a rapidly growing family of steam-ploughs, clod-crushers, rollers, mowing machines, haymakers, and what not, on which the Howards, the Ransomes, the Claytons, have founded their fame and estab-

lished their fortunes, to the great benefit of English agriculture, and, through it, of all the world. Ere the modest parish minister of Carmyllie is quite pushed out of sight by the crowd of familiar names that succeeded him, it is worth while to recall the fact that to his practical skill, patient research, and earnest ardour in pursuit of science, we are largely indebted for the beneficent revolution now in progress."

JOTTINGS BY THE WAY.

To the Editor of the ONTARIO FARMER.

Sir,—The following few jottings by the way may not be entirely devoid of interest to some of your readers:—

I attended, by invitation, the May cattle fair at Georgetown, and met a considerable number of the members of the Halton Agricultural Society, and after the business of the day was got through with, an agreeable hour or two was spent in the consideration of several subjects affecting local agricultural interests. Hop culture, among other matters, received considerable attention. Hops have been grown in this vicinity for several years with satisfactory results; but last year's crop being so much in excess of the demand on this continent, and a similar condition of things existing in Europe, the business has become excessively depressed, and prices unprecedentedly low. A large part of last year's growth remains in the grower's or merchant's hands, some of which will probably never go into consumption. Hop growing, in all countries, is always been characterised by "ups and downs;" paying well, exorbitantly indeed, some seasons, and in others just the reverse. The extension of hop-growing in Canada is certainly at present to be advised, and old plantations could everywhere be grubbed up. With but little attention to culture, picking, and curing, and in some cases the adoption of finer varieties, hop-growing will pay, in the long run, on suitable soils and well sheltered situations; that is the supply does not outrun the demand.

The advantages of stated markets for the sale of cattle to farmers, dealers, and the public at large, are so obvious that they have of late years been gradually extending, and in some localities they have attained considerable magnitude and importance. In the course of time the same principle will, no doubt, as in older countries,

be applied to grain. It is not only convenient and advantageous, but in a social point of view, very agreeable and pleasant for producers and dealers to meet at stated periods for the transaction of business. Farmers, as a body, have but few opportunities of meeting together, and no doubt their interests often suffer thereby. The members of the Esquering Agricultural Society have been accustomed for a considerable time to meet at stated periods for comparing notes and discussing subjects affecting their pursuits—an example that might be generally followed with advantage by similar organizations throughout the Province. /

Leaving Georgetown, I spent several agreeable hours with Mr. Stone in going over Moreton Lodge Farm, in the immediate vicinity of Guelph. This is a very fine estate, which its enterprising proprietor has done much of late years to improve. It is a practical illustration of the high status to which Canadian farming can attain, when accompanied by adequate capital and directed with judgment and perseverance. The live stock of this farm is too well known and appreciated to require any notice in detail from me, I can only say that it would be difficult to find on this continent, perhaps, a larger and finer collection of farm animals, and notwithstanding a long winter and the deficiency of the root crop, occasioned by the severe drought of last winter, the cattle and sheep were in good condition, quite as much so as is necessary for breeding purposes. Great care, and no little expense, must necessarily have been involved in the winter management; and the straw and root cutter, pulper, &c., had been brought into constant requisition. Much can be done in carrying stock through our long winters in a thriving condition, and when provender is scarce, by a judicious mixture of food, however coarse the materials, regularity in feeding, a copious supply of wholesome water, shelter from cold draughts, and scrupulous attention to ventilation and cleanliness.

There is one point which I wish particularly to notice: Mr. Stone is of opinion that for the general improvement of the common breeds of the country, the Hereford bull is equal, if not preferable to the Shorthorn. This is a view certainly not in accordance with the prevailing

sentiment; yet I must confess that I observed among the herd of cross-bred cows several specimens got by a Hereford bull that appeared in every respect equal to those produced by a Shorthorn. This is a question that can be settled only by careful and sufficient trial; and those who have personal experience in the matter would confer a benefit on agriculture by informing the public of their results. It is true that of late years, in the Christmas fat cattle shows at Smithfield and elsewhere, the Herefords have been closely treading against the heels of the Shorthorns, and in some distinguished instances have actually beaten them; yet it is not less true, that the latter still maintain, in all parts of the world, the ascendancy which they have so long enjoyed, as their vast numbers, wide distribution, and high prices, clearly testify. Mr. Stone's opinion must certainly be regarded as disinterested, as he has for many years occupied a first position among Shorthorn breeders. Till he introduced from England some first-rate specimens of Herefords eight or nine years since, our people had scarcely seen a single really good animal of that improved breed. They have now an opportunity of purchasing at moderate prices young breeding stock, which in point of quality and general excellence, are quite equal to what could be imported from England at much risk and far greater cost. I was much pleased, on the whole, with Mr. Stone's Shorthorns, out of which many young animals of decidedly superior pedigree and merit could be selected, admirably adapted to the purposes of improved breeding. His Southdown sheep are finely bred, and larger than is usual, I think, in the old country; and some of his Cotswolds are magnificent. It is fortunate that we have in Ontario several breeders of improved stock, not confined to any particular variety, from which such of our farmers as are desirous of improving their flocks and herds may readily select animals of both sexes, as may best suit their wants and taste.

I had the pleasure of spending a day with Mr. Parsons, of Culdaff Farm, near Guelph. Mrs. P. has long been known to the Canadian public as a successful maker of *Stilton cheese*, scarcely, if at all, inferior to that of her own native Leicestershire, a county where this rich

kind of cheese was first made, and yet forms the chief staple of the dairyman's produce. This famed delicacy, we are told, acquired its name by being first sold by Cooper Thornhill, who kept the "Bell Inn," at Stilton, on the great north road, and who, by the assistance of his relation, Mrs. Paulet, the first maker, was enabled to gratify the tastes of his customers at the rate of 2s 6d per lb.; where the cheese was made was, of course, as long as possible kept a secret, and hence it obtained the name of Stilton. One occasionally sees on this side the Atlantic cheese palmed off under this name, which really possesses little of the qualities of the genuine Stilton, its principal resemblance being that of mere form. Each maker has, probably, some peculiarity of his own in the manipulation, but new milk and cream in about equal quantities are the essential ingredients of a first-rate article. The *modus operandi* in making good Stilton differs very materially from the methods of making ordinary sorts of cheese, and requires the most scrupulous attention to order, cleanliness, and the proper manner of mixing and managing the materials.

The first week of June I spent in the county of Hastings, chiefly in the North Riding, where serious and protracted difficulties had been experienced in the working of the Electoral Division Agricultural Society. After having considerable personal intercourse with several members individually, I met a large number of them in public meeting convened for the purpose of considering the grounds of difference; and after a long and earnest discussion, a conciliatory disposition was manifested by all parties, and terms mutually agreed to, which, faithfully carried out, will restore unanimity and greatly promote the usefulness of the society. The physical features of this Riding are somewhat of a peculiar character, a broad belt of exceedingly rocky country, north of Madoc cuts off, in great measure, communication between the northern and southern portions of the county. There is good farming land in several parts of Madoc and the townships to the north, but very large areas exist that will never readily admit of settlement. At least, the only practicable way I can see of effecting any settlement at all in much of this region, composed of

primitive rocks cropping out at the surface, is to give several hundred acres to each individual, who might cultivate such portions as would admit of the operation of the plough, and graze the rest, much the larger portion in most cases, with hardy races of sheep and cattle. But until population has greatly increased, and markets advanced, but little can be done agriculturally for large portions of the back country. If, eventually, this wild region should be found rich in minerals, a thing by no means improbable, a demand for farm produce would at once spring up and progressively increase, and in this way the agricultural capabilities of the country, whatever they are, would be gradually developed. The gold mania, however, in Madoc has now entirely subsided, the precious metal not having been found, as far as excavations have yet gone, in sufficient quantities to make the speculation a profitable operation.

I held a meeting in the village of Madoc, which, though not numerously attended, a considerable interest was expressed in the various subjects that were brought forth in relation to agricultural improvement. One of the great wants of this section of country is better stock, especially sheep and cattle. The introduction of a few pure bred male animals would, in a few years, increase this portion of the agricultural wealth of the district to an extent which you can imagine. Far more benefit can be produced at some localities in this way, by agricultural societies, than by holding annual exhibitions. Cheese making in the county of Hastings has been greatly extending of late, and several cheese factories are in successful operation in various townships. One in Sidney receives the milk of some seven hundred cows. Greater attention is now being paid to produce an article of good quality; an essential condition of success, whether the produce be exported to Europe, or enter into domestic consumption.

On the whole, I was much gratified with my visit, and feel grateful to Dr. Boulter, M.P.P. of the North Riding, for his kindness in driving through portions of the townships of Rawdon and Huntingdon, which have certainly great agricultural capabilities. To several other gentlemen I am also indebted for information and hospitality; and it will afford me much

gratification to learn that the Riding Society is increasing in strength and usefulness.

Yours, &c.,

GEO. BUCKLAND.

BUREAU OF AGRICULTURE, }
Toronto, June 9, 1869. }

IMPROVEMENT IN AGRICULTURE.

In reviewing the agricultural results of the past year, the *Mark Lane Express* says:

Notwithstanding some heavy drawbacks, it is gratifying to find that improvements in agriculture are still progressing, as is proved by the additional employment of machinery. In the foreground we may place steam cultivation, which is gaining ground, not only in the United Kingdom but in France and other countries, where its economic and otherwise beneficial use is beginning to be appreciated. The common plow by the application to it of mathematical science, has now reached, in the hands of some makers, to a great pitch of perfection, in point of form and draft, so as to reduce the labor in that branch of husbandry, both of man and horse to little more than gentle exercise.

The thrashing machine, in consequence of the improvements effected in it will now perform all the operations required for the preparation of the grain for market, by which the working man is relieved from an onerous employment, which more than any other in husbandry tried his constitution and strength and made him an old man before his time. The reaping and mowing machines are now used upon every farm of moderate extent, as is proved by the enormous sales that most of the makers have had during the past year. Some of the machines are so reduced in size and price as to come within the means of the small farmer.

The alliance of science with practice in agriculture is now rapidly developing its beneficial influence, the day having passed when economy was understood to mean parsimony, and the pence were carefully hoarded when their judicious expenditure would have produced pounds. There is, however, much yet to be done in the way of improvement. In many places the old crude notions of husbandry still prevail, and innovations are looked upon, not only with suspicion, but with peremptory rejection. The wisdom of our ancestors is recognized in the periodical bare fallow, and in the undrained swampy land remaining from year to year as nature left it, although the means for improvement have been provided by the government. Still, in the events of the past year, and their results, there are reasons both for thankfulness and hope. Not the least of such benefits was the early

period at which the harvest was concluded, the fine order in which the grain was housed, and the splendid condition in which the seed of the new crop was put into the ground, always one of

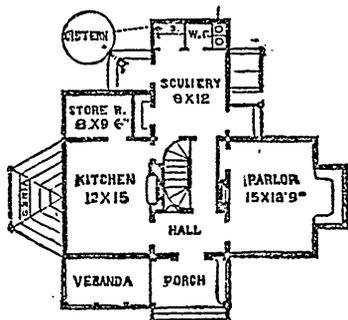
the most important points in good husbandry. Still the ultimate result is in the hands of a Superior Power and work and wait must be the farmers attitude.



A GARDENER'S COTTAGE.

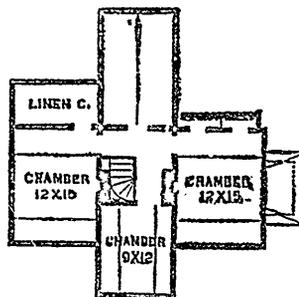
The above design was made for Wm. C. Bryant, the poet, and was erected on his beautiful estate at Roslyn, L. I., in 1862. It was intended as a Gardener's Lodge and to accommodate one or two families, one on each floor, with joint rights to the scullery, sink and cellar.

Arrangement. The 1st story is 9 ft. in the clear, with every convenience for health and comfort. From the porch, a small hall, lighted from the roof, is entered, with doors to parlour or living room, and staircase passage in front, communicating with the kitchen at the back, chambers above, and cellar beneath.



The chamber is 9 ft. in the clear through the centre, and 6 ft. at the sides, the roof cutting off 3 ft. of the ceiling at the sides at an angle of 45

degrees. This gives a cottage-like effect to the rooms, harmonizing the interior with the exterior. The chambers are provided with fireplaces and closets. The one over the parlor has 2 closets, built outside the frame, and a door into the single rooms over the porch, forming a desirable family chamber. Both have ventilation in the same chimney breast, and the small one may be warmed by a stove leading thereto. The other has a large closet over the store-room for trunks, linen, &c. The attic room over the kitchen wings is intended for domestics.



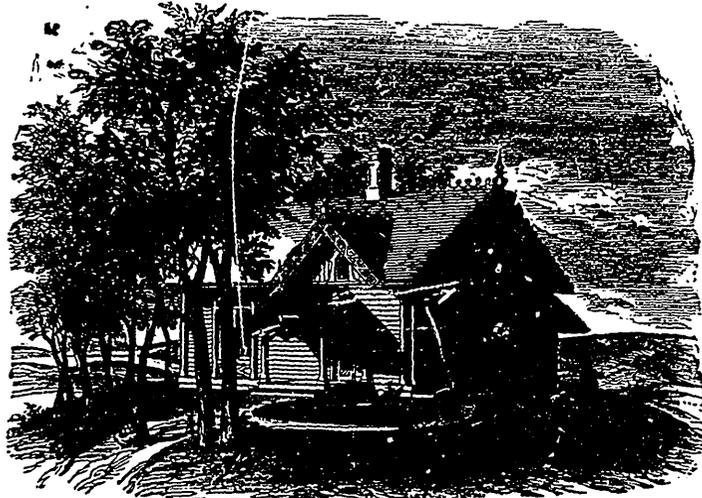
By reference to the plans it is seen that the rooms are of good size and form, well lighted and ventilated, of easy access, one to another, at the same time that privacy, so essential, is maintained throughout.

Construction. The building is of wood, vertically sized, and battened with 1½ inch tongued and grooved pine plank, with horizontal strips in line of the window sills and floors to hide the butts and small triangular pieces in the corners, giving the effect of panelling. The whole is stained by a mixture of oil, &c., that heightens the grain of the wood and gives brilliancy of color, and that cheerful aspect so desirable in rural dwellings. The roof is slated in bands of purple and green and the chimneys are surmounted with terra cotta pots. The whole is filled in with bricks. The cottage is built in a plain, substantial manner, with cellar under kitchen, cemented on the gravel, the same as the cisterns, and all the interior wood work is oiled and stained.

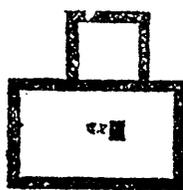
This is a gem of its class of cottage architecture, and ranks as one of the best, as it respects simplicity, proportion and variety of form, con-

venience of arrangement, economy of room and construction. It is a model house that any one almost might be tempted to covet, and besides is an ornament to any grounds, however elegant they may chance to be.

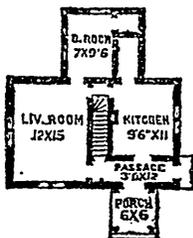
For the description of the above cottage, we are indebted to Woodward's Country Homes, lately published by Geo. E. & F. W. Woodward, 37 Park Row, New York, a work of merit on rural architecture, comprising designs and plans for laborer's, gardner's and farmer's cottages, with model suburban cottages, with out-buildings, such as stables, coach-houses, &c.; also, ice-house, school-house, country chapel, modes of remodelling houses, fences, gates, head stone, baloon frames, &c., beautifully embellished with illustrations, and admirably suited to awaken, guide, educate, and form rural taste in regard to location, material for building, style, finish, and surroundings.



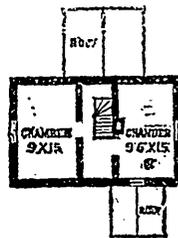
A FARM COTTAGE.



CELLAR.



FIRST FLOOR.



SECOND FLOOR.

The cuts at the head of this article, embracing the elevation, ground plan, &c., were designed by these eminent architects, Messrs. Meade & Woodward, of New York. The cottage repre-

sented by these plans is cheap, its cost being estimated at \$1000, American money, a comparatively small sum for so tasteful a residence. The construction of dwellings combining a certain degree of elegance with convenience, at a cost which should place them within the reach of people in moderate circumstances, has, thanks to the progress lately made in architectural designs been very happily attained. The advantages resulting from improvements of this kind can hardly be over-estimated. People who have the opportunity of examining such plans as these, but who have hitherto seen only the plain (sometimes rude and uncomely) habitations too often provided for our farmers and mechanics, can hardly fail to imbibe more correct ideas as to what such residences should be, in reference to forming a pleasant home. The occupant of a tasty cottage will naturally be led to make its surroundings correspond to it in style and appearance. Shrubbery and flowers, with grounds properly laid out, will come in as necessary accompaniments, and the ultimate result will be that home will become more attractive—nearer what home should be, “the dearest spot on all the earth.” If more attention were given to this matter, we should hear less complaint about farmers’ sons leaving the country to seek employment in the city. Thanks, then, to all whose labours tend to the promotion of rural arts and rural taste.

THE CROPS.

The *Lindsay Post* says the fall wheat throughout Victoria never looked better. There is, certainly, the promise of an abundant yield; and this in no particular township, but all over this county and neighbouring counties. Our information on this point is extensive and reliable.

The *Orangeville Sun* speaks of the weather being delightful, and the crops of every kind, which have made their appearance above ground, look splendid. Vegetation is so rapid that it has almost ceased to be a figure of speech to say that one sees the grass grow. A farmer in Mono put in peas on Friday, and on Wednesday they were up. The prospects of an abundant harvest are at present most cheering.

The *Bruce Reporter* says that though this has

been a comparatively backward spring, the weather for the past two weeks has been most favourable for vegetation. Every kind of crop in these parts is growing rapidly, and we never saw the farmer’s prospects better in this respect. If the present week passes by without any severe frosts, we may expect an abundant yield of fruit. For a county so young, we have a large number of orchards either bearing or newly set out, so that if planting goes on at the present ratio for the next two or three years, Bruce will be one of the finest fruit bearing counties in Ontario.

Western papers say that northern Wisconsin winter wheat promises an abundant harvest. Spring wheat is beginning to show itself. A large proportion of the corn is planted, and other crops are well under way. Vegetation has thriven luxuriantly the past two weeks. In Minnesota the latter part of May was cold and wet, but just the weather for wheat, oats, potatoes, grass, rye, and everything except corn and some kinds of garden products. On the whole there was, probably, never a more favourable spring, and with a good summer there will be a bountiful harvest. The appearance of the crops in Iowa, says the *Des Moines Register*, was never more gladdening, and if no unforeseen evil occurs, the heaviest crop will be harvested this summer that has ever been grown in Iowa since its settlement. The amount of wheat that has been sown will exceed that of last year by one-third. Corn has never at this stage of the season presented such a healthy appearance.

The fruit crop of western Ontario is reported by the *Chatham Planet* to be of extraordinary promise in apples, plums, pears, and cherries. The blossoms on all these trees, during the last ten days, have been both abundant and strong, the weather, however, being rather cold for the formation of the fruit, but it was not till Wednesday night that they had to encounter actual or sharp frost. We do not think, however, that there was actual damage done, except in the case of a few tomatoe plants, melon and cucumber vines, in exposed situations. Small fruits also promise a good crop, and, as these are more hardy, there is not much fear for them now.

We have received from Prof. Manly Miles, of Michigan Agricultural College, an interesting report of experiments in feeding stock and with manures, made by him last year, some account of which we hope to give our readers at the earliest opportunity.

The Farm.

HINTS ON TURNIP CULTURE.

We have received from an esteemed correspondent a valuable communication on the above subject, and regret our inability, owing to its great length, to publish it entire. We quote portions of it, however, which, for the sake of more easy reference, we place under appropriate headings:—

MANURING AND PREPARING THE SOIL.

As far as my experience goes, and what I have seen practiced by successful turnip growers, the manure should be thrown together a full month or six weeks before it goes to the field. The turnip seed likes well fermented manure, "hot and strong" immediately under it, and in as concentrated a form as possible, which will wonderfully accelerate the germination of the seed; and not miserable half fermented strawy stuff from which you can get plenty of fork root plants, but not turnips of quality or weight. I hold, sir, that according to the quality of food you furnish your plant with, will be the quality and value of your crop when arrived at maturity. How, let me ask, can the strawy manure thrown out from animals during the last month or six weeks of the winter be properly decomposed, with lots of snow and ice amongst it, or the seeds of obnoxious weeds destroyed by being thrown together only a week or ten days? This, sir, is a theory that I do not comprehend. I had well nigh forgot to mention a most important feature in the preparation of the soil for the turnip crop, practiced but by few I well know in this country, which is, that when the fallow is thoroughly prepared for the seed, the soil should be well rolled down, that it may gather moisture for a week or ten days, or even longer before sowing. Two most important and desirable objects are secured by this process—first, the hastening of the germination of the seed, and secondly, in the operation of drawing out and closing in the ridges; an innumerable number of weed seeds, just budding into existence, are destroyed, which but for the operation above would be growing up ahead of your plants, and in a showery time would, probably, before your first hoeing, smother your plants and rob them of a portion of the nutriment they ought exclusively to have. I well know that this cannot always be effected for want of time, but I would advise every turnip grower to make an effort to accomplish it, knowing as I well do, from ex-

perience, the great success and advantage such an operation has in securing you a uniform plant throughout the ridges, instead of that irregularity which is too often the case in hot, dry weather, owing to their being more moisture in one part of the ridge than another; and can this be wondered at when the soil is often being worked and cleaned up to the very hour of sowing, during a week or ten days in a burning sun, depriving the soil of every particle of moisture which the seed requires, and in depositing the seed literally in a bed of dust; and then, what follows? Why, if no rain speedily comes, numberless blank places appear in your ridges, and a very irregular crop of turnips is your reward! and here again the seedsman is often blamed. But if a good shower follows the sowing in two or three days, all goes well. Turnip growers, one and all, give heed to this important suggestion, and you will be greatly the gainers.

DISTANCE BETWEEN THE ROWS.

The ridges for the turnips should be seven or eight-and-twenty inches apart, and the plants left from nine to ten inches apart in the ridge, unless the turnip grown has a very rank top; I would then give two or three inches more between the ridges. I am perfectly satisfied from thirty-five years' experience in turnip growing, and also from that of others, that the above distances will yield the heaviest weight per acre, and the result of this match proves the assertion to be true. And I have seen the same results from other matches many years ago, as well as of late years. In every instance where more room was given between the turnips, though larger in size, less weight per acre was obtained.

QUANTITY OF SEED PER ACRE.

A greater mistake cannot be made than by sowing a small quantity of seed, if you wish for a heavy and remunerative crop for your trouble and expense. Never grudge a pound or two of seed per acre; what is the trifling sum of forty or fifty cents extra per acre to secure you a heavy and satisfactory crop? Never sow less than two and a half to three pounds of seed per acre, and if all other operations are carried out as they ought to be, such as a clean, well pulverized soil, heavily manured with well fermented dung, assisted with auxiliaries such as bone dust, superphosphate of lime, guano, or leached ashes, which everyone may have at command, if you are short of a heavy supply of dung, and your manure covered when hot in the ridges, whilst your soil is moist, I will guarantee that your reward shall be from seven hundred to a thousand bushels per acre, if the seed you sow is good and the season a favourable one, for after all our best efforts disappointment will come if a bad season sets in, or you have some gormandizing insect to contend with. Besides, you should not lose sight of the fact that, for any auxiliary you may use with your manure, you will reap many times the cost in your two or three succeeding crops, besides such auxiliaries giving an impetus that greatly facilitates the growth of your turnip plant out of the reach of the fly, independently

of the extra weight of turnips per acre you are certain to gain by such a process.

IMPLEMENTS FOR TURNIP CULTURE.

If weeds want keeping down, effect the operation with a proper turnip horse-hoe, few of which, however, I have ever seen in use in this country, or with a proper root cultivator which will destroy weeds, loosen the soil, and at the same time let in air and moisture. But for the love of country never commit so flagrant an act as using a double mould board plough in your turnip field, except in drawing out and closing in your ridges. Apropos on the subject of double mould board ploughs; I cannot but wonder, Mr. Editor, how it is that this very desirable and much needed implement is not used by one turnip grower in twenty in this country, when it does the work better and in half the time that your single mould board will do? Besides which you are also enabled to draw out your ridges and mould up your potatoe crop in half the time, and far better than you can with the single mould board. The cost of a double one being not more than ten or twelve dollars! A turnip grower in the old country would as soon think of looking for a crop without sowing the seed, as he would think of commencing his operations for a turnip crop without his double mould board plough!

THINNING THE PLANTS.

If the growth has been too rapid, and the land still too wet to use the horse hoe, take your nine-inch hoe and draw it once through the young plants, or a four and a half or five inch one twice through as you would in dry weather, leaving four or five plants at the extremity of each draw of the nine-inch hoe, to be thinned out at the expiration of eight or ten days, according to convenience and the growth of your plants, for I stoutly maintain that no turnip crop should be finally thinned out the first time over. There are various reasons for this; the first of which is, that by the end of a week or ten days you can then readily discern which plant will make the best turnip, and there you leave it; besides which, insects of one kind or other will have a share, and if there is but one plant left at first, and that is destroyed, where are you to look for another to replace it? And another great consideration is, that if your plants are ahead of you, and still growing fast and you are short-handed, the drawing of the hoe through the row almost as fast as you can walk, facilitates your work and gets you out of great trouble, and your land not trampled half so much as staying to single out your plants, and you can then with greater leisure properly choose and set out your strongest plants, they having strengthened greatly in the meantime—in this way you will have an uniformly sized turnip. Never, in setting out, sacrifice a strong plant for a weak one that you may secure exact uniformity in distance. Save every cock plant you can, which comes from the crown branches of the turnip, and which never fails to grow into a large turnip.

THE CULTURE OF OSIERS.

Large quantities of the basket willow are grown in this vicinity, especially on the marsh at the head of Seneca Lake. The demand for peeled willows is always brisk, but we understand that unpeeled willows do not find ready sale. Our experience is however that for all practical purposes baskets made of the unpeeled willow are altogether the best. In Scotland some years ago almost all the baskets used on the farms were made by the farm hands while sitting round the fire during the long winter evenings.

The peeling of the willows is performed by means of very cheap and simple machinery driven by a horse, so that the capital required in this department is not very great.

It is stated by most writers that osiers do not thrive well on peaty soil. If they are correct there must be something wrong about my ideas of "thriving," for most of the osiers here are grown on soil which looks very much as if it were peaty, and we have a little patch of a few square rods which grows on a peat bed of greater depth than has yet been fathomed. They will not grow well in stagnant water, but they do best in moist ground. It is said that they will not do well on very dry upland. I have seen a remarkable exception to this in willows grown on the farm of the Ag. College of Pennsylvania. There is no water on that farm, and except along a small strip it is found impossible to reach water by the ordinary process of well digging—and yet willows thrive well there. There is a small collection of willows in the College garden (*S. vitellina*, *purpurea*, *viminialis*, *annularis* and some others), and they all seem to do well. Our impression is that any good, rich soil not covered with stagnant water will produce good crops of osiers. It has been found that the osier is as much benefited by thorough drainage as is any other plant.

Osiers are usually set out in rows, 2 feet to 30 inches apart and the stools or cuttings 12 inches apart in the rows. After a time the plants will be found to be close and then every alternate plant should be grubbed up. This requires about twenty thousand cuttings to the acre. There are two methods of setting out osiers. One is to use cuttings 12 to 16 inches in length, inserted in the ground vertically. The other is to use long poles buried in trenches one or two inches deep. These poles send out roots and throw up shoots from every part of their length so that in a short time the young shoots form a perfect hedge.

Whatever may be said to the contrary it is the opinion of some of our best growers that no plant is more benefited by clean culture than the osier.—*Correspondence Country Gentleman.*

FARM GLEANINGS.

Josh Billings welcomes spring as follows: "Spring came this year as much as usual, hail butuous virgin, 5000 years old and upwards, hale and harty old gal, welcum tew York State and

parts adjacent. Now the birds jaw, now the cattle holler, now the pigs skream, now the geese warble, now the kats sigh, and natur is frisky; the virtuous bed-bug and the nobby cockroach are singing Yankee Doodle and 'coming thru the rhi.' Now may be seen the musketeer, that gray outlined critter cv destiny, solitary and alone, examining his last year's bill, and now may be heard, with the naked ear, the hoarse shang-high bawling in the barnyard."

The situation of many farmers this spring is a living warning against holding crops for higher prices. Potatoes have been wintered in large quantities in some sections and are to-day marketable for less than they would have brought at digging. Wheat is in a not much better case. Another thing for which all must make up their minds is that prices will probably show a downward tendency for some time to come.

We kill our land unsuspectingly in summer, when moist, by letting our stock run on it. We hurt the stock in winter by having wet, naked stables, or sloppy barn-yards, or low, miry places where cattle are sometimes forced to drink.

The best soils are those which have the power of absorbing most from the air. The most profitable plants are those which draw their value from the air rather than from the earth. Sand takes up nothing. Plaster is a great absorbent; so is dry peat.

One-fourth the whole kingdom of Great Britain was sown to oats last year.

If any one has found a better "scare-crow" than a line of twine strung around a field, with jingling scraps of tin hung on it, it has not been reported. Trees which send their roots deep, like hickories, oaks, and beeches, are the best for pasture fields. Elms, maples, willows, etc., tax the surface soil more, and so rob the grass. But any tree is better than none. There is great cow-comfort in its shade, and that stands for more milk.

Whenever we find a country divided up into small estates, each and every owner working his lands with his own hands, we find a brave, patriotic, and free people, enjoying competence and domestic comfort with manly dignity.

The editor of the Anoka, Minn., *Union* saw "10 miles above St. Cloud, the novelty of a country lane, a mile in length, packed with snow three feet deep, and a farmer plowing in the field adjacent, within ten yards of the fence."

The Cedar Rapids *Times* claims the chmampionship for a young girl, "sweet sixteen," of Linn county, Iowa, as follows: For six weeks last winter, during the sickness of her father and mother, she attended forty-eight head of sheep, eight head of horses, fifteen head of cattle, and two calves, besides milking three cows, driving the cows one quarter of a mile every day to water, cleaning the horse stable, doing the house work, and taking care of her sick parents.

To keep up the fertility of our pastures it is evident that we must do our best to check the

growth of such vegetation as is rejected by stock as well as that which would injure stock, if it were eaten. But it is not enough to destroy the useless and injurious plants; we must encourage the growth of the valuable ones.

SLAY THE WEEDS.—A man of figures and patience counted the number of seed pods in a single plant of purslane (or "pursley") and found them to be 4,613; then took the average of seeds in the pod and found them to be ninety. Result, 415,170 seeds for a single weed: and here are his deductions: "If these were spread over a plot of ground and should all germinate, and a man should attempt to cut them with a hoe, and should average six plants at every blow, and make thirty strokes of his hoe per minute, it would take him thirty-eight hours and twenty-three minutes to cut them out." Or if these seeds were equally disseminated at the rate of four to the square foot, they would cover two and a third acres of ground. Again, allowing only one-third of these seeds to germinate, and that the product shall be only one-half as rich in seed as this plant, yet they will produce the astonishing number of 23,727,688,450 seeds, enough to cover broad fields with weeds the third year from one seed."

The Live Stock.

DOES IT PAY TO KEEP BEES.

To the Editor of the ONTARIO FARMER.

DEAR SIR,—Having often been asked the question, does it pay to keep bees, or is it safe to invest money in an apiary? I have always answered the question by saying that it does pay, and is safe to invest money in them, if the party investing thoroughly understands their nature and habits, and is willing to give them the proper amount of care, and provide them with suitable hives. I now propose to give a short account of my success in bee-keeping. Some fifteen years ago, I purchased two colonies, not with the intention of making money out of them, but for the purpose of providing myself and family with a luxury in the shape of nice pure white honey; but I soon became convinced that they could, with proper management, be made to yield a profit, besides supplying my table with a wholesome luxury. But as there were at that time no movable comb hives, I had to labour under a considerable disadvantage, as well as loss. Very often some hives would refuse to swarm until the season for collecting honey was nearly over, consequently the young swarms could not gather

enough to winter on, and not having the moveable comb hives, so that I could build them up from those that had plenty, and some to spare, I had to destroy them, which was a loss. Then again, other hives would refuse to swarm altogether, which, of course, was a loss of all increase from such hives. Then again, some colonies would swarm, and the young swarm would take a bee-line for the woods, and there was a loss again. Other hives would get infested with millers and worms, which would sooner or later destroy the colony. But after all the losses, I made a fair profit by selling honey, and occasionally a hive of bees. But since the introduction of the movable comb hive and Italian bees, I have made more than double the profit, for there has been no loss of young swarms going to the woods, or of colonies refusing to swarm, or being destroyed by millers, for I have practiced artificial swarming which does away with all loss in that direction. If millers get into a colony, I remove the cards and clean them out and save my stock. I also remove cards from full stocks that have them to spare, and strengthen the weak ones in room of destroying them as heretofore. Then again, the Italian bees defend themselves much better from the millers and are better workers, consequently they store more honey in boxes for their owners. I commenced the spring of 1867 with twelve Italian stocks, worth at that time about \$200; last week I sold the increase of stock for \$500, and during the two years I have realized \$400 in honey, wax, and queens sold, allowing \$200 for cost of hives and time tending to them (which will more than cover it), leaves \$700, or \$350 profit each year. Not a bad interest on \$200 invested for two years. A word to parties intending to start an apiary. Get, if possible, a location where white clover is plenty, or better yet, induce your neighbours to sow *alsike clover*, which is one of the most profitable crops a farmer can grow either for seed or for hay, or both; and for bees it is ahead of anything I ever saw. Provide yourself with good moveable comb hives and the Italian bees. An apiary started with such advantages, and with proper attention, I am satisfied will prove a profitable investment.

H. M. THOMAS.

Brooklin, Ont., May 24, 1869.

THE APIARY IN JUNE.

By S. H. MITCHELL, APILARIAN, ST. MARY'S, ONTARIO.

As the spring has been later than usual, the swarming season will probably not begin before the middle of the month. If it is desirable to have the bees swarm early, they will swarm earlier if the surplus boxes are not put on until the bees have commenced to raise young queens;

they should then be put on without delay, as plenty of room then will make no difference in the time of their swarming. If surplus honey is the great object, put the boxes on early in June; and if a small piece of white comb is attached to the top of the box, the bees will begin in them all the sooner. As fast as filled they should be replaced with empty ones.

When boxes are left on for any length of time after they are filled, the combs become dark, and the honey will not bring as high a price in market. Stocks that remain weak through this month should be examined. They may have lost their queen, or she may have become barren; if queenless, introduce a laying queen; if barren, remove and supply another two days after. All hives should be ready to put the bees in at once when they swarm. The first swarm will seldom issue before eleven o'clock, and seldom later in the day than two; after swarms will come out from eight till four. The noise of horns, tin pans and bells does no good whatever, the bees will cluster just as well without the music. Should they attempt to leave, get before them, if possible, and throw water among them with a long handled dipper. This will seldom fail to stop them and cause them to cluster. The first swarms are accompanied with the old queen, and as she is already impregnated, they may be set quite close together if room is scarce; but all after swarms should be at least six feet apart, more would be better. In hiving bees make the entrance to the hive large, and use a tin pan if the cluster is large; put your pan under them and raise it slowly up, separating a part of the bees with the edge of the pan, letting them roll back into it, and pour them in front of the entrance; shake the remainder into the pan, and pour them out as fast as they will run in, they will come out of the pan very easy as they cannot get their toes into it to stick fast. I have found this method the most convenient of any, and there is no danger of killing the queen, or any of the bees. Second swarms should be united, putting two or three of them together, or they may (if in movable comb hives), be strengthened by giving them one or two frames of brood from strong stocks. The bees should be prevented from swarming the third time by cutting out all the queen cells but one, or if the swarms take away the queens and return it. Third swarms are frequently accompanied with two or three queens, and sometimes five or six. All the queens should be taken from it if they are to be returned.

THE USE OF ICE IN THE DAIRY.

The use of ice in cooling and preserving milk for cheese manufacture is practiced to a large extent. It is applied in various ways, sometimes by adding it in messes to the milk in the vats, or by placing it in large tin coolers which are

then immersed in the milk, and in various other ways to suit the convenience of those who have the care of the dairy. Recently coolers have been invented to be used at the farm for cooling milk with ice, but it may be well to caution those who employ ice, for the purpose indicated, that it should not be used in direct contact with the milk, or in any way in which the milk may come in contact with an ice cold surface.

An impression prevails with many that no injury can result to milk from the use of ice, no matter in what way it may be employed. Ice, if judiciously used in connection with the dairy, is convenient and useful in hot weather, and especially so when the supply of water is limited, or its temperature is so high that the milk cannot be cooled down properly by it alone. But because the direct application of an ice cold surface to milk gives it no apparent injury for the moment, it must not be inferred that it has no remote influence upon the product of butter or cheese which may be manufactured out of such milk. It is a well known fact that all animal bodies, though they may be kept fresh and sweet for a long time when laid upon ice in an ice box, yet when exposed to the air and warmth, rapidly decompose and become stale.

When milk has been cooled by coming in contact with ice, and then manufactured into cheese, the injury does not immediately show itself, but it has been observed that the cheese ripens rapidly, decays early, and will not keep in flavor like that which is made of milk, none of the particles of which have come in contact with a surface of lower temperature than 50°. The butter-makers of Orange Co., N.Y., who have experimented largely with milk, are extremely cautious in the use of ice in connection with butter manufacture. It is sometimes necessary to use it during hot weather, while churning, by breaking it up fine and applying to cream, but it is well understood that when ice has been employed in this way the butter will not keep, though for present use it may be regarded as of prime quality.

Last year, during the month of July, we had extremely warm weather, and ice was used in the New York factories quite freely, often injudiciously. From an account given by the English shipper, Mr. Webb, it appears there was not a single factory sending cheese abroad where it was of good, clean flavor.

He says: "The English dealer and the English consumer alike began to get a surfeit of that strong-flavored, loosely-made, bad-keeping quality, which was the universal characteristic of the July make of cheese. This inferior quality," he remarks, "was doubtless largely owing to the intensely hot weather then prevailing; but whatever the cause, your very serious attention should be directed to the discovery of a remedy, for not a single dairy, as far as my experience and pretty full inquiries extended—not one single dairy stood the test of that most trying month. Even those dairies that for a series of years have been always and uniformly excellent—did not hold their own last July, but proved in the matter of flavor and keeping qualities, to be no bet-

ter than the great majority of your State factories."

Now, how far the injudicious use of ice may have added to the trouble we are unable to say, but we have no doubt that some share, at least, may be justly laid to this source. We have personal knowledge of some factories where large quantities of ice are used to cool the milk by applying it directly to the milk in the vats and the milk is in good order generally, and yet great complaint is made of the cheese manufactured as soon off flavor, while it must be observed that the best flavored goods are not made at those factories which use the ice in this way but where there is an abundance of cool pure water—cold water, and an agitator which stirs the milk during the night, worked by the waste water from the vats, give practically the best results.

As this question of ice is somewhat new to the dairy public, and has not been very closely investigated by cheese manufacturers, it will be sufficient, perhaps, to call their attention to the matter, with the suggestion to avoid as far as possible the use of ice or an iced cold surface in direct contact with the milk.

X. A. WILLARD,
In Western Rural.

RULES FOR TREATMENT AND DELIVERY OF MILK.

The following rules for the treatment and delivery of milk have been adopted and are to be rigidly enforced by the Illinois Milk Condensing Company, a large establishment at Elgin, Ill. As they present valuable suggestions to directors of cheese factories, we give them entire:—

1. The milk shall be drawn from the cow in the most cleanly manner, and strained through wire-cloth strainers.
2. The milk must be thoroughly cooled immediately after it is drawn from the cow by placing the can in which it is contained in a tub or vat of cold water, deep enough to come up to the height of the milk in the can, containing at least three times as much water as the milk to be cooled; the milk to be occasionally stirred until the animal heat is expelled, as below.
3. In summer, or in the spring and fall, when the weather is warm, the bath shall be spring water, not over 52° temperature, (a day or night after a heavy rain excepted), constantly running or pouring in at the bottom, necessary to reduce the temperature of the milk within 45 minutes to below 58°; and if night's milk to remain in such bath until the time of bringing it to the factory, and to below 55°. The morning's milk not to exceed 60° when brought to the factory.
4. In winter, or in freezing weather, the bath shall be kept at the coolest point (it need not be running spring water), by the addition of ice or snow sufficient to reduce the temperature of night's milk speedily below 50°.
5. In spring and fall weather, a medium course will be pursued, so that night's milk shall be cooled within an hour below 50°; and morning's milk below 55°.

6. The bath and supply of water shall be so arranged as to let the water flow over the top to carry off the warm water. The can in which milk is cooled shall be placed in the water immediately after the milking, and shall remain therein until the process of cooling shall be finished.

7. The night's and morning's milk shall be separately cooled before mixing.

8. No milk shall be kept over to deliver at a subsequent time.

9. The milk shall be delivered on the platform, at the factory, in Elgin, every day except Sunday.

10. Suitable cans of proper dimensions to transport the milk from the dairy to the milk works shall be furnished by the seller, and the cans shall be brought full.

11. The Company shall clean and steam the cans at the factory, free of charge, but customers shall keep the outside clean. The pails and strainers employed shall be by the seller thoroughly cleaned, scalded in boiling water, and dried morning and night.

12. Immediately before the milk is placed in the cans, they shall be thoroughly rinsed with clean water; and great care shall be taken to keep the cans and milk free from dirt or impurities of any kind. When the cans are not in use, they shall be turned down on a rack, with the tops off.

13. All the "strippings," as well as the first part of the milk, shall be brought. No milk will be received from a cow which has not calved at least 12 days, unless by consent of superintendent or agent, who may determine its fitness sooner by a sample of the milk.

14. The cows are not to be fed on turnips or other food which would impart a disagreeable flavour to the milk, nor upon any feed which will not produce milk of standard richness.

15. It is further understood and agreed by the parties hereto, that if the superintendent or agent of the company shall have good reason to suspect, either from evidence furnished, or from the state of the milk itself, that water has been added, or that it has not been cooled as provided, or that it has been injured by carelessness, he shall have a right to refuse to receive such milk, or any further quantity of milk, from the person so violating these directions and stipulations.

SIGNS OF A GOOD MILKER.

In an address before the Massachusetts Agricultural College, as reported in *Hearth and Home*, Charles L. Flint said:

"Guenon, a Frenchman, whose life was passed among cows and dairy cattle, and who was a careful and intelligent observer, discovered certain marks on the udder and its surroundings, which he called the escutcheon, and deemed an infallible sign of milking qualities. It consists in certain perceptible spots, rising up from the udder in different directions, forms, and sizes,

on which the hair grows upward, while the hair on the other part of the body grows downward. This turning up of the hair is an indication of the structure and tissues beneath, and if the mirror is strongly marked, by placing the hand upon it, the veins and net-work may be felt. The milk-mirror is one of the best signs of a good milker, but sometimes this mirror is possessed by cows of inferior quality. In such cases the other signs of the quality will be wanting. We should find whether the cow possesses such marks as a large udder in proportion to the size of the animal, and soft, thin skin, with loose folds extending well back, capable of great extension when filled, but shrinking to a small compass when empty; large, well-developed milk-veins, especially the large ones under the belly, which should extend well forward to the navel, and apparently lose themselves in a cavity in the flesh, into which the end of the finger can be inserted. If the cow possess these in connection with the mirror, she may be taken as a good milker. The escutcheon is found in young calves, and when found well developed, the calf should be preserved for the dairy. There are a great number of external signs, which judges consider indications of milk, most of which are found to fail in individual cases; but a good cow should always have a strong constitution, as indicated by large lungs, which are in a deep, broad, and prominent chest, broad and well-spread ribs, a respiration somewhat slow and regular, a good appetite, and if in milk, a strong inclination to drink, which a large secretion of milk always invariably stimulates. In such cows the digestive organs are active and energetic, and they make an abundance of good blood, which, in turn, stimulates the activity of the nervous system, and furnishes the milky glands with the means of abundant secretion. A bright, sparkling eye, but of peculiar placidness of expression, with no indication of wildness, but a mild, feminine look; small, tapering, yellowish horns; small, thin, neck, tapering toward the head; fore-quarters small, compared with the hind-quarters, and a thin, yellow, flexible skin throughout, are pretty sure indications of milk."

PERIODS OF GESTATION.

The following table and remarks are extracted from an article in *Blain's Encyclopædia* :—

PERIOD OF GESTATION IN DOMESTIC ANIMALS.

	SHORTEST PERIOD.	MEAN PERIOD.	LONGEST PERIOD.
	Days.	Days.	Days.
Mare	322	347	419
Cow	240	283	321
Ewe	146	154	161
Sow	109	115	143
Goat	150	156	163
Bitch	55	60	63
Cat	48	50	56
Rabbit	20	28	35
Turkey ...	24	26	30

Hen	19	21	24
Duck	28	30	32
Goose	27	30	33
Pigeon	16	18	20

According to the observations of M. Teissier, of Paris, in 582 mares, * * * the shortest period was 287 days, and the longest 419, making the extraordinary difference of 132 days, and of 89 days beyond the usual term of eleven months. The cow usually brings forth in about nine months, and the sheep in five. Swine usually farrow between the 120th and 140th day, being liable to variations influenced apparently by their size and by their particular breeds. The true causes which abridge or prolong more or less the period of gestation in the females of quadrupeds, and of the incubation of birds, are yet unknown to us.

From some carefully collected and very extensive notes made by Lord Spencer on the period of gestation of 764 cows, it resulted that the shortest period of gestation when a live calf was produced was 220 days, and the longest 315 days; but he was not able to rear any calf produced at an earlier period than 242 days. From the result of his experiments it appears that 314 cows calved before the 284th day, and 310 calved after the 285th, so that the probable period of gestation ought to be considered 284 or 285 days.

In most cases, therefore, between nine and ten months may be assumed as the usual period, though with a bull calf the cow has been observed to go about 41 weeks, and a few days less with a female. Any calf produced at an earlier period than 260 days must be considered decidedly premature, and any period of gestation exceeding 300 days must also be considered irregular; but in this latter case the health of the produce is not affected.

Mr. C. Hilliard, of Northampton, states that the period of gestation of a cow is 284 days, or, it is said, nine calendar months and nine days; the ewe 20 weeks; the mare 11 months. The well-bred cattle of the present time appear to me to bring forth twins more frequently than the cattle of fifty years ago. The males of all animals, hares excepted, are larger than the females. Castrated male cattle become larger than entire males.

KICKING COWS.

This is one of the most troublesome and tormenting things on the farm, and there is no cure. Severity and beating are worse than useless, they hurt not only the animal but the milker. If the cow kicks, and is not so extraordinarily good that her evil habit is overbalanced by her good qualities, sell her, or fatten her, but never beat or ill use her. It is "habit," and she cannot help it. If kindness will not do, nothing like its opposite will. We had at different times most inveterate kickers, and the writer milked them with his own hands for many years. We tried the beating, tying

down the back, and every other mode of severity without avail; one of the cows (the worst kicker of all) was a perfect marvel for milk. After the calf was gone, she would give a perfect flood of milk for many weeks, so much that to mention the quantity would expose us to the charge of exaggeration. If not secured, she would give the pail brim full, and just as the stripping was finished she would lift her leg, pop it into the pail, and send all flying. If she was in a good temper she only put her leg into the pail but refused to take it out, of course spoiling all the milk. Her hind legs were tied together without effect, she was too expert to be conquered that way, so we got a rope with a slip noose at the end, put her leg into it, and tied it back so far that she could not reach the pail. This conquered her, and if she was tied so that she could not back down, the milk was secured. She would always try, however, but never till her udder was relieved of milk. We kept her many years, and a more profitable animal for the dairy no one ever owned. Sometimes she would behave well for sometime, but if the rope was neglected the old habit was too strong for her, and the milk was destroyed. She had been so badly beaten for kicking before we had her, that her temper was soured; but after some time and when severity was no longer practised, she became as kindly as any others, except at milking time; we were however so convinced from old experience of the hereditary tendency of the habit, that good as she was, we never saved a calf from her. They were calves indeed! At six weeks old they weighed from 36 to 40 lbs a quarter of veal, and it was as fat as veal could be. We had several other kickers, but after once understanding them, never beat or punished them, but always secured them in the way above mentioned.—*Correspondent in Globe.*

WEIGHING CATTLE BY MEASURE.

An exchange gives the following rules for approximating the weight of live stock by measurement. If the dressed weight of a live animal can be nearly approximated by them, they will prove of real value to the buyers and sellers of stock. The girth is the circumference of the animal just behind the shoulder blades. The length is the distance from the shoulder blades. The superficial feet are obtained by multiplying the girth by the length. If less than one foot in girth, multiply superficial feet by eight. If less than three, and more than one, multiply superficial feet by eleven. If less than five and more than three, multiply superficial feet by sixteen. If less than seven, and more than five, multiply superficial feet by twenty-five. If less than nine, and more than seven, multiply superficial feet by thirty-three. If less than eleven, and more than nine, multiply superficial feet by forty-two.

Example: Suppose the girth of a bullock to be six feet three inches, length five feet six inches; the superficial area will then be thirty-four; and, in accordance with the preceding

rules, the weight will be seven hundred and eighty-two pounds.

Example: Suppose a pig to measure in girth two feet, and in length one foot and nine inches. There would then be three and a half feet, which multiplied by eleven, gives thirty-eight and a half pounds as the weight of the animal.

LIVE STOOK GLEANINGS.

It is said that one of the most powerful remedies for bots in horses is a strong decoction of sage-tea made very sweet.

For mange in calves, the *New England Farmer* recommends a solution of one ounce of carbolic acid in a pint of water. Apply with a sponge.

For swelled jaws in sheep, "an old and experienced farmer" advises rubbing the mouth with a mixture made of equal parts of alum and salt.

The *Massachusetts Ploughman* pronounces suds from carbolic acid soaps or "cresylic soap" the best application to be found for animals infested with lice.

It is advisable, in the construction of poultry-houses, to use pine lumber—the more pitch it contains the better, as this is offensive to poultry vermin.

Toads are sold in Paris at the rate of fifty cents a dozen, and are used for protecting vineyards and gardens from the ravages of the insects that escape the birds.

Fish-farming is certainly profitable to its pioneers. Seth Green bought his farm at Mumfords, N. Y., for \$2000, fitted it up for fish-breeding, and now sells \$10,000 worth of eggs a-year beside fish.

An exchange gives three reasons why butter is so high:—1. The dairyman's daughter never came over to this country. 2. Railroads take the milk to large cities. 3. There are more high brick houses than Ayrshire bulls with a pedigree.

A housekeeper caught forty-two rats in one night by exchanging for a barrel of oats that had been visited by the varmints a barrel of water, covering the surface with chaff. The victims unconsciously pitched in and met a watery grave.

The "Wickedest dogs in Canada" are kept in the township of Markham. The council of that township recently paid \$1,700 for damages to sheep in that municipality by unknown dogs. This is the largest amount paid in any one year by any township in the Province, under the dog Act.

Mr. John Henry, of Barre, N. Y., in an essay on cheese-making says: "The cause of strong cheese is to be attributed to the use of too much salt. He advocates the use of saltpetre in the manufacture of cheese; a custom which he has found very beneficial, and which he has learned from the Shakers."

Roup in poultry is highly infectious, and a very deadly disease, but if taken in time can be cured. The premonitory symptoms are a slight hoarseness and catching in the breath as if from cold. A correspondent writes to *Hearth and Home* that he "cured a very bad case by using brandy, clear, and blackberry brandy—sponging the hen's eyes, etc.

At a recent auction sale of short-horns belonging to Mr. Bowly, near Cirencester, England, a cow, Siddington 4th, brought 400 guineas, while Musical 12th brought 100 guineas. Yet the *Mark Lane Express* says:—"It was a difficult question as to which was the better of the two." The explanation was that they belonged to different "tribes" of the breed.

People who don't enjoy bee stings can chloroform the honey-makers, and then rob their hives with impunity. One-sixth of an ounce poured into a shallow dish (covered with wire gauze to prevent the bees from falling in), set under the hive, puts them all to sleep in fifteen minutes, and doesn't hurt them. So says an American paper. What does our apiarian friend Thomas think of this plan?

The best means of preventing a cow from sucking herself is to put an ordinary halter on her with a nose trap coming rather low down; some spikes must be fastened in the latter, so that when the nose touches the udder it is pricked. A portion of an old halter or bridle may be improvised for the purpose, and it is likely that if broken from the habit for a time, she will not afterwards require restraint.

An old stable-builder in Baltimore has come to the conclusion, after twenty-five years' trial, that a two-inch white-pine plank floor, laid level with a square iron two by two and a half grat, so placed as to receive the urine, is the best arrangement for a horse. Clay, stones, concrete, etc., he rejects. The width of a horse-stall should be four feet nine inches, according to this authority. We don't agree with him as to the last point, believing that six feet is none too wide for a horse-stall.

The increase of bees should be regulated by artificial swarming instead of trusting to the natural method. Stocks should not be allowed to swarm more than once in a season, in order that they may store more honey; and in poor seasons there should be only half as many new stocks as there are old ones—making one new colony from two old ones. This insures plenty of surplus honey, and in the long run the stock will be multiplied as rapidly as by the natural method, which in bad seasons is exhausting, and fails to afford sufficient food for winter."

TAKE CARE OF YOUR HORSES FEET.—In dry, hot weather, when the feet get dry and hard, oil them three times a week inside and out with the following mixture:—1 quart crude kerosene oil, 4 oz. cod-liver oil, 3 oz. tallow, 2 table-spoonsfuls lampblack. So says Professor Graves.

The Garden.

DAHLIAS.

To the Editor of the ONTARIO FARMER.

SIR,—The Dahlia has not received in this country the attention to which its good qualities entitle it, for, taking into consideration the perfection of form in the flowers, their brilliancy of colouring, and the profusion of bloom produced, it stands unrivalled as a garden ornament when well grown. Many persons who have grown them without trouble in Europe have been unsuccessful here, and in consequence, have abandoned them. Careful attention, under a right mode of culture, is all that is necessary, however, to produce in this climate as fine blooms as can be seen anywhere, and as we have been very fortunate with this flower, perhaps a few hints from us would not be unacceptable to many of your readers.

It is a somewhat singular thing that notwithstanding the most careful efforts of Hybridizers, no one has yet been able to raise a *blue* Dahlia or impart a pleasant fragrance to the flower. This latter is particularly a drawback, as it is the greatest objection advanced against their culture.

Dahlias are usually divided into two classes, 1st, STANDARD, OR LARGE FLOWERING, and 2nd, POMPONE OR BOUQUET, having small flowers and of a dwarf habit of growth. Regarding colour, the 1st class is again divided into SELFS or those of one color only, and FANCY or those having blooms which are variegated, striped, tipped or blotched. Some again make a selection of the *most dwarf* of Pompone Dahlias, with the smallest flowers and class them under the name of BEDDING DAHLIAS.

The following is a list of Large Flowering Dahlias for which we were awarded 1st prize at the Provincial Exhibition at Hamilton, last fall, with a description of the colours appended:

- GOLDEN DROP.—Fine yellow, certain flower.
 MISS HENSHAW.—Fine white, very large flower—first rate.
 GEM (Stafford).—Maroon, tipped with white—extra fine.
 PROSPERO.—Crimson, tipped with purple.
 JENO.—Fine lilac, the best flower in its class.

QUEEN MAB.—Red, tipped and edged white—extra fine.

CRITERION.—Creamy rose, large flower.

LADY G. HERBERT.—Light orange, deeply edged with crimson.

BOB RIDLEY.—Dark scarlet, good form.

BIRD OF PASSAGE.—White, delicately edged with pink—equal to any Picotee.

MULBERRY.

MRS. HOGG.—Pure rose color, very fine centre.

Our list of the 1st prize dozen Pomponé Dahlias has been mislaid, but the following are six of the best:

GOLDFINCH.—Orange, tipped with purple.

DR. SCHWABE.—Deep scarlet.

THE MOOR.—Dark maroon.

MADAM CORDS.—Rosy lilac, tinged with yellow.

KLEINER ANSELM.—Amaranth, shaded violet.

LILLIPUTFURSTINN.—Light ground, tipped with crimson.

Many other fine kinds might be named, in fact this class now embraces every variety of colour to be found in the Large Flowering class.

It should be remembered that cultivators ought not to allow Dahlias to bloom during the hot weather of midsummer, as at this time the blooms will be small, will last only a few days, and greatly exhaust the plant; but keep the blooms carefully pinched off until the approach of cooler weather, say the beginning of September.

The Dahlia will grow in any fresh soil neither too light or heavy, but which will retain moisture, this being the grand desideratum, as the roots require keeping moist and cool. Procure healthy roots or plants in pots, being cuttings struck from old roots. The latter we use exclusively for growing our exhibition flowers, as they bloom more freely and produce finer flowers than roots.

After selecting the positions in which the plants are to be placed, make holes 15 to 18 inches in diameter and same in depth; then fill up the holes with decomposed cow or hot-bed manure, and if the soil is old or exhausted, the top spadeful of any old pasture that has been laid up to rot for a time should also be used. Incorporate the soil thrown out of the holes with the manure or compost; when done, there is

little trouble, as with the trowel or hand put in the root or plant, pressing the soil firmly about it and then give a good watering with a rose watering-pot to settle the soil before levelling off. In very dry weather, mulch well with litter, moss or manure, which will retain the moisture and keep the earth about the roots cool; and plentiful applications of soap suds and liquid manure should occasionally be given to them, especially about the time they are full grown, as it will then greatly increase the size and benefit the color and fineness of the bloom. They should be staked with permanent stakes at once to prevent injury to the young roots which grow very rapidly when a week or two established. As the plants grow, the lateral or side shoots should be cut off until the desired head is attained, or the leading shoot may be cut out leaving three branches or leading shoots, to each of which a stake should be placed. Or they may be pinned down, never allowing them to grow to a height of more than 15 to 18 inches as the party may fancy.

Sometimes it is advisable to prolong the blooming of some particular flower or flowers, and for this purpose shades are used—made by nailing a shingle to a short pole or stick, the end of which is pointed and stuck into the ground in such a position that the flower is completely shaded from the hot sun. This, however, is usually done only when an extra fine bloom is wanted for exhibition purposes.

GEO. LESLIE & SON.

Toronto Nurseries,
Leslie P.O., June 2, 1869. }

GOOSEBERRIES.

It is one of the misfortunes of this climate that we cannot raise gooseberries as they do in England, with the certainty of good crops of large fruit. The mildew is almost sure to make havoc of the gooseberries, and spoil them before they reach the period of ripeness. Now and then, but very rarely, they escape. Once only for the past seven years, we were fortunate enough to have a fine yield of magnificent Whitesmiths, the very sight of which made one's mouth water for a taste of them. The American Houghton never mildews, but it is only a

poor apology for the gooseberry, and to an Englishman only revives the painful remembrance of departed joys. Small in size and insipid in flavour, it is almost valueless as a raw fruit, and is useful mainly for cooking and preserving.

Must we give in to this and resign the gooseberry? What are our skilful horticultural neighbours in the United States about that they cannot originate a good seedling gooseberry? One or two varieties have been produced, such as the Downing and Mountain, but from all we can learn they are no great improvement on the Houghton. Cannot the same horticultural skill to which we are so much indebted for seedling strawberries, raspberries, cherries, peaches, &c., not to say seedling potatoes, do something for us in the gooseberry line.

“Wake up Nicodemus,” or somebody else, and give us a decent gooseberry that is mildew proof.

Meantime, have we exhausted all expedients to ward off mildew. A friend of ours was accustomed years ago, and is still for aught we know, to get good English gooseberries every year. His bushes were planted in a low, moist part of his garden, under the shade of some high-bush cranberries. We have no doubt the heat and dryness of our climate cause the mildew. It is also pretty certain that old bushes are more liable to be affected than young ones. Might not a succession of young plants, grown in moist soil, mulched, and partially shaded, be fortunate enough to escape mildew, and give us at least every other year a crop of decent, not to say big berries?

CHICKEN-SCRATCHING.

Dr. Trimble says there are two sides to the scratching propensity, which deters most people from keeping hens in a garden. True, you cannot have hens, or even young chickens, among the flower-borders, after the ladies have had their plants set out. But in the winter and early spring, scratching can do no harm, and until we know how many insects they find, we cannot estimate the good they do. Their feet are formed in part for scratching—it is natural to them, and they begin very early in life.

The greatest number of insects undergo their transformation, and are in their chrysalis stage under ground. Others hibernate in the winter just under the surface. Without the power of scratching, hens would seldom find these, and they are what they scratch for.

Recently the doctor was at work in his garden. Half of it was dug and some planted. The fourteen hens and two roosters were throwing dirt at a fearful rate; peas and beans were unearthed, but none of them were eaten; but when an earth-worm or grub was brought in sight, it was swallowed as suddenly as Western men are said to swallow oysters. While watching them, one found something that pleased her so much that she chuckled audibly. By making a sudden rush towards her, she dropped it—it was the pupa, or chrysalis of one of those large green caterpillars (usually called "worms") that are found on potato and tomato plants. Gardeners who understand how to make their business profitable will use great quantities of well-rotted stable-manure, not bothering much with phosphates, or bone-dust, or plaster, nor will they subsoil or trench. If the hens are on hand when this manure is spread, how busy and how happy they will be! Some may suppose they are looking for grain; perhaps they do find some kernels, but more often chrysalids looking like grains of rye, which are the pupae of flies—generally our common house-flies. Could all such manure-heaps be submitted to thorough scratchings by the poultry, we should be less tormented with insects. Both vegetable and fruit gardens could be arranged so that hens and chickens could have access nearly all the time to great advantage; but it will probably be long before people will think so; and in the meantime, if they should so venture, they will be pelted with stones or chased with dogs. Poor things! how should they know that man created with dominion should have so little sense as to pelt hens with stones for scratching for insects?

THE APPLE-WORM.

The *American Entomologist*, a publication which should have wide circulation, furnishes the following:—

"It has long been known that by placing an old cloth, or anything of that nature, in the crotch of an apple-tree, the apple-worms may be decoyed into building their cocoons underneath it, and thus be destroyed wholesale. Dr. Trimble's method—which amounts to the same thing, and has been found to be practically very beneficial—is to fasten two or three turns of a hay-band round the trunk of the apple-tree, and every few days, from the middle of July to the middle of September, to slip the hay-band up and destroy the cocoons that have from time to time been formed on the bark underneath it.

"All authors are agreed as to the practical importance of picking up and destroying the wormy apples, as fast as they fall, either by hogs, power, or, when that is inconvenient and impracticable, by man-power. The practical utility of allowing a gang of hogs the range of the apple-orchard throughout the summer is undoubted. When we consider that every female moth that hatches out in July or August, from the first brood of apple-worms, will probably deposit an egg in some two or three hundred

nearly matured apples, thereby rendering them more or less unsalable, the importance of destroying the wormy windfalls—in the fore-part of the season at all events—becomes at once apparent."

TRANSPLANTING IN THE NIGHT.

A gentleman, anxious to ascertain the effect of transplanting at night, instead of by day, made an experiment with the following results: He transplanted ten cherry trees while in bloom, commencing at four o'clock in the afternoon, and planting one each hour until one o'clock in the morning. Those transplanted during the daylight shed their blossoms, producing little or no fruit, while those planted in the dark maintained their condition fully. He did the same with ten dwarf trees, after the fruit was one-third grown. Those transplanted during the day shed their fruit; those transplanted during the night perfected their crop, and showed no injury from having been removed. With each of these trees he removed some earth with the roots. The incident is fully vouched for; and if a few more similar experiments produce a like result, it will be a strong argument to horticulturists, etc., to do such work at night.

GARDEN GLEANINGS.

Soapsuds is an excellent fertilizer for grass and grapevines, and should not be wasted.

Unglazed flower pots are better than glazed. The porosity helps the moisture and gives ventilation.

A gentleman in Hillsdale, Mich., dusts the leaves and blossoms of his plum-trees with plaster when the dew is on, and thus prevents the curculio from destroying his fruit.

A farmer in Ohio had a thrifty orchard, which blossomed freely, but bore no fruit. He washed twelve of the trees once a week with strong soapsuds, and was gratified by a fine harvest the subsequent season.

There is an attempt to revive the culture of the Chinese Yam. It is one of those intermittent novelties which, like comets and velocipedes, come around about once in so often, but don't stay long.

Cow manure contains more potash than any other kind, and is, therefore, excellent for strawberries. Robert Douglas, of Waukegan, Ill., has in his nursery four million and a half seedling evergreens, started last year. They occupy six acres and required a ton of seed!

The *Horticulturist* says that cultivators will find the following one of the very best selections for a list of twelve first-class pears:—Doyenne d'Ete, Rostiezer, Bartlett, Belle Lucrative, Louise Bonné de Jersey, Sheldon, Seckel, Duchesse d'Angouleme, Beurre d'Anjou, Lawrence, Dana's Hovey, Glout Morceau. These are arranged in the order of ripening.

Red, white and violet flowers, like roses, petunias, etc., are said to be very sensitive to the effects of powdered charcoal applied about their roots, growing and blooming much better. The same authority states that yellow flowers are insensible to its effects, apparently.

A Lake Superior letter states that it is the opinion of many practical men who have examined the subject, that, owing to their peculiar situation and the influence of the lake, which remains open in winter, the Apostle Islands are as well adapted to the culture of the grape as the Islands of Lake Erie.

The *Small Fruit Culturist* says that if you want to prevent currants and gooseberries suckering and desire to grow them in tree form, with a single stalk, take cuttings about eight inches long in the Spring, and cut out all the buds but the two on the top, plant about two-thirds their length in good ground, pressing the earth firmly to their entire length; few will fail to grow.

T. G. Yeoman, of Walworth, N. Y., has invented a plan for loosening the vines on the common grape trellis. Everyone who has constructed grape trellises with long horizontal wires is aware that heat expands iron and cold contracts it, and that consequently in winter there is danger of the wires breaking if they are drawn tight in summer, and not loosened at the approach of winter.

The *Gardener's Chronicle* says:—Hoe over or otherwise loosen the caked surfaces upon all ranunculus, tulip, and anemone beds, &c. In a general way it will be necessary, in all instances where neatness is aimed at, to hoe and rake over the surface of herbaceous borders, or others of a permanent character, which have already been dug, as they have become somewhat hard and require such attention.

A correspondent of *Hearth and Home* protects his melon and cucumber vines from bugs "with uniform success" by this prescription:—"Take sticks four inches long and one half inch in diameter—pine is best. Wrap one inch of one end in a piece of cotton or linen. Dip this in turpentine, and stick one or two in each hill, leaving only the wrapped part above ground. The odor of the turpentine does the business."

THE BIRDS.—Baron Von Tschudi, the eminent Swiss naturalist, says that without birds successful agriculture is impossible. He classes swallows, wrens, robins and sparrows as among the most useful of these insect-destroyers. He placed a tit-mouse on some rose-bushes, and in a few hours it rid them of innumerable lice. A robin killed eight hundred flies in an hour. A pair of night swallows in fifteen minutes destroyed an immense swarm of gnats. He has seen a pair of wrens fly thirty-six times in an hour to their nests with insects in their bills. A pair of sparrows carry three hundred worms a day to their family. He avers that the generality of small birds carry nothing to their young ones but insects, worms, snails, spiders, etc. Down with the wren and robin killers!

A writer in *Chamber's Journal* says that fruits should be eaten alive like oysters. There is an edge to the taste of a fresh-opened oyster which a short exposure to the air takes away. While a plum hangs upon its stalk, it is in some kind of magnetic correspondence with all the powers of nature. Cut it off, and in time it dies corrupt and unwholesome; and every moment of its progress from life to death, is marked by a decadence of that essence which makes fruit delicious.

ASHES FOR FRUIT TREES.—We observe a statement in one of the papers of an experiment in the application of wood ashes to fruit trees, which shows in a curious manner how a thing may be done in the wrong way. Hollow cylinders of tin were placed around the foot of the trunks, and the space between these and the bark filled in with fresh wood ashes. The trees so treated, especially the peach and smaller apple trees, omitted to grow, and on removing the tin and ashes, the black and slippery bark came off from the stems. The ashes were put in the wrong place—they should have been spread broadcast where the roots could absorb the dissolved potash as it slowly descended through the soil. To crowd it in a mass around the trunk, is like cramming pudding into a hungry man's boots or pouring medicine into his ears.—*Country Gentleman.*

Our Country.

MORE WORDS TO INTENDING EMIGRANTS.

The soil of the Province of Ontario is, as a whole, not to be surpassed in fertility by any part of the world; indeed, it is its very fertility that has been its worst enemy inducing neglect of good and scientific farming, and it is the want of good and scientific farming to which is to be attributed the exodus which is always taking place throughout America from front to back settlements.

The course of a settler on new land is first to remove the forest, then to sow wheat among the stumps; clover and grass follow (or should follow) the wheat, and the land then remains untilled until the roots of the former trees are sufficiently rotted and decayed to admit of ploughing—such ploughing as the land gets for many years would, however, absolutely horrify the neat-handed old country farmer. The settler has to plough round stumps, and across from stump to stump, in and out, backwards and forwards, until he gets the soil moved somehow or other. It is then dragged, and wheat again sown. Then follows, without rule or science, just such kind of cultivation as it is believed will produce the best immediate returns, without a thought for the future. Grain follows grain as long as it will grow, and produce even half a crop. Then the land is sown to clover, and it is allowed to lie over and recu-

perate until it will bear other crops, and as soon as it will again bear grain, it is made to do so.

Thus the changes are rung until the stumps are all out, and the fields are reduced to level surfaces. Then the same system is pursued, varied by occasional naked fallows, to kill the weeds which this system engenders. Then grain crops again until the land will bear no more; then rest, and so on round and round the cycle. As a rule, Canadian, and generally American farmers, do not make one-fourth of the manure that is produced on an English farm. The want of manure keeps the straw short, and the hay crops light, and so it goes on until the farm falls into the hands of a farmer who understands his business, when the old system is quickly reversed and amended.

Now each time that a bad farmer (one of the old sort who cleared up the land from the forest) finds his crops fail he does not blame himself and his own want of knowledge, but he blames the land, and looks back with envy to the glorious crops he used to get off the newly cleared forest when he had only to sow, and scratch in the seed with a drag, to ensure a bounteous harvest.

Besides this cause of discontent, the family has in the meantime grown to manhood and womanhood, they must be provided for (for no young Canadian ever thinks of doing as his father did and commencing upon nothing), the attachment in the family is strong, and the father reasons thus: "If, instead of this cleared farm on which I live, I could again go on to new land I could purchase enough wild land for all my sons, I could have them around me, they would help me to clear up a place for myself, and all would help one another to clear up their several farms as they are wanted, and as my sons marry and settle." To do this, however, requires capital—the only capital the man has is the cleared farm, and the extra stock not required on a new place,—he sells the old homestead, buys a forest tract, and once more goes into the forest to carve out a new home.

This is the reason why so many cleared farms can always be purchased, and can be had at prices so low that they are well worth the money.

Now all these farms though they have been so ill used, at once spring into renewed fertility by good farming, the soil is good, it has never been deeply cultivated, there is a new farm (so to speak) lying under the old one, and it only wants to be brought to the surface by an inch at a time, to give new life to the injured but not worn out soil, thus gradually deepening cultivation with a proper and scientific rotation of crops, and sufficient capital to enable the new occupant to keep stock in proper quantity, and in five years the original occupant wont know his own place.

It is this elasticity, so to speak, that characterizes the soils of Canada, and of Ontario in particular; one year will see them apparently incapable of producing even moderate crops, and two or three years of good farming will put them into a state exuberant fertility.

In England, Ireland and Scotland, no man will

farm without he possesses a certain sum equal to £5 to £8 per acre. No landlord will accept a tenant who cannot prove himself to have sufficient capital to do justice to the land—but in Canada, not one half nor indeed one quarter and often not one-tenth of these amounts are possessed by the ordinary farmer of the country. If he has his seed, his team of horses, or oxen, his plough tackle, two or three cows, a few pigs, and perhaps six sheep, he thinks himself well off, and he does not hesitate to go into debt for the other necessaries of life, depending on the country merchant for his supplies and on the results of the coming harvest to pay the merchant's bill. Of course, all this is very bad, but it is the reason why Canada in general and Ontario in particular, holds out such favorable opportunities for the old country farmer, with moderate skill and tolerable capital, who can purchase the cleared farm and at once put it under a better course of husbandry; and good husbandry in Canada as everywhere else, ensures success.

The great bugbear as to Canada, in England, is our winter. People say—look at the reports of the weather how dreadfully cold,—and then the whole country is for months covered with snow. Well, it is these two facts that render the climate of Canada so favourable to its inhabitants. The frost and snow make good roads, such roads as an old country man cannot imagine. The snow enables the farmer to use sleighs instead of wheeled vehicles; and nothing in Canada is so dreaded as a black winter, when there is but little snow.

Two horses on good sleighing, will carry with ease and at a fast trot, loads which they could not go out of a walk with on a wheeled vehicle. The horses love the snow, and seem to delight in travelling over it. The frost and snow enable people to break a road any and everywhere, across a swamp, a marsh, and even across a lake; the travel can be conducted in the winter with greater ease than it can be conducted on the best and most level Macadamized road. Winter is the time for getting together all heavy materials, for collecting rails for fencing, for moving stones, bricks and timber for building; and as the other occupations of the farm are suspended, the season is fully available for all these purposes. The best farmers will have large barns and cattle-houses constructed, and in them are fed and confined throughout the winter the entire stock of the farm. Where this is the case, manure accumulates, and some of our best farmers make a point of using the snow roads for carrying out the manure so made to distant parts of the farm, unapproachable at other times during spring and fall with heavy loads.

The health of the Canadians during winter is proverbial, warmly housed, well fed, warmly clad and with good means of locomotion; the winter becomes the most enjoyable portion of the year. Fuel is plenty and cheap, and suffering from the season is unknown amongst the classes of ordinary Canadian farmers.

Let us now compare the situation of farmers of moderate capital in England with the same

men when they have once broken through the trammels of custom and made a settlement in Canada. A farmer in England, through losses, or misfortunes unforeseen, and possibly such as no moderate prudence would have guarded against, finds his capital reduced, and his lease (if he has one) expiring; or if he has no lease he finds his remaining capital too small for the land he has been used to occupy. He must either descend in the scale of farmers among his immediate friends and take a lower station than he has been used to occupy, (which is one of the most galling afflictions which can befall such a man), or he must move to a distance where he is unknown, and will therefore feel the down grade less distressing, or he must pull up stakes and emigrate. If he decides on the last named course he has his choice between Australia, New Zealand and Canada. Intending emigrants will do well to ponder the following considerations:—

Canada is within ten days steaming of their old homes. The voyage is very cheap in the steerage, and only moderately expensive in the cabin classes of passage. They come to a healthy climate, as nearly similar, in summer, as possible to what they have been used to, with delightful spring and autumn weather, and winters, though cold, all that can be desired. They come among people of their own class, and to a country well populated, and to land which can carry a dense population. They are welcomed by every-day friends and neighbours from home—are so situated that all the benefits of civilization are within their reach. They have a grand national scheme of education, whereby they can give their children a far better schooling than they could hope to do in England. Such capital as they may bring at once gives them a standing amongst others, who, as a rule, do not possess much. If they are disposed to take part in public affairs, all the municipal honours of the country are open to them. They will find the same classes of religionists to which they themselves have belonged within reach in every part of the Province. They will find cheap land, plenty of all the necessaries of life, the means of manufacturing their own wool and flax (if they raise those articles) into their own clothing, a farm of their own, freehold instead of leasehold, and every social advantage which they can wish for. All old country people who can prove their skill, and show that they are able to take care of themselves and of their capital, are looked on in Canada with consideration. Nationalities are in a great measure sunk out of sight, social distinctions are of the most liberal type while honours are open to all if they look for them.

AGRICULTURAL CAPABILITIES OF THE SOIL.

A reference to the display of cereals and other agricultural productions made by Canada, at the Exhibitions of London and Paris, might be considered sufficient to illustrate the remarkable adaptation of the soil to their growth and cultivation; but so limited a notice would leave

the question of permanent fertility still unanswered. When, however, it is known that the area in which the astonishing crops of wheat are raised, for which the Province of Ontario is so justly distinguished, extends over three-fourths of the present inhabited parts of the country, and that the prevailing soils consist of rich clays of great depth, the question of permanent fertility resolves itself into one of husbandry.

In the valleys of some of the largest rivers of Upper Canada, wheat has been grown after wheat for twenty years; the first crops yielded an average of 40 bushels to the acre, but under the thoughtless system of husbandry then pursued, the yield diminished to 12 bushels to the acre, and compelled a change of system, which soon had the effect of restoring the land to its original fertility. This system of exhaustion has effected its own cure, and led to the introduction of a more rational method of cultivating the soil. Years ago, when roads were bad and facilities for communicating with markets few and far between, wheat was the only saleable produce of the farm, so that no effort was spared to cultivate that cereal to the utmost extent. Now, since railroads, macadamized roads, and plank roads have opened up the country, and Agricultural Societies have succeeded in disseminating much useful instruction and information, husbandry has improved in all directions, and the natural fertility of the soil of the old settlements is in great part restored.

The average yield of wheat in some townships exceeds 22 bushels to the acre, and where an approach to good farming prevails, the yield rises to thirty and often forty bushels to the acre. On new land fifty bushels is not very uncommon; and it must not be forgotten that Canadian wheat, grown near the city of Toronto, won a first prize at the Paris Exhibition. It may truly be said that the soil of what may be termed the agricultural portion of Canada, which comprises four-fifths of the inhabited portion, and a vast area still in the hands of the Government and now open to settlement, is unexceptionable; and when deterioration takes place, it is the fault of the farmer and not of the soil.

THE AGRICULTURAL PROGRESS OF CANADA AS COMPARED WITH THAT OF THE UNITED STATES.

The maxim "comparisons are odious" is not always true. Without doubt they may sometimes be very properly instituted. In such cases, they should of course, be conducted with scrupulous fairness. When thus made between parties engaged in honourable competition, and only asking from one another "a fair field and no favour," the results can hardly fail to be of the most encouraging and stimulating character.

Taking as the basis of calculation the official volume which contains the agricultural results of the last census of the United States; and the similar census returns for Canada, re-

ferring to nearly the same period; it can be demonstrated, that Canada, and Ontario especially, instead of lagging behind the United States in every element of progress, as some people are constantly telling us, can put the tabular statements of her products and her progress side by side with those of the Great Republic on our borders, and not suffer one whit from the comparison, but that, on the contrary, she is shown to be considerably ahead of the United States in many important indications of a skilled and productive agriculture, and a rapid general advancement. The following is a summary of the results obtained by a comparison of the official statistics above mentioned.

First, as regards the Province of Quebec, we find that the following facts are established. That the growth of population in Quebec vastly exceeded that in the States of Vermont and Maine, lying along her borders. That, starting at the census before last, with a population less than that of those two States combined, she exceeded them in population at the last census by nearly 200,000. That, as compared with the States, which in 1850 had a population as great as her own, the decennial rate of increase in Quebec was greater than in any of those States, with one solitary exception—the State of Indiana. That, in nine years to their ten, she lessened by two, the number of States which in 1850 had a population exceeding hers. That the rate of increase of population in Quebec in nine years was greater than the rate of increase in ten years in the whole of the United States, excluding the Western and Pacific States and Territories. And that her decennial rate of increase was greater than that of the whole United States, not including the Western States and Territories, but including California and the other States and Territories on the Pacific. That in the interval between the last census and the preceding one, Quebec added to the breadth of her cultivated lands at a rate exceeding her growth in population, which equalled within a fraction the rate in the United States; the addition to the acreage under cultivation in Quebec being greater than the increase of population by 8.50 per cent., while in the United States it was 8.72 per cent. That the cash value of lands occupied as farms in Quebec per cultivated acre, exceeds, in 1860, the cash value of lands occupied as farms in the United States per cultivated acre; the value in Quebec being \$19.04 per acre, while in the United States it was \$16.32 per acre. That the value of farming implements used in Quebec was greater in proportion to the amount of land cultivated than in the adjoining States, or in the United States as a whole; the average value of the farming implements used on a farm having 100 cultivated acres, being \$176 in Quebec, as against \$122 in Maine, \$130 in Vermont, \$134 in the whole of the New England States, and \$150 in the whole of the United States. That, as regards the great agricultural staples of wheat, corn, rye, barley, oats, buckwheat, pease and beans, and potatoes, Quebec increased her annual production of these

articles in nine years between 1851 and 1860, from 22½ millions to 45 millions of bushels, or 100 per cent.; while in the United States the increase in the production of those articles in ten years between 1850 and 1860, was only 45 per cent. That in 1860 her production of these articles was 40.54 bushels for each inhabitant, only falling short by less than three bushels of the production of the United States, where it was 43.42 bushels for each inhabitant. That—excluding Indian corn from the list—Quebec raised of the remaining articles 40.20 bushels for each inhabitant, against a production in the United States of only 16.74 bushels for each inhabitant, and against a production in the adjoining States of Maine and Vermont of 22.10 bushels for each inhabitant. And that, finally, in proportion to population, Quebec owned more horses than the United States, as many cows, and nearly as many sheep; and that, during the interval between the last census and the preceding one, she increased her production of butter and wool at a rate considerably exceeding the rate of increase maintained in the United States.

As regards the whole of Canada, we find that the following facts are established: That during the interval between the last census and the preceding one, the decennial rate of increase of population in Canada exceeded that in the United States by nearly 5½ per cent.—Canada adding 40.87 per cent. to her population in ten years, while the United States added only 35.58 per cent. to theirs. That she brought her wild lands into cultivation at a rate, in nine years exceeding the rate of increase of cultivated lands in the United States in ten years, by nearly 6 per cent.—Canada, in 1860, having added 50 acres of cultivated land to every 100 acres under cultivation in 1851, while the United States, in 1860, had only added 44 acres to every 100 acres under cultivation in 1850. That the value per cultivated acre of the farming lands of Canada in 1860 exceeded the value per cultivated acre of the farming lands of the United States; the average value per cultivated acre in Canada being \$20.87, and in the United States \$17.32. That in Canada a larger capital was invested in agricultural implements, in proportion to the amount of land cultivated, than in the United States—the average value of agricultural implements used on a farm having 100 cultivated acres, being in Canada \$182, and in the United States \$150. That, in proportion to population, Canada in 1860 raised twice as much wheat as the United States; Canada in that year raising 11.02 bushels for each inhabitant, while the United States raised only 5.50 bushels for each inhabitant. That, bulking together eight leading staples of agriculture—wheat, corn, rye, barley, oats, buckwheat, peas and beans, and potatoes—Canada, between 1851 and 1860, increased her production of these articles from 57 millions to 123 millions of bushels—an increase of 113 per cent., while the United States in ten years, from 1850 to 1860, increased their productions of the same articles only 45 per cent. That in 1860 Canada raised, of those articles, 49.12 bushels for each inhabi-

tant, against a production in the United States of 43.42 bushels for each inhabitant. That—excluding Indian corn from the list—Canada raised of the remaining articles, 48.07 bushels for each inhabitant, almost three times the rate of production in the United States, which was 16.74 bushels for each inhabitant. And that, as regards live stock and their products, Canada in 1860, in proportion to her population, owned more horses and more cows, made more butter, kept more sheep, and had a greater yield of wool than the United States.

The comparison as regards the Province of Ontario is, of course, still more favourable. We have seen that in nine years she added 46.65 per cent. to her population, while the United States in ten years added only 35.58 per cent. to theirs. That she maintained a *decennial* rate of increase greater by one-half than that of the whole of the United States and territories—more than double that of all the United States, excluding the Western States, and only falling short of the increase in the Western States and territories by 7 per cent.,—and that in nine years to their ten, she passed four states of the Union which in 1850 had a population exceeding hers [Indiana, Massachusetts, Tennessee and Kentucky], leaving at the date of the last census only five States which exceeded her in population. That in nine years she added nearly 64 cultivated acres to every hundred acres in cultivation in 1852, while the United States and Territories in ten years added only a little over 44 acres to every hundred acres under cultivation at the date of the previous census. That she subdued her wild lands more rapidly than even the growth of her population, at a rate almost double that in the United States (the proportion being as 17.10 to 8.72.) That the cash value of her farms in 1860, per head of the population, was greater in Ontario than in the United States, being \$211 42 in Ontario, and \$211 33 in the United States. That their value per acre was greater in Ontario than in the United States by nearly \$6, being \$22 10 per acre in Ontario, and \$16 32 per acre in the United States. That the capital invested in agricultural implements was greater in Ontario than in the United States in proportion to the breadth of land cultivated, being \$186 for every hundred acres of cultivated land in Ontario, and \$150 dollars for every hundred acres of cultivated land in the United States. That the value of 'agricultural' implements *manufactured* in Ontario did not fall very much behind the value of agricultural implements manufactured in the United States, in proportion to population, being \$0 41 per head of the population in Ontario, and \$0 55 per head of the population in the United States. That she grew more wheat in 1860 than any State in the Union. That, in proportion to population, she produced in that year more than three times as much wheat as the United States, raising 17.64 bushels for each inhabitant, while the United States raised only 5.50 bushels for each inhabitant. That she was greatly ahead even of the Western States as a wheat-producing country, the average production of wheat in the

whole of the Western States being only 10 bushels for each inhabitant. That, of the eight leading staples of agriculture, common to both countries—wheat, corn, rye, barley, oats, buckwheat, peas and beans, and potatoes—she produced 55.93 bushels for each inhabitant, while of the same articles the United States produced only 43.42 bushels for each inhabitant. That—excluding Indian corn from the list—she produced of the remaining articles, 54.34 bushels for each inhabitant, against 16.74 bushels for each inhabitant, produced in the United States. That, in proportion to population, she had more capital invested in live stock than the United States, the value of live stock owned in Ontario being \$38.13 per head of the population, while in the United States it was 34.64 per head of the population. That for every hundred of the population, Ontario owned 27 horses, and the United States only 20. That for every hundred inhabitants, Ontario owned 32 milch cows, and the United States only 27. That for every hundred inhabitants, Ontario owned 84 sheep, and the United States only 71; and that, of live stock, in the number of pigs only was she exceeded by the United States, in proportion to population. That in 1860 she produced 19.22 pounds of butter for every inhabitant, while the United States produced only 14.32 pounds. That in the same year she produced 2.62 pounds of wool for each inhabitant, while the United States produced only 1.92 pounds. That in the nine years from 1851 to 1860, she increased her annual production of butter by 67 per cent., while in the United States, in ten years from 1850 to 1860, the increase in the production of butter was only 46½ per cent. And that in nine years she increased her production of wool 40 per cent., while in ten years the United States increased their production of wool only 15 per cent.

These facts need no comment. They speak for themselves. Exhibiting as they do a most gratifying progress in Canada, both absolutely and relatively, as compared with the United States, they ought to shut the mouths of croakers, and give fresh encouragement to the hardy workers, who, with the help of Providence, have made Canada what it is, to go on availing themselves to the utmost of the advantages of their position, for the improvement of their own fortunes, and the advancement and prosperity of the country at large.

ORNITHOLOGICAL NOTES FOR MAY AND JUNE.

For the ONTARIO FARMER.

The little yellow warbler, (*Dendroica Estiva*), seldom fails to make its appearance, if the season be not unusually backward, before the end of the first week in May.

Flitting in and out among the tender green of the young leaves, warbling its short but cheery note, as it searches for its food; it may be

seen in every garden and orchard, and even among the trees in the streets of our towns.

It has but little fear of man, allowing itself to be approached quite closely as it climbs up and down among the branches of tree or shrub, looking keenly for insects amidst the leaves and blossoms. During the breeding season, however, this little bird shows great anxiety for the protection of its eggs or young. Flying in front of the prying visitor, or tumbling along the ground as if wounded, with wings and tail outspread, it endeavors by every artifice to attract the unwelcome intruder from the neighborhood of its nest. It is one of these birds occasionally selected by the Cow Bunting as a foster-mother for its young, and not unfrequently the single egg of the latter may be found deposited among the five or six eggs of the warbler.

The plumage of the yellow warbler is of a fine golden yellow over the front part of the head, the cheeks, throat, and side of the head. The back of the head and the back itself yellowish green, the breast and sides yellow, streaked with brownish red, wings and tail brown, edged with yellow.

If the weather be warm and pleasant, fresh arrivals continue to pour in during the week first in May. The Purple and Rusty Grackle, and the Red-winged Starling or Marsh Blackbird, if they have not already arrived with the Cow Blackbird in April, are among our first visitors, and about the same time come the Golden or Ferrugineous Thrush, the Wood Thrush, the Golden-winged Woodpecker and its Scarlet headed brother. The King Fisher, too, has returned to its old haunts by lake or river and may be seen watching for its finny prey from its perch on the projecting branch of some overhanging tree.

The Purple Grackle or common Crow Blackbird, (*Quiscalus Versicolor*), and the Rusty Grackle, (*Scelopophagus Ferrugineus*), are frequently found together. The Crow Blackbird makes its appearance in large flocks on its first arrival in the Spring, resorting in the day time to the fields and open country in search of food, and returning to roost at night in the tall trees in the neighborhood of some marsh or stream. Both it and the Rusty Grackle are much alike in their habits.

They are very destructive to the grain crops in some districts where they congregate in large numbers, but it may be doubted whether they do not fully compensate for all the mischief they do, in that way, by the good service which they render to the farmer, in consuming enormous quantities of grubs, caterpillars, and insects of all kinds injurious to vegetation. The plumage of the Crow Blackbird is a glossy black, with violet, steel-blue, and greenish reflections on the head, neck, and breast. The lower part of the back and the belly exhibit more coppery hues—the wings and tail are black, with green and blue reflections. The nest of this bird is generally built in tall trees, it lays five or six eggs of a dull green colour blotched with orange.

The Rusty Grackle differs from the Crow Blackbird in having the glossy black of its plumage varied by markings of ferrugineous brown over various parts of the body.

The Marsh Blackbird or Red-winged Starling, (*Agelaius Phoeniceus*), may be recognized at once by the brilliant scarlet of the lesser wing coverts, which contrasting with the glossy black of the rest of the plumage, gives the bird the appearance of having a pair of "epaulettes," hence its popular name of Field-Marshal! These birds congregate in immense numbers during the breeding season, in the neighborhood of ponds or swamps, or marshy meadows, where, in some elder bush or thick tuft of rank grass or reeds their nest may be found, the exterior formed of a quantity of coarse dried weeds, the interior lined with fine grasses, the eggs, from four to six in number, light blue with dusky spots.

This handsome bird destroys an enormous quantity of grubs, worms, caterpillars, and different sorts of coleopterous insects, which are its chief food during the early part of the season, but it cannot be denied that it does not confine itself to insect fare, and that later in the year it is often very troublesome in the grain fields, and is especially partial to Indian corn. The plumage of the Marsh Blackbird is peculiarly soft, the general colour glossy black, the lesser wing coverts scarlet, their lower row light yellow, bill and feet black.

Perched on the topmost twig of some tall oak the Golden or Ferrugineous Thrush, (*Harporhynchus Rufus*), on a fine May morning, pours forth for an hour at a time its melodious song, the richest and most varied in its notes of all the songsters of the grove. No one who has once heard it and listened to its cadences, so full of sweetness and melody, but would forever after scout the assertion so often made by those who know little of our Canadian birds, that they are destitute of song. Except the Sky-lark and the Nightingale of Europe, there are few birds whose vocal powers can compare with those of this Canadian Thrush.

Like the Robin, this Thrush spreads itself over the greater part of Canada during the summer months. Its food consists of insects, worms, berries and fruits of all sorts, and like the Robin and the Cat-Bird, it is very partial to the neighborhood of our gardens when the cherries and strawberries are ripe; but we need scarcely grudge them an occasional desert at our expense, when we bear in mind the enormous number of insects of different kinds which they destroy, and which, if left to increase without a check, would prove a thousand times more destructive to our gardens and orchards. The nest of the Thrush is generally placed in some thicket or bramble patch, and composed externally of dry twigs imbedded in and mixed with dried leaves and coarse grass, and thickly lined with fibrous roots and horsehair. The eggs are from four to six in number, of a pale buff color, thickly sprinkled with dots of brown.

Few birds are more courageous in defending their nest, and they do not hesitate to fly even in the face of man himself if he be the plunderer.

The Wood Thrush, (*Turdus Mustelinus*), is very different in its habits to the bird we have just

been describing, it generally frequents the thickest woods, is shy and retiring, and although its simple notes are very clear and harmonious they cannot be compared in richness and melody to those of the Ferrugineous Thrush. It makes a nest of coarse grass and dried leaves, mixed with mud and decayed wood, with a lining of fibrous roots and fine grass. It lays four or five eggs of a bright greenish blue. The plumage of the Wood Thrush is a bright cinnamon brown on the upper part of the body, inclining to rufous on the head, wings and tail olive color, breast white, thickly marked with pencil shaped brownish spots.

The Golden-winged Woodpecker, or Highholder, as it is commonly called, (*Colaptes Auratus*), is one of the handsomest of the numerous tribe of Canadian Picidæ.

Its loud and curious note, sounding at a distance almost like a sort of prolonged goblin laughter, is always heard at this season, and if followed up to the spot from which it proceeds, several male birds will be found pursuing a female from tree to tree, and as they reach her, bobbing their heads, spreading their tails, moving sideways, backwards and forward, and performing a number of other curious antics. When once the fair one has chosen from among her gay suitors, the pair immediately proceed together to choose some decayed or hollow tree, wherein to execute a suitable hole for their nest. The female lays from four to six eggs, beautifully white and transparent.

This species alights on the ground more frequently than any other of the Woodpeckers, and seems especially to delight in attacking ant-hills, making great havoc among their inhabitants. It picks up beetles, caterpillars and other small insects, and does not disdain to vary its diet occasionally with a little fruit.

The plumage of the Golden-winged Woodpecker is very handsome. The upper part of the head and back of the neck light purplish grey, a transverse band of scarlet on the lower part of the back of the head. The upper part of the body, generally, light greenish brown spotted with black, the lower part of the back white, the tail coverts of the same color, tail brownish black, the shafts of the feathers orange, sides of the head and neck light brownish red tinged with grey. A black streak across each side of the throat, and a crescent shaped patch of the same on the breast. The rest of the breast reddish white, spotted with black, under surface of the wings and tail of a fine golden yellow.

Most persons who have travelled for any distance in summer through our Canadian backwoods, where the clearings are small and surrounded by the forest, must have remarked that however few in number may be the birds they meet with, the crimson headed Woodpecker, (*Melanerpes Erythrocephalus*), is sure to be seen running up the trunk of some girdled pine or alighting on the rail of a snake fence, rattling upon it with his bill, gradually moving round to the opposite side of the stake as he is approached, peeping now and then to see if he is

discovered, and then flying off to the next stake to repeat the same process. Although so common in the neighborhood of the woods, the Red-head is equally at home in the older settled parts of the country, and appreciates most thoroughly the evidences of increasing civilization in the shape of orchards and gardens. It may be doubted whether the Wax-wing or Cherry Bird as it is sometimes called, is a more ardent plunderer of that fruit than is the Redheaded Woodpecker, and like the Cherry Bird, too, it is an ardent admirer of ripe strawberries. Nevertheless, these birds, like all others of their species, fully compensate for the mischief they may occasionally do to our strawberries and cherries by the number of insects which they destroy, more especially the larvæ of those kinds most injurious to our fruit trees. The female of this Woodpecker lays from two to six eggs (which are pure white and translucent), in a hole in the trunk of some decayed tree. The plumage of both sexes is the same. Head and neck bright crimson, back wing coverts, primaries and tail feathers, black, with bluish reflections, rump and secondaries, white, breast and abdomen white, an irregular narrow transverse band of black at the junction of the red of the neck and the white of the breast.

Very different from its European namesake is the King Fisher of this continent, (*Ceryle Alcyon*). For once, the superiority in brilliancy of plumage is with the inhabitant of the Old World, whose lovely hues of blue and emerald, far outvie the sober livery of its American congener. The latter is, however, very much larger, and with its fine erect crest and plumage of blue and grey, barred with white, is after all a handsome bird.

Its curious rapid rattling note is familiar to every fisherman on our streams and inland waters. Mill-ponds, too, are a favorite resort of the King Fisher, the calmness of the water in such places permitting it to discover its prey with greater ease.

From its perch on the branch of some dead tree or stump, projecting over the pond, it flies off every now and then, poises itself for a few seconds over the water, and then dashing down, seizes a fish, and returning to its tree or stump swallows its prey at its leisure. This bird deposits its eggs, generally to the number of six, in a hole which it digs with its claws and feet in the soft earth or sand, on the banks of the stream or pond which it is in the habit of frequenting, and to which it often resorts for many years in succession.

About the middle of May, the singular note of the Rice Bunting or Bob O'Link, (*Dolichonyx Orizivorus*), may be heard in our fields and meadows, generally near the margin of some quiet stream or reedy pond, where several pairs of them may often be met with throughout the whole summer.

Both the plumage and the song of this bird are very curious. The former is a mixture of black, white, and yellow, disposed in a sort of piebald fashion over the body, the upper part of the head, wings, tail, sides of the neck, and

the lower part of the body of the male in his spring plumage being black, the back of the head yellow or cream color, and the scapulars, rump, and tail coverts white, tinged with ash. Its song is a succession of rapid jingling notes, generally performed in the air, while rising and falling on the wing in successive jerks. Some of the more liquid notes are not devoid of melody, but they are all so rapid and confused as to appear almost like the blended song of several kinds of birds. They betake themselves to the middle and Southern States in the autumn, where they congregate in immense numbers in the neighborhood of the rice plantations, and their flesh being rich and juicy at that season of the year, they are shot for the market, and form an important item in the bill of fare of the Southern epicure. When the willows are in leaf and the apple blossoms in our orchards are just ready to burst into bloom there arrives one of the most brilliant plumaged of all our spring or summer visitors, the lovely Scarlet Tanager, (*Pyrranga Rubra*). As it flits from tree to tree, and drops noiselessly down among the grass in pursuit of some moth or insect, its brilliant scarlet covering heightened by contrast with the green around it, it looks more like some tropical bird than a visitor to "the cold north," and yet the Scarlet Tanager wings its way beyond the confines of Canada, having been found as far north as the 49th parallel of latitude. It is, in general, rather a shy and solitary bird. Although it appears for a few days after its first arrival in our gardens and orchards, it is seldom seen near the habitation of man later in the season, but seems to prefer the solitude of the woods, breeding far north, and passing south again on its return to its winter quarters in the Southern States about the beginning of September.

The plumage of the Scarlet Tanager is a brilliant scarlet on the head and entire body, the wings and tail black. The young birds, during their first autumn, as seen on their way south, are a greenish yellow color, with here and there a stray scarlet feather, the wings and tail brown-black.

Within a day or two after the arrival of the Scarlet Tanager, and when the orchards are in all their glory, with the delicate pink of the apple blossoms, and the snowy white of the pear and the cherry, another visitor scarcely less gorgeous in plumage, but more social in its habits, the Baltimore Oriole, (*Icterus Baltimore*), makes its appearance. Gliding from branch to branch, in search of insects, the brilliant livery of the male renders him a conspicuous object, and if his clear mellow whistling notes, which may be heard at a long distance, did not attract attention. They are seen with us in considerable numbers in some districts during the summer, although they are said to range as far north as the plains of the Saskatchewan.

In the woods, the Oriole generally builds in the tall elm or gigantic button-wood tree, but its singular nests are occasionally found in our orchards, suspended from the extremities of the branches of the apple or the pear. The nest is

woven in the shape of a purse or bag, and is generally attached to two or more forked twigs by threads of the silk weed or fibres of other wild plants, and not unfrequently, when it can obtain them, by pieces of string or thread, which the bird picks up near the neighboring houses. With the same materials mixed with hair, wool, or tow, it interweaves a warm and substantial fabric of nearly six or seven inches in depth, the bottom part being lined with horsehair. In this the female lays from four to six eggs, white, with a bluish tint, and marked, (chiefly at the larger end), with dark brown spots and lines. The food of the Oriole consists principally of small caterpillars, beetles, and flies, they seldom molest any of our garden fruits except a few cherries.

The plumage of the male bird is a bright orange over the whole of the under parts, the lesser wing coverts and the lower part of the back, the breast and neck, tinged with vermilion. The head, throat, back part of the neck, upper part of the back, quills and larger secondaries, black, as are the two middle tail feathers, and the terminal edges of the others, a dull orange. The plumage of the female is somewhat similar to that of the male, but the tints are much duller, and the young birds during the first season resemble the female. They continue with us until September when they again wing their way South.

When the horse-chestnut trees, covered with their spikes of snow white flowers, are in all their beauty, and the lilac and the guelder rose are in bloom, the Ruby-Throated Humming Bird, (*Trochilus Colubris*), may be seen darting like a flash of light from tree to tree, hovering for an instant before the drooping plume of a Persian lilac, or the white flowers of the chestnut, and then the long delicate bill enters the cup of the flower, and the protruded double-tubed tongue touches the concealed insect and draws it from its hiding place to be swallowed in an instant.

Beyond the humming of the wings, reminding one of the flight of a large moth, no other sound is made by the tiny creature, except occasionally a slender chirp, until some rival bird appears on the scene, a quick petulant "chirrup" is then uttered, and the two dart up into the air in swift and dizzy gyrations, and are quickly lost to sight. Like many other small people, they are extremely pugnacious, not only fighting with each other, but even attacking other birds if they happen to come in their way.

The nest of the Humming Bird is a perfect little gem of its kind. Formed on the outside of light grey lichens, so neatly arranged, as almost to seem part of the branch to which it is attached, the inside is lined with quantities of cottony and silken substances, such as the short woolly fibre of the budding plantanus or the soft clothing of the unfolding fern stalks. Two delicate little white eggs only are laid.

The plumage of the Humming Bird is green with gold reflections on the upper parts generally, including the two middle tail feathers, wings

and rest of the tail purplish brown, throat, sides of the head and foreneck, carmine purple, spotted with black varying to crimson orange and deep black, sides of the same color as the back, the rest of the underparts greyish white mixed with green. Like many others of our spring visitors this tiny little creature extends its migrations far beyond our borders, but numbers remain with us all through the summer, and until the first cold days of autumn warn them that it is time to depart for their winter quarters in "the sunny south."

There are few possessors of a garden or orchard, to whom the prolonged lisping note of the Cedar Bird, Cherry Bird, or Waxen Chatterer, as it is variously called, is not perfectly well known, and with not a few, the sound is the signal for an immediate "appeal to arms!" and many a hapless bird pays the penalty of "sudden death" for its fruit devouring propensities.

The Cedar Bird, (*Ampelis Cedrorum*), really comes to us in May, but its presence is scarcely noticed, until the orchards are in bloom, or the strawberries and cherries are beginning to ripen.

When the apple, the pear, and the cherry, however, are in blossom, flocks of these birds may be seen flying from tree to tree, and feeding occasionally on the opening buds, as they do later in the year on the fruit itself. Nevertheless if any of them are shot at this time, and their crops examined, they will constantly be found filled with various insects, of which they have assisted in ridding the trees, thus repaying the gardener for the tithe which they take of his fruit later in the year.

Moreover, the bird feeds its young for the first week exclusively on insects; although it must be admitted that after that, fruits of various kinds form a large part of their diet; indeed there is scarcely a fruit or berry, wild or in our gardens, which these birds will not feed upon, from the luscious blackheart cherry to the berries of the red cedar, their partiality for which has obtained for them one of the names by which they are generally known.

The plumage of the Cedar Bird is very soft and silky, and the colours are particularly harmonious and pleasing to the eye. The head, neck, and breast, are a rich yellowish brown or fawn colour fading into yellow on the abdomen, and yellowish white under the tail, back and wing coverts, greyish brown, passing into light bluish grey on the lower part of the back and tail coverts. A deep black line runs from the nostril over the eye to the back of the head, bordered above and below by a slender line of white. Quills, brownish black, the secondaries sometimes curiously tipped with small vermilion oblong appendages resembling red sealing-wax, which are also occasionally found on the tail feathers which are greyish at the base passing into brownish black, and terminated by a band of yellow.

Although we cannot reckon the Nightingale of the South,—the Mocking Bird,—with its unrivalled notes and wonderful imitation of other songsters, among our summer visitors, yet at

early dawn or in the late twilight of a fine June evening, when scarce another note is audible but the hum of the drowsy beetle, may be heard a sweet but singular song made up of short and blended imitations of the notes of other birds, given with great melody and variety of tone. Should the listener's curiosity lead him to attempt to discover the songster, as he approaches the spot from which these sweet sounds were proceeding, he will probably be saluted with a harsh grating cat-like mew and will be surprised to recognize in the performer the sober ashen-grey plumage of the Cat Bird, (*Mimus Carolinensis*).

Those who have only heard the harsh petulant cry of this bird, when suddenly disturbed, or when alarmed for the safety of its young, can have but little idea of its vocal powers, or how well it repays the trifling depredations which it commits on our cherries or raspberries, by the beauty and variety of its notes. Indeed, the good service which the bird renders by the destruction of thousands of larvæ and insects in our orchards and gardens, during the spring and summer, should protect it from the thoughtless attacks of boys, and the persecution which it is sometimes subjected to by older people.

The nest of the Cat Bird is composed, externally, of dried twigs and briars, mixed with withered leaves, weeds, and grass, and lined with black fibrous roots. The eggs are four to six in number, of a greenish blue without spots.

The general colour of the plumage of the Cat Bird is blackish grey, the head and tail brownish black, the abdomen bluish grey, and the under tail coverts brownish red.

The House Wren, (*Troglodytes Aedon*), is a welcome and familiar visitor to all of us. It delights in being near and about the garden orchards, and habitations of man, and its merry warbling may be heard not infrequently, even in the very centre of our towns, where in some crevice or hole in the wall of a house, or the eaves of an outbuilding, it will build its nest and rear its young. It is a sprightly, courageous little creature, shewing little fear of man, and making war sometimes on the Martin, the Bluebird, or the Swallow, if they come in its way, and is unfrequently appropriating for its own nest the box or hole in the wall which they had previously chosen for the same purpose.

The Wren generally brings up two broods a season. It begins to build immediately after its arrival in the last week in May or the beginning of June.

The nest is formed first of a mass of crooked twigs interwoven together so as scarcely to admit an entrance to any bird larger than itself. Within this outer frame work, is placed the proper nest, of a hemispherical shape, formed of dried grasses and lined with feathers. The eggs are five or six in number, of a reddish color sprinkled all over with fine grains or dots of darker shade.

Early in June the Meadow Lark, or American Starling, (*Sturnella Magna*), makes its appearance, it is found scattered over the greater part

of Canada. Its favourite resort is in meadow land or old pasture fields; there, at the foot of some tuft of tall strong grass, its nest is placed, built in a sort of oven-shaped fashion, of dried grass, fibrous roots, and other materials, around which leaves and blades of the surrounding grasses are matted together, so as to cover and conceal the entrance. The eggs, four or five in number, are white, sprinkled and blotched with reddish brown towards the larger end. The harmlessness of this bird, the beauty of its plumage, and its pleasant song in spring, ought to protect it against so-called sportsmen, but numbers of them, nevertheless, are shot every season and offered for sale in our markets. Did the farmer but sufficiently appreciate the important service rendered to him by these birds, in the number of larvæ, beetles, and insects of various kinds which they devour, he would look with little favour upon their destruction.

The plumage of the Meadow Lark is variegated with dark brown, bay, and light yellowish brown on the upper parts. Primary quills, dark brown, the outermost edged with white, the rest with pale brown. The edge of the wing yellow, the smaller wing coverts black, bordered with grey; the three outer tail feathers white, with a dash of black on the outer web near the end. The upper part of the head striped with brownish yellow and black. The sides of the head and neck greyish white, abdomen white, the rest of the under parts rich yellow, excepting a large percent of black on the breast.

G. W. A.

NOTE.—Through some mistake in the transmission of the manuscript, the first part of this paper, intended for the *May* number of the ONTARIO FARMER, was not received in time for publication, and at the request of the Editor, I have combined the "Ornithological Notes" for May and June in the present paper. It is scarcely necessary for me to say, that I have found it impossible in the space placed at my disposal, to give anything like a complete list of the birds arriving in each month. I have been obliged to omit all mention of the water birds, game birds, and birds of prey, and to pass over the host of feathered beauties, belonging to the family of "WARBLERS," "Fly-Catchers," &c., besides many other interesting species which make their appearance in May and June. I trust, however, that these brief notices, incomplete as they are, may be the means of interesting others in the study of our Canadian Birds, and I hope at some future day, from the materials which I have been accumulating, to fill up the details of what is now but an imperfect sketch of the ornithology of the months.

Arts and Manufactures.

NARROW GAUGE RAILROADS.

Now that there is a pretty good prospect of "Toronto and Nipissing," and the "Toronto, Grey, and Bruce" Narrow Gauge Rail-

roads being shortly commenced, any remarks upon the subject of *Broad vs. Narrow Gauge*, from good authorities, must be interesting.

The London *Artizan*, a first-class engineering journal, in a recent number, says that several narrow gauge lines are proposed in England—one especially, from Manchester to Didsbury, on which the quickest curve would be "four chains radius, and the maximum gradient 1 in 50. The locomotives were not to exceed 15 tons, to run on 40 lb. rails, and the carriages were to be 5 ft. wide, 6 ft. 6 in. high, and built omnibus fashion to hold 24 passengers. The weight of the carriages would only be 5 tons each, and the speed 25 miles per hour. The first cost of this line was estimated by Mr. Hulse at less than two-thirds that of a line of the usual 4 ft. 8½ in. gauge, and the working expenses at a similar reduction." A line 14 miles long, for conveyance of material only, has long been in existence at Festiniog, of a 2 feet gauge. No portion of this line is level, "but is entirely made up of gradients, varying from 1 in 50 to 1 in 80, with a great number of curves, some of which are only 1½ chains radius. The usual load for the engines is 50 tons, which they easily draw at a speed of about twelve miles an hour." Illustrations of a locomotive for this road are given in the May number of the *Artizan*.

ROLLING MACADAMISED ROADS.

In this country, the universal practice in making or mending macadamised roads is to spread on the roadway a bed or sheeting of loose broken stone, and leave its consolidation to time, aided by the ordinary traffic of horses and vehicles. This leaves not only a very disagreeable road for travel, and injurious to both horses and vehicles, but is also wasteful, as a considerable portion of the stones are thrown off into the side gutters, and carted away with the street scrapings, and another large portion is ground up into fine powder, and washed away into the culverts, or carried about by the wind to the discomfort of travellers, and the injury of mercantile goods on the lines of streets.

In Britain, and in France, Steam Rolling Machines are now used to consolidate the loose stone as soon as it is laid down, so that in the short space of five or six hours, the whole becomes impact and solid, and much smoother than any old piece of road. Old roads, cut up by ruts, are also rendered comparatively smooth by a similar operation. These machines are of great weight. The rollers—two in front and two behind—constitute the wheels of the machine, the hind rollers being placed close together, so as to travel over the space not operated on by the front rollers, which are set a sufficient distance apart.

Heart and Home.

A TALK WITH THE YOUNG FOLKS ABOUT THE MONTH.

June is a delightful month, it is a mixture of spring and summer, being neither too chilly nor too warm for comfort. — May has often a dash of cold in it that keeps up the memory of winter, while July is apt to be melting hot, but June is very agreeable. In other respects this is an extremely pleasant time of year. The country is very beautiful. All nature is dressed in holiday garb. The green grass, the blooming flowers, the leafing trees, and the fruit blossoms, make the out-door scenery lovely indeed. It is an imprisonment now to have to stay in the house, and young people want to be out from morning till night. In winter we are glad to creep up to the cheerful fireside, or warm stove; but now there are a thousand attractions in the garden, the fields, and the highway. Even if one's duties lie indoors, there is a restless, impatient feeling that makes one long to go out. What pleasant rambles can be had now!

How nice it is to go and gather wild flowers! Who does not enjoy a ride or walk in "the leafy month of June?"

Now is the time to go a fishing, and our picture shows a young gentleman very intently studying his fly book, to see if he can't find a "killing" bait, with which to fill his fish basket. Most boys, however, are not so scientific as our young friend in the picture; they are content if they can get a common hook with a worm on it, and some, in default of a regular hook, will sally forth with nothing better than a bent pin. We may learn many lessons from the art of fishing. How it reminds us of the many baited hooks with which the devil fishes for human beings. Alas! he is an expert angler, and catches many an unwary soul! sometimes his hook is baited with pleasure, at other times with money, at other times with fame, and there are many "deceitful and hurtful lusts" by appealing to which he succeeds in taking his prey. He is cunning and skilful, beyond our suspicion and knowledge, and how often



JUNE.

are we caught "by the wiles of the devil." We are not ignorant of his devices. Let us therefore beware of them, watch against them, and above all, pray to be delivered from them.

Our Lord uses fishing as an emblem of the work which christian ministers have to do. "I will make you fishers of men," he said, and his effect still says to his disciples, much wisdom, care, and prudent management are needful to make a successful fisherman. Fish have sharp eyes and ears, they are very vigilant, and often seem to show a great deal of sagacity. It is not everybody who can catch them. Some people will fish all day and get nothing, while others under the same circumstances will obtain quite a string or basket full of fish. For common fishing, people must depend on their own knowledge and skill, but it is encouraging to christian ministers, that Jesus says, "I will make you fishers of men." He only can do it, and we should pray for God's servants, that they may be thoroughly fitted for their work, and great

blessed in it. "He that winneth souls is wise," and this wisdom "cometh down from above, even from the father of lights," who "giveth to all men liberally and upbraideth not." It can be had simply for the asking. But we must ask in faith, nothing doubting.

There are other lessons taught by the fisherman's art, but these must suffice for the present.

TO DO UP SHIRT BOSOMS.

Take two ounces of fine white gum arabic powder—put it into a pitcher and pour on a pint or more of water—and then having covered it, let it stand all night. In the morning pour it carefully from the dregs into a clean bottle, cork it and keep it for use. A table spoonful of gum water stirred in a pint of starch, made in the usual manner, will give to lawn, either white or printed, a look of newness, when nothing else can restore them, after they have been washed.

KEEPING BUGS OUT OF PAPERED WALLS.—A correspondent asks if we know of any means of keeping bugs from harboring in papered rooms. He says it is difficult to keep them out of old houses; the bookworm also makes bad work in papered walls. On submitting the above to an experienced paperer, he states that turpentine mingled in the paste at the time of papering, is a sure remedy against the depredations of all insects. Of course this necessitates repapering the rooms. The remedy is very simple.

Poetry.

A DAY WITH THE TREES AND BIRDS.

FROM THE CINCINNATI TIMES.

I.

Ho! for the country, where the birds belong,
Where the herd bells are tinkling their chimes;
We'll drink the pure air, and exhale it in song,
While we catch the green glow in our rhymes.
Where the cat-mocking thrush
That sits rocking the bush
To the "coo" of the turtle-dove pair;
While the pert king-bird swings
On the spray where it sings,
And the yellow-bird scallops the air.

II.

Come, boys, with the team before rise of sun,
When the morn's rosy light spreads o'er us;
Bring the girls along, their smiles and their fun,
Will add to the glee and the chorus.
When the lark springs from earth
To salute at its birth
The first gleam of the dawning day,
Then martins curve high
Chatt'ring joy to the sky,
Out of sight in the morning gray.

III.

Up at the farm-house, where elms shade the lane,
Where the watch-dog announces your coming;
There welcome of friends in vite to remain,
And the pleasures in prospect are summing.

There the "guineas" ku-klux
Quack and waddle, the ducks,
Solemn geese in procession are going;
Dandy turkeys spread tails,
Vain peacocks drag their trails,
And Shanghais are clucking and crowing.

IV.

Go to the orchards—the apple and pear,
Regal-hued plum and soft-blushing peach,
Sweet, rare-ripe, and cherry, temptingly fair,
Will call you to test the ripeness of each.
There the cardinal gay
Struts about all the day,
And the robin gives its sweetest tunes,
While the blue-bird and wren,
More idustrious than men,
Feed their young on the pest of the prunes.

V.

Seek trellis and bower of the green woodbine,
Where honey flowers brightly cluster;
There the morn-glory and passion-flower twine,
And burrow the sky's tint and lustre.
There the humble bee gilds
The blue blossom it fills,
Gathering the sweets as it sings;
And humming-birds sup
From the red honey cup,
And shimmer bright hues from their wings.

VI.

Go to the fields of the golden rich wheat,
Sun-gilded corn or grass of deep green;
Where, swept by the breezes of genial heat,
They glow in long waves of fleeting sheen.
There killdeer and plover
And black-birds do hover
Ere they drop in the grass out of sight;
With meadow-lark and rail,
And the beautiful quail,
That tells its mate it's "all right, Bob White."

VII.

Go to the shades of the beech and the vine,
Where sunshine is sifted in sprinkles;
Give voice to your joys in rapture divine,
'Twill drive away care with its wrinkles.
There the mottled blue-jay
Calls for "Calep" all day,
And orioles swing the twigs limber;
While the woodpecker works
With its indolent jerks,
And hammers and bores the dry timber.

VIII.

Bring basket and bowl, and down on the sward
Spread the "lunch" by the cool bubbling spring;
Give a throb of joy to each silver chord,
As in gratitude's chorus we sing.
Where the honey-bee drops
On the white clover tops,
And the butterfly flits to the red;
Where the sparrow is heard,
And shy indigo bird,
And swallow swim the air overhead.

IX.

When day is dissolved, its brilliancy gone,
And night's dusky mantle around us,
Our vespers shall raise in harmonious tone,
As we return to where the dawn found us.
Then the owl "tally-ho's"
As out-hunting it goes,
And fire-flies streak the dark glade,
Then the crickets chirps'shrill,
And lone whippowill,
Sings its plaint in the cool evening shade.

Music.

HURRAH FOR CANADA!

A SONG FOR DOMINION DAY.

Words and Arrangement by G. W. JOHNSON, Binbrook, Ontario.

Lively. #

1. Hark! the bells are gal-ly ring-ing, Hark! the bells are gal-ly ring-ing,
2. Hear the can-non loud-ly boom-ing, Hear the can-non loud-ly boom-ing,

Hark the bells are gal-ly ring-ing, Songs for our Do-mi-nion sing-ing,
Hear the can-non loud-ly boom-ing, Tell-ing of the good time com-ing,

Slower.

Glorious Songs of Ca-na-da. Hear them ring-ing, gal-ly ring-ing,
To Free-dom's home, our Ca-na-da. Hear the can-non loud-ly boom-ing,

In time.

Hear them ring-ing, gal-ly ring-ing, Gal-ly, loud-ly, proud-ly ring-ing,
Hear the can-non, loud-ly boom-ing, Tell-ing of the good time com-ing,

Glo-rious songs of Ca-na-da. Hip! hur-rah for Ca-na-da!
To Free-dom's home our Ca-na-da. Hip! hur-rah for Ca-na-da!