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THE

ONTARIO FARMER;

A MONTHLY JOURNAL OF

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

VOL. I.

TORONTO, SEPTEMBER, 1869.

No. 9.

EDITORIAL RAMBLES.

Experience has pretty thoroughly taught us the value, not only of a holiday now and then, but of a yearly vacation. All busy people are the better of occasional relaxation, and the busier they are, the more they need the reinvigoration afforded in this way. To those whose daily duties are chiefly or wholly in the line of brain work, such relaxation is a necessary of life. Many a fine intellect has been quenched in premature death for want of it, while not a few gifted minds have been crippled and stunted by that unwise economy of time and labour which has led them to shun play and scorn recreation. When Theodore Parker was on his way to the ship which bore him off on the voyage from which he never returned, he said to a friend in the bitterness of regret, "If I had bought a saddle-horse twelve years ago, or had taken real repose in the summer time, I should not have come to this now." His case was by no means a singular one. Many instances in various walks of life of the same final crash of strength and earthly hope, have taught the folly of incessant work.

It is not practicable for us to indulge in total cessation of toil. The luxury of having "nothing to do" has long been unknown to us. The best we can achieve is change of place, change of air, change of scene, and mayhap change of work. Wherever we go we see visions of printers, of compositors clamorous for "copy," and subscribers expectant of their periodical visitant. The months are inexorable, and will not wait for a tired editor's convenience. What our demand may be staved off, that for "copy"

must be met with some sort of supply. So even in vacation time, the agricultural journals must be read, and the editorial pen and scissors brought into play.

For several years past we have been accustomed to take a trip of two or three weeks—perhaps a month—to the United States, timing our tour so as to visit some of the agricultural fairs. This year, circumstances conspired to start us a little earlier than usual, in fact just in advance of the fairs, rendering it doubtful if we can see any of them the present season. This we regret, since much useful information can always be obtained at such places, and repeated visits result in acquaintances which it is pleasant to renew once a year.

NIAGARA FALLS.

We have had an annual glimpse or two of the Falls for some years past, when passing over Suspension Bridge in the cars to and from the United States, or waiting to make a train connection. To have "only this and nothing more" is tantalizing. For once therefore, we resolved to "do" the Falls as the English phrase is, and took a whole day to it, including a splendid moonlight evening. Many years have passed away since we visited Niagara in this thorough manner, in fact we have not done so since boyhood, and we find the influence of the mighty spectacle far more overpowering now than it was in early youth. The sense of grandeur and magnificence grows upon one with successive visits, while age and experience bring enlarged qualification and sensibility wherewith to appreciate the sublime. Nobody should see the Falls hurriedly. It is as you behold them from dif-

ferent stand points, above, below, on a level with them, and under them, that you come to realize their vastness, beauty and splendour. The new Suspension Bridge lately erected near Clifton House adds greatly to the facilities for seeing the mighty cataract. This bridge is a gossamer-looking structure, a mere spider's-web spanning the abyss of waters, and having recently read in some of the papers that eminent engineers had condemned it as unsafe, we had inwardly resolved not to hazard our precious life upon it; but the temptation was irresistible when we saw what a glorious view of the Falls was to be had from it. Carriages and tourists on foot were crossing it, there were no signs of tremulousness or defection, and in the faith or presumption that it wouldn't fall while we were on it, we ventured, and amid the splendour of the scene, soon lost all thought of the bridge. We should like to know whether there is any truth in the newspaper paragraph aforesaid, affirming the insecurity of this bridge. It may be a rumour set afloat by rival interests. The bridge-keeper on the American side, a very intelligent man, told us it was all a mistake, and we sincerely hope it is. Nevertheless, the structure has a very slender look. The towers are of framed timber, built on stone foundations, and seem at a little distance like toy structures that children might have piled up. But on close inspection you find they are well framed, thoroughly braced, and abundantly bolted, while the pendant wire ropes, roadway, guards and rigging, suggest a combination of lightness and strength. Anyhow your conviction of the safety of the railroad Suspension Bridge with its massive stone towers, immense cables and solid proportions, gains great strength from a survey of its slender and adventurous-looking rival.

It is useless to attempt to describe Niagara. We never read any description of it, either in prose or verse, that did not belittle the theme. The pictures of it by the best artists, and even the photographs, are but poor representations of the reality. Nothing pictorial can give you the life and motion, the change and halo, the breath and music, the grandeur and majesty of the scene. The Falls speak for themselves in Divine tones that render all human speech about them insignificant. A little girl, only nine years

old, one of a company that recently visited Niagara, was (according to the *N. Y. Observer*) inspired to compose, on the spot, some stanzas, which, though not equal in point of poetic merit to many pieces written in similar circumstances by children of a larger growth in special favour with the muses, express our sentiments very simply and *patly* (if we may coin an adverb for the nonce):—

"Oh! words can never tell
The beauty of Niagara!
Would you know the glory well,
You must see Niagara.

Green and gold, and purple and white,
Aro the waters of Niagara;
And the foam is full of light
As it leaps Niagara.

Bright and grand they ceaseless fall,
The torrents of Niagara;
And aloud they seem to call,
COME AND SEE NIAGARA."

Many who have never obeyed this loud call, might do so at but little outlay of time and money. The Great Western Railway, with praiseworthy liberality, gets up excursions now and again, and all persons within reach of its stations, can, if they will, behold this great wonder of the world. Beyond the excursion ticket, there need be no great expense. Take a basket of provisions, keep out of the hands of the hackmen and the museum people, pay no dollar for going under the sheet, you can go as far as guides and oilcloth can take you, unaided in your ordinary dress; and beyond the toll for crossing the bridge, and the charge for visiting Goat Island, there is no extra expense necessary thoroughly to "do" the Falls.

As illustrative of the blessings of non-reciprocity, we observed, on the Canada side, notices that all articles bought at the museums would be delivered on the American side free of duty to purchasers; and on the American side, notices that all articles bought on the Canada side would be subject to a charge of 45 per cent., collectable in gold, and evasion of the duty would be followed by confiscation of the goods. "*Diamond cut diamond!*"

THE ERIE RAILWAY.

With some reluctance, owing to its reputation for making mince-meat of passengers, we took the Erie Railway, being desirous of calling at Ithaca, and spending a day at Cornell University. After travelling over it with perfect safety and much comfort, we are inclined to think it is like

our own Grand Trunk Railway, the road everywhere spoken against, and that much of its ill-repute has been manufactured to order for its injury. At any rate, on the principle of praising the bridge that carries you safe over, we can only speak well of it. The trains, two of which we took (lying over at Owego to go to Ithaca), were on time to the minute; the road seemed to be in good order, thoroughly appointed, and well watched; the track, a large proportion of the way, is double, and newly-laid with steel rails; the conductors are gentlemanly and attentive; and the car-seats the most comfortable we ever rode on, being adjustable, and fitted with head-rests, affording every facility for rest and sleep. The Erie is offering most tempting rates for through travel: \$8 American currency from Niagara Falls to New York, and a dollar less from New York to the Falls. These low fares are for continuous through travel, and do not allow of lying-over at any intermediate place or places.

CORNELL UNIVERSITY.

This is a newly-founded institution of learning, which originated in the munificence of the gentleman after whom it is named, Hon. Ezra Cornell, who donated a tract of land, and \$500,000 to it. Some idea of its character may be gathered from the language of its founder: "I would found an institution where any individual can obtain instruction in any branch of science." A special feature arises out of the appropriation of the Congressional grant of land for the establishment of an Agricultural College in the State of New York to this institution, as the result of which very complete arrangements are being made for imparting thorough instruction in the theory and practice of agriculture. The necessary professorships are established, and there is a model and experimental farm in operation. Every thing is planned on a most thorough scale, so as to secure to the students in attendance every possible advantage. The buildings are not finished yet, and the University can scarcely be said to be under way, though it has held one session, with upwards of 400 students. A finer location for a College it would be difficult if not impossible to find. It crowns the heights overlooking Ithaca, a town beautifully situated at the foot of Cayuga Lake. When the buildings

are completed according to the original plan, they will present a most commanding appearance. We spent a very pleasant day in examining the characteristic features of Cornell University, but must postpone further particulars until a future and more favourable opportunity.

YACHT SAIL ON THE HUDSON RIVER.

After a night's run on the cars, we arrived at New York, just in time to overhaul a party of friends who were about to set sail for a day's yachting on the Hudson. After a hurried breakfast, toilet, and embarkation, we found ourselves aboard "The Alice," a fine yacht of 100 tons burden, and in the company of a circle of cheerful and agreeable companions, intent on a day's enjoyment. Everything conspired to favour their wishes and plans. A pleasanter day never smiled on pleasure party. A moderate breeze carried us along just fast enough for comfort; not the slightest excuse was given for the least qualm of sea-sickness to the most nervous and delicate of the company; a delicious haze, while it rendered the views along the banks less clear, gave a fairy dreaminess to them that was most enchanting; the air was cool enough to be bracing, and yet warm enough to be enjoyable; the lunch amply spread in the cosy cabin was discussed with sharp appetite and cheerful converse; and, in short, the day passed all too quickly, seeming like a short and blissful vision, reminding one of the closing lines in that sweet "homeward-bound" song of the juveniles:—

"Into the harbour of heaven now we glide,
We're home at last,
Softly we float on the bright silver tide,
We're home at last."

But the arrival at "home" brought us to earth, not to heaven, fatigued enough to sleep well, and yet not so soundly as not to repeat in dreams of the night the delightful voyage of the day. The Hudson River throughout presents a succession of lovely scenery. In the vicinage of New York, art and nature vie with each other in the race of beauty; villas, cottages, gardens, and pleasure grounds alternating with hill and valley, rock and wood, sky and water. You involuntarily exclaim, "Happy are they who have homes on the Hudson!" Yet trouble and sorrow, discontent and unrest, are there as else-

where in this world, where the lot of humanity is mingled and imperfect.

"There is a home for weary souls
By sin and sorrows driven,
When tossed on life's tempestuous shoals.
Where storms arise and ocean rolls,
Tis found above—in heaven!"

NEW YORK CITY.

New York is much as usual, at least so it looks to travellers who make their way rapidly along its great thoroughfares to starting-points and stopping-places. Two unusual features attracted our attention, however. *First*, the cheapness of the fruit at the street stands. There were nice peaches at a cent each, magnificent specimens at three cents each, and Bartlett pears that last year sold readily at 25 cents a-piece, labelled three and five cents. We fancy the "Ten acres enough" class of fruit-growers will have less marvellous tales of profits to tell this year than formerly. *Secondly*, we noticed, with regret, an unsightly board-fence enclosing fully one half of the City Park, and found, on enquiry, that a large post office, &c., is in course of erection. It is, in our view, a pity and a mistake thus to contract one of the few breathing holes of a crowded city. Nor do we think that a spot, where pedestrians and vehicles "most do congregate," will be found a convenient one for the General Post Office.

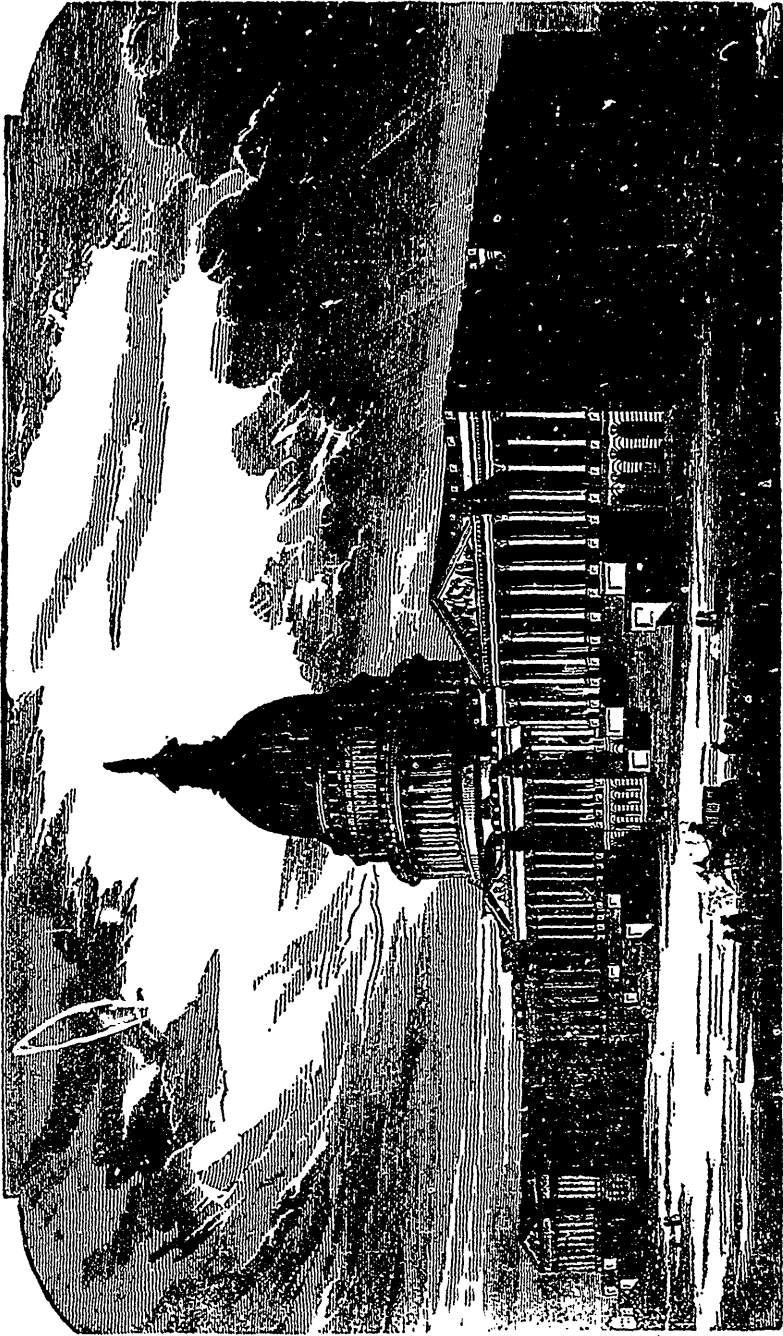
CONEY ISLAND.

Tourists to New York, who wish to visit the sea-beach, and bathe in the salt water with as little expenditure of time and money as possible, can hardly do better than cross to Brooklyn at Fulton Ferry, take street-cars to Greenwood, whence they can go to Coney Island beach in 45 minutes by the dummy-cars (street-cars drawn by a steam-dummy instead of horses); the round trip there and back costing but sixty-two cents in money, and at the outside, three hours of running-time, thus taking but a small slice out of a day, and leaving the rest for bathing, and, if need be, for business. If the tourist has never seen Greenwood Cemetery, the day can be divided between the sea-beach and the graveyard. The beach at Coney Island is very fine, consisting of soft white sand, a gradual descent, and so exposed as to have a sufficiently magnificent surf to satisfy any lover of wild excitement. We stepped into Greenwood cars at half-past twelve

the day after our yacht sail, did Coney Island sea-beach leisurely, and were back by dusk. A stiff breeze, almost a violent one, blew inland, so that a majestic, billowy surf was running, forcing all bathiers to keep fast hold of the ropes, except such as being strong swimmers, could make free, after Lord Byron's fashion, to lay their hand upon old ocean's mane, "as I do now" we felt proud to exclaim, while borne aloft amid the foam of the white-crested waves. If Coney Island were as close to a place we wot of, as it is to New York and Brooklyn, we should often make free with the ocean's mane. But many city people have no knowledge of their proximity to such resorts, and no desire for them, spending plenty of money on costly and pernicious luxuries, that would be far more wisely expended on sea-side trips, and such like health-giving indulgences. N.B.—It is only candid to state that Coney Island, though a cheap and accessible watering place, is not a fashionable one. That which is cheap and easily to be had is seldom fashionable in this stupid world.

WASHINGTON.

It is quite a jump from New York to Washington, still, as we made the journey by a night train, we can tell nothing about it, except that there was a monotonous gliding for a number of hours over iron rails, a succession of railroad noises all very like each other, and in due time an arrival at the capital and capitol of the U.S. By the bye, what an act of faith it is to pay a certain sum of money for a little bit of cardboard, with a few printed letters on it, step into a car, bound, you are told, for a far distant city, and suffer yourself to be whirled through space, for a whole night, in the assured expectation that you will be landed at the desired point. Thus we embarked at New York, and next morning, soon after daylight, found ourselves in Washington without a doubt, for there stood before our eyes the immense dome-crowned building we had so often seen in pictures, entitled "Capitol of the United States." It's not a handsome building by any means, though it is vast, imposing, and must have cost a mint of money. The extent of the main building, the absurd pyramids of steps in front of it, and the huge extinguisher of a dome on top of the cen-



UNITED STATES CAPITOL, WASHINGTON, D. C.

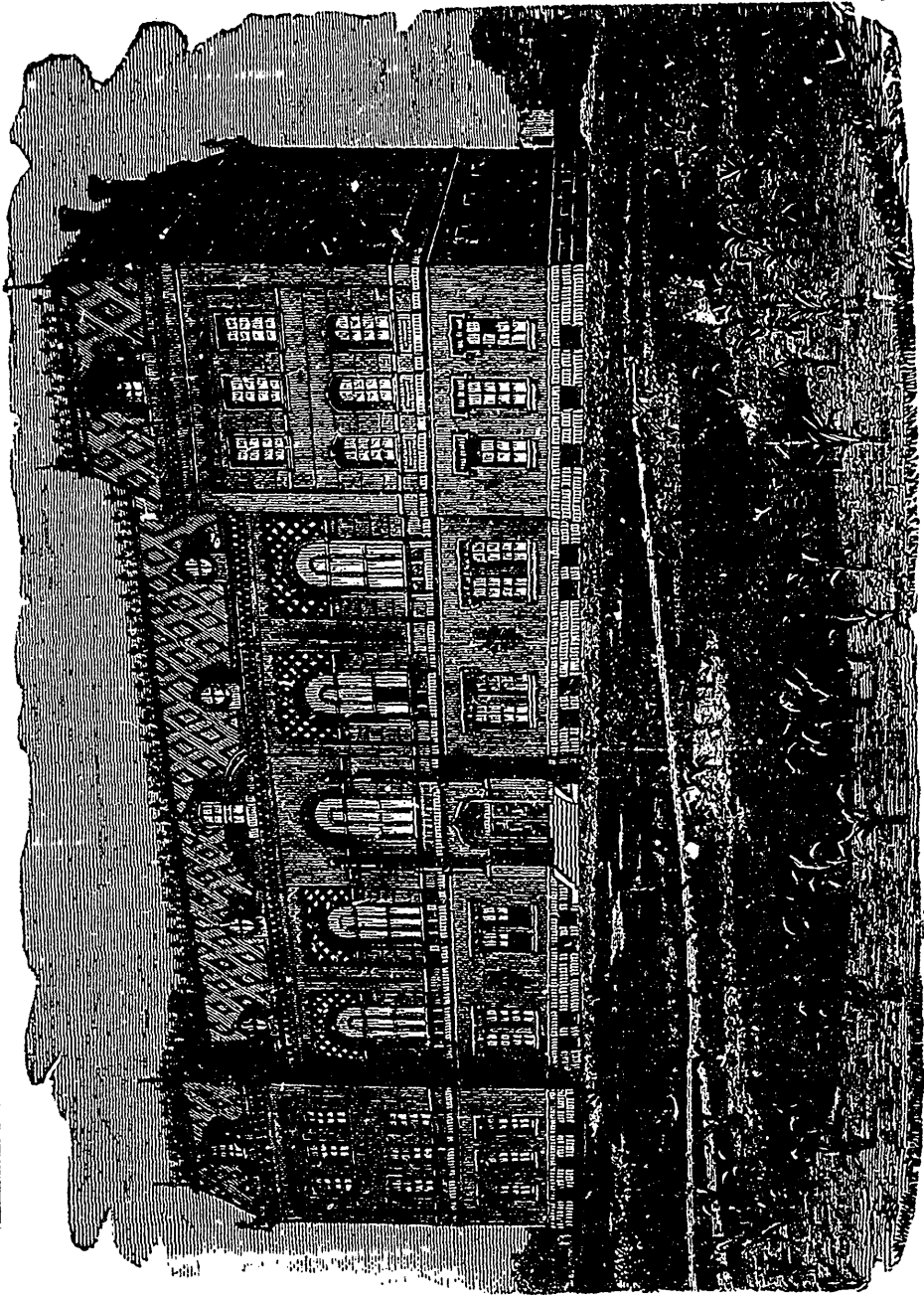
tral structure, combine to give the whole a very singular appearance. Without architectural beauty, it nevertheless affects you with a sense of grandeur, which grows upon you as you gaze. Too many trees about the base detract from the general effect of the massive edifice, and not till you get to the very steps do you take in the whole building.

To attempt to tell all about Washington, at the end of a long and rambling article like this, would be very silly. Leaving the White House, Treasury, Smithsonian Institute, and other buildings, the Navy Yard, Potomac, Mount Vernon, and other attractions, let us end our rambles for the present by walking up to a new and spacious red-brick building, which occupies a commanding spot of ground southward of the city, presenting its broadside to Pennsylvania Avenue, Washington's chief thoroughfare. The edifice is reached by passing through what is to be a park when the trees grow, and what is already a spacious lawn and flower garden. As we near the building, we read over the main entrance, in rather modest looking letters, "AGRICULTURE." It is the official centre and headquarters of the farming interest in the U.S. The interior is fitted up for offices, museum, library, etc. Until within a year or so, agriculture was elbowed and jostled about in the Patent Office building, but now it boasts "a local habitation and a name" of its own. In the Commissioner's absence from the city, much polite attention was shown us by his deputy and chief clerk, Mr. McLain, also by the Government Entomologist, Mr. Townend Glover, and by Mr. Saunders, who has charge of the experimental and botanical gardens. To our surprise, we found the department only in a partial state of organization, and crippled in its efforts to be useful by stinted grants of public money. It is a bureau of statistics, crop reports, and agricultural information, but little more as yet. There is the beginning of what bids fair to be a very complete, well-arranged museum, that cannot fail to be of great service to the country. The officers of the department have broad and comprehensive ideas of what might and ought to be done by them for the agriculture of the Great Republic, but thus far "chill penury" has "repressed their noble zeal." The members of Congress and Senate are politicians, not farmers. They don't appre-

ciate the importance of agriculture as underlying the pillars of the State. They vote money freely in other directions, but only give it in dribbles to promote agriculture. So it is too much all over the civilized world. Governments and statesmen undervalue the farming interest, though "the profit of the earth is for all," and "the king himself is served by the field."

The department issues, all through the growing season, a monthly report of the weather and crops, embracing returns from all parts of the Union. These returns are made as a labour of love by some competent person in each county, who is nominated to the department by the Local Agricultural Society, or by the member of Congress for the district. The only remuneration given is a free copy of the monthly and annual reports of the department. Monthly schedules are sent to these correspondents, filled in mostly by the use of a scale of numbers, and from them the reports are compiled. Have we not, in every county or electoral division, some farmer as intelligent and patriotic as these correspondents of the U.S. Department of Agriculture? Then only organization and arrangement are needed to secure for us also regular crop returns. We have for years been in receipt of these monthly reports from the U.S., and supposed them to be prepared at great expense, when lo! so far as the correspondence is concerned, it is done almost gratis.

The park about the departmental building is to be an arboretum, and already considerable progress has been made in laying out and planting it. Extensive greenhouses are to be built next year. The experimental garden has long been in operation, and under Mr. Saunders' able management (a Scotchman, by the way—in boyhood, schoolmate and co-wrestler of Mr. David Murray, of Hamilton, to whom we bear and hereby present his respects), is crowded with all manner of trees and plants, as it may well be, for it only comprises five acres. Here we had an opportunity of seeing and testing many fruits, of which we only knew the names previously, and were especially interested in examining a number of varieties of grapes, planted in our own grounds, which have not yet fruited with us. Among these were Adirondac, Perkins, Creveling, Martha, Allen's Hybrid and Diana. We were glad to see Mr. Arnold's new hybrids flourishing well, but only Brant and Cornucopia had fruit on them, and these but a bunch or so each. Mr. Saunders has a high opinion of these hybrids, and believes they will prove valuable acquisitions. Among much else that interested us were two horticultural "winkles," with the mention of which we suspend at least for the present these rambles. Mr. Saunders prevents mildew by a slight board roof at the top of his grape trellises, and grows dwarf peaches in wooden boxes, made 10 feet long of three ten-inch boards, which are carried out of doors in early summer, and put in the greenhouse or cellar for the winter. He thinks these expedients may be tried successfully in Canada. So do we.



DEPARTMENT OF AGRICULTURE BUILDING, WASHINGTON, D. C.

THE EXHIBITION.

We learn from the *Globe* of to-day (Sept. 15), that the Provincial Exhibition, which opens at London on Monday next, gives every promise of being a complete success. The entries in the live stock and grain classes have already nearly reached the figures of last year at Hamilton, and some hundreds yet remain to be recorded.

The following are the entries made in the classes named up till yesterday. It is probable that considerable accessions will be made to the numbers before the exhibition commences, as large piles of papers yet remain to be handled, and two extra clerks, in addition to the ordinary exhibition staff, were yesterday put on at the Secretary's office to finish in time. In the grain, root and field crops generally the increase over last year is most marked, but coincides with the general impression as to the yield of the present harvest. The result of each season's operations has also influenced the number of exhibitors, and the excess over the average in the entrances this year substantiates the prevailing reports as to the character of the crops. A large number of entries in root crops have yet to be made, and if only a fair proportion is brought on exhibition the accommodation provided by the Local Committee will in no way exceed the demand. We only give the entries as far as the field crops on the prize list. The books containing the remainder are yet in a very incomplete state, and are not expected to be finished before Saturday.

HORSES.

Blood horses.....	1868.	'69.
Agricultural horses.....	23	20
Road and carriages horses.....	89	75
Heavy draught.....	185	210
	103	97
	400	403

CATTLE.

Prince of Wales' prize head of cattle	8	4
Durham	137	121
Devon	120	118
Hereford.....	84	86
Ayrshire.....	63	72
Galloway.....	42	37
Angus cattle.....	5	*
Grade.....	83	102
Fat and working.....	23	29
	566	569

SHEEP.

Cotswold.....	137	124
Leicester.....	340	321
Southdown.....	140	187
Shropshire and Hampshire downs....	64	43
Merino.....	86	64
Fat sheep.....	43	37
	810	781

* No prizes this year.

PIGS.

Yorkshire and other large breeds,...	77	61
Suffolk pigs.....	29	42
Improved Berkshires.....	48	78
Essex and other small breeds, exclusive of Suffolks and Berkshires	39	46
	193	227
Poultry.....	343	385
Grains, field seeds, hops, &c.....	463	592
Roots, hoed field crops, &c.....	440	593

THE COMING SHOW.

A STUPID DECISION.

(From the *Globe*).

We learn with extreme regret that the Executive Committee of the Provincial Association have refused the application of Mr. Cochrane, of Compton, to exhibit his recently imported thorough-bred stock at the forthcoming Exhibition in London, on the ground that his application to make entries was not received till after the time for entering stock had expired.

* * * * *

The decision should be at once reversed. If this is not done, it will be said (and said with at least an appearance of justice) that Upper Canada breeders took advantage of a paltry objection to rule out a herd that they dared not compete with. We know well that no such miserable feeling actuates the Executive Committee; we are persuaded that *red-tapeism* is the full extent of the offending; but many who do not know the gentlemen comprising the Committee will certainly ascribe the act to petty jealousy.

FRUIT GROWERS' ASSOCIATION OF ONTARIO.

The annual meeting of this Association will be held at the City Hall, London, on Tuesday, the 21st day of September, 1869, at 7 o'clock, P. M.

Reports will be received from the Directors and Treasurer, and officers will be elected for the ensuing year. The President will deliver his annual address.

The autumn meeting will be held in the Town Hall, Brantford, on Thursday, the 7th day of October, 1869, commencing at 11 o'clock, A. M., and continuing through the day and evening. A fine display of fruit may be expected.

Mr. John Giles, the noted Alderney breeder, of South Framingham, Mass., has successfully tempted Mr. T. McCrae, of Guelph, with a high price for four of his best Galloways.

THE SCOURGE OF SPECULATORS.

E. Danielson, of Toledo, Iowa, would like to know if there is not some way that the "poor but honest farmer, who wishes land and a home, may escape the grasp of the 'middle-men,' the land-sharks, those who come between the Creator and the tiller of the soil." He further says :

"By the laws of nature and of God, there is no such thing as property but by the results of labour, and he who claims ownership to prairie or forest, that lies as the finger of God left it, has no more *real* claim than the Devil had to the kingdoms of the earth when he offered them to Christ. The land speculators infest every considerable town in Iowa, and wherever a new settlement is forming there they are sure to strike, and thus block further progress unless their coffers are well filled. Shall the honest yeomanry ever be protected from these miserable scourges? I am in for capital punishment when I think of them."

FORTHCOMING STOCK SALES.

We would call attention to the advertisements of Messrs. F. W. Stone, of Guelph, and Joseph Kirby, of Milton, who are about to sell choice cattle and sheep at auction, thereby affording opportunity to enterprising farmers to improve their flocks and herds by the introduction into them of superior breeding animals.

☞ We learn from the Secretary, Mr. Frame, that the Fall Exhibition of the Nottawasaga Agricultural Society will be held at Creemore, on Tuesday, the 5th of October, and the ploughing match on the 7th October, 1869.

EDITOR'S BOOK TABLE.

AGRICULTURE OF MASSACHUSETTS, by C. L. Flint.—We are indebted to the courtesy of President Clark, of the Massachusetts Agricultural College, for a copy of this goodly and useful volume. It contains the annual report of the State Board of Agriculture, and a number of very valuable papers on subjects relating to the farm, garden and stock yard. Much may be eliminated from this publication for the edification of the farmers of Canada, and we purpose to dip into its pages that we may bring out of them "things new and old" wherewith to enrich these columns.

THE AMERICAN AGRICULTURAL ANNUAL.—THE AMERICAN HORTICULTURAL ANNUAL.—These beautiful twin annuals for 1869, were handed to us for notice the other day when in the establishment of Messrs. Orange, Judd & Co., New York, the publishers of them. By some oversight they were not sent to us at the time of their issue early in the year. But these works never get old, they are of permanent value, and we do not know how fifty cents (American money) can be better invested than in the purchase of one or other of them. Everybody should have them both.

B. K. BLISS & SON'S AUTUMN CATALOGUE AND FLORAL GUIDE.—We receive each year with increased wonder and admiration the beautiful and comprehensive horticultural *brochures* which, under the modest name of "catalogues," certain American seedsmen and florists, such as Vick of Rochester, and the Bliss's of New York, issue to their customers. Here is indeed a "floral guide," embellished firstly with a magnificent coloured lithograph of *Lilium Auratum*, and then from secondly to twelfthly with beautiful engravings of hyacinths, tulips, crocuses, cyclamens, anemones, rustic ornaments, &c. Brief directions for the culture of the various bulbs advertised accompany the price lists, and the pamphlet is dirt cheap at 10 cents, the price asked for it, to anybody who aspires to grow a single flower of whatever kind. We may add that B. K. Bliss & Son, of 41 Park Row, New York, are among the best and trustworthiest of American seedsmen, as we can testify from trial of their seeds.

PEAR CULTURE FOR PROFIT.—By P. T. Quinn, Practical Horticulturist, New York: The Tribune Association, pp. 136.—We have received from Pettengill, Bates & Co., 37 Park Row, New York, a specimen copy of this little work. By reference to our advertising columns it will be seen that the firm just named make a tempting offer to parties unacquainted with their new journal, the *Hearth and Home*, promising to send it on trial for three months, and a copy of Quinn's pear culture, for one dollar American money. We strongly advise our readers to take advantage of this offer. \$1 is the price either of the journal for a quarter, or of the pear book.

alone. Of the latter we shall only say now that it appears to be a common-sense, practical volume, and to contain many valuable suggestions on the subject to which it relates. We hope shortly to present our readers with a review of this new publication from the pen of one of the most accomplished, enthusiastic and successful pear culturists in Canada, and pending the fulfilment of this hope, we dismiss "pear culture" for the present.

The Farm.

THE DRESSING OF SEEDS TO INCREASE THEIR PRODUCTIVENESS.

In the last number of the ONTARIO FARMER we collated some very curious and instructive facts relating to the fructification of weeds, as experimentally determined by Professor Buckman. We now proceed to follow up an analogous subject, based chiefly on the same authority.

The steeping of seed grain in strong mineral solutions, with a view of cleansing it and of killing the minute germs of fungi which may attach themselves to the epidermis, is an ancient and valuable practice. Pure seed grain, not only free from the seeds of weeds, but also sound and healthy, is a condition of the utmost importance to the farmer. It has been asserted by some that fertility may be considerably increased, and indeed, manure, in some cases, superseded, by incrusting the seed with materials of a fertilizing character. "The subject is one on which we have made a number of experiments on a large scale, and the conclusion arrived at was, that the mechanical absorption of the various ammoniacal and other salts in which the seeds of wheat had been steeped, had no influence at all on their productiveness."

M. Trehounais describes the theory on which he recommends the "incrustation" of the seed with fertilizing matter as follows:—He cites experiments by M. Boussingault, in which an artificially prepared soil produced no growth until the addition of small portions of mineral salts, after which the plants grew as well as in a garden strip; "and this," he says, "naturally leads us to ask the question, whether, instead of incurring great expense and trouble in manuring the soil thoroughly with heaps of dung, containing but a small per centage of fertilizing matter, which is still reduced and less available to the plant by being disseminated over a larger surface than the roots of the plant can possibly compass, it is not possible to manure the seed itself—that is, surround it by a crust formed of the very mineral substances which are necessary to its growth in the same proportion as they are found to exist in the seed, and in a sufficient quantity to represent exactly the weight of the aggregate mineral substances which are abstracted from the soil by the well-matured normal plant? The crust could then be considered as the mere extension of the seed to a larger bulk; and as the seed contains what is necessary to feed germination, and even to form a complete plant, though limited in weight to the extent of food contained in the seed, so the seed being increased to any required number of times its size and weight by the agglomeration of substances such as phosphates, nitrates, and silicates, would be able to supply to the growing plant the necessary elements of normal growth and perfect maturity." Our author remarks with respect to this ingenious and somewhat plausible theory, that "the only probable result would be an injury done to the vitality of the seed."

TABLE OF SEEDS SOWN PER ACRE AND PER FOOT.

	Seeding in bushels per acre.	Weight of seeds in lbs.	No. of seeds in a lb.	No. of seeds sown per acre.	Seeds per square foot.
Wheat - - -	1 to 2	60 to 120	10,500	630,000 to 1,260,000	14 to 28
Barley - - -	3 to 4	150 to 220	15,400	2,310,000 to 3,388,000	52 to 70
Oats - - -	3 to 6	120 to 240	20,000	2,400,000 to 4,800,000	55 to 110
Vetches - - -	3 to 4	180 to 240	8,300	146,400 to 1,952,000	32 to 42
Beans (horse) -	2 to 3	120 to 190	1,000	120,000 to 190,000	5 to 42
Pease - - -	2 to 3	120 to 190	2,000	240,000 to 380,000	5½ to 8
Flax - - -	2½ to 3	140 to 180	100,000	14,000,000 to 18,000,000	320 to 360
Lucerne - - -	.....	16 to 20	200,000	3,200,000 to 4,000,000	75 to 90
Sainfoin - - -	..... 4	80	23,300	1,864,000	43 to 44
Clover - - -	.....	12 to 20	370,000	4,440,000 to 7,400,000	100 to 170

The facts above tabulated will well repay the farmer's best attention. The amount of seed that can be the most advantageously sown per acre, of the various grain crops, is not an invariable quantity, but must depend in great measure on the chemical and mechanical condition of the soil, the character of the season, and the mode of sowing; broadcasting requiring more seed than drilling, and dibbling the least. More experiments and extended observations are required in this country in relation to this subject, and farmers should be in great measure guided by the local conditions of soil, climate, &c., in their respective localities. In England it was common forty years ago to sow broadcast three bushels of wheat per acre, but by draining, manuring, and more thoroughly cultivating, that quantity has been reduced thirty or forty per cent. Mr. Mechi finds one bushel of wheat per acre drilled, the most advantageous quantity for his soil; and he has found even two gallons when carefully dibbled, produce an average crop. In the latter operation the seeds are equally distributed, and deposited at a uniform depth, so that germination is secured in almost every instance, and the plants have ample space to become fully developed and multiply by offshoots, or as it usually termed "tillering," or "stooling." The last column of the table is very suggestive, and it may well be asked what is the use of trying to obtain 300 or 400 plants of flax, or 100 to 170 plants of clover, on every square foot we sow? It should always be borne in mind that plants, like animals, require room for healthy growth and development, and that a certain amount of food, light and air, is as essential to the former as it is to the latter.

SUNDAY LABOR ON FARMS.

Without attacking a rigid, Jewish sense, to the Christian Sabbath, there can be no doubt that the keeping of one day in seven as free from secular work as possible, is as conducive to the health and social well being of a nation; as it unquestionably is to its moral and religious welfare. The avoidance, therefore, of all unnecessary work on Sundays is a duty which every good citizen owes to himself, his family and his country. Six days toil is quite enough

both for mind and body, and men would become weaker in both by making the remaining seventh day one of ordinary business and labour; and what to some would be a strong motive, they would thereby become poorer instead of richer in this world's goods. There is, it is to be feared, much unnecessary work done on Sundays in all countries, and certainly we are not free from the accusation in Canada. Farmers must inevitably do a certain amount of labor in attending to the wants of live stock, &c., and where to draw the exact line between what is really necessary and what can safely be dispensed with, must be left to the conscience and circumstances of individuals. In this the old adage will apply, "Where there is a will, there will be found a way."

We have been led into these remarks by an excellent Essay on Dairy management by Mr. Palin, of Cheshire, England, a gentleman who has long occupied a distinguished position in that department of husbandry. Dairy farms are supposed to present almost insurmountable obstacles in the way of reducing Sunday labor. The following is a condensed statement of Mr. Palin's dairy management from Saturday to Monday, which may be perused with profit by several of our readers:—

The cows, as usual, are milked at 5 a.m. on Saturday, and the milk is put into vessels to remain until the evening, and the milk of Friday evening also having been kept in a cool place, remains in the tin pans undisturbed until it is wanted. It is added to the former with the Saturday's evening produce, thus making three meals in one. During the day the dairy servants are employed in turning cheese, cleaning the dairy offices, and making everywhere comfortable for the Sunday. Milking is commenced an hour earlier on Saturday afternoon, say four o'clock, and the milk is all prepared by half-past five o'clock, when the process of cheese-making commences. By 11 p.m. the business of the day is over, the utensils being all in their places, and the dairy kitchen washed down. On Sunday morning the cows are milked at the usual time, and the milkers have a little assistance from the team men and others, who have no particular occupations on that day. After milking, the cheese of the previous evening, and any

others which may require it, are turned in the vats, when the business of the day ceases until milking in the evening. The servants breakfast at eight o'clock, and the comfort of the Sabbath day is enjoyed as it is (or ought to be) in other houses where cheese is not made at all. On Mondays the business of the day is precisely the same as on the four following ones, only that there is one meal's milk more to be made into cheese than the ordinary quantity. Thus the ordinary Sunday's labor in cheese-making establishments is divided between Saturday evening and Monday morning.

THE LONGEVITY OF SEEDS.

The principle of life in seeds varies very much in duration in different species of plants, but most agricultural seeds are comparatively short lived, and new seed in all cases should be obtained. The following table, taken from the report of the British Association for the advancement of Science for 1850, will give some notion of the decrease in the value of seeds by keeping :-

Name.	Age of Seed. Years.	Number Sown.	Number Germinated.
Parsnip - - -	3	300	20
	8	"	Nil.
Carrot - - -	8	200	1
	9	"	Nil.
Rape - - -	3	450	233
	8	300	4
Turnip - - -	8	600	15
	9	300	5
Cabbage - - -	3	150	11
	8	"	Nil.
Canary grass -	8	200	19
	9	"	Nil.
	3	300	237
Oats - - -	8	200	37
	9	"	Nil.
	3	300	216*
Wheat - - -	3	300	163
	8	"	Nil.
	3	"	139*
Barley - - -	3	300	167*
	8	"	Nil.
	3	"	236

*Preserved in wax cloth.

From the above table it is evident that the germinating power of farm seeds diminishes in a much greater ratio than their age increases. The rate of deterioration cannot be measured merely by age, as very much depends on the way in which seeds are kept, as regards temperature, dryness, and atmospheric exposure.

The seeds of some species of plants retain their vital power, under the same conditions, much longer than others. That too well-known weed to the farmer, *Charlock*, sometimes called Wild Mustard, yields a seed that is exceedingly tenacious of life. This seed being of an oleaginous character, and having a smooth, compact epidermis, will retain its germinating power in a latent state for an indefinite period, when placed in dry earth, impervious to atmospheric air; but as soon as it is brought under the influence of air and moisture, as is often done by a deeper cultivation of the soil than has been usual for many years, germination commences, and a bountiful crop of weeds is produced to the great astonishment of the farmer, who may never have witnessed a single specimen in the same field before. Seedsmen are sometimes unjustly blamed for having vended impure seed, when the weeds complained of have, undoubtedly, arisen in a similar manner.

From the experiments made some years ago by Professor Buckman, at the instance of the British Association for the advancement of Science, the results of a few of which are embodied in the preceding table, it is clear that seeds of two years of age are very seriously injured, whilst in most instances a period of from eight to ten years (often less) is sufficient to reduce the germinating power to a very small fraction. The loss of germinating power may probably be estimated in round numbers as follows :-

Seeds of 2 years of age lose.....	25 per cent.
“ 3 years “	50 “
“ 4 years “	85 “
“ from 4 to 8 years of age lose 95 “	
“ from 8 to 10 years “	100 “

MOWING WITH A CAMEL.

Being in the Park in New York, the other day we saw—what perhaps few of our readers have ever seen—a camel mowing! Here one of these humped animals was harnessed to a lawn mower, which he draw with great steadiness and apparent ease. The harness resembled a breast-plate for a horse, with the plate resting on his neck in front of the hump on his shoulders, with the shoulder strap under his body, behind his forelegs. He threw his weight into it as the ox does into the yoke. He was not a very large sized camel, but would weigh perhaps nine hundred pounds. He had mowed an acre or more, cutting the grass very smoothly.—*N. E. Farmer.*

RELATIVE VALUES OF CATTLE FOOD.

Albert Thaer, a distinguished Prussian physician and farmer, who did more to advance the agriculture of Northern Germany than any agriculturist of his day, gives in his work, "*The System of Agriculture*," the following as the results of his experience with different kinds of food in feeding cattle, the proportionate weights he regarded as being equally nutritious and beneficial.

Hay.....	100 lbs.	Carrots.....	266 lbs.
Young Clover	90 "	Beet-root.....	460 "
Vetches, dry..	90 "	Swede turnips	350 "
Sainfoin, dry.	90 "	Radishes.....	525 "
Potatoes.....	300 "	Whitecabbage	600 "

The nutritive matters contained in 1,000 parts of—

Swedish turnip.....	64
White turnip.....	42
Mangel wurzel.....	136
Sugar beet.....	147

ARTIFICIAL HAYMAKING.

A new method of curing hay has been tried in England, which, according to Mr. Mechi, leaves nothing to be desired. The grass is carried from the field as fast as it is mown, and subjected to a blast of hot air by the action of a large fan, worked either by steam or horse-power. The hot air is generated by a coke-furnace, and is simply drawn outward by the revolving fan, instead of being allowed to pass up the chimney. In about ten minutes the moist grass is converted into hay of the very best quality, as Mr. Mechi and sundry other farmers testify. If this invention prove practical, the effect will be to render the farmer independent of the weather as far as his haying is concerned, and consequently save the enormous loss which now results from inferior and damaged hay. It may also be employed to secure a second crop, which at present is generally overlooked because of the uncertainty of being able to have enough sun to properly dry

THE TRUE SHAMROCK.

Antiquarians abroad are much exercised at present as to what plant is the true Irish Shamrock. Many think that it is the *Trifolium repens*, or common white clover; others think that it is the *Trifolium minus*, or small yellow clover; while others think, and with much probability, that it was not a species of clover at all, but the *Oxalis acetosella*, or Wood Sorrel. The antiquarians argue that in the days of St. Patrick, Ireland was very thickly wooded, and as this plant grows very abundantly in woods, it was doubtless very plentiful in Ireland, and would readily be used by St. Patrick to illustrate the doctrine of the Trinity to his

hearers; and besides, it is not certain but the two species of clover above mentioned are of comparatively recent introduction to that country.

The Irish themselves do not appear to have any decided tradition as to which plant is the correct one; and as it is quite a vexed question, which cannot possibly be solved at this day, the antiquarians are therefore the more exercised about it.

NOTES FROM ST. MARY'S, PERTH COUNTY, ONT.

To the Editor of ONTARIO FARMER :

SIR—The weather in this section of the Province has been excessively wet and cold through June and July, but notwithstanding, the crops present for the most part a cheering aspect. Travelling through part of the county I observed that the fall wheat generally is good. Oats present the best appearance I have seen for years, and promise to be a bountiful crop. The root crop will undoubtedly be above the average. Potatoes yield remarkably well for the season, but show unmistakable indications of the rot, the tops of the early ones are dying, and the tubers are turning black in the skin first, and then it permeates the whole potato. The corn crop is late but is now coming on rapidly and looking well. The hay crop is large, but those who cut early have it considerably damaged with the wet.

The above remarks apply to land that is well drained, either naturally or artificially. There are some undrained flat clay land farms that present a very gloomy prospect; the most of the grain and root crops on such farms will not pay for harvesting. Passing such a farm, and seeing the owner, I said "Sir, does not your land want draining, your crops are suffering badly with wet?" He replied the land was dry enough usually, but it was the fault of the wet season. I asked if he took an agricultural paper, he said no, he did not believe in book farming. I told him it would be better for him to sell fifty acres of his land, and lay out the money to drain the other fifty; he replied that he could not obtain a living from fifty acres, for he could scarcely live and keep his stock on one hundred acres. I told him that ten acres, well drained and tilled, would produce more profit than the hundred in its present state. He evidently did not appreciate my advice, and I left, thinking it was well for the country that there are not many such men and such farmers in it.

Before I conclude my notes, Mr. Editor, permit me to say (without any desire to flatter whatever,) that I am much pleased with your journal. I find it well stored with useful information; I love its moral tone; I like its neat and tasteful appearance, and its manly straightforward course.

Should it meet your approval, I propose to write for your journal, during the winter months, a brief description of the kinds of fruit and vegetables that I have found most profitable and desirable to cultivate in this section of the

Province. Having had considerable experience in growing fruit and vegetables for the market, I trust that what I have to say will prove useful and reliable to those who wish to engage in their culture.

S. H. MITCHELL.

St. Mary's, Aug. 26, 1869.

NOTE BY ED. O. F.—We hope our correspondent will carry out the intention he speaks of at the close of his communication.

IT PAYS TO USE PLASTER.—At least such is the firm conviction of Abraham Brand, of Delaware Station, N. J., who furnishes the subjoined bit of experience:—"One of my farmers planted corn in a field, forty rows of which nearest the building I planted myself. The night before I planted I put the seed to soak in warm water and rolled it in plaster while planting. I remember of getting an ear last March, near Newark, of a friend. I planted the ear dry without plaster, planting directly across the forty rows, and where the ground was as good as any. This morning I called the attention of the farmer to it. There had been no plaster put upon any since planting, and we decided that there was almost half difference, that which was rolled almost twice as large, of a good healthy colour, the other having a sickly yellow shade. The soil is a heavy clay loam."

FARM GLEANINGS.

A man may fleece his sheep, but not his land. The farmer's game is "give and take."

Seed, of all sorts, should be frequently procured from a distance. It is folly to work year after year on decaying seed.

To lay off a square acre of land, measure 200 feet for each side of your square, and it will contain an acre within an inch.

The time is fast coming when landed proprietors will be esteemed for the condition of their acres rather than for the extent of territory.

All plants grow stronger and ripen better when the air circulates freely around them, and the sun is not prevented from an immediate influence.

A Western writer says if as much attention was paid to improving corn as is given to grapes, a hundred million bushels might be added to the annual crop.

The *New England Farmer* has a head of herd's grass ten and a half inches long. It was taken from the grounds of Warren Richards, of Dorchester, Mass.

Accounts from the tobacco-growing regions of Kentucky state that but half the crop produced last year will be raised this year, on account of the intense heat and the parching drought. Corn is almost shrivelled.

The *Journal of Agriculture* predicts that wheat will advance somewhat rather than decline in price, within the next twelve months, and advises the sowing of wheat.

East Tennessee has many caves. In most of them bats have congregated for ages, and the floors are many feet thick with a guano equal to any from the coast of Peru.

California wheat is so dry, that in coming east through and into a humid atmosphere, it gains greatly in weight by absorption. This is quite an element of profit to the shippers.

The *Massachusetts Ploughman* very appropriately calls attention to the importance of having good roads on the farm, as well as having the public thoroughfares in good condition.

The *Ohio Farmer* estimates the corn crop in Northern Ohio will not be more than one-third an average, with half a crop of fodder, and that the whole State will not yield more than a half crop.

Good farming is thus defined: It consists in producing as great quantities as possible of vegetables that do not exhaust the soil, and selling them in an animal rather than a vegetable form.

At the Exhibition of the Royal Agricultural Society of England, held recently at Manchester, it is estimated there were about 200,000 visitors during the week it was held. The receipts were \$17,000.

The *Massachusetts Ploughman* justly thinks one great defect in the practical working of many Agricultural Societies, is the careless manner of appointing Committees to award premiums at the Fairs.

The Diehl wheat has fully maintained its high character in Michigan this year, producing a larger number of bushels per acre than Treadwell or Soules, and commanding a higher price than these varieties.

"All green succulent plants," said Davy, "contain saccharine or mucilaginous matter, with woody fibre, and readily ferment; they cannot, therefore, if intended for manure, be used too soon after their death."

The *Iowa Age* reports the wheat crop in Northern Iowa as three-fourths of a crop, and states that the increased area in wheat would make the yield equal to that of any former year, while there is about one-third of the old crop on hand.

Of the students in Cornell University last year, there were engaged in Agriculture, thirty; Arts, forty; Chemistry, ten; Elective, eighty-one; Engineering, thirty-nine; Mechanical Arts, twenty-seven; Natural Science, fourteen; Philosophy, twenty-eight; Science, 143.

The cranberry crop of New Jersey promises a large yield—greater than in any previous season. In Ocean county there are 2,000 acres of cranberry fields, which are valued at \$2,500,000. An acre of cranberry land, three years old, is worth from \$1,000 to \$2,000.

A Southern paper says: There is on exhibition at Macon, Ga., a stalk of Persian Clover, eight feet high and half an inch thick at its base. The seed was brought from the Paris exposition, in 1867. When dry, it is as fragrant as the Venilla bean. It is perennial.

A farmer of Terre Coupee writes to the South Bend, Indiana, *Register*, that a field of forty-eight acres of wheat, raised by D. H. Phillips, on the farm of Wm. Ruckman, Terre Coupee Prairie, will yield thirty-five bushels per acre, or 1,660 bushels from the whole field.

The very common, slipshod and loose method of cultivating the soil is sure to result in failure, as it ought to do. The best soil is sensitive of neglect and ill treatment, and is sure to revenge itself upon those who are guilty of them. Hence hardly a fourth part of a crop is raised from soil which should, and if properly used would, yield an abundant harvest.

Alderman Mechi writes to the *London Times* that he shall hereafter arrange to make his hay by furnace heat. The apparatus consists of a coke furnace, and a fan by which the heat is driven through a small chamber filled with grass. In fifteen minutes it is converted into hay, sweeter and greener than can be made by sun-drying. It works in all weathers, and dries grain, corn, and roots as well.

Now that haying is finished, why would it not be a good plan to turn to and dig out or sink a few of the big rocks or boulders that make so much trouble with the plough and the mowing machines? Many a field has them, and many a farmer has spent time enough in getting round them to have sunk or blasted out a dozen times over. There is nothing like a clean field for the use of machinery, and it pays to clear up.

The examinations at the close of the second year of instruction at the Massachusetts Agricultural College, were commenced by an exhibition of mowing with scythes by 16 students chosen by lot from the Sophomore class. It was resolved by the Board of Trustees "that the President be authorized to receive for instruction during a portion or all of the winter term, a special class in Agriculture and Horticulture, for the benefit of persons who may not be able to avail themselves of a more extended course."

Wherever good land is in a fair state of fertility, and has been manured occasionally, clover and ploughed in the fall and exposed to the cold of winter, or ploughed immediately after a crop of hay is taken off, or still better, if the crop of grass is plowed under about the time it is in bloom, and left lie until seeding time, will always yield the best crops of wheat. It should then be stirred with a shovel plow, and the wheat should be drilled in. But if it be ploughed in, and the wheat sown before the soil has had time to settle, it is not likely to succeed. Unless well drained, the ground will fill with water, and afterward will continually settle and crack, and break up the roots of the tender wheat plants.

At the Department of Agriculture of the University of Wisconsin, the course of instruction directly pertaining to Agriculture is so arranged that the instruction in the class room can be completed in a single year by students already well acquainted with the physical sciences.

Samuel Bowles says:—The Colorado wheat makes a rich hearty flour, having a creamy golden tinge, and I have eaten nowhere else better bread than is made from it. The wheat will rank with the very best that America produces, and is more like the California grain than that of "the States."

The Live Stock.

FISH FARMING.

Thanks to the experiments and discoveries of modern science, the live stock bred on such farms as are supplied with streams and ponds of water, may comprise the whole variety of animal food used by man, and usually designated "fish, flesh and fowl." Since it has been ascertained that artificial fish hatching is not only practicable, but that an immensely greater proportion of young fry can be thus reared than in the ordinary way, a vast deal has been done to re-stock rivers and lakes with their finny population, and enterprising men here and there are going into fish culture as a business. Dame Nature is far superior to Lady Art in many operations, but in some things, fish hatching among the rest, she ought to welcome the aid of her better educated and more highly accomplished daughter. Spawn is preyed upon largely by hungry fish and other inhabitants of the watery world, so that left unprotected only a small proportion of it is permitted to hatch. The young fry at their birth, and for some time after, are very weak and defenceless, hence their numbers are greatly reduced by their being seized as food by larger fishes, and by other enemies to their peace and well-being. Protected from these perils, the spawn produces a far larger increase of young fish than in the natural way, and the little "water babies" being nursed and cradled in a safe place until they arrive at an age when they can take care of themselves, multiply at a far more rapid rate than when left exposed to chance and accident.

Fish grow fast, especially when taken care of, and well supplied with food; and it has been

proved that fish farming, skilfully managed, may be made a most profitable business. There is no part of the world where the artificial propagation of fish can be carried on to greater advantage than in the Dominion of Canada. Salmon and trout, the King and Prince of Wales of fish-dom, can be raised to any extent in this country. Salmon can only be grown in streams that have access to the sea, but trout can be bred on any farm or spot of ground that has a rill of spring water cool enough, and of the volume of a man's little finger. Many Canadian farms are admirably adapted for this business. They are watered by streams that are either already stocked with trout, or were before they were foolishly stripped of their inhabitants, and at the cost of but small expense and trouble may be made a source of supply to the tables of their owners, and of profitable sale in the market. Bass, perch, pickerel, and other fish may also be reared in like manner. Fish is a favourite and healthful article of diet, and if only supplied to customers would be in regular demand all over the country. This is a subject which well deserves attention from all who are in a position to go into this new line of business. We are glad to learn that already several parties in various parts of this Province have embarked in artificial fish-culture, and we hope their number will be largely and speedily increased. Believing that the matter is one of important and general interest, we have been at some pains to obtain information and illustrations, by means of which the theory and practice of fish-farming might be made plain to everybody's comprehension. The best thing we have met with, embodying in short compass, what requires to be known on this subject, is an essay or treatise from the United States Patent Office Report, Department of Agriculture, by Dr. Gill, which, with the accompanying cuts, we have much pleasure in laying before our readers, as follows:—

Nature and Objects of Pisciculture.—Lest some misapprehension may prevail in regard to the objects and aims of pisciculture, it may be here remarked, that all it can do is to assist nature by the selection of the most favourable situations and conditions for the maturation of the ova, and the protection of them and of the fry from

the attacks of the numerous enemies which threaten them. The attention of man may, therefore, be directed, with the greatest advantage, to such species as exercise no care for their eggs or young. Almost all the European species exhibit such neglect; but many of the fishes of this country guard, with jealous care, the eggs and young, and among them are some of the most esteemed species, the black bass being one of the number.

Mode of Operation.—Illustrations of the processes necessary for artificial fecundation and propagation will explain better than words the mode of manipulating pregnant fishes. It will be seen that the fish should be firmly seized by



FIG. 1. — MODE OF DISCHARGING OVA.

one hand, and that the other should be passed over the abdomen gently, but firmly, and the ova and milt, if mature, will readily pour out. Only those fishes which are mature should be treated thus. If the ova or milt comes out with difficulty, and only under hard pressure, it is a sufficient indication that they are not ripe, and it would not only injure the pregnant fish, but be useless as to results to anticipate the period of maturity. This uncertainty as to the period when the fish may be most advantageously manipulated, is one of the difficulties incidental to artificial fecundation. The fishes may be caught when they have apparently nearly reached their term, and be confined so as to be under the notice of the pisciculturist. When ripe, they may be distinguished by their turgid sides, the pushing anus, and their uneasy movements.

Apparatus for Hatching.—Having secured the eggs of certain fishes and fecundated them, these may be transferred to receptacles for hatching them; various patterns have been recommended, but the principles followed are essentially the same in all. A fountain of clear running water—a spring is preferable—from which a

small stream flows, or may be led, is selected; and if there is a gradual fall or descent, so much the better. A series of boxes, through which the water will flow, are placed in the position to be fed by the stream, and the floor of each box is covered with gravel or pebbles, which may furnish a bed for the deposit of the spawn. In the details of the form and construction of these boxes, and the manner of regulating the flow of the stream, the variations chiefly consist, and may be illustrated by reference to two methods. One of these plans has been adopted by the

"Thames Angling Preservation Society," and was elaborated and introduced by Mr. Francis Francis,* to whom we are indebted for the account, as well as the figure illustrative of it. The chief object in view was to increase the stock of trout, and to introduce the grayling in the river Thames. A spring, from which a rill flowed, was first obtained; to use Mr. Francis's own words, "there was a considerable fall in the run of the water, which was very advantageous; nevertheless, the plan here adopted can be applied more or less to any stream. We first

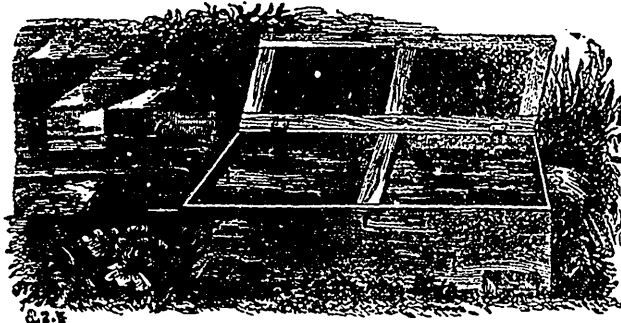


FIG. 2.—HATCHING-BOXES.—1. Reservoir.—2. Shoot through which water is discharged.—3. Trough to catch the water before it passes into the box.—4. Perforated zinc.—5. Shoot to discharge water.

of the box a projecting zinc trough (3) was fixed to catch the water, this trough being about three-quarters of the width of the box itself. At each end of every box a piece was cut out six or seven inches in width, and through these the water flowed into each box.† The top cut, which first received the water, being secured from foes without by being covered with perforated zinc through which the water flowed, and the further end having a zinc shoot to deliver the water; and also a perforated zinc face, not only to keep foes out, but the fish in. Fastened over the cut, in the lower end of the first box, was a short zinc shoot (5) to convey the water into the next box over the corresponding cut, so that no water should run to waste between the boxes. Thus, when No. 1 box was fairly placed on a brick foundation so as to receive the water in the zinc trough mentioned above, all that was required was to insert the shoot at the other end of the box into the corresponding cut of No. 2 box, and slide No. 2 safely and closely up into its place, and so on with Nos. 3, 4, 5, &c. These boxes were then partially filled with coarse gravel, of the size of gooseberries, and some larger, even to the size of plums, for the more irregular the shape the better, as there will be the more interstices between them in which the ova can be hidden, and the little fish when hatched can creep for safety. The gravel was at a level of about an inch below the cut which admitted the water, an inch depth of water being quite sufficient to cover them. Each box was furnished with a lid, comprising a wooden frame-work, and a perforated zinc centre. This lid was made to fit closely by means of list being nailed on all round. It was padlocked down to keep out inquisitive eyes and fingers.

bricked up the little rill so as to form a reservoir (1) and raise the water to a higher level; we covered the reservoir with a large stone to keep out dirt and vermin, and placed in the lower end of it a zinc shoot (2,) over which the stream flowed. Immediately under this we placed our first box, a fac-simile of which is given. It was made of elm, 1 or 2 feet long, and fifteen inches wide in the clear, and ten inches deep. At the upper end

Boxes in exposed places should always be covered in, if not with coarsely perforated zinc, yet with fine wire netting, or water mice will get in, and various birds, as moor-hens, and dab-chickens will pick out the spawn, while a king-fisher, should he discover them, will carry off the fry by wholesale. The stream was then turned on, and flowed steadily from box to box throughout the boxes, and finally discharged itself by the end shoot into the bed of the rill. It need not be imagined that a full stream is necessary, for a small amount of water is sufficient. Indeed, a flow of water, say through a half-inch pipe, would be enough, perhaps, though it is *advisable* while the ova are unhatched, to have more, so that there shall be more stream and movement in the water, and consequently less time for deposit to settle; so that we had on, perhaps, as much as a stream of three-quarters to an inch in diameter. When the fish are hatched half that quantity would be preferable, as they are not well able to struggle against a stream, and would be carried down, perhaps, to the end box, and so against the perforated zinc face, where they would stop up the holes, and finally be smothered. The boxes were then properly steeped in water and seasoned, and being of elm the joints drew closer together after a while, and the boxes held the water without material leakage.

* Fish Culture: a Practical Guide to the Modern System of Breeding and Rearing Fish, by Francis Francis, 12mo.: London, 1863.

† These openings were not carried all across the boxes, as the shoulders left made an eddy very favourable, as quiet resting places, to the young fry when first hatched. If the stream be at all strong, artificial caddles should be created by sticking small pieces of perforated zinc upright in the gravel at intervals along the sides and across the stream; behind these the helpless fry can be in safety.

In each of the boxes thus constructed and arranged, about four or five thousand ova, or even more, are deposited; the gravelly bed in which they are spread is about one and a half or two inches below the "cuts" referred to in the preceding description. The ova are by means of a spoon regularly distributed, but from their numbers are quite close together; care is taken to have them among the interstices of the gravel, such as are too prominent being carefully swept into some crevice by means of a fine brush. When thus cared for, a layer of gravel, composed of rather large flat stones an inch and a half or two inches square, is spread over the ova, heed being taken not to squeeze them. It may be remarked that the ova of the common yellow perch were hatched in these boxes.

Another apparatus for the same purpose has been described by Mr. Frank Buckland as being

employed by the Messrs. Ashworth, the proprietors of the Galway salmon fisheries, and by means of which many thousands of salmon have been hatched. The boxes in this case are six feet long, one foot wide, and seven inches deep. They have board covers, with perforated zinc fitting their tops and attached by hinges; each box overlaps above the succeeding, so that are all fed by the same stream of water, which flows from the outflow of the one into the inflow of the next. "The inflow from the main stream must, of course, be regulated by a hatchway, (where the man is working with fish kettle and net,†) and be guarded by perforated zinc, &c. It may be also, if naturally not very clear, be filtered through gravel, charcoal, &c. It is not necessary that the boxes should be placed on the side of a hill, as represented in the drawing, but still they should be placed one above the other

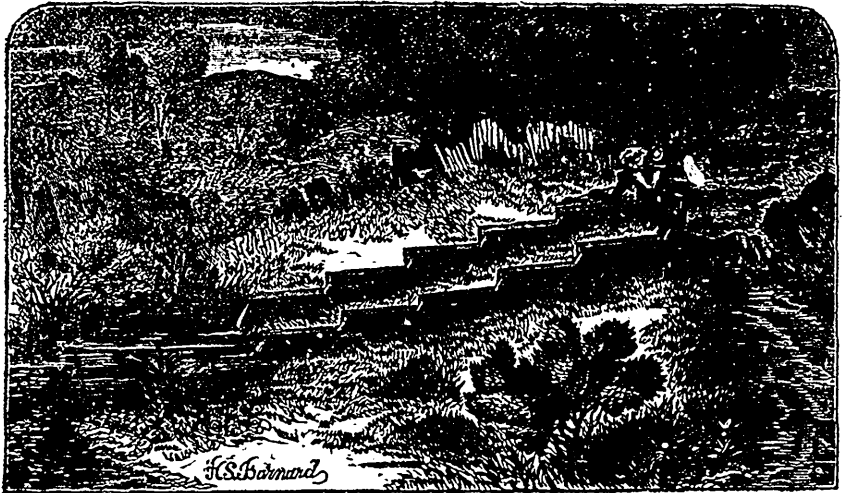


FIG. 3.—HATCHING-BOXES.

in such a manner that there should be fall from one to the other. Nor is it absolutely necessary that the end of the upper box should rest on that immediately below it. The water may be conducted from one to the other by means of a trough or plate (with the margins turned up) of common zinc. The pond at the end of the box will receive the fish, but they should not be allowed to escape there till the umbilical bag is gone. The pond must not be over three or four feet deep, or if it be naturally deep, the margins must be made to slope, as the young fish like the shallow water to bask, feed and play upon. They must be fed for a time when in this pond."

The in-door is considered far preferable to the out-door apparatus. The accompanying illustration (Fig. 4) shows the troughs best suited for the purpose, each being fitted with a top, which conducts the water from one to the other. The troughs can be multiplied, one above the other, *ad infinitum*. Figure 1 indicates the hands of the operator placing in the frame-work of glass rods, upon which the eggs are left to hatch.

The lower tank (Fig. 2) represents the fresh eggs resting upon the gravel. The water from the top above must be flowing incessantly, but gently. Boards should be fitted on the tops of the troughs while the eggs are developing. The tanks can be made of zinc, two feet long, five inches wide, four inches deep, with one side of glass. Fig. 3 represents the catcher, a useful instrument for moving the eggs without touching them. Place the finger on the end of the straight part of the tube, immerse it in the water, and bring the lower end opposite the egg or impurity you wish to remove. When the finger is withdrawn the water rushes into the tube, and with it the object you wish to withdraw. Fig. 4 represents a net of common wire, for catching the young fish. The in-door apparatus can be fixed up almost anywhere under cover, except in a hot greenhouse.

These examples of hatching boxes will suffice, and the accounts, given in the words of the

† See Fig. 3, copied from Mr. Buckland's "Fish Hatching," 12mo.; London, 1863.

describers and illustrated, will convey a clear idea of the objects to be kept in view in the construction of such apparatus. It will be under-



Fig. 4.—IN-DOOR HATCHING-BOXES, &c.—1. Frame-work of glass rods.—2. Tank with eggs resting on gravel.—3. Catcher.—4. Hand-net.

stood that the details in their arrangements are susceptible of considerable modifications, and many patterns have been described, but they offer no material difference. The requisites are an appropriate bed for the deposit of the spawn, a running stream of clear water, so as not to allow the sediment to settle or a confervous vegetation to exist, as that would kill the ova; and protection from enemies must finally be provided for.

Artificial Spawning Beds.—While artificial fecundation apparently fulfils the chief requisites for the propagation of some fishes, such as salmonids, there are others for which it cannot be employed with equal advantage. Nature has, in such cases, been assisted by the preparation of places suitable for the deposit of the ova and milt of the fishes which it is desired to propagate, and by the preparation for such of beds which will be instinctively resorted to by them. This practice has been especially employed in France, and has been very recently advocated by the celebrated academician, M. E. Blanchard, Professor at the Museum of Natural History, in an excellent work on the fresh-water fishes of France. The obvious advantages resulting from the exposition of an author's own words, induce the writer to submit a translation from M. Blanchard's work, as well as a copy of the figure illustrating his description.

"In view of the present condition of the rivers and canals of France, the idea of artificial spawning beds would appear to be a most happy one. M. Millet, before the Society of Accli-

matization, has insisted, with great earnestness, on the preference to be given, in many cases, to artificial spawning beds over artificial fecundation. M. Coste has justly remarked that artificial fecundation is not all sufficient, and yet a contrary opinion is generally prevalent. No one has forgotten the marvellous results which we were to obtain by means of artificial fecundation; fishes, left to themselves, could not thrive and have a numerous progeny. Their duties should be assumed by us, and the advantages would be incalculable. More than fifteen years have elapsed since these seductive announcements were made, without having yet furnished brilliant results.

"Among fishes, some, as the salmon, deposit their ova in slight excavations, in gravel, or in the interstices between stones; others, as the perches and cyprinids, (carp, bream, roach, &c.) attach their ova, agglutinated together by means of a viscid matter, to aquatic plants, stones, or any bodies to which their eggs can be fixed. It is especially for the last that artificial spawning beds might sometimes be advantageously prepared.

"The construction of an artificial spawning bed is a very simple matter. A frame-work of sticks or laths should be made, and to such frame-work, boughs, furze, and aquatic plants should be fastened by cords, in such a way as to form irregular structures. It is also easy to give to structures of this kind a circular form, by taking hoops for frame-works. The form, and especially the size to be given to these spawning beds, would necessarily vary, according to the character or the size of the body of water in which they are to be immersed. They should be held to the bottom of the water by stones, and fastened to a stake or post on the bank. When kept in place in this way they can be easily drawn out of the water, if it becomes necessary to do so.

"It will be readily understood that these artificial spawning beds will be especially serviceable in those streams and canals which are so clear as to be devoid of any natural spawning beds.

"For the salmonids, which spawn on a gravelly bottom, and whose ova remain free, artificial spawning places are very simple and readily prepared. It is only requisite to cover in certain places the beds of rather shallow and rapid streams, near the bank or the bottom of rivulets, with a thick layer of gravel or pebbles, and to prepare slight excavations or furrows, like those made by the salmon or trout, to deposit their eggs in. M. Millet also recommends that small heaps of pebbles should be raised to the edges of these furrows. By means of these contrivances, trout especially would often be attracted, and be content to stop and spawn in places which they would not otherwise frequent, and where it would be convenient to keep them."

Pisciculture mostly applied to Fresh-water Fishes.—While pisciculture may be applied to most of the desirable salt-water as well as fresh-water species, the fecundation and propagation of fresh-water fishes has received more attention than the salt-water species, especially in this

country, and the reason for this is apparent on slight reflection. The salt-water species have the ocean before them, and the whole extent of coast to range from, and the utmost efforts that man will be tempted to exert, with the present population of the country, to supply himself, will not affect a very sensible diminution of their numbers, and will apparently do little more than give an opportunity for others to take their place and sustain themselves in the struggle for life. Such at least is the case with regard to the inhabitants of the deep seas or the

banks, as the mackerel, codfish and herring; nor has even the numbers of the shad and its congeners, or of the capelin, whose enormous masses advance upon the coasts of Newfoundland and the northern coast, yet been very seriously diminished, notwithstanding the wicked and scandalous waste practised, especially in case of the last. The number of savoury species also is so great, that there must be few persons so fastidious as not to be satisfied with one or more of those species; and as all can be obtained in quantities that may at least meet any present



FIG. 5.—ARTIFICIAL SPAWNING BED.

demand, incentives to introduce new forms are wanting, and the necessity of propagating indigenous ones by artificial means does not yet exist. While this may now be the case, however, let us not flatter ourselves with the pleasing reflection that we can with impunity kill young and old, and that they will be replaced by others, who, in their turn, will share a similar fate. Nature is, indeed, prolific enough to satisfy all reasonable demands; but if she is drawn upon too heavily and no efforts are made to assist her, she will most assuredly protest, and finally refuse to yield sufficient to supply our wants. Let the diminished supplies of fish furnished by the British seas, and which have already attracted the attention of the statesmen and thinkers of that land, serve to us a timely warning not to push nature too far.

ONTARIO BEE-KEEPERS' CONVENTION.

A Bee-Keepers' Convention will be held in the City of London, Ontario, during the week of the Provincial Fair, on Tuesday, Wednesday and Thursday evenings, Sept. 21, 22 and 23; when

the following questions, which have been submitted for discussion, will be considered:—

Will it pay to feed bees in spring, with a view to early swarming?—Proposed by S. H. Mitchell.

Can queens be successfully wintered at an expense to render it practical?—Wm. Paxton.

Is there any danger of Canada, or any district in Canada, being overstocked with bees?—A. C. Attwood.

What is the best method of artificial swarming?—H. M. Thomas and S. H. Mitchell.

With a spare fertile queen can ordinary stocks be profitably divided as early as the month of May?—Wm. Paxton.

Has foul-brood ever made its appearance in Canada?—A. C. Attwood.

In swarming, why do bees cluster before leaving for the woods, and when do they choose the place for their future home?—A. C. Attwood.

What is the best method for introducing queens?—J. H. Thomas.

Can fertile queens be produced early in spring with a view to early swarming?—W. D. Bowerman.

Can artificial heat be used profitably for early hatching?—W. Spence.

Do bees consume less, and come out best, wintered in a uniform cool, or in a warm temperature?—L. Churchill.

At what time in the spring should stimulative feeding be commenced—and what quantity, and how often should a stock be fed?—J. H. Thomas.

What kind of plants will yield honey the best in excessively wet weather?—S. H. Mitchell.

What is the best size for bee-hives in Canada?—G. Richardson.

What is the best method of securing the most surplus honey after having doubled your swarms?—H. M. Thomas.

Is the Centrifugal Comb Emptying Machine as useful as it has been represented?—A. C. Attwood.

In what place will bees winter best?—F. G. Ashbough.

The Sons of Temperance Hall, on Richmond street, near the Tecumseh House, has been secured by Mr. A. C. Attwood, at which place the Convention will meet on Tuesday evening, at six o'clock, sharp? on Wednesday and Thursday evenings at half-past seven o'clock.

We hope there will be a general attendance of all interested in bee culture.

LIVE STOCK GLEANINGS.

Mr. Edward Purdon, of the *Irish Farmer's Gazette*, has been elected Lord Mayor of Dublin.

If you would not have your horse acquire the habit of hanging in the halter, do not strike at him when young.

There is scarcely a village in the country that might not readily keep as many hives of bees as there are dwellings in it.

Bone-meal is very beneficial for inducing hens to lay. It may be fed to them mixed with corn-meal, and they will eat it with avidity.

Gas-tar, mixed with white-wash applied to the interior of a hen-house, at the rate of one gill to a pailful, it is said will disperse the lice.

It is cruelty to animals in England to carry fowls with the head downward, and a man has just been fined in Chatham for the offence.

Cattle disease has appeared at Shrewsbury, Mass. The bronchial tubes of the slaughtered animals were found filled with thread-like worms.

It pays to make a cow comfortable in as many respects as possible. Every hour she suffers from any cause, the milk account suffers correspondingly.

Cooked meal is nearly double the bulk of uncooked, yet quart for quart it goes as far. The difference is, that much of the food is undigested unless cooked.

A correspondent of the *Rural New Yorker* mentions a young man 27 years old, who has traded horses over 900 times. At a county fair last fall he traded 18 times.

The *Stock Journal* advises a big horse for regular farm-work, and one that does not, without great pushing, trot more than six miles an hour, with a light buggy.

It is easy to equal any fancy bred cow with a native as a milker, but if the daughter of the native is as good a cow, it is an accident, not so in thorough-bred stock.

It is stated that recently 21 sheep, 20 lambs, and 13 calves were taken, dead and decomposing, from a tight box car into which they had been shut by unaccountable carelessness.

Mr. Griswold, of Vermont, paid \$3,000 for the Short-Horn Bull 14th Duke of Thorndale, when a calf. He recently sold him to Mr. G. M. Bedford, of Kentucky, for nearly \$6,000.

Two quarts of hot water, one pound of Indian meal and a quarter of a pound of unbolted wheat flour, will make more eggs when fed warm to hens than twice the amount of whole grain.

The *New York Evening Post* says Mr. Bonner drove Dexter a mile on the Prospect Fair Grounds, on August 10, in 2.23 $\frac{1}{2}$, and that this is the fastest time ever made to a road waggon.

When horse stables are not properly ventilated nor lighted, it is an excellent plan to make a small window where each horse may thrust out his nose when he is not eating, and breathe pure air.

It is stated that the Percheron horses, introduced into Central Ohio within the last few years, are giving good satisfaction, and are being bred more extensively this year than at any previous one.

The editor of the *New England Farmer* has examined a field of Norway oats. On three heads he found 244 grains, while on three of the best heads of common oats he could find there were but 74 grains.

The *Journal of Agriculture* thinks present Western prices for wool will be maintained, but sees no reason for much advance, and doubts whether those who have their last clip on hand will gain much by keeping it over.

Messrs. Wolcot & Campbell, of New York, have recently sold their small flock of Leicester sheep, intending to breed Lincolns in future. The purchaser, Mr. Curtis, intends to make breeding Leicesters a breeding feature.

The *Chariton (Iowa) Patriot*, says Dr. Wright has purchased two pairs of Chester White pigs, to be given to the two townships which purchase the greatest number of membership tickets, according to population, in the Lucas County Agricultural Society.

In the *Agricultural Gazette*, (Eng.), are published some directions as to the choice of cattle for fattening, by Mr. Hedly. He thinks the head ought to be the first consideration, and that an animal with a broad, full, spacious skull, will be found every way superior to one with a long, narrow skull. A large, bright, open soft eye he finds denotes aptitude to fatten.

The Garden.

TREES OUT OF PLACE.

There are many such. Among these are nearly all trees planted in a kitchen-garden. Cherry, and plum, and peach, and standard pear trees are often set on the outer border, or by the side of the cross-walks. When small, they look pretty, and do little harm; but soon they stretch upward and spread outward, shading much ground devoted to growing vegetables, and their roots, ramifying far and wide, feed upon the rich food designed for other things. When such trees become large and handsome, the owner feels reluctant to cut them down; and so he lives on from year to year, the trees, perhaps, running to wood more than to fruit, and his garden being only moderately productive of vegetables.

No trees of this sort should be allowed within a garden. They should be placed in a yard or small orchard by themselves, where they can receive appropriate care. The only trees which may be admitted there are, perhaps, a few dwarf pears (to be kept as true dwarfs), and these should be set on borders, with walks between them and the vegetable compartments. They should also be so well fed in their own borders, that they will not run abroad for forage. Of course, currants, and gooseberries, and raspberries may be set in similar situations.

Trees are misplaced, too, when planted just outside of one's garden-fence. If set on any other side than the north, they obstruct the sunlight, and on every side they do harm by the spread of their hungry roots. Superficial observers are little aware how great this injury is. If they should uncover the roots of these trees (supposing them to be apple or forest trees), they would find them extending under the fence and into the garden for thirty or fifty feet. They run into the garden-soil the more greedily because of its richness.

If trees must be set within ten feet of a garden-fence, the soil should be removed every other year along the fence-line, and the roots cut off. It would also be well to fill up the trench with gravel or stiff clay. A better way still would be to keep the trees from thirty to forty feet away from the fence, for they would answer the purpose of wind-breaks there about as well as nearer to the garden.

It is nearly impossible for flower-beds to flourish in the neighbourhood of large trees. Whoever has tried the experiment has often found his borders full of the fibrous roots of the trees, while his choice plants lived only a sickly, miserable life. In such a case, the question must generally be, which of the two is most desirable, the flowers or the trees? and one or the other must be sacrificed. The question, too, arises whether shrubs of much size should be grown in beds devoted to flowers.

Trees are out of place, also, when they overshadow the roof of a house, or darken its windows, or shut out a fine prospect. It is the testimony of eminent physicians that no small part of the sickness of families is attributable to the shading of dwellings by overhanging trees, and thick, clustering vines. Our bodies need light, pure sunlight, and a great deal of it; and our spirits need it none the less; and he who shuts out this genial dispenser of health from his home makes a great mistake and does a great wrong.

Many a fine place is injured because the owner, having at first planted his grounds with a large number of trees for immediate effect, afterward neglects or refuses to thin them out. They soon crowd one another, they grow up lank and spindling, destitute of beauty, and, by their dense shade, kill out the grass and shrubs beneath them.

We know very well how hard it is to cut down a tree which one has planted, and whose growth has been watched for many years. This feeling is natural and to be respected, but it may be indulged to excess. The only question should be, is this or that tree in its place? Would I plant it there now, if I were to set it out anew? If not, cut it down; let it no longer cumber the ground. When such a resolution has once been formed, and the work fairly done, we come to respect our own pluck, and to view the result with great satisfaction.

It deserves to be said that a tree is misplaced when set near to the fence of a neighbour's garden or orchard; for, by so doing, I not only steal the richness of his land, and over-shadow his vegetables and his fruit trees, but, when my fruit trees come into bearing, it becomes a standing controversy between us as to the ownership of the fruit which hangs over the other side of the fence.

It is a common mistake to plant pines and spruce-firs near the margin of one's walks and carriage-roads. Few persons know or stop to inquire how large these trees will spread as they grow to maturity. They look pretty and docile as they stand in the nursery-rows, and so the little beauties are set out within arm's length of the walk, where they can easily be seen and petted. But in a few years, the young giants begin to show their strength and large proportions. They throw out their arms in lusty vigour, stretching from fifteen to twenty feet on either side, over walks, and grass-plots, and adjoining shrubbery, darkening windows and doorways, very much to the surprise and confusion of the planter. The result of the whole is that either the trees must be cut down, or their lower branches be hewn off, which latter operation is a virtual destruction of the trees. Any method of planting which does not forecast the future height and breadth of trees, whether planted singly or in groups, is mistaken.

The foregoing hints do not exhaust the subject, but we hope they will enable young planters to avoid some of the mistakes into which their seniors have fallen, and which it is now very hard to remedy.—*Hearth and Home.*

CHANGING THE COLOUR OF FLOWERS.

Our young readers will find much interest and pleasure in the following experiment for the above purpose:

Take a teaspoonful of flour of sulphur, place it in an old saucer, and set fire to it with a common match; when it gets fairly burning, take some high-colored flower—double ones are the best, such as a double Dahlia or double Zinnia—and hold it above it, at such a distance as to prevent its being burnt by the flame of the sulphur, and the tips of the petals will be changed into another color; for instance, a double purple Dahlia will have the petals tipped with white, or a double red one will become tipped with yellow, and if the flower is exposed long enough, the whole flower will become changed in colour.

Care must be had not to inhale the fumes of the sulphur, nor should it be done in the house, for it may fade the color of the curtains, paper-hangings, or furniture, besides filling the house with unpleasant fumes. On the piazza or some sheltered place in the open air is the best place for doing it.

GARDEN GLEANINGS.

Mr. Merrit, of Battle Creek, Michigan, has four acres of Lawton Blackberries, from which he expects to gather 700 bushels.

A row of currant-bushes in Pittsfield, Mass., planted alternately with raspberries, is entirely free from the currant-worm, which destroyed all others in its vicinity.

A vine cutting should be in the soil long enough to form roots before the buds push, otherwise it will put out a leaf or two, and then die for want of roots.

The editor of the *Germantown Telegraph* says he has raised larger and finer figs in his garden than any imported. The only trouble is the trees must be buried in winter.

A REVEREND gentleman in Hampton, Va., has invented a machine for picking and cleaning peanuts. It is claimed that it will pick and clean 1,000 bushels per day, doing the work of twenty men.

A farmer of Redford, Wayne County, Michigan, has five acres of water melons. He expected to realize \$100 per acre, but on account of the unfavorable season will not make \$10 on the whole lot.

Dr. Wilkinson, of Ann Arbor, Mich., planted the ten eyes found on an Early Rose potato, which weighed 3½ ounces. From these ten eyes, planted in ten hills, he raised 73 potatoes, weighing 20½ pounds.

The apple crop of Michigan this year is abundant in some places, and very light in others. Orchards which have been kept in tillage are more productive than those in grass. The present crop of pears is said to be the largest ever produced in Michigan.

There is no more handsome evergreen than the hemlock. Some writer is perplexed to know why persons who can get the hemlock by thousands for the mere digging should send at a distance for pines, spruce and arborvitæ.

English papers assert that there was exhibited at Covent-Garden Market, in December last, a basket of 12 magnificent pears, the price of which was eighteen guineas, or about ninety dollars in gold! The name of the variety is not given.

A correspondent of the *Country Gentleman*, writing from Orange County, N. Y., reports unfavorably as to the quality, size and earliness of the Early Prince potato. He pronounces it, with him, fifteen days later than the Early Rose.

Henry Shultz, Esq., of Bath township, Franklin County, Ind., planted one potatoe last spring, of the celebrated "Early Rose" variety, making of it twelve hills, and from that one potatoe he has dug forty and a half pounds of fine large potatoes.

A correspond. nt of the *American Entomologist* says that ants' nests in gardens or elsewhere may be dispersed by burying in them sliced onions. A few spoonfuls of kerosene oil poured into the nest will also cause the ants to "vamose the ranch."

A correspondent of the *New England Farmer* says that he has a fine, thrifty Baldwin-apple tree in his orchard, on which scarcely an apple can be seen except on a limb which was nearly broken from the tree last fall in gathering the fruit. This limb now hangs full of fine, large apples.

A correspondent of the *Lewiston (Me.) Journal* says that he protected his fruit trees from the borer by winding cotton cloth around the trunks to the height of six or eight inches. This was done previous to the 1st of June. Care should be taken to prevent access to the tree beneath the bandage.

There is a pear tree in Orange County, N. C., over 100 years old. It is ten feet in circumference, about three feet in diameter, and still is bearing fruit. There is much decay in the branches, but the body seems to be perfectly sound. It was brought from Virginia in the lap of the grandmother of the late Willie P. Mangum.

A correspondent of the *Country Gentleman* says that tomatoes want water almost as much as ducks, but as the vine is hardy, and will stand almost any amount of heat and drought, few supply the water it demands. In order to make tomatoes ripen quickly, they should be watered at least once a day. The evening is the best time to do it.

A gentleman at Winchester (Eng.) has placed this notice in front of his rookery of ferns: "Beggars, beware! Scolopendriums and poly-podiums set here!" It is said that the beggars keep at a respectful distance, though the effect would signally fail if they were able to understand the two terrible long words that glare so ominously at them in the notice.

Our Country.

GENERAL AND LOCAL GOVERNMENTS.

The Dominion of Canada is a Confederation, consisting of the Provinces of Ontario, Quebec, New Brunswick, and Nova Scotia. The Legislature of the Province of Newfoundland has recently passed resolutions for admittance into the Union, which will be laid before the people of that Island, and before the end of the present year (1869), it is probable that it will become a part of the Confederation. Arrangements are being made, by which it is anticipated that at no distant day, the Dominion will acquire the whole of the Hudson's Bay Territory, and that Vancouver's Island and British Columbia will enter into the Confederation, which will then consist of the whole of British North America.

The Government is partly federal and partly local, there being a Federal Government and Legislature for the whole Dominion, and each Province having a distinct Local Government and Legislature for local affairs.

The General Government consists of a Governor-General, nominated by the Crown of Great Britain, and a Cabinet as the Executive; the Legislature consists of an upper house, called the Senate, and a lower house, called the House of Commons. The Senate numbers 72 members—24 from Ontario, 24 from Quebec, 12 from New Brunswick, and 12 from Nova Scotia. The House of Commons numbers 182, apportioned to each Province according to population, as follows, viz. :—82 from Ontario, 65 from Quebec, 19 from Nova Scotia, and 15 from New Brunswick. The seat of Government is Ottawa, a city of about 20,000 inhabitants, situated on the river of that name.

The Local Government of Ontario is as follows :—A Lieutenant-Governor, an Executive Council, and a Legislative Assembly.

The officers of the Government are at present as follows :—

Lieutenant-Governor—The Hon. Wm. P. Howland, C. B.

EXECUTIVE COUNCIL.

Premier and Attorney-General—Hon. John S. Macdonald.

Commissioner of Crown Lands—Hon. Stephen Richards.

Commissioner of Agriculture and Public Works—Hon. John Carling.

Secretary and Registrar—Hon. Matthew C. Cameron.

Treasurer—Hon. Edmund B. Wood.

The Legislative Assembly consists of 82 members, representing 82 electoral districts. It is to be elected every four years, unless sooner dissolved, and must sit at least once in each year. Toronto is the seat of Government.

The franchise is limited to male persons of the age of 21 years, being British subjects, and being owner, tenant, or occupant of real property (that is land or houses) of the actual value in

cities, of \$400, equal to £80 stg.; in towns, of \$300, or £60 stg.; and in villages and townships, of \$200, or £40 stg.

Aliens cannot vote at elections, but they can acquire land, and can, after a residence of three years, upon going through certain formalities, become naturalized, and so entitled to all the privileges of British subjects.

In respect to its Government, Canada is second to no country in the world, if indeed it be equalled by any. It appears to combine the advantages of a limited monarchy with the best features of a republic.

MUNICIPAL INSTITUTIONS.

The settled portions of Ontario is divided into 42 counties, which are subdivided into townships, for the purpose of local self-government. This is effected by city, town, and township councils, elected annually. These councils have power to levy, by direct taxation, rates and tolls for the purpose of local improvements, such as roads, bridges, harbours, drainage, &c.

ONTARIO—GENERAL DESCRIPTION AND STATISTICS.

The Province of Ontario is situate to the north of the River St. Lawrence, and the great lakes, Ontario, Erie, Huron, and Superior. The River Ottawa, a noble stream, divides it from the Province of Quebec. Its northerly and westerly boundaries are by no means well defined, so that its area can be given only approximately. However, it may be safely assumed at about 121,260 square miles, equal to 77,606,400 acres, or almost exactly the same as that of Great Britain and Ireland. The population of that Kingdom is upwards of 30 millions. It would therefore appear that after making due allowance for difference of climate and soil, Ontario could well sustain a population of at least 10 millions. Its actual population at different periods will appear from the following table:—

1830.....	210,437	By census.
1841.....	465,357	do.
1851.....	952,004	do.
1861.....	1,396,091	do.
1869.....	1,962,067	Estimated.

It will be seen, from the above figures, that its present population is about ten times what it was 40 years ago, a rate of increase considerably greater than that of the United States during the same time. The figures also show that its present population of about 2,000,000 is only a fifth of that which it is probably capable of supporting, so that there is still ample room for a large immigration.

The soil of the country varies in different localities, a very large proportion being of the very best description for agricultural purposes. The natural advantages of Ontario are very great; its internal water communication by means of the great lakes is unsurpassed; in mineral wealth, it has been pronounced by com-

petent authorities equal to any part of the world, abounding as it does in iron, copper, lead, gold, silver, marble, petroleum, salt, &c., &c. Its immense forests of pine timber are too well known to need any description. The great lakes abound with fish, and the forests with game.

ORNITHOLOGICAL NOTES FOR AUGUST AND SEPTEMBER.

There are few or no fresh arrivals during the month of August, and many of our Spring and early Summer visitors have either left us, or become so silent, that their presence is comparatively little noticed. The Song Sparrow however, still favours us with an occasional note, and in our gardens and orchards, troops of young Robins, in company with their parents, are fitting about, piping and chattering merrily over some captured grub or caterpillar, or a more dainty morsel in the shape of raspberry or currant.

Little companies of Blue Birds, too, are now very numerous, the plumage of the young ones looking very sober in comparison with the lovely hues of the older birds. The Goldfinches are perhaps more conspicuous amongst our feathered friends, in this than in any other month. We can scarcely walk along a country lane, without catching a glimpse of the bright golden livery of the male bird, busily engaged perhaps, tearing the seeds from some ripe thistle blossom, while his more sober-coloured partner, and two or three young ones, are intent upon the same useful labour, of destroying the germs of these noxious weeds. They are very fond also of the seed of the sunflower, and, later in the season, little flocks of these birds may be seen collected on the plants, clinging, head downwards, to the heavy drooping flower-heads, and shelling the ripe oily seeds with great address and dexterity.

The shrill cry of the King Bird is still heard, as he sallies forth from his post on the topmost branch of an apple tree, or the gable of some outbuilding, to capture a passing insect, or to give chase to a vagrant crow. The little house Wren, too, has brought out a second brood, and is as noisy and garrulous as ever, and mingling with the unceasing hum of the insect world, the chirruping of Grasshoppers, and the shrill cry of the Cicada, may be heard from early dawn till late at night, the plaintive

querulous Pee-wee Peto-way-pee-wee of the Wood Pec-wee. (*Contopus Virens*).

This bird comes to us in June, but its presence is more observed, and its note strikes more frequently on the ear at this season, when other birds are comparatively silent. Especially during the warm evenings of this month, it keeps up a perpetual wailing cry, only interrupted by the snapping of its bill, as it captures a moth or fly, and succeeded at the moment of alighting by a low tremulous twitter. The nest of this Pee-wee is generally placed upon the horizontal branch of some moss-grown tree, and is so shallow, and so incorporated with the branch by the lichens forming its outer coat, as to be very easily overlooked. The lichens are glued together apparently, by the saliva of the bird, and are neatly lined with very fine grasses, the bark of vines, and now and then a few horse hairs. The eggs are four or five in number, of a yellowish cream colour, dotted and blotched with brownish red at the larger end. The plumage of this bird is a dusky brownish olive, over the whole of the upper parts, inclining to dark ash colour on the top of the head, which is slightly crested; sides of the head greenish olive; throat light ash colour; lower parts yellowish white; wings and tail dusky brown, secondaries and upper wing coverts edged with dirty white; bill, upper mandible black, lower mandible yellow.

Any one passing through the sandy tracts sometimes met with in Western Canada, where the original forest has been succeeded by a second growth of scrub oak and pine, cannot fail to hear the *Tow-vee Tow-vee* of that handsome-bird, the Tow-vee Bunting. (*Pipilo Erythrophthalmus*). It passes much of its time in scratching up the withered leaves among the underbrush, in search of worms and larvæ, of which it is particularly fond, and the rustling noise which it makes, often betrays its presence to those familiar with its habits, before it is seen, or its note heard. It is found throughout the greater part of Canada, coming to us in June, and remaining until the end of September. Its favourite haunts are the dry barren tracts I have described, where during this month, it may be seen with its young, who leave the nest before they are able to fly, and follow the mother about

on the ground for several days. The nest is sunk in the earth, in a dry and sheltered situation, generally under a small bush or bunch of tall grass. It is composed of dried leaves, strips of grape vines, and lined with fine grasses and fibrous roots. The female lays from four to five eggs, white, with a tinge of flesh colour, spotted with reddish brown. The plumage of the Tow-wee Bunting is deep black on the head, neck, and upper parts; the wings have a white band passing across the primaries; the outer edge of the first quill feather also white. Lateral tail feathers white, excepting at the base, and a longitudinal streak towards the tip on the outer web; the next two white on the inner web, toward the end; the breast white, abdomen pale red, sides of the breast brownish red.

Another bird, whose presence may be noted during this month, although not a very common visitor, is the Great Crested Fly Catcher (*Myiarchus Crinitus*.) It is among the largest of the genus, and is nearly as bold and pugnacious as the King Bird. Its harsh shrill note, repeated very often at early dawn, and long after sunset, is heard also like the King Bird, during the hottest hours of the day. Its flight is swift and powerful, and when its prey is secured, it returns to the branch on which it was before, beats the insect on it before swallowing it, and then erecting its crest, utters its sharp cry of *pa up pay up*.

These birds have frequently fierce encounters among themselves, in which they show extraordinary pugnacity. The only specimen I ever shot, was a male bird which had just been giving battle to an opponent, whose scattered feathers, as he beat a retreat, showed the punishment he had received. I have never met with a nest of this Fly Catcher, but have seen the young birds in company with their parents, with whom they frequently remain until they all go off to the South in September. The nest is said to be particularly inartistic and slovenly, and to be composed of some curious materials, a little loose hay, large feathers, dog's hair, and pieces of cast snake skins! The plumage of this bird is a dull greenish olive over the upper parts; quills and coverts dark brown, the primaries margined with light reddish brown, the secondaries with white, of which there are two bars across the wing. The feathers of the head are pointed, and centered with dark brown, the whole forming a spreading crest; sides of the head and neck bluish grey; the under parts generally lemon yellow; inner webs of the tail feathers light ferruginous, as are those of the quills.

About the first week in this month, may occasionally be seen in the orchard or garden an interesting party of old and young, of a very beautiful but comparatively rare visitor, the Indigo Bird (*Cyanospiza Cyanea*.) The young

present a curious contrast in their humble dress, (very like that of the common sparrow), to the lovely hues of the old cock bird, the mother is not much more brilliant than her offspring. The Indigo Bird generally prefers the open fields, or the garden or orchard, to the forest. Its song is very sweet and lively, nor is it confined to the cool of the morning, but is continued as vigorously as ever during the noon-day heat. The nest of this bird is usually built in some low bush, partly concealed by long rank grass or weeds. It is composed of sedge grass and withered leaves, and lined with finer grasses, and a few cow or horse hairs. The eggs, five in number, are bluish white, with purple blotches at one end. The plumage of the male bird is a rich sky blue, deepening on the head and throat to an ultramarine, and changing in certain lights to a bright verdigris green; the wings and tail dusky brown, margined with blue. The male does not attain the full beauty of his plumage until after the second year. The general colour of the female is a light yellowish brown; the under parts and sides of the head lighter; the wings deep brown, margined with greyish blue. Another songster that makes its presence remarked during this month, by its cheerful, lively warbling, heard for hours at a time, even during the hottest period of the day, is the Red-eyed Vireo (*Vireo Olivaceus*.) Coming to us early in June, when its loud musical notes are first heard, as it searches for its food amid the branches of the trees, peeping cautiously under the leaves, and examining each bud and blossom, it continues its merry song, until it takes its departure in September. The nest of this bird is a very beautiful little fabric, generally suspended from the tender twigs forming the fork at the end of a branch of an oak, beech, elm, or dogwood tree. It is firmly attached at the upper edges to the twigs, by thin fibres of grape vine or other tenacious materials, the fibres being warped round them in various directions. The external circular layers consist of grape vine, paper birch, or red cedar bark, agglutinated together. The lining, which is beautifully disposed, consists of very fine fibrous roots and fine grasses, and sometimes the hair of various animals. The eggs are from four to six, pure white, sparingly dotted at the larger end with reddish brown spots. This bird, like the Yellow Warbler, is often made the nurse of the young of the Cow Blackbird, and the gentleness of its disposition, and watchful affection for the foundling confided to its care, amply justifies its selection as foster-parent. During this month, the Vireo sometimes brings out a second brood of its own, and, both parent birds and young, may occasionally be seen feeding together on the berries of the bitter cornel and viburnum, although at other times their diet is exclusively insectivorous. The general colour of the plumage of this bird, is light yellowish olive on the upper parts; the crown of the head deep grey, bordered on each side by a line of greyish white, passing from the nostrils over the eye; inner webs of the wings and tail, dusky brown; the outer, yellowish olive; under parts,

white; the breast and sides tinged with pale yellow.

SEPTEMBER has come, the Golden Rods and Michelmas Daisies are in bloom by the country road sides, or in the open spaces of the woods, and a scarlet leaf or two on the Virginia Creeper, or the soft Maple, already speak to us of approaching autumn. Many of our summer birds are now moving about in little flocks, as if they were gathering themselves and their families together, preparatory to their emigration southwards, and some of our early spring visitors which have been spending their brief season in the far north, it may be on the Saskatchewan, or in the wilds of Labrador, are now again to be seen, flitting about our gardens and shrubberies, where they will tarry for a few days only, before winging their way to the milder region of the Southern States, or the sunny shores of the tropics.

Among these transient visitors, none are more beautiful than the Blackburnian Warbler, (*Dendroica Blackburnia*.) Passing rapidly through this part of Canada during the month of May, on their way to the north, seldom halting more than a few days, and again during this month as they proceed towards the south, making so brief a stay that they are seldom seen, except by those who are on the watch for them. The plumage of the male bird is exceedingly handsome. The upper parts black, streaked with yellowish white. A stripe of rich orange yellow extends from the base of the upper mandible over the eye, and curves down each side of the neck, bounded by a patch of black directly under each eye. The throat and upper part of the breast is a rich fiery coloured orange, lower part of the head dull yellow. Quill feathers black, the outer margined with grey, the inner with white, of which there is a large patch on the wing; the three outer tail feathers on each side are white, excepting an oblong portion towards the end. The song of this little Warbler consists of a very few notes, but is very sweet, and unusually clear and loud for the size of the bird. Its nest or eggs I have never seen.

Almost equally beautiful in plumage, and much more frequently met with than the Blackburnian Warbler, is the black and yellow Wood Warbler, (*Dendroica Maculosa*.) Large numbers of this handsome little bird may be seen flitting about the evergreens in our shrubberies during the latter part of this month. Like so many of the other Warblers, its stay with us is limited to a few days in spring and autumn. Its summers are spent on the shores of Labrador, or in the wilds of the North-West, and its winters in the Southern States. The song of the black and yellow Warbler is both clear and sweet, and may often be heard during its spring visit. Its motions, as it flies from tree to tree, are particularly graceful, its tail being constantly spread out like a fan, and its wings held half open in such a way as to display the beauty of its plumage to the best advantage. It feeds entirely on insects and their larvae,

and not unfrequently it may be seen balancing itself in the air, opposite to the clustering branches of some tree or shrub, and then darting rapidly in among the leaves to seize upon and secure some fluttering insect. The colour of the plumage of this Warbler is ash grey on the upper part of the head and back of the neck, a band of white passes over the eye. Part of the forehead loral space, and a broad band down the side of the neck, with the forepart of the back and upper tail coverts deep black; the whole of the lower parts a rich yellow, spotted with black; wings and tail feathers brownish black, edged with grey; two white bands on the wings; all the tail feathers, except the two middle ones, with a large patch of white on the inner web at about two-thirds of the length.

The nest of this bird, which has been found in Labrador and on the banks of the Saskatchewan, is said to be composed of moss and lichens, lined with fibrous roots and a great quantity of feathers, and the eggs to be five in number, sprinkled with reddish dots near the larger end.

The black throated green Wood Warbler (*Dendroica Virens*), is occasionally seen through the summer in this part of Canada, but I have never met with a nest of this bird, and I am inclined to believe that the majority of them breed further north. They appear here in little parties of twos and threes on their southward journey in September, and are said to pass their winters within the tropics. Their plumage is very handsome. The male bird has the upper parts a very light yellowish green; the front of the head, a band over the eye, the cheeks and the sides of the neck bright yellow; the front of the neck and upper front of the sides deep black; the rest of the lower parts white, tinged with yellow; quills and tail feathers brownish black, secondary coverts and first row of small coverts largely tipped with white; quills margined with greyish white, as are the tail feathers, of which the greater part of the outer three, and a patch on the inner web of the fourth, are white.

The last of these interesting birds which I shall notice is a beautiful little species, of which I have never been able to procure more than one specimen, and I am not aware whether, like the others I have been describing, it extends its emigrations beyond the confines of Canada. It is met with throughout the Southern and middle States of America, and is said to breed there.

This little creature, the blue and yellow backed Warbler (*Dendroica Pusilla*), is about four inches and a half in length, the plumage on the upper parts light blue, the forepart of the back changing to yellowish green; two broad bands of white on the wing, formed by the tips of the secondary coverts and first row of small coverts; quills and tail feathers dusky, margined with blue; a white spot on the outer three of the latter; throat yellow with whitish patches; breast rich yellow, deepening into orange, and the rest of the lower parts yellowish, fading into white.

G. W. A.

Moss PARK, Sept., 1869.

Arts and Manufactures.

DYEING AND PRINTING.

At the present time, sumac is much used in dyeing and printing, in order to cause other dyes to take better on the fabrics or fibres of materials to be dyed or printed. According to an invention lately patented by Mr. J. L. Norton, of Bell Sauvage Yard, Ludgate Hill (whose name is well known in connection with the Abyssinian tube well), an extract of the bark of the hemlock tree is substituted for the sumac, the desired result being thus more effectually and economically attained. The following are the details of the methods by which Mr. Norton operates in order to obtain a number of different colours:—

To dye 20 lbs. weight of cotton a magenta colour, take 3 lbs. of Miller's extract of hemlock bark as imported from Canada, and boil it with 20 gallons of water, and then lay the cotton in the liquid for a night. In the morning, add 3 pints of red cotton spirits diluted with 20 gallons of warm water, and work afterward the cotton in this for 50 minutes. Then bring it out and wash twice with cold water, and afterward with warm water. Then take 20 gallons of fresh water heated to 160° and put two pints roseine solution into it, and work the cotton in this liquor till the colour is full enough. Wash the cotton and dry it.

To dye a primula colour, proceed as before, only using a solution of Hoffman's violet instead of roseine, and work at the same temperature (160°). A bluer tint may be obtained by increasing the heat, or a redder by lessening it.

To dye a lavender colour, take of extract of hemlock bark 1½ lbs. to 20 lbs. of cotton, and work the cotton in the extract diluted with 20 gallons of water for half an hour. Rinse and wash in cold water, and then in warm. Take of red cotton spirits 1 pint, diluted with 20 gallons of warm water, and work the cotton in it for 15 minutes, then wash in two warm waters. Afterward work the material in a bath consisting of 1 pint of Nicholson's No. 2 blue solution, with 1 gill of nitric acid at about 100°. Wash the cotton and dry it.

To dye a green colour, prepare with 4 lbs. of extract of hemlock bark mixed with 20 gallons of water. Lay the cotton in this for 1½ hour at a boiling heat; then prepare a bath with 20 gallons of cold water and 2½ pints of double muriate of tin, and work in this half an hour. Bring the cotton out and wash off well to kill the strong acid. Afterward take 20 gallons of water at a temperature of 170° or 180°, and put into it 1 pint, or nearly so, of iodine green paste diluted with 1 gill of methylated spirits; if a yellow shade is required, add a little picric acid. Work the materials in this for about 20 minutes, then wash and dry it.

To dye a gold colour, prepare with ½ lb. of extract and 1 lb. turmeric dissolved in two gallons of water. Work at a heat of about 90°, then cool down and add ½ gill nitric acid. If the

colour is not red enough, add a little annatto; if not deep enough, repeat until the shade required is obtained.

To dye black, take 4½ lbs. of extract of hemlock bark and boil it with 20 gallons of water, and then lay the cotton in this liquor for a night. In the morning take it out and put it into a cold lime water bath of 4°, and work in this for ten minutes. Bring out and sodden with 15 gallons of old sumac liquor, 1½ lb. of copperas, and 2 gallons of urine. Work it in this for 15 minutes, wring out, and again put it into the lime liquor and work in it for 10 minutes, and then wring out. Afterward scald 6 lbs. of chipped logwood with 15 gallons of boiling water, and work in this for 20 minutes, and then give the cotton 3 turns in 15 gallons of cold water, in which 1 lb. of copperas has been dissolved. Soap it with 1 lb. of soap in 20 gallons of warm water, and wash off in cold water and dry.

To dye brown, proceed as above, only with 4 lbs. of the extract, and in the morning take the cotton out and work it for 30 minutes in 20 gallons of cold water, to which add 2½ pints of red cotton spirits. Then wash off in two cold and one warm waters. Then scald 7 lbs. chipped logwood with 15 gallons of boiling water, and let it cool a little, and then work the cotton in it for 30 minutes. Take the cotton out and add 1 lb. of alum to the bath and work the cotton again for the shade required. Wash off in cold water, and dry.

By red cotton spirits is meant a compound of about 2 parts of aquafortis to 1 pint of spirit of salts, to which block tin is added for the purpose of killing it before using. The quantities directed to be used of the several aniline dyes are applicable to the usual commercial strengths.—*European News.*

EXPLOSIVES.

"Giant Powder."—The distinguished scientist who first demonstrated to the world the terribly effective energy of nitro-glycerine was by no means discouraged at the disastrous results which followed; but, like a true follower of science, at once set himself to work to seek out the hidden cause of its danger, and apply the proper remedy. His efforts were crowned with most unexpected success, and the same explosive has now been introduced in a modified form, which is far safer than common powder, while it still retains the full efficiency of the original compound. We have no time to pass in review the steps which have gradually led to this result, or the experiments by which its attainment has been proven. It is sufficient to say that the result is an accomplished fact, and Mr. Nobel has coined a new word to give his compound an expressive name—*dynamite*. The dynamite of Europe is the "giant powder" of California. It is simply a new form of nitro-glycerine. A peculiar infusorial earth, finer than the finest flower, and yet consisting of the silicious coverings of what were once a shelled animalculum, are saturated with this oil, and we have a brown powder looking more like fine

sawdust than anything else, and apparently as innocent of any destructive power as the dirt of the street. The question of the safety of this new explosive is now, we believe, settled beyond a doubt.

How "Giant Powder" affects the Health.—The mischief produced from the explosion of "giant powder," when any arises, proceeds from the vaporization of a portion of the compound which is but partially decomposed, or burned, but not exploded. This vapour, suspended in the air, comes in contact with the tongue, or is taken into the lungs. Of course, the quantity so absorbed into the system, where ordinary care is taken, is infinitesimally small—so small, indeed, that no effect is produced except upon the most susceptible constitutions. If proper care is used in charging the blast, and a perfect article of powder is employed, it is impossible that any vapours can arise. Vapours may occur, however, from two causes. First, improper charging of the blast. If, in placing this explosive in the chamber, it is poured in so that any portion of it comes in contact with the walls of the chamber, above where the top of the powder rests, a small portion will adhere to the walls and not explode by the impact which fires the charge, but be driven out in the form of nitrous acid vapour. That is the vapour which does the mischief. Now, to avoid this, all that is necessary is to load the charge by means of a funnel-shaped tube, which will convey the powder to the bottom of the hole without allowing it to come in contact and adhere, even in the smallest proportion, to the walls above the charge. Very few, we believe, take such precaution, although such care is generally commended by the dealers in this powder.

Its Comparative Explosive Force.—Another very important matter to be considered in the choice of explosive agents for blasting purposes is the relative bulk which may be required to produce a given explosive effect. The smaller the bulk of the explosive required, the less will be the labor and cost for drilling out the chamber. It is claimed that in this respect "giant powder" has an advantage of nearly one hundred per cent. over gun-cotton, and 800 over common blasting powder. An elaborate series of experiments has been made, by order of the Austrian Government, to test the relative explosive force of these three compounds, which appear to fully sustain these claims. These experiments were undertaken mainly for military purposes. We have here a diagram, copied from the official report, showing the comparative effects of the three kinds of explosives, etc.—From a Lecture before the San Francisco Mechanics' Institute, Aug. 5.

"ROSSING" TAN BARK.

Our May number contained an excellent article on "Peeling, handling, and storing" the bark for tanning purposes. The *American Artizan* learns from the *Hide and Leather Interest* that experiments have been lately made to determine the practical results of "Rossing" the bark, and

says—A newly-devised machine is being used for the purpose, gauged to cut at any desired thickness. Hemlock bark an inch and a-half thick was used for the trial, being divided into three equal parts, viz., the "meat" or *liber*, the central portion, and the "ross" or outer portion. Each of these was tested separately for tanning calf-skin. The first in about three weeks gave a leather well tanned and equal in colour to that made of oak-bark; the second, an article much darker and not quite half tanned, and the last, a product almost black and not tanned at all. It will thus be seen that the "ross" is utterly worthless, and should be removed not only to lessen the expense of carriage and grinding, but because in the leaching it absorbs mechanically a considerable per centage of the tannin from the really valuable portion of the bark, while at the same time its gummy matter injures the quality of the tan liquor. For oak-bark, it is said, "rossing" is even more desirable than hemlock, especially in the preparation of the ground material sent North in bags from the Southern States, and in the manufacture of quercitron, the market value of which, it is estimated, could be increased as much as twenty per cent. by this agency.

ART GLEANINGS.

The State of California has recently paid \$33,000 as bounties in aid of the industries devoted to mulberry and silk culture, hop growing, and cotton and woollen manufacture.

A gentleman of Troy has discovered that lemon juice taken without sugar is a sure cure for that very common complaint, neuralgia. He says that the juice of one lemon a day, taken in water, will cure the most obstinate cases.

A correspondent of the *Rural New Yorker* strongly insists that the kitchens of farm houses should occupy a position from which the highway travel and other objects to relieve the monotony of kitchen life can be seen.

The *Rural New Yorker* says, in a reply to a correspondent who wants to know how to have a dry cellar, "Dig twelve inches deeper, fill with small stone twelve inches, and three inches with coarse gravel; pound well and plaster over it a water lime mortar one and a half inches thick; cut a drain from the cellar to lead the water off, by pipe or otherwise, and I think you will have no more trouble with water.

At New Hampton, England, some houses, designed for labourers, have been built in a novel style. Straw is compressed into slabs, soaked in a solution of flint to render them fire-proof, both sides coated with a kind of cement, and of these sides the cottages are built. By ingenious contrivances the quantity of joiner work is much reduced, and the chimney is so constructed as to secure warmth with the smallest amount of fuel, and at the same time to heat a drying-closet. The cost of a single cottage of this description, combining "all the requirements of health, decency and comfort," is only \$425.

Hearth and Home.

A TALK WITH THE YOUNG FOLKS ABOUT THE MONTH.

September is a very pleasant month. As June has a mixture of Spring and Summer in it, so September is a compound of Summer and Autumn. The season of growth is nearly over, and nature is beginning to prepare for Winter. Some time this month Jack Frost may be expected to pay us a visit. We shall go to bed some evening and feel chilly, another blanket will be wanted, and next morning the ground will be white, there will be ice in the wash-tub at the back-door, and we shall find, when the sun gets up a little, that our vine leaves and corn stalks have got their death-blow. This is a warning to prepare for the time when the ice-king will set up his throne, and we shall have settled winter.

Our picture for this month shews that with September the "shooting season," as it is called, commences. Most boys are fond of a gun, and too many of them are very careless in the use of it. How many sad accidents have taken place in this way. Some foolish people, both young and old, think it courageous to show a kind of bravado in the careless handling of fire-arms. This is very wrong. Wherever there is danger of injury to life and limb it is the part of wisdom to exercise prudence and caution. A slight touch of a trigger, letting a gun fall, pointing it in play at some timid person, want of care in loading,—how much maiming and slaughter have been thus caused! If guns must be in use, and we suppose they must as long as there are hawks, wolves, bears, and Fenians prowling about, by all means let them be very carefully and cautiously handled.

We are not very partial to "sporting" as it is termed. The flutterings of wounded birds, and the writhings of maimed animals, is a species of sport that was never to our liking. And so many sportsmen have shot themselves and one another instead of the birds and other creatures they want to kill, that we have a wholesome dread of the whole thing. Only quite lately a brave African traveller who had encountered lions and tigers, elephants and snakes without injury, went out shooting, when he got back to his nice home in England, and, sad to say, shot himself by drawing his gun after him over a stone wall. Some projecting bit of stone caught the trigger and off went the gun, killing its owner dead on the spot. And during the recent Abyssinian campaign one of the bravest officers in the British army lost his life in a similar way.

We are far from saying that it is wrong to kill birds and wild animals, and certainly we don't think it wicked to eat pigeon pie, or venison haunch. These creatures were made to be of service to man, and we may appropriate them to our use both living and dead. But to go out



SEPTEMBER.

shooting as a pastime, in the gleeful, wild, thoughtless spirit of play, is not to be commended, and there are better, safer playthings for boys than fire-arms. Young people should get to a wise, considerate age before they venture on the use of such deadly weapons, and even men of age and experience cannot be too careful in their movements with them.

The habit, which some boys have, of carrying a fowling-piece round with them and popping it off at every poor little bird, squirrel and chipmunk that may come in their way, is a very bad one. It tends to cultivate a spirit of mischievousness and cruelty. The victims of this kind of sport are of no account for the pot or oven. They are killed and pretty soon thrown away. Their life of song and friskiness is sacrificed for the momentary gratification of shooting at them. The bird which that boy wantonly shot last spring would, if it had lived, perhaps have destroyed a lot of grubs and insects which have eaten a dozen apples or plums, which the boy might have had, if the bird had lived and the grubs and insects had died. Children should cultivate feelings of kindness toward every thing that lives. If pain and death must be inflicted, let it be done as mercifully as possible, that we may be kind, pitiful and tender-hearted. God pities the young ravens which cry, feeds the sparrows, and tenderly cares for all his creatures. "These all wait on Thee and Thou givest them their meat in due season." Let us aim to be

like God. "Be ye therefore merciful, even as your Father in heaven is merciful."

A PICKED-UP DINNER.

Nellie Wick, in the *Ohio Farmer*, sets forth what a tired and cross housekeeper got for dinner one day when house-cleaning was in full blast, as follows :

In the first place she made a big johnny-cake, but of course something must come before that—something appetizing and hearty—and there were four to eat it. She couldn't stand on her feet another minute, so she threw herself on the lounge, and called her little girl, nine years old : "Bessie, is there any cold meat in the pantry?"

"Yes, ma ; two little pieces of boiled beef—not a quarter enough for dinner."

"Got the chopping-bowl and knife and chop it fine." Bessie did it.

"Is there any cold potato?"

"A few little ones."

"Chop them up nicely with the meat. And is there any bread except the small loaf saved for tea?"

"Yes, ma—some broken pieces and nice crusts."

"Moisten them with a little water, and chop with the rest."

"It's done mamma."

"Now take an egg—or if they are plenty, take two—beat them and stir them with the rest. Is there any other eatable thing in the pantry?"

"Just some butter and cheese ; that's all."

"Put in a small lump of butter, and let the cheese go."

"It's done. What a funny mess, mamma!"

"Very funny. Is there enough for dinner, do you think?"

"I guess not, ma, if you and I eat any."

"Of course we must eat. Pour in two-thirds of a cup of sweet milk, (water would do, if milk wasn't plenty,) then sift in a handful of flour very carefully so that it will not lump. This will help the egg to bind all together. Season it with pepper and salt till it tastes savory. Now if it is of the consistency of rather moist mince-meat, you may put the frying-pan over the fire, put in a little lard, dip out the mixture in large spoonfuls, and fry it as you would fish-balls. Be sure that all are well heated through, and browned on both sides."

When the folks came to dinner, Bessie dished up the balls in the new tureen, and they looked tempting enough. But men never think any thing out of the common way can be good until they've tried it ; so the tired house-keeper's husband looked rather contemptuously at the dish and said :

"What kind of formation is that?"

"Conglomerate," answered the wife, spunkily, for she was feeling anything but pleasant.

"Why, it tastes like dressing," returned he, taking a good-sized mouthful. "Did you make it to stuff any thing with?"

"Yes," said the tired house-keeper.

"Well—but—" looking round the table ; "what's to be stuffed?"

"A goose!" said she, giving him such a look that he got off that track immediately.

"Well, they're excellent," said he, taking two more cakes, "but I should like to know what they're made of. What's the foundation?"

"The tureen," said she shortly.

"Is there any meat in them?" says he.

"Just a visible admixture," says she.

"Any potato?"

"All those little white bits are potato."

"Any egg?"

"All those yellow specks are egg."

"Any bread?"

"All that soft substance is bread."

"Any thing else?"

"Nothing but flour, milk, butter, pepper and salt."

"Well they are capital," said he, helping the boys and Bessie again ; and by the time that the originator of all this excellence was rested enough to enjoy something, there was one left on the plate, and the husband looking loving at that. So she just folded her napkin and sat back in her chair, and in a minute it was gone. But what women doesn't count it a happiness to go hungry, if only her cooking can be praised.

BEHAVIOUR IN COMPANY.

On the subject of behaviour in company Leigh Richmond gives the following excellent advice to his daughters :—

"Be cheerful, but not gigglers. Be serious, but not dull. Be communicative, but not forward. Be kind but servile. Beware of silly, thoughtless speeches ; although you may forget them others will not. Remember God's eye is in every face, and his ear in every company. Beware of levity and familiarity with young men ; a modest reserve without affectation, is the only safe path. Court and encourage serious conversation with those who are truly serious and conversable."

Poetry.

A STRAY LAMB.

O, TENDER Shepherd, gather my lamb
Into Thy fold !
How can I sleep while he is astray
On the mountains cold?

Behold, I watch through the perilous night
With dreary fears ;
Seeking my lamb with longing eyes
That are dim with tears.

O, infinite Heart, that for such as he
Bore mortal woe,
Is he not dearer to Thee than to me,
Though I love him so ?

Seeking my lamb on the mountain-side
And wastes forlorn,
I meet Thee, Shepherd, with bleeding feet
And crown of thorn.

And while, thus watching, I hope and pray
The long night through,
It is comfort and rest to feel and know
Thou art watching too.

Waltz.

A FARMER'S LIFE'S THE LIFE FOR ME.

E. G. STORMS.

Lively.
SOPRANO.

1. A farmer's life's the life for me; I own I love it dear-ly; And ev-ery sea-son, full of glee, I take its la-bor cheer-ly.

ALTO.

2. The law-yer leads a harass'd life, Much like the hunt'd ot-ter; And 'tween his own and other's strife, He's always in hot wa-ter.

TENOR.

3. The doctor's styl'd a gen-tle-man; But this I hold but hum-ning; For, like a tax-er wait-ing man, To ev-ery call he's com-ing.

BASS.

4. A farmer's life, then, let me live, Ob-tain-ing while I lead it, E-nough for self, and some to give To such poor souls as need it;

I'll plough and sow, To reap and mow, Or in the barn to thresh, sir; All's one to me, I plain-ly see, 'Twill bring me health and cash, sir.

For foe or friend, A cause de-fend, How-ev-er wrong, must be, sir, In reason's spite, Maintain its right, And dear-ly earr his fee, sir: Now here, now there, Must he re-pair, Or starve, sir, by de-ny-ing; Like Death him-self, Un-hap-py elf, He lives by oth-ers dy-ing.

I'll drain and fonce, Nor grudge ex-pense, To give my land good dress-ing; I'll plough and sow, Or drill in row, And hope from Heav'n a bless-ing.

I'll drain and fonce, Nor grudge ex-pense, To give my land good dress-ing; I'll plough and sow, Or drill in row, And hope from Heav'n a bless-ing.