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THE

ONTARIO FARMER;

A MONTHLY JOURNAL OF

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

VOL. I.

TORONTO, AUGUST, 1869.

No. 8.

THE HARVEST.

It is very gratifying to find that from all parts of the country the harvest news is of the most cheerful description. The yield of grain, both in quantity and quality, is, undoubtedly, much beyond the average, and though the season has been an unusually wet and catching one, a large proportion of the crop is well harvested. We have been favoured now (Aug. 12) for upwards of a week past with most charming weather. We have had clear bright sunshine, with fine drying breezes, and yet the heat has not been oppressive. It has been very comfortable weather for field work. In fact, both haying and harvesting have this year been pleasanter occupations than usual, from this fact; added to which, there has been, owing to the wetness of the season, but little dust to give annoyance in either hay-field or wheat-field. On the whole, we believe, the hay-crop has been got in with less damage from wet than was at first supposed. Multitudes of our best farmers managed to secure their hay with scarcely a drop of rain on it, thanks to good management, the barometer, and some push. Others were not so fortunate. But the proportion of really spoiled hay is, we believe, small. The hay-crop, as a whole, is abundant, and the prospect is that it will be cheap the present season. The yield of the fall wheat is now in, and we have every reason to be satisfied and thankful in view of the yield. Very little complaint of the midge has reached us from any quarter, and we are of opinion that the season has been unfavourable to the multiplication and activity of this insect pest. We hear also the best accounts of spring wheat. Potatoes, peas, and barley are also doing well. Potatoes

bid fair to be a full, if not enormous, crop. Turnips, for some reason, are scarcely up to the usual average, and it would seem that an excess of wet does not suit this root crop. Fruit still gives good promise. The small fruits were hardly ever so abundant and fine as the present year, and those yet to ripen are likely to give a full yield. We have fears that the out-door grapes will scarcely be as early and good as usual, though the vines have made a splendid growth. It has been a fine season for the growth of newly transplanted trees, and many will regret, along with ourselves, not planting more largely during a year which is likely to be equivalent in the establishment and growth of young trees to any two ordinary years. On the whole, the season of 1869 is fitted to excite gladness of heart, and special gratitude to the Almighty Giver of all blessings.

EMIGRATION ADVERTISING.

The Americans are skilful advertisers, whatever the business they are trying to push, but they are not over delicate or excessively scrupulous as to the terms and style of their advertisements. They use printers' ink very liberally, and know better than any other nation the efficacy of notices, paragraphs and puffs. The influx of settlers from foreign countries to the United States has been largely secured by persistent resort to "tall" advertising, as a Yankee would phrase it. Part of the system is to keep afloat, in journals of all sorts, little paragraphs like the following, which we quote from a recent number of the *Western Rural*:—

"A gentleman from Leicester, England, who arrived in Minneapolis, Minnesota, recently,

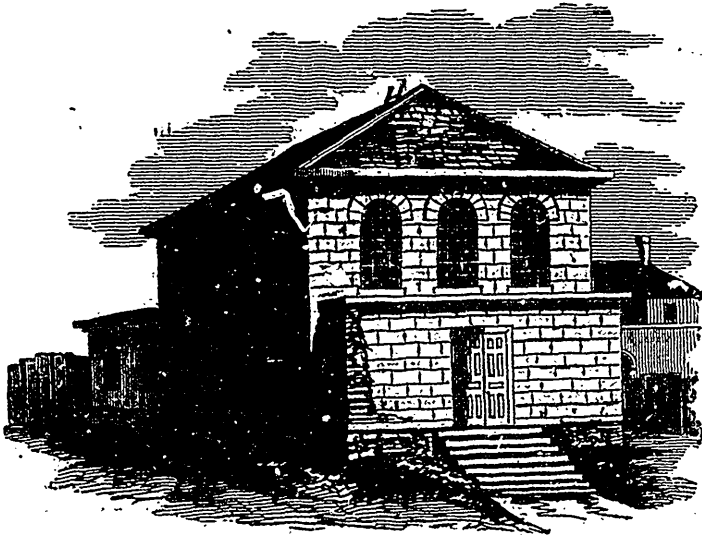
only sixteen days from Liverpool, by way of Boston, has bought five thousand acres of land in Kandiyohi, where he will settle. He passed through Canada West, but was not favourably impressed with its appearance."

This English gentleman may be a mythical character, or if a real person, the rapidity of his journey prevented him seeing anything of the country;—he very likely went through from Suspension Bridge to Detroit, in a sleeping car, on a night train, rubbing open his eyes in the early morning, as the cars rushed over the flat country, between Chatham and Windsor, and was not favourably impressed with its appearance;—but never mind, all arts are lawful in war, all tricks admissible in trade, all misrepres-

entations allowable in advertising. The impression will be made that Canada West is a wretched country, far inferior to any new country with an unpronounceable name, in the far off wilds of Minnesota, more Leicester sheep will flock to the green pastures of the far west, and Uncle Sam's coffers will be anew replenished with British gold.

CHURCH ARCHITECTURE.

The march of improvement which is everywhere going on has, happily, reached the domain of church architecture, and in all parts of the land, neat, commodious and attractive places of worship are being erected. It is high time that



No. 1.

wide-spread reform should take place in this particular. The worship of God may, doubtless, be acceptably presented in any sort of a building, or in no building at all, but it is greatly to be lamented that there are still so many unsightly, barn-like edifices called churches, around which alone the popular associations of holy worship and true religion are forced to gather. In many cases improvement might be effected if people were only convinced of its practicability and desirableness. With a view of exciting emulation in this direction, we propose, in a brief and simple manner, and with the help of a couple of illustrations, to narrate the story of what has been done in one instance, and what may readily be done in many more.

A small, and by no means wealthy congregation, in one of the county towns of our good Province of Ontario, found itself, at the commencement of the year of grace 1867, very poorly accommodated in the place of worship, represented a little too flatteringly by our artist, in engraving number one. This building, put up rather more than a quarter of a century previously, was deemed a spiritual palace at the time of its erection, but in the lapse of 25 years a young country like Canada, grows very rapidly, and the general onward course of events, left the little, square, old-fashioned church, high and dry on the beach of time-worn things. Moreover, it was beginning to show signs of age and decay. Winter's frost and summer showers were

loosening patches of plaster here and there, and it became obvious to the most conservative member of the congregation that they must "arise and build."

church. Architecturally correct as to outline, though quite plain, its Gothic lines strike the eye very favourably. Built of stone, in a neighbourhood where that material is abundant and cheap,



No. 2.

After much planning and consultation, a structure was designed and resolved on, of which our second engraving is a fair and truthful representation. In outline, plan and cost, it has been regarded by many good judges as rather a model

and yet admitting of construction in wood, it is believed that this plan may be imitated to advantage, in many localities. The stone-work is only rock-faced, with the exception of lintels, window sills, &c., while the main walls are of

common rubble work, pointed and lined. The plan admits of great variation, not only as to material, but size and style of finish, and is commended to the study of all congregations not over-numerous or wealthy, who wish to combine economy and effect in the highest possible degree. We conclude with the following brief details in reference to the actual building herewith illustrated:—

It is a Gothic structure, seventy-six feet by forty-five, exclusive of the tower, which is fifteen feet six inches square, and, the steeple included, one hundred and thirty-three feet in extreme height. It has a basement with a lecture room forty-eight feet by forty-one, with two vestries and staircases, communicating with the church and pulpit above. The church is finished in the Gothic style in all its details. The ceiling is elliptical, with curved ribs to give the best effect to sound. Between each window is a moulded Gothic corbel, supporting a moulded rib on the ceiling, under each principal rafter, and opposite each buttress. The church is lighted on each side by five large ornamental traceried windows in two lights; the sashes will be of light cast iron, with quarry panes of glass bedded in putty. There are seventy-six pews with accommodation for three-hundred and fifty adults on the main floor, but from the ample space allowed for aisles and sitting room, it is easy to accommodate a much larger number. There are three aisles. The pews are comfortable open seats with ramped ends. The entrance to these aisles is from the vestibule by three pair of cloth doors opening outwards. The pulpit is on a platform raised two steps above the church floor, in a niche built so as to form a semi-circle in the wall, with circular seat, &c. On the front is a screen handsomely wrought, having ten arches with cusplings, mouldings, columns, table mouldings, caps and bases, with reading desk, &c. The singing and organ gallery over the vestibule have a richly ornamented front, and seat accommodation for fifty, making in all 400 roomy sittings. The main entrance to the Church is through the tower, having a flight of eight steps to landing enclosed by folding doors, from which the vestibule is reached by a double staircase of nine steps, the singing gallery having a staircase at each end of the vestibule. The stone portion of the tower is sixty-six feet in height, having belfry and other windows in character the same as described to church. The exterior of the building has a pleasing outline, having six buttresses on each side and eight at the tower angles, finished at the top by ornamental cut finials. The building material is of limestone of a superior quality. The cost of the building was about eight thousand dollars.

THE MAMMOTH TREES OF CALIFORNIA.

The *Sequoia gigantea*, popularly known in the district where it grows as the Mammoth Wash-

ington Tree, was first discovered by the English traveller and naturalist, Lob on the Sierra Nevada, at the elevation of five thousand feet, and near the source of the rivers Stanislaus and San Antonio. These trees belong to the natural order *Coniferae*, or the Pine family, and grow two hundred and fifty, and even four hundred feet in height. The bark, which is of a cinnamon colour, is from twelve to eighteen inches thick; the wood reddish, but soft and light; and the stem from ten to twenty feet in diameter. The branches grow almost horizontally from the stem; their foliage resembles that of the cypress; yet, notwithstanding the monstrous size of these trees, their cones are only two inches and a half in length, resembling those of the Weymouth Pine (*Pinus strobus*); whilst the *Auracauria*, or South American Pine, although far inferior in size to the *Sequoia*, produces cones of the form and magnitude of a child's head.

The *Sequoias* stand together in groups on a black, fruitful soil, which is watered by a brook. The miners have given some of them their especial consideration. One has been called "The Miner's Cabin;" it is a hollow tree about three hundred feet in height, the excavation being seventeen feet in breadth, and nearly fifty feet in circumference. "The Three Sisters" have all sprung from the same root; "The Old Bachelor," worried by storms, leads a solitary life. "The Family" consists of a group of trees—two large ones, "The Parents," and twenty-four small ones, "The Children." "The Riding School" is an immense tree which has been overturned by a storm, in the hollow stem of which a man can ride on horse-back for a distance of seventy-five feet.

In standing before these giant forms of the forest, we naturally try to calculate the time which was necessary to bring together such vast masses of vegetable matter, and then think of our short lives and diminitiveness. Judging from their rings, these trees are at least from two to three thousand years old. The following description of one of them, recently felled for timber, is taken from a work published by the Government of the United States:

"As there has been already considerable discussion with regard to the age of this tree," says Dr. Bigelow, "I may state that when I visited it in May last, at a section of it, eighteen feet from the stump, it was fourteen and a half feet in diameter. As the diminution of the annual rings of growth, from the heart or centre to the circumference or sap-wood, appeared pretty regular, I placed my hand midway, roughly measuring six inches, and carefully counted the rings on that space, which numbered one hundred and thirty, making the tree 1,885 years old.

"A verbal or written description of this tree, however accurate, cannot give one an adequate idea of its dimensions. It required thirty-one of my paces, of three feet each, to measure thus rudely its circumference at the stump. The only way it could be felled was by boring repeatedly with pump augers. It required five men twenty-two days to perform the operation. After they

had succeeded in severing it at the stump, the shoulders were so broad, and the tree so perfectly equipoised, that it took the same five men two days in driving wedges with a battering-ram, on one side of the cut, to throw it out of its equilibrium sufficiently to make it fall. The mere felling of the tree, at California wages, cost the sum of five hundred and fifty dollars, or one hundred and ten pounds.

"A short distance from this tree was another of yet larger dimensions, which apparently had been overthrown by accident, some forty or fifty years ago. It was hollow for some distance, and when I was there, quite a rivulet was running through its cavity. The trunk was three hundred feet in length, the top broken off, and by some agency (probably fire) was destroyed. At the distance of three hundred feet from the butt,

the trunk was forty feet in circumference, or more than twelve feet in diameter. Fragments of the same kind of tree, which had apparently been exposed to the vicissitudes of climate and the weather the same length of time, and supposed to be from the individual tree that lies prostrate, are to be found projected in a line with the main body, one hundred and fifty feet from the top, proving to a degree of moral certainty that the tree, when standing alive, must have attained the height of four hundred and fifty or five hundred feet! At the butt, it is one hundred and ten feet in circumference, or about thirty-six feet in diameter.

"These mammoth trees, by their stately and majestic bearing, strike the beholder with awe and wonder, and cause him almost involuntarily to bow before them as the kings of the forest.



THE MAMMOTH TREES OF CALIFORNIA.

Their whole number does not exceed five hundred, and are all comprised within an area of about fifty acres. Only eighty or ninety of them are of gigantic size. Their extremely limited locality and number forcibly impress the traveller with the belief that the species will soon be extinct, as is further evinced by their slow reproduction. Indeed, these giants of the forest are so marked in their rusty habits from their present associates, that we can hardly view them in their present relations except as links connecting us with ages so long past that they seem but reminiscences of an eternal bygone. They seem to require but the process of petrification to establish a complete Paleontological era."

[NOTE.—The above engraving of "The Mammoth Trees of California" is taken from a large

and beautiful picture gotten up last year as a gift to every subscriber to the *Cincinnati Weekly Times*, one of our most valued exchanges, and an excellent family newspaper. Ed. O. F.]

A COUNTRY RESIDENCE.

To the city folks, who talk of taking a home in the country, with charmingly unsophisticated ideas of what it is, *Heart and Home* offers these hints:

1st. Don't seek a country home simply because you love berries, and flowers, and trees; the berries and the flowers you may buy any day in the market, and the trees you have all before you in your parks.

2d. Do not be emboldened, by any well-audited account of cultivators, to believe that you will reap enormous profits from a country home and its acres; such results only come by large experience and a life-long system, which you can never extemporize.

3d. Do not, in your chafing under high city costs, entertain the notion that in a country home you may live for comparatively nothing; go as widely as you will, and you cannot escape the tax-gatherer and the grocer.

4th. Don't entertain the belief that land takes care of itself, or that immaculate gardeners may be had for the asking, or crops, whether fruit or vegetables, work themselves out by any law of necessity.

5th. Don't count upon all country neighbors as being frugal, and innocent, and kindly, and unaddicted to slip-shodness and profane swearing. "Happy valleys" are quite as mythical now as in the days of Dr. Johnson and of Rabelais.

6th. Do not count upon finding city luxuries, such as a mile of pavement for wet weather, or a Goupil's show-room, or the music of a target excursion band every day, or a doctor next door.

Lastly. Do not believe—whatever may be the representations of the real-estate people—that a charming country home may be bought any day for a song, and any day thereafter sold for a plump penny.

If, with all these provisos in mind, you have faith in your own rural zeal, and will meet the difficulties of the case with the same stoicism—no more and no less—with which you would meet larger difficulties in the town; and if you enjoy fresh breezes that come rocking over woods and wide reaches of meadow; and if you can cultivate an appetite for the crisp vegetables, fresh drawn from your garden; and if you believe in wild romps upon the green sward as a better thing for your children than all the doctor's tonics, and if the mistress of your household does not interpose a nay to all this that shall carry shrill echoes through every week of your summer—then go into the country.

GUIDE BOARDS.

The *American Agriculturist* for the current month, has a spirited engraving, "Lost the Road," which represents an aged couple, in an old-fashioned vehicle, trying, in vain, to decipher the letters on a decayed guide-board. With this as a text, our contemporary delivers itself of a timely homily on the utility and desirableness of having legible guide-boards at all points on leading roads, where travellers are likely to find themselves in perplexity. This is one of the manifestations of old-country-wisdom, which new countries should not be slow to imitate. Are travellers to be expected to find their way in strange places by intuition?

ONTARIO 'BEE KEEPERS' CONVENTION.

We cheerfully insert the following communication on the above subject, believing that a well managed meeting of the sort will greatly tend to the promotion of apiarian interests. There are many scientific bee-keepers in this Province, and a comparison of views and interchange of experiences cannot but be mutually beneficial. We should like to see a permanent association formed, with a view to regular meetings, once or twice a year. Why should not bee-keepers unite thus, as well as dairymen, fruit growers and others?

"I am requested to announce to the bee-keepers of Canada and the United States, that a bee-keepers' convention will be held at the City of London, Ontario, at the time of the coming Provincial Fair, on Tuesday, Wednesday and Thursday evenings; September 21st, 22nd and 23rd.

"Bee-keepers who may have subjects to offer for discussion, or suggestions to make, will communicate the same to me, any time during the month of August, in order that they may be arranged and published as early as possible in September, when the hour and place of meeting will be announced.

"I trust there will be a large attendance of the bee-keepers of Ontario and Quebec, and those interested in bee culture.

"A warm invitation is extended to bee-keepers in the United States, to meet in convention with us.

"Journals giving the above an insertion will promote the interests of bee culture in Canada.

"J. H. THOMAS, Apiarian.

"Brockville, Ontario, Aug. 2nd, 1869."

IOWA STATE AGRICULTURAL COLLEGE

The *Iowa Northwest*, in describing a visit to the State Agricultural College, says:—

"The labor system, which has failed at so many similar institutions, has been inaugurated here with complete success. The students perform their two hours' work each day with a degree of cheerfulness and zeal that is extremely gratifying to the entire faculty, all of whom are firm believers in the system. The recitations occupy the forenoon of each day, the afternoon being devoted to labor, recreation and study. The labor is performed by dividing the students into squads, each under the direction of a captain, who receives the tools from the toolhouse, directs the labor of his company, keeps a record of the time, quality of the work, and reports to the President in writing."

GREAT CATTLE SHOW.

A cattle show open to the live stock of all countries, is announced to be held September 3-7, at Altona, a town of Holstein, lying on the Elbe, about two miles from the city of Hamburg. It is a place of convenient access for the whole civilized world, but the cost and risk of transportation will probably prevent any large representation of the stock of foreign countries. It will, however, be a good opportunity for seeing and purchasing choice specimens of the celebrated Dutch or Holstein cattle, a breed possessing many valuable characteristics. The cattle show is to be in connection with a general exhibition of industry to be held at Altona, from August 27th to September 13th, which has already been pretty extensively announced in the public journals.

THE "AMERICAN ENTOMOLOGIST."

This admirable publication should be taken by all who wish to be well fortified against the insect troubles that afflict the farm and garden. It is impossible for a journal devoted to the general interests of agriculture and horticulture to do justice to Entomology. It is a science by itself, and one requiring a large amount of research. The *American Entomologist* costs but \$1 a year, United States currency, and gives many times that value in useful information concerning both bugs and humbugs.

GOOD ADVICE.

The *American Agriculturist* cautions its readers against overwork in haying and harvest. What it says about the boys is especially worthy of being heeded. "Do not crowd the boys. They should be quick and steady at light work, but we have seen so many fine boys of 16 or 18 twisted out of shape for life by working themselves too hard during haying and harvest, that we cannot forbear warning both farmers and their sons against too hard straining labour."

BACH'S PATENT MOULDED BREAST COLLAR.

We have had this newly-invented breast collar in use for more than a month, and can without hesitation, recommend it as a decided improve-

ment on the old straight band, which had a tendency to choke the animal, an evil which is obviated by a moulded depression, just where the pressure was apt to come upon the neck.

WHERE IS THE MONTHLY STATEMENT?

At the first meeting of the new Council of the Agricultural and Arts Association, held February 24th last, it was ordered, "That a monthly statement should be made up by the Treasurer of the finances of the Association, and published in the agricultural journals of the Province." Just one such statement has been published, viz: for the month of March, which appeared in the advertising department of our April number. How is it that the public have been kept in the dark for four months? Has the "Order in Council" been rescinded? During the interval, the Denison mortgage has matured. Has it been paid? What is the present financial position of the Association? If the Council wish to recover the confidence of the public, they must at least keep faith with it.

CROP RETURNS.

The Hon. the Commissioner of Agriculture has issued a circular addressed to all Secretaries, both of Township and Electoral Division Agricultural Societies, requesting returns as to the yield of the more important farm crops, in order that a full and correct statistical report may be laid before the public of the present year's harvest. These circulars embody questions with suitable spaces for answers thereto, and are in a shape so convenient as to afford the least possible trouble in filling up. We trust the officers concerned will see the importance of taking some trouble to make up accurate returns, and that we may have this year, at least, an approximation towards what is so very desirable in the way of information as to the farm products of the year.

UNITED STATES FAIRS.

NEW YORK.—The New York State Fair is appointed to be held in Elmira, during the week commencing on the 13th of September.

NEW ENGLAND FAIR.—The combined Exhibition of the New England Agricultural Society and the Maine State Agricultural Society, is to

be held at Portland, Maine, commencing on the 7th of September, next, and continuing four days. The arrangements for the Exhibition are to be made on the most extensive scale and the indications already promise one of the largest Exhibitions of the kind ever held in New England. Pamphlet copies of Premium List, containing instructions to competitors, &c., can be had on application to Col. Daniel Needham, Boston, Mass., or Samuel L. Boardman, Augusta, Me. All entries must be made with Sam. L. Boardman, Secretary of Maine State Agricultural Society, Augusta, Me. Parties intending to enter live stock, of any description, must make application at least two weeks before the opening of the Exhibition, that proper accommodations may be provided for them.

ST. LOUIS AGRICULTURAL AND MECHANICAL ASSOCIATION.—The fair of this Society, which is the most liberal and flourishing of any in the United States, will be held at St. Louis, Mo., on the six days commencing October 4, 1869. The prize list is a liberal one, there being over \$30,000 to be divided in prizes, of which the highest is \$700, the lowest in any class \$5. \$75 is offered for the best bull of any age in each class, and \$50 for the best cow; one of \$200 for the best bull, and \$100 for the second best on the ground, of any age or breed; \$150 for the best herd of one bull and five cows, \$50 for the best buck and ewe; \$700 for the best boar and sow of any age or breed with five pigs, and \$250 for the second best; \$150 for the best boar alone, \$150 for best sow, \$200 for best ten pigs under six months old, and \$100 for best fatted and largest hog.

AMERICAN POMOLOGICAL SOCIETY.—The twelfth Session of this Society will be held at Philadelphia, on the 15th September next. It is expected to be the largest and most important meeting the Society has ever held. Reduced R. R. fares and hotel board are being arranged for by the Executive of the Society. Life membership \$10. Biennial membership, including the volume of Transactions \$2. Address Thos. P. James, Treasurer, Philadelphia.

The Caledon Agricultural Society have fixed upon the 13th and 14th of October for their fall show.

LARGE GROWTH OF ALSIKE CLOVER.

To the Editor of the ONTARIO FARMER.

SIR,—I have to-day sent you a sample of my Alsike Clover, which I think will be hard to beat. It measures six feet seven inches long. There was a large breadth of ground sowed to Alsike Clover in this section last year, but the summer was so very dry that it did not make much growth by fall; and a number of parties that had sowed it, thought it was doubtful whether it would stand the winter, but it came out first rate, and in every case will produce a very heavy crop of hay and seed. I would advise farmers that have raised it this season to let it ripen its seed and thrash it, for it will then make good hay, and they will get a number of bushels of seed to the acre, which—judging from last spring—they will find a ready sale for next spring, and at good prices.

H. M. THOMAS.

Brooklin, July 23.

[NOTE BY ED. O. F.]—We duly received the package above referred to, and can certify to the correctness of the statement as to the length of stalk of the specimen of Alsike Clover sent. We recommend our readers who are unacquainted with its merits to try this variety of clover. It yields heavily, all kinds of stock are fond of it, it makes the richest of bee pasturage, and does well in low, moist spots where red clover would fail.

EDITOR'S BOOK TABLE.

THE GOSPEL MESSAGE.—Edited by Rev. J. A. R. Dickson, London, and published by F. E. Grafton, Montreal. We have received the first number of this new monthly. Its object "is not profit, but to do good." This almost puts it outside the pale of ordinary criticism. It is refreshing in this selfish world to see people trying to do good on perfectly disinterested principles. Still we question the necessity or wisdom of such a publication, and doubt its success. The Religious Tract Society furnishes abundance equally good, if not better, reading ready to hand. The *Message* is to "steer clear of controversy." Then it will not be a live publication. The idea of contending for truth without assailing error is absurd. What makes people so afraid of controversy? Nobody is hurt by it. The Bible is full of it. Immense good has been done by it. Our *Message* friends blow their own trumpet famously. They ex-

"the Lord Jesus Christ hath put it into our heart to enter upon the present undertaking." Well, perhaps He has. "Terse and telling articles will be furnished expressly for this paper by the best writers of Canada." Whether "best" has reference to piety or talent, deponent sayeth not; but in either case, the modesty of the statement is not very conspicuous.

NEW CYCLOPEDIA OF BIBLICAL, THEOLOGICAL AND ECCLESIASTICAL LITERATURE.—By John McClintock, D.D., and James Strong, S.T.D., with maps and illustrations. We have received a pamphlet setting forth the character, contents, and excellent features of the above publication. It is to be completed in about 6 vols., royal octavo size, of about 1,000 pages each. Vols. 1 and 2, comprising the letters A, B, C and D, are now ready. Price per vol., cloth, \$5; sheep, \$6; ½ morocco, \$8; American currency. Harper & Bros, New York, publishers. The entire work is in rapid progress, and will soon be complete.

REPORT OF THE CANADIAN DAIRYMAN'S ASSOCIATION.—We have received from the Secretary, Mr. Jas. Noxon, of Ingersoll, a copy of the above-named publication, a bulky pamphlet of 162 pages. It contains a complete account of the inception, history and proceedings of the Canadian Dairyman's Association, to which is added the addresses of Prof. Gamgee, and others, before the American Dairyman's Association at its last meeting. A large amount of useful information is embodied in this report. It is very creditably got up. Every dairyman, and indeed every farmer, should have a copy.

The Farm.

MULTIPLICATION OF WEEDS BY SEED.

The keeping of land clean of weeds is a matter of great practical difficulty in all countries. Various devices have been adopted for securing this important object, such as summer fallowing, drilling, horse and hand hoeing; and yet, in spite of the most strenuous exertions, weeds will sometimes appear to the great injury both of the soil and the cultivated crops. In Canada, they are the great bane of profitable farming, and neither pains nor expense should be spared

to keep them in proper check, if it be found impracticable absolutely to eradicate them.

Professor Buckman, formerly of the Royal English Agricultural College, has given us much useful and interesting information on this subject, based on careful observation and experiment. He points out with skill, and in great detail, how the hoe, which ought to extirpate, is often made to propagate these pests of the farmer. Weeds, for the most, part differ from crops in a very important particular of growth; in grain, for example, all the seeds are ripe at nearly the same time; but with weeds, and especially with kinds which are mentioned, the plants may appear in vigorous growth, and still flowering and starting new flowers at the ends of the branches long after the first formed flowers have ripened their seeds. It was a knowledge of this fact which made him curious to inquire into the extent to which some annual plants ripen their seeds early in the spring, and the following table will give an approximation to the number of seeds which six of the most common English weeds (some of which are too well known in Canada) may ripen before they die; and also the amount of ripe seeds which they may produce as early as the month of April—these being all gathered in one field on the 15th of that month, when the estimate was taken:—

TABLE OF THE RIPENING OF WEED SEEDS.

	No. of flowers to each plant.	No. of seeds to each flower.	Total of seeds.	Of these were ripe in April.
Grey Speedwell (<i>Veronica polita</i>)..	150x 3=	450	150	
Ivy-leaved Speedwell (<i>Veronica hederifolia</i>).....	250x 3=	750	300	
Shepherd's Purse (<i>Capsella bursa-pastoris</i>).....	150x30=	4500	1200	
Hairy Bitter Cress (<i>Cardamine hirsuta</i>).....	150x25=	3750	1375	
Chick-Weed (<i>Stellaria media</i>).....	500x10=	5000	500	
Groundsel (<i>Senecio vulgaris</i>).....	150x50=	7500	2500	
				21,950 6025

Now, if we reason upon the facts presented by this table, we shall see that although spring hoeing cuts up an immense quantity of weeds, it assists in sowing an enormous increase, one plant of each of the above making up 6025 seeds which may be sown by hoeing, whilst, if not hoed, as many as 21,950 seeds may result.

A subsequent calculation gave the following figures in illustration of the way in which a single plant may multiply by seed; the dates are those when the plant in question was gathered:—

Black Mustard.....	8,000	Aug. 17.
Charlock.....	4,000	Sept. 18.
Shepherd's Purse.....	4,500	" 9.
Fool's Parsley.....	6,000	Aug. 17.
Dandelion.....	2,040	Oct. 1.
May Weed.....	4,500	" 14.
Ox-eye Daisy.....	15,000	Sept. 18.
Burdock.....	24,520	Oct. 1.
Sowthistle.....	19,000	" "
Groundsel.....	6,500	Sept. 12.
Musk Thistle.....	3,750	Oct. 12.
Corn Cockle.....	2,940	Sept. 3.
Red Poppy.....	50,000	Oct. 10.
Cleavers.....	1,100	Sept. 11.
Common Dock.....	13,000	" 15.
Dwarf Spurge.....	1,500	" "
Common Thistle.....	25,000	" "
Stinging Nettle.....	100,000	" "
Foxglove.....	649,000	" "

It may be remarked, in regard to several of the above produce, if neglected, a double, and it may be, a triple crop of seeds may occur each season, thus immensely increasing the mischief.

As some of our readers may be sceptical as to the propagation of the Common Thistle from seed, it will be interesting to give the results of Professor Buckman's experiments relating thereto. He sowed, on the 2nd September, 10 seeds which he had a few days previously collected. By the 21st of the month, the whole had come up.

At the first frost, the whole of the plants had apparently died, and so they were left to their fate. As spring came on, however, he observed that young buds were just appearing above the ground, and that buds had already formed which were destined to be the growing points of the plant.

The rate of the second year's growth is exceeding rapid. Thistle seeds may thus germinate every autumn; no sooner are they ripe than the wind carries them away far and near, and each seed may thus be the centre of a thriving colony, and all brought about so quietly that its very growth from seed is hardly suspected. We should attack, not by clean cutting, but by bruising them, and that as early as possible; and thus close depasturing in early spring with horses, oxen or sheep, aids greatly

in diminishing the pest. Forking among grain is no bad method of attack; but the plough only divides the root stock into separate sets, and so multiplies the evil. It is thus clear that the thistle not only seeds, but as was fully expected, that its seeds have as large a germinating power as other kinds of seed, and the most effectual way of dealing with them, as with other weeds, is not to let them seed. They should *everywhere* be cut down before they get in bloom. The neglect of these precautions already threatens the most serious consequences to large areas of this and adjacent Provinces.

The principal cause of the prevalence of weeds is that their seeds are often thickly sown with grain and grasses, samples of which are always more or less impure, and subsequent neglect to extirpate weeds before their seeds mature. Professor Buckman, a few years since, took immense pains in detecting the amount of impurity in the various kinds of farm-seeds. He states that clover seed, as ordinarily sold in the market, contains from 7000 to 70,000 weed-seeds in an imperial pint; and if thirteen pints be sown per acre, from 21 to 174 seeds of weeds are thus sown on every square yard of ground! It will surprise many of our readers, who have not carefully thought on this important subject, that in a single pint of white clover, as offered for sale in the market, 120,000 weed seeds were found! "This, allowing 12 lbs. to an acre, would give to a square yard of ground a quantity more than sufficient to crop the soil; and if we consider that clovers are at best slow and shy growing plants, and that the weeds we have detected in this particular sample come to perfection so rapidly as not unfrequently to produce two crops of seed in the year, we need scarcely wonder that the land should so often be pronounced as "*clover sick*;" for while there is no denying the condition to which this designation has been given, yet our recent observations have led us to conclude that in cases of well prepared land in good condition for a clover crop, some weeds—to say nothing of those previously in the soil as seeding on the land as the result of dirty farming—have been the *cause* of failure."

A pint of Red Clover was found to contain 16,969 seeds of weeds; Cow-grass Clover, 12,160; Italian Rye-grass, 2300; Cocksfoot,

3440; Meadow Grass, 12,000; Crested Dogstail, 6400; Meadow Foxtail, 19,200; and Sweet-scented Vernal Grass, 1600. With these facts before us, and the apathy which too many farmers evince in relation to this matter, it is no wonder that cultivated crops should so often be found injured or ruined by worthless weeds.

MOWING FIELDS MORE THAN ONCE.

The complaint which was made against the American hay that was sent to England last year was that it was too coarse,—an objection that we think not a few have noticed on this side of the Atlantic. Such hay may give a large yield to the acre, but much of it will never be eaten by stock, and much of what is eaten, will never be digested. There is another difficulty connected with our present method of cutting grass after the stalk has attained its full size and has put forth blossoms or has matured its seeds. Unless such stalks can remain until desiccation commences, it is injurious to the roots to cut them. That it is not injurious to the roots to clip the foliage of grass before the stalks shoot up any considerable distance, appears to be proven by pastures. Here, the grass is clipped many times during the season, and still the vitality of the roots does not appear to be injured in the least.

Most farmers have noticed that grass lands will run out quicker when they are mowed, than when pastured, and that it requires more power to break pasture turf, than that in a field that has been cut with a scythe, an equal number of years. The oftener lawns are cut, the finer the grass becomes and the firmer the turf. Grass in a lawn that is mown every week or two, is not half so likely to winter kill, as that in a field that is only cut once in a season. A team that will draw a plough through a field that has been in timothy hay five or six years, with as much ease as through a field of wheat stubble, would be "stalled" if taken into a lawn or pasture of the same age.

Nature, in providing grass as the food for domestic animals, seemed to have designed it for frequent clipping. Can we not, therefore, make our hay of better quality, and at the same time give greater permanence to the crop, by cutting the grass oftener than we do? We know there would be more work attending such a practice, than in having hay cutting come but once a year; but we do not think the increase of labor would be as much as it would at first thought appear to be. There should be in no danger from lodged grass, and the trouble of curing hay would be greatly lessened, as little spreading would be required. It might be necessary, also, to exercise more care in the application of manure in the solid or liquid form, to fields that are to be mowed more than once; but in this case, as in all others where manure is applied, the additional yield will more than compensate for they outlay.—*Quirie Farmer.*

HOW TO HAVE GOOD MEADOWS.

Mr. N. Platt, of Bradford county, Penn., in a letter to the American Institute Farmers' Club, gives his experience as follows:

"My land is adapted to all kinds of grain and to timothy grass and red clover. My practice is, when I sow a piece of grass, not to plough it again in less than eight years, and I frequently let it lie a much longer time. I have a meadow now which has been mowed for sixteen successive years, and it was never better than now. In fact my meadows, under the right treatment, grow better as they grow older. I do it by returning to a meadow all the hay made that was taken from it, and sowing a bushel of gypsum per acre each year. In that way the yield of grass is heavier and finer and richer as the sod thickens. I use manure only for top-dressing the meadows; in that way I get double price for it. It produces as much worth of grass as it would in grain, and also reproduces itself again in the turf. My turf, when ready for ploughing under, is a solid body of grass roots twelve inches deep or more, and so thick on the top that no soil can be seen. I consider one such turf, when turned under, equal to 160 tons of first-class barn-yard manure per acre.

Land so often plowed for grain gives up to the grain all the bone, beef and tallow there is in it; consequently the grass crop is so destitute of nutriment that farm stock will not thrive well upon it, without grain a portion of the season. It furnishes a plenty of skin and rib, as the cattle are witnesses, but the flesh is minus. Grass grown upon land kept in the right kind of order for grass will keep stock in first rate order at all seasons of the year. I have seen it tried in both ways, and know whereof I speak. Raising grain on ground three seasons to two of grass enriches it in the same ratio that paying three dollars for two dollars would enrich a man. Like produces like, in grass as in breeding, consequently manure made of good hay is the best for meadows. It stands to reason for meadows to grow better when their own production is honestly returned to them.—Many of our writers on agriculture have incomes from other sources beside their farm, and can follow any system of rotation and have plenty of time and leisure. But the man who begins at the foot of the hill, runs in debt for two-thirds of his farm, all his stock of tools, then clears his land of stone and stumps, walls it in, enriches it and puts on the buildings, and raises a family of children, must sound all the depths of true economy; in that case he must not raise too much grain; if he does the sheriff will sell some of it for him."

THE ART OF HAY-MAKING.

Don't dry your hay too much. Hay may be dried till it is as worthless as straw. As a good coffee-maker would say, "don't burn your coffee, but brown it;" so we say, "don't dry your hay,

but cure it." Our good old mothers, who relied upon herb tea instead of "potecary medicine," gathered their herbs while in blossom and cured them in the shade. This is the philosophy of making good hay. Cut in the blossom and cure in the shade. The sugar of the plant when it is bloom is in the stalk, ready to form the seeds. If the the plant is cut earlier, the sugar is not there; if later, the sugar has become converted to woody matter. Hay should be well wilted in the sun, but cured in the cock. Better to be a little too green than too dry. If, on putting it into the barn, there is danger of "heating in the mow," put on some salt. Cattle will like it none the less. Heat, light and dry winds, will soon take the starch and sugar, which constitute the goodness of hay, out of it; and the addition of showers render it almost worthless. Grass cured with the least exposure to the drying winds and searching sunshine, is more nutritious than if longer exposed, however good the weather may be. If over cured, it contains more woody fibre and less nutritive matter. The true art of hay-making, then, consists in cutting the grass when the sugar and starch are most fully developed, and before they are converted into seed and woody fibre; and curing it to the point when it will answer to put it into the barn without heating, and no more. The whole science of hay-making consists in three things: First cut the grass when in blossom; second, dry it not too much; third, let it go through a sweating process before it goes into the barn. On these three things depends the quality of hay. Hay should be grass preserved. The nearer to the fresh, tender, succulent grass you get it, the better. Could we have grass growing in Winter, how much better than hay. Well, hay is an attempt to do this as near as we can. We dry apples and berries so that we may have them in Winter. But we can't have them absolutely fresh, so with grass; we preserve it, and hay is the result. Grass, when in blossom, has its full growth, excepting the seed. It is yet tender in a measure, and it has one advantage which no other stage of the grass possesses—it develops its sugar then. Especially is this the case with clover, whose head, when in blossom, is a globe of sweetness.—*Valley Farmer.*

FARM GLEANINGS.

There is a loss of one-fourth in stacking hay. No good grass farm has small barns.

A California paper says many farmers in that vicinity cut off the top of young wheat, with mowing machines, to prevent too rank growth of straw.

Soil under barns or stables that have been standing any length of time is usually very rich in nitre, and is especially valuable in the compost heap or as a top dressing.

In addition to the decrease in the acreage in hops in Winconsin, the hop lice have made their appearance in great numbers, so that the prospect is that there will be no large crop.

In holding produce for higher prices the loss on shrinkage is usually greatly under estimated. Potatoes, for instance, will often shrink one-fifth during a winter in the cellar.

One swallow does not make a summer, and the result of a single experiment should not be taken as a rule. Writers for Agricultural papers, and farmers generally, have much need to remember this.

At a late meeting of the Farmer's Club at Bowling Green, Ky., a stalk of orchard grass more than five feet long was shown. It was thought this grass was rapidly growing in favor as it becomes better known.

An English farmer chose his seed wheat with such care, and cultivated it with such skill, that his heads increased in length from four to eight inches; the berries from 45 to 125 in a head, and the number of stalks from a seed from 10 to 52.

The *Country Gentleman* says it has not yet met the farmer who could make enough manure to obviate the necessity of using clover as a fertilizer. It thinks manure spread on clover seed in the Fall is the best preparation of ground for corn the following Spring.

A correspondent of the *Germantown Telegraph* says that he knows a first-class farmer who cultivated his fence corners, or rather land which the plow would not reach along the fences, in grass, and found that the product met all the expenses, and his fields suffered very little from weeds.

It was recently stated in a discussion by the Waltham, Mass., Agricultural Club, that a farmer in Holliston had raised cabbages on the same land for fifteen successive years, and always successively. He manured his land with common salt, and watered his plants with lime-water.

The *Detroit Post* reports a case where a consignment of hops were received by a house in Detroit on which \$600 was advanced. An offer of 4 cents a pound was made, but the owner wanted 50 cents, and continued to keep the price above the market until the hops became worthless and were given away for manure.

A writer in the *Rural Messenger* says as good a crop of corn as ever he saw was saved by the persistent use of the hoe between showers, in season as wet as this has been. All the boys that could be hired in the neighbourhood were employed in hoeing the corn and keeping the hills clear of weeds. The neighbors who let the corn alone until their ground got dry, lost scarcely any corn.

The *Farmer's Home Journal*, in speaking of the waste in harvesting grain, suggests that farmers try a simple experiment to ascertain how much this waste is. Select a fair average part of the field after the grain is shocked; measure a spot 21 feet square, which is nearly exact one-hundredth part of an acre, and pick up all the heads on the spot, shell these out, weigh the grain, multiply the weight in pounds by 100, divide by 60 and the result will be the number of bushels per acre.

To keep up the fertility of our pastures, it is evident that we must do our best to check the growth of such vegetation as is rejected by stock as well as that which would injure stock, if it were eaten. But it is not enough to destroy the useless and injurious plants, we must encourage the growth of the valuable ones.

Solon Robinson says there are drains at the Insane Asylum, at Utica, N. Y., which have been down thirty years, and which are made of boards, two nailed together at one edge, leaving a space of about four inches at the other edges which are placed on a third board laid in the bottom of the drain. They are laid in a deep clay soil, at a depth of three and one-half feet.

The London *Advertiser* says the first load of new wheat in that market this season was bought on Tuesday by the Messrs. Pritchard, London. It was red Fall grain, raised by Mr. James Legg, in the concession London township, and the price paid was 91 cents per bushel. The quality was a fair sample, considering the late showery weather, its condition being rather soft, but in color and other respects it was good.

The Live Stock.

OVER-WORKING BUTTER AND SPOILING THE GRAIN.

A great deal of good butter is spoiled "in the working." There are vast quantities of butter to be found in the markets, of good color, properly salted, the buttermilk expelled and yet it had a mussy look and lardy taste. Consumers are taken at a loss to account for it. The butter is not rancid, nor has it any disagreeable odor, but it is poor nevertheless. Now, this butter may have been made from the nicest cream, with the utmost attention to cleanliness in every branch of its manufacture, from the milking to packing in the firkin. The maker, perhaps, expended all her knowledge and every source within her reach to get a prime article, going for a name in the market and an advanced price for a really "tip top" article. And when the expert tells her the butter is inferior and must be classed as second or third rate, it is very disheartening, and some give up in despair, every learning "the knack" of manufacturing a strictly "nice grade of goods." They can't imagine why butter, upon which so much care and attention has been given, should be condemned as having a greasy look and taste. If inquiry be made concerning the fault in the manufacture, the dealer, if he be an expert, will be very likely to say, "My dear sir, or dam, your butter has no grain"; but, as it is somewhat difficult to define what is meant by grain of butter, and as the manufacturer does not understand where the trouble lies, no improvement is made.

What is meant by the term grain, when applied to butter, is a waxy appearance, and the way it resembles wax in its consistency the

better the grain. When properly churned both as to time and temperature, butter becomes firm with very little working and is tenacious. It then may be easily moulded into any shape, and may be drawn out a considerable length before breaking. It has a smooth and unctuous feeling on rubbing a little between the finger and thumb. When the grain is injured, the butter spreads like grease, and the more it resembles grease the more we say is the grain injured. Good butter that has not been injured in the grain will not stick to the knife that cuts it.

Butter that has no grain is brittle, and when broken, presents a ragged surface and will not spread with that smooth waxy appearance belonging to good butter. It is only when butter has this waxy consistency that it preserves that rich nutty, flavor and smell which impart so high a degree of pleasure in eating it. So it will be seen there is very good reason for consumers rejecting butter that has been overworked into grease, even though it may have all the essentials of the best quality when it is taken from the churn.

In working butter, the hands should not come in direct contact with the butter. Gather it together with a wooden butter ladle in the tray or butter bowl, and turn off the butter milk, and wash with fresh Spring water. Gash it around the whole circumference, making channels lowest at either end, so that the butter milk can readily run away. Do not grind it down against the tray after the manner of tempering mortar, for in this way you will be likely to enjure the grain.

It is not well to attempt to work out all the butter milk at once. But every little manipulation is required in washing out the butter milk—then salt with pure fine salt, and set aside in a cool place for twelve hours, during which time the action of the salt will liberate more of the butter milk. Then work a second time either with the ladle or butter-worker, using precaution not to overwork or grind the butter by rubbing it down against the tray, and then work is done, and the butter is ready for packing.

A great many people do not understand the importance of keeping salt in a dry, pure atmosphere. Of course a pure article of salt should be obtained in the first place—then keep it where it will not absorb foul gases, and bad odours. Salt that is allowed to get damp, and is exposed in this condition to the effluvia of rotten vegetables, the stinks from carrion, the sink, or cess pools, is not fit to be put into butter.

Butter is often spoilt in flavour by inattention to the manner in which salt is kept—allowing crumbs and other refuse from the pantry, to fall into the salt dish taking out salt with dirty hands, and thus leaving impurities to be gathered up and added to the butter. Many persons are apt to be careless in this respect, though otherwise neat and cleanly in their dairy management.

In conclusion, it may be added that human hair is no improvement either in the flavour or quality of butter. We have seen choice samples

of butter rejected on account of a *single hair* having been discovered in it. So strong was the impression that the butter was made by a dirty, shiftless person, that no argument could prevail upon the customer to take it. Many people are perhaps "over-squeamish" about these things, but they are generally the kind of people who are willing to pay a high price for a really good article.—*X. A. Willard, in Western Rural.*

PREPARING RENNETS.

In putting rennets to soak, care should be taken not to allow any tainted ones to get into the batch. When they are packed in salt, it is not difficult to make a selection. If the poor rennet does not smell, it will be pretty likely to be discoloured and unhealthy looking, instead of having a whitish, wholesome appearance. All rennets thus discoloured should be thrown away as worse than useless—as positively injurious. If the rennets are dried, it may not be so easy to detect the poor ones before putting them to soak. After soaking, their quality will be quite apparent; but much of their injurious effect may be avoided by promptly rejecting them without rubbing. It is generally understood that diseased or tainted rennets produce both huffy and bad keeping cheese, by the introduction of decayed animal substances. It certainly cannot improve the quality of the cheese to mix it with the broth of carrion.

Clear whey is the common and best liquid for soaking rennets. Water was once and is now sometimes used, but it needs to be very soft and pure, and is improved by boiling. We have never tried water, but it is asserted by those who have used it for soaking rennets, that a batch prepared with it will not keep sweet as long as one prepared with whey, but that boiling the water keeps it sweet longer than it will keep if not boiled. We think the purer the whey the better, and therefore prefer that which first separates from the curd after setting. Some are not particular, and some prefer the salt whey that runs from the presses. There is a saving of salt in this, but we think this liquid cannot be as good to introduce into milk as that containing less cheesy and buttery particles. Boiling the whey and skimming it afterward allowing it to cool and settle, that the sediment may also be excluded, it is said to be a great improvement, and we can easily believe this to be true. It is not only free from impurities, but it forms a sharp acid that acts readily upon the rennets and extracts more completely the pepsin, gastric juice or whatever it may be that coagulates the milk. It is said that quite a saving in rennets can be effected by using scalded whey for soaking them.

Twenty or twenty-five prime rennets put into half barrel of whey will make a good preparation. It can be made stronger, of course, by the addition of more rennets, or pouring in a less amount of whey; but it is questionable if the entire strength can be extracted by using a

less quantity of whey in proportion to the number of rennets. They need to be rubbed at least three times, each time in a new batch of whey. The second time the preparation will be found about as strong as the first. The third rubbing and rinsing may be in fresh whey to be used for soaking a new batch of rennets. We like to have two tubs or jars for soaking the rennets, one for the first and the other for the second rubbing alternately. After rubbing the second time, put the rennets in a sack made of strainer cloth, to keep them separate, and soak them with the batch intended for the next second rubbing. In this way the strength of the preparation from the batch may be kept equal to that from the first. Rub the third time, and rinse in fresh whey, as before indicated, when the strength will be found pretty completely extracted. If dried rennets are used, it will be necessary to add salt to the whey when the batch is put to soak. Every time new whey is added, more salt will be required. Where the rennets are packed in salt there will usually be salt enough for the first soaking adhering to them; if not, it may be increased in quantity by a few handfuls of that loose in the barrel in which they have been packed. As the rennets will float on the whey, they should be thoroughly stirred up as often as night and morning, and a little salt sprinkled over those left on the top.

We prefer stone jars, both for soaking rennets and to keep the prepared rennet in, because they are so much more easily kept sweet than wooden tubs can be.—*Utica Herald.*

BREEDS OF SHEEP.

[Condensed from a statement made by Mr. C. Howard of Bedford, England, before the London Farmers' Club.]

1. LEICESTERS cut a good fleece of wool, upon an average of 7 lbs. each, and weight, at 14 or 15 months old, from 9 to 10 stones each.
2. COTSWOLDS average, when fit for the butcher, at 14 or 15 months old, from 12 to 14 stones; and the weight of wool of the whole flock approaches to 8 lbs. each.
3. LINCOLNS are not generally fit for the butcher at 14 or 15 months old, but they are kept until they are 22 to 28 months old, when their weight will be from 30 to 40 lbs. per quarter, and they cut a second fleece, weighing from 10 to 14 lbs. The weight of wool of an entire flock under fair average management, is about 84 lbs. each.
4. SHROPSHIREs, as *yearlings*, cut from 5 to 7 lbs. of wool, and if they have been well kept, will weigh from 16 to 18 lbs. per quarter; but they are not calculated to come out as yearlings.

and are more frequently run on until the following Christmas or second year's clip, when they can be made 25 or 30 lbs. per quarter.

5. OXFORD DOWNS, (of which Mr. Howard has been for many years a distinguished breeder) generally drop their lambs in the month of February, and at 13 or 14 months old, they are ready for market, weighing, upon an average, 10 stones each, with a fleece varying from 7 to 10 lbs. The ewes are good mothers, and produce a great proportion of twins.

GOLDEN CHICKEN RULES.

The following are some rules that it would be well to observe in rearing chickens:—1. Keep the chicks in a warm, clean, dry coop. 2. Don't let them run out in the morning until the sun has removed the dew from the grass. 3. Let them have plenty of food and fresh water. 4. The coop must be rat proof. 5. Don't let the chicks have access to slops or stagnant water. 6. See that they are housed when a storm is threatening.

Rules for keeping the hennery in proper order:—1. Clean out every day, and sprinkle a handful of lime. 2. Sprinkle ashes over the floor two or three times a week. 3. Frequently change the straw or hay forming the nests, and whitewash the nest boxes at every renewal, and twice a year thoroughly whitewash the whole interior of the house.

Rules for the management of setting hens:—1. Set the hen in a place where she will not be disturbed. 2. Give a large hen twelve or thirteen eggs, a medium-sized one ten or eleven, a small one eight or nine. 3. Don't let the hen come out of the setting room until she has hatched, but keep her supplied with gravel, food and water. 4. When the chicks are hatched, save them in the nest for the first eight or ten hours. 5. Don't meddle with the eggs during incubation; turning them once a day, and all such foolishness, is apt to prevent the eggs from hatching.—*Cor. Rural New Yorker.*

LIVE STOCK GLEANINGS.

Nature has endowed bees with an exquisite sense of smell, for they can scent honey and wax a great distance.

Why is the horse the most humane of all animals?—Because he gives the bit out of his mouth and listens to every woe.

The *Ohio Farmer* states that in Adams Co., one man returned 37 dogs for taxation; another returned 15; a third 12, and a fourth 11.

In Bridgport, Vt., out of a flock of forty sheep, fourteen were killed outright the other by two vicious dogs, and most of the remainder were bitten. The owners of the dogs paid four dollars a head for the whole flock.

A dairyman informs the *Maine Farmer* that having tried many things for sore teats on cows he finds lard best, the most healing and softening.

The *Western Rural* says the statement is made that Wm. McGraw, of Augusta, Mich., recently sheared 90 sheep in about ten hours. There were four rams in the lot.

The *London Field* tells how a sheep-killing dog was cured of his bad habit by tying him between two rams and letting the triple team loose in the field. They dragged poor Bose around on the run till all three were dead tired, and the cure was complete.

A. M. Winslow & Sons, Putney, Vt., lost two bulls recently, valued at \$4,000, through the carelessness of a hired man, who washed the animals all over with tobacco essence for the purpose of destroying the lice, but the death of the bulls was the consequence.

A correspondent of the *Country Gentleman*, writing from Passaic Co., N. Y., says he kept three Ayrshire and three common cows last Winter, feeding them all alike. In the Spring, the Ayrshires were in much the best condition, although they gave the most milk.

Every man who has milch cows should be sure that they are not run or worried by the boy who drives them to and from the milk yard. Very few dogs are fit to be used for this purpose. Both the quantity and quality of the milk given is affected by improper driving.

A Pennsylvania correspondent of the *Rural New Yorker*, tells that a hen belonging to a friend of his has regularly laid two eggs a day this Spring—for about three weeks at one time, and again after a rest of about two weeks, she began laying the two eggs regularly each day.

A Californian has invented a new method for skimming milk. He fits a fine gauze sieve to a hoop of the size of the pan. The milk is then poured into the pan so as to a little more than cover the sieve. When the cream has risen the hoop is lifted, and the cream is thus completely removed.

The sale of Mr. Bowley's Siddington Short-horns, near Cirencester, has excited much interest among catule-breeders. Good prices were realized, fourteen bulls having averaged £35 each, and twenty-five cows brought prices averaging £94. Two of the Siddington cows were bought by Lord Dunmore for 400 and 370 guineas respectively.

The common practice of using pads or sheep skin under a horse's collar is objectionable, especially in warm weather as it creates heat, and makes the breast tender. A better way is to take a piece of thick and smooth leather, cut it out just the size of the collar, or a little wider, and let it lie flat on the neck and shoulders. It will lie smooth while the collar moves about, and chafing will thus be prevented. It is a good plan to wash the breast of a working horse every night with cold water.

T. C. Peters writes to the *Hearth and Home* that the long-wooled sheep can only be perfected where herbage in Summer is plenty and of easy access, and plenty of forage or grain in Winter. He says the value of this species is in its size and early maturity, and the facility wherewith it lays on fat. He calls the Merino the sheep of the distant plains.

"Do you see that off leader there, sir?" said a coachman to a gentleman who sat with him on the box. "Yes, what of him?" "He always shies, sir, when he comes to that gate. *I must give him something to think of.*" No sooner said than up went the whip. The horse felt the lash, and flew past the spot, thinking little about the gate. That coachman was a philosopher.

"Stonehenge," in his work on the horse, thinks putting a lump of rock-salt in the manger for the horse to lick, is the only safe and useful way of giving salt to horses. He thinks given in this way, the horse will thrive better for this seasoning. He says that generally a pound of rock-salt will last a horse nearly a month. He has not found that the use of salt increases the thirst, except when first given.

A correspondent of the *Western Farmer* describes his method of making a coop or house for the protection of early chickens or a few choice fowls. He puts a window sash in the front of a large dry goods box leaving an open space above the sash for ventilator, slopes the roof slightly, makes a partition so as to leave a feeding space about a foot wide at the back, puts the entrance at the side, and has no further trouble except to keep the coop clean.

A correspondent of the *Maine Farmer* says:—"Yesterday I hived a swarm of bees, and left them during the night with the bottom board resting on the ground; and this morning when visiting them, I discovered a large toad on the bottom board, in the act of gobbling up a bee. I said, 'Old fellow, you have the reputation of having a jewel in the head, but you certainly lack brains, and have caught a tartar this time; you won't hanker after any more food of that sort;' but he continued to catch all that made their egress, until a little persuasion from the end of my fishing pole caused him to beat a hasty retreat."

Dr. Nichols, the editor of the *Journal of Chemistry* says that he had one acre of grass, red top and clover, that was cut June 19, and the hay stored by itself. On the first of last March he put his herd of ten cows upon it, and the immediate increase in the flow of milk amounted to ten quarts per day. The hay fed them before was of the same variety, but cut after the middle of July. The early cut hay "spent" fully as well as the latter cut, no more of it was consumed, and Dr. Nichols estimates that the money value of the product from this hay, fed to ten cows, was greater by near a dollar a day than that from the other.

Bad odors from a sty or stable offend the nostrils and impoverish a farm. The richest manures are those that have been so treated as to emit little or no smell. Dried peat is the best deodorizer. Manure that has given off the most of its stench is like cider that has stood all day in an open pitcher.

"Get the best" is a capital rule in buying stock as well as in marrying. If you want a cow, hunt up one so good that the owner "won't sell nohow," and then bid up till he is willing to exchange it for your money. So with help. Get the smartest man to be found, even if you pay 50 per cent. higher wages.

WHIPPING OXEN.—It is a cruel and generally a useless act of barbarism, says *The People*, to whip oxen, yet many farmers are in the habit of continually keeping the whip a-going. Instead of inviting the animals to exertion by proper words, the first intimation the poor creatures have from their master that he desires them to start is a cut of the whip, or a prick from the goad. This is not only savage, but absolutely wicked and wholly unnecessary. Another practice often seen is that of pounding and thrashing the oxen, because they don't readily back a load, when they have not learned to back an empty cart down hill. We have no doubt that the selling value of many a yoke of oxen is depreciated from \$75 to \$25 by being abused in this way. If animals are to work, they must first be taught to work, and when they understand what is wanted of them, they will cheerfully comply. But there is a better way to communicate your desires than through the whip. Kindness and skillful management are far better. Remember that "a merciful man is merciful to his beast."

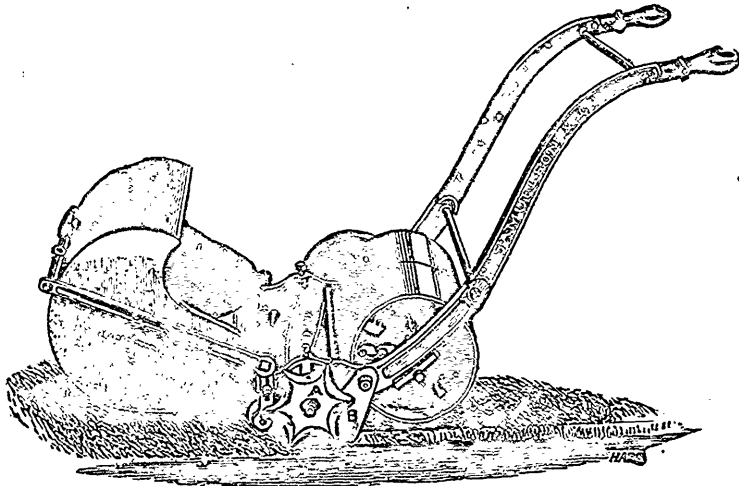
WHICH IS THE BEST STOCK?—At the late annual meeting of the Ct. Board of Agriculture Samuel Bartlett said that some remarkable cows had originated in Windsor, from a cross of native cattle with the Short-Horns, and spoke favourably of the latter breed, stating that \$1175 had lately been received in New York for a pair of Short-horns. Mr. Webb said that for dairy, farming, and cattle breeding, there is nothing superior to Short-Horn grades. He admitted that the Devons made the best oxen, but did not think much of the Jerseys or Ayrshires. Mr. Collins, a successful dairyman, thought the Ayrshires hard to beat; they would pick up a living where Short-Horns would starve, some of which in his hilly sections would not produce milk enough to rear their calves. He preferred small cows, because they give a large quantity of milk for the feed they eat. The bulls also make a good team. Mr. Wells said his experience is that 2 Short-Horns eat as much as 3 Ayrshires, and 2 Ayrshires give as much milk as 3 Short-Horns. Mr. Ayres thought the Short-Horns are the best in the rich valleys, where grass is abundant, and the Devons best in hilly sections. If he kept only one or two cows, he would prefer the Jerseys. Mr. Barnes said that for beef, he always preferred the Short-Horns. Gov. Hyde found the Devons to be best for his section.

The Garden.

LAWN MOWING MACHINE.

Constant mowing is essential to the preparation and preservation of a good lawn. To mow a lawn closely and evenly with a scythe is very difficult, as every one knows who has tried to do it, or seen anybody else try. The best mower will, in spite of himself, leave ridges here and there. An absolutely even surface, pleasing to the eye at any time, and the great desideratum in a lawn, now that croquet is so universally

played, is impossible with so primitive an implement as the scythe. Besides all this, close shaving, without injury to the crowns and roots of the grasses is very desirable, and neither the closeness nor the harmlessness can be ensured with the scythe. There has, therefore, sprung up a demand for a machine that shall banish the scythe from the lawn, as the mower has banished it from the meadow. This demand is fully met in such machines as that which is represented in the engraving below, of which there are several styles now made, both in Britain and the United States. Two patterns are on sale in this city.



One is the Shank's machine, for which Messrs. J. Fleming & Co. are agents. The other, and the particular machine figured above, is the Samuelson Lawn Mower, which is now manufactured by Messrs. Rice Lewis & Son, of this city, and offered by them at greatly reduced prices. The Samuelson machine is the best we have yet seen. It is simple in principle, strong in construction, efficient in working, light in weight, and cheap in price. To all which may be added, it is noiseless, being free from the unpleasant "click, click," of most other machines of the kind. For further particulars, we refer our readers to our advertising columns, and to Rice Lewis & Son's catalogue.

WEeping MOUNTAIN ASH.

(*Sorbus Aucuparia Pendulea*). This is a very long growing tree, covers a larger area than any other weeping tree in the same time. It is, however, a little wayward, and requires some

training while young. Set stout uprights around it as directed for the willow, with cross pieces on top, to which tie the branches in such manner as to be evenly distributed round the circle formed by itself. Change the position of the uprights as the growth of the tree requires. Should be grafted on the upright mountain ash. Select clean straight stems, and to have a really good specimen work at least ten feet high. This is, or should be, the most popular of all weeping trees. By its exceedingly rapid growth, and a little timely training, it will in five or six years cover a circle of fifteen to twenty feet diameter; its outer branches sweeping the ground. When covered in the fall with beautiful orange berries in bunches, it is really an object of surpassing beauty.—*Rural American*.

TO PRESERVE A BOUQUET.

When a bouquet is received, at once sprinkle it lightly with fresh water, and then put it in a vessel containing soap suds. This will keep the flowers as freshly as if just gathered. Then every morning take the bouquet out of the suds, and lay it sideways—the stock entering first—into clean water, keep it there a minute or two, then take

it out and sprinkle the flowers lightly by the hand with water, replace it in the soap suds, and it will bloom as fresh as when first gathered. The soap suds needs changing every three or four days. By observing these rules, a bouquet may be kept bright and beautiful for at least a month, and will last still longer in a passable state.—*Cor. Western Rural.*

TRAINING VINES.

Out buildings of all kinds that have become dilapidated through time, or by exposure to storms, may become objects of beauty by training wild vines, such as woodbine, wild grape or forest ivy upon them. These vines spread very rapidly from their lateral branches, or will increase to an astonishing extent, by means of cuttings or by layering. The picturesque beauty of many of the rural villages in Europe, is almost entirely owing to the vines that overspread the dwellings. Some of the more hardy grapes may be grown with profit over low buildings; and at the same time they will give a pleasant appearance to that which before disfigured the premises.—*Ec.*

GARDEN GLEANINGS.

Lawns must be frequently cut to look well, and feel velvety.

Keep the ground well stirred about cabbage and cauliflowers. No plants are more benefited by letting air into the soil.

Roses may be layered in pots of good compost sunk in the soil. This gives the amateur a ready means of increasing his stock.

Budding is to be done whenever well matured buds can be had, and the bark of the stock "runs" or parts freely from the wood.

Coleus, now so much used for its ornamental foliage, should be kept dense and bushy by being well cut back. It stands the open sun well.

At the recent Horticultural Fair at Rochester, N. Y., several gentlemen stated that the currant worm will not disturb bushes under which coal ashes are liberally sprinkled.

It is well to give tomato vines some support. A stake, some brush, the skeleton of a small evergreen, or best of all, a wire trellis, will be found to answer a good purpose.

Lilies are liable to be infested with a caterpillar which works on the underside of the leaves. A transparent spot in the leaf will show where they are at work. Handpick and destroy them.

It should always be remembered that differences in climate, soil and cultivation, may so materially change the appearance and characteristics of a fruit that it may seem a distinct variety.

A capital liquid manure for the flower garden is made by a decoction from guano—one tablespoonful to a gallon of warm water. It can be made by the barrel, kept covered and used as wanted.

The rake, kept in lively use in a garden when weeds are just beginning to show their heads above ground, will save a great deal of back-breaking work with the hoe when the weeds grow big.

A vine cutting needs to be in the soil long enough to form roots before the buds push, otherwise it will put out a leaf or two and soon die for want of roots. In all dormant cuttings aim to get roots before the foliage starts.

A hint to currant growers: A row of currant bushes in Pittsfield, Mass., garden planted alternately with raspberries, is entirely free from the ravages of the currant worm, which is destroying all others in the same vicinity.

A correspondent of *Hearth and Home* advises market gardeners to raise their own seeds, being satisfied that it is the best and most economical plan. For this purpose, the best specimen of vegetables, etc., should be selected as used.

The Wilson comes out of another season triumphant as the strawberry for market. Numerous as have been its rivals in the last few years, it still leads them as a large yielder, of good size and colour, fair quality, and ability to bear transportation.

A western horticulturist has "discovered" that grape cuttings on a sunny and sandy slope root earlier than elsewhere, and he proposes, with the greatest *sans froid* to take out a patent to prevent others from using aspects and soils thus favorably situated.

Californians say that by the help of refrigerator cars, running over the Pacific railroad, they can sell grapes, pears, apricots, plums, and every other kind of fruit, not of a perishable nature, in any Atlantic city, at half the price they are now sold at, and still make a profit.

It is said that cabbage plants may be protected from the cut-worm by wrapping the stems in oak leaves—one leaf to each plant, covering from the roots to the leaf stems. This should be done at the time of transplanting, the oak leaves being first moistened with water.

No remedy for black knot on plum and cherry trees has been yet discovered, except the vigorous use of the knife. If the excrescence appears on a large limb, cut it out; if on a small one, cut it off, but on no account let it remain, however unmerciful the required amputation may seem to be.

A Central Illinois correspondent of the *Country Gentleman*, says that with him the Early Rose potato has exceeded all reasonable expectations. He planted one peck April 7th, commenced using them June 25, is much pleased with their appearance and quality, and thinks the yield will be at the rate of 325 bushels to the acre.

The pear slug is very destructive this year and if precautions are not immediately taken it will destroy the entire foliage of the trees. Dusting the leaves with dry wood ashes early in the morning has been useful. Syringing with whale-oil-soap-suds, tobacco water or a solution of soot will save foliage from destruction.

A correspondent of the *Rural World* says that an ordinary hot-bed is a capital place for drying fruit. A floor is laid inside, on which the fruit is placed. Then put in the sash, raising both ends to ensure proper ventilation and to prevent the fruit from baking instead of drying. Here the fruit is safe from damage by rain, insects, etc.

Beetles, wasps and flies are great enemies to the canker-worm. The former eat the worms, and the latter deposit their eggs in the bodies of the worms and when the maggots are hatched they eat the worms. Birds are also great destroyers of this pest, but birds are killed or driven away because they help themselves to some of the fruit.

A writer in the *Springfield Republican* protects his cucumber vines from the bugs by growing beans among them. We find a few broods of chickens answering every purpose, but hear of a man who complains that "the bugs eat the cucumbers; the chickens eat the bugs; the cats eat the chickens," and plaintively inquires, "Who will eat the cats?"

One great advantage of planting potatoes and corn in rows a good width apart, so as to have room for horse labour between them, is that a supplementary crop may be put in after the last hilling. Quick growing beans, white turnips, and cabbage plants may be planted thus, and the products be of no small use in helping to get stock well through the winter.

The *Germantown Telegraph* says that fruit trees that are trained low can have their fruit gathered from the ground or from a step-ladder, and will frequently bear perfect fruit within from twelve to eighteen inches of the ground. This low-branching of trees shades and protects the trunk from the hot sun in summer, and thus ensures for it a longer and more productive life.

The *Lewiston (Me.) Journal* describes the following simple method of preventing the ravages of the borer:—Previous to the first of June, we wound around the bottom of each tree, some rigs to the height of six or eight inches, taking pains to prevent any access to the tree beneath the rags. The operation was a very simple one and performed in less time than it took to survey the trees. Not a tree was touched by the borer last year, except in one instance where we found a deposit above the bandage.

Hearth and Home says:—One of our amateur florists has lately been experimenting with the gladiolus, and has discovered a method of propagating them more rapidly than in the usual way. The bulbs are buried in sand and then placed in a warm place in autumn; for instance, under the stage of a greenhouse, and, being kept slightly moist, new buds are formed on nearly every portion of the surface. In the spring the bulbs are divided, and the pieces with buds on them are planted the same as whole bulbs. By this process the multiplication of this fine class of plants is far more rapid than by natural divisions or from the small bulblets.

The *Horticulturist* says that if a fruit grower has a muck bed within reach, he is fortunate. For all light or loamy lands, the application of a hundred or more loads per acre of well-prepared muck, is of the most beneficial character. It should be exposed to the air six months or even a year before it is applied to the soil, and composted meanwhile with lime, unleached ashes or fish guano.

The *Gardener's Monthly* says that in summer-pruning or disbudding, it is also worth while to watch for shoots pushing stronger than others, and always to take them out. This the only way by which shoots of equal strength can be encouraged in every part of the tree. This is particularly true of grape-vines. If a shoot once gets the start of the others, in strength and vigor, the others will gradually get weaker.

A correspondent of the *Country Gentleman* says that he made, in the following manner, a very useful implement for clipping the runners of strawberries: He purchased a common chopping knife such as women use in kitchens, and inserted it in an old rake handle. The advantage of this over shears is, that you can stand erect while at work, and cut about you in any direction the instruments will reach, the knife being rounding.

The *Gardener's Chronicle* says that the root Aphid of the grape-vine appears to be spreading through England. The editor has received some vine leaves in a dreadful state of disease, the whole of the bark being decomposed and turned into a shapeloss, brown powdery matter. He thinks the matter is really of great importance inasmuch as it is clear that where this insect gains ground, the cultivation of the grape-vine will become extremely precarious.

Almost everyone who has had any experience in gardening knows the importance of pruning newly planted trees. But in transplanting cabbages, beets, tomatoes, and similar vegetables, few ever think of taking off any of the leaves, an operation fully as important as the reduction of the branches of an apple or pear tree. Let everyone who is about setting out any of the succulent plants, try the cutting off of the larger leaves, and they will never omit it again.

The *Prairie Farmer* says: Surely the rose is early. We have before us a full dozen of the Early Rose potatoes, sent us by Samuel Stratton, of Litchfield, Ill., that were taken from one hill, ten weeks from the time the seed was planted. About one-half of them are seemingly fully grown and ripe, while the balance are of various sizes. The aggregate weight of the twelve is two pounds. They all grew from a single eye. Mr. S. planted in rows three feet apart, hills sixteen inches apart, and covered with a plough. Mr. Stratton informs us that he had them for table use in seven weeks from the time of planting.

FUDDLING THE ROOTS.—Many of our readers may have neglected to transplant a choice shrub or tree, until it seems to them to be too late in

the season. They will find, however, that the operation can be safely performed if they will take up the plants and puddle the roots—that is, dip them in mud made of about the consistency of thin mortar. The puddle-hole should be made ready before the plants are lifted, and the roots should be dipped in the mud before the sun or air can have any effect upon them. After the roots are coated with earth, they may be carried to the place where they are to be planted. Shrubs that have been heeled in until the leaves have started may be safely removed by using the puddle.—*Hearth and Home.*

THE EFFECT OF CHARCOAL ON FLOWERS.—A horticulturist in England, purchased a rose bush full of promising buds—the flowers, however, were of a faded hue. He covered the earth in the pot about an inch thick with pulverized charcoal, and was surprised, some days afterward, to find the blooms of a fine lively rose color. He repeated the experiment another season with the same result. He then tried the powdered charcoal upon petunias, and found that both the white and violet coloured flowers were equally sensitive to its action. It always gave great vigour to the red or violet colours of the flowers, and the white petunias became veined with red or violet tints; the violets became covered with irregular spots of a bluish or almost black tint. Many persons who admired them thought they were choice new varieties from the seed. Yellow flowers appear to be insensible to the influence of charcoal.

Our Country.

THE CLIMATE OF CANADA.

Very incorrect ideas prevail abroad as to the climate of this country. Our winters are supposed to be arctic in their duration and severity; and our summers, in like manner, arctic in their brevity and coolness. The statement is current that we have frost every month in the year, and “the rigours of a Canadian climate,” have become a proverb. Not only in Great Britain and on the European continent, do these misconceptions prevail, but even our American neighbours cherish them to some extent. They confound Canada with Labrador, and the Canadians with Esquimaux. A few years since, an intelligent Boston lady enquired of a visitor, if the people of Canada did not usually travel in the winter season in sledges drawn by dogs. This was a glaring case of ignorance, to be sure, but, in a less degree, similar ignorance exists in many quarters. We are thought to inhabit an inclement region, hardly worthy of being styled “home.” But the truth is that ours is a singularly pleasant and fruitful land. For natural scenery, varied resources, and ability to sustain a teeming population, we shall search far and wide ere we find a country to surpass the Dominion of Canada. Our climate has been severely criticised, and its extremes of heat and cold have been much complained of, but the healthfulness of this land

is established beyond controversy, and our climatic vicissitudes, though sometimes a source of inconvenience, are by no means unwholesome. No where on earth do the seasons of the year move on in lovelier, grander procession. In spring, we have a quick awakening of vegetable life, and nature puts on her best attire, promptly as a bride on her wedding-morn. Our summer is short, but gorgeous with splendour, and bedecked with flowers that can hardly be surpassed; we have oppressive heat at times, and occasionally drought, but how do our summer showers refresh the face of all things, how welcome is the rain, and how green and beautiful are the fields, the gardens, and the woods, when it falls. In autumn, we have the waving fields of grain and tasselled corn; our orchards display apples of gold in baskets of silvery verdure, and we can reckon even the grape among our fruits; our forests present a richly-tinted and many-coloured foliage; we have mid-October days in which the weather is superb; our Indian summer is a splendid valedictory to the season of growth and harvest; a bright and beautiful hectic flush sits upon the face of universal nature as death draws on and we glide imperceptibly into winter. This, though confessedly severe, is exhilarating, hardening animal as well as vegetable fibre, while it has its ameliorations and joys in the fire-side warmth that tempers into geniality the clear, frosty air; we have also the merry jingle, and fleet gliding of the sleigh, and the skater's healthful sport, together with almost entire exemption from damp and mud, two most disagreeable accompaniments of winter in milder climes. The characteristics of this country are only beginning to be known abroad, as its resources are only beginning to be developed at home. It offers inducements rarely surpassed, to industrious, energetic, prudent settlers. Let it only be thickly settled with a population worthy of it, and it will take no mean rank among the countries of the earth. Sunnier climes there may be, but a fitter habitation for a manly, vigorous race—a finer field for displaying the energy, intelligence, and virtues of Anglo-Saxons, we may safely challenge the wide world to produce.

For the information of persons at a distance, it may not be amiss to give a short descriptive account of the months as they take their annual journey through the year in the Province of Ontario, and the Dominion of Canada.

January, in this climate, is a severely cold month. About New Year's Day we are accustomed to look for pretty sharp weather, which continues without much abatement all through the month, except when we have the “January thaw,” an old fashioned institution, which, like “Indian Summer,” and many others of the same class, has of late years been going rather out of vogue.

Whatever modifications our climate may undergo in other respects, the phrase “Canadian winter” will, no doubt, always denote a period of intense cold. Yet we question if the cold be so excessive, long-continued and trying as persons

at a distance are apt to think. Not much fuss is made about a New York or Boston winter, but when we have what is called a "cold snap," the markings of the thermometer at the cities just named are about the same as at the average of localities in Western Canada. On that memorable cold day which occurred during the winter of 1860-61, the thermometer fell to 20° below zero in Boston, and from 20° to 30° in the adjacent towns of Massachusetts. We have no record at hand of the markings in and about New York on that day, but we are very clear in our recollection that the cold was no more intense in Toronto and other places in this province, on the day in question, than in Boston and its vicinity. It is a peculiarity of our climate that extreme cold only lasts a very short time, seldom beyond three days at once, while our usual winter weather is far from being unpleasantly severe. During most of it, exercise and labour in the open air are not only practicable, but bracing, blood-stirring, and positively enjoyable.

The study of climatology is as yet in its infancy in this country. Careful meteorological observations have not been taken at many points for a sufficient number of years to give us a trustworthy average. So far as ascertained, the following are the mean degrees of cold at the several Canadian points named, during the month of January:—

MEAN TEMPERATURES FOR JANUARY.

Stratford.....	18° 42
Hamilton.....	22° 80
Barrie.....	15° 56
Toronto.....	20° 70
Belleville.....	17° 61
Montreal.....	12° 10
Quebec.....	17° 20
St. John, N. B.....	14° 37
Halifax.....	20° 00

February is a somewhat milder month, in our climate, than January. This is not the popular impression, but it is nevertheless the fact, as established by the unimpeachable testimony of the thermometer. The popular impression may, perhaps, be accounted for to some extent by these two things: first, there is no thaw at the beginning of February to mitigate for a little the rigour of the season; and secondly, in addition to steady cold, we are liable this month to have storms, which make the weather seem more severe than it really is.

Winter begins astronomically about the 22nd of December, viz., at the time of the winter solstice, as it is termed. Then the day is shortest. But curiously enough, winter does not often fairly set in until after the sun has turned the corner, and is daily shining higher and higher in the heavens. Hence the proverb, "As the day lengthens, the cold strengthens." Dr. Holmes observes, "We do not commonly feel that winter thoroughly in earnest until after the Christmas holidays, which include the first of January. And inasmuch as on the 14th of February our thoughts are led, by the ingenious fiction of St. Valentine's day, to look forward henceforth to spring, which is at hand, we may say that the

white pith or marrow of winter lies locked up in the six weeks between these two festivals." Another sprightly writer says:—"There is an old artistic tradition which puts the month of January in the guise of a young babe (typical of the New Year of course) making a bold front of it, and not like Shakespeare's babe—

'Mewling and—'

to the great discomfort of the nurse. For my own part, I can never think of January as a babe, whether methodical in its habits or the contrary, but rather as a fine old gentleman with frosted beard, who has seen his best days and is content to take his ease by his own chimney corner. And if I were to symbolize February, it should be as a decorous, white-haired, venerable lady—something shorter than January—who is not over-clamorous for rights, but yet has her storms, and who is most effective when most serene."

MEAN TEMPERATURES FOR FEBRUARY.

Stratford.....	26° 06
Hamilton.....	23° 90
Barrie.....	18° 64
Toronto.....	22° 50
Belleville.....	20° 36
Montreal.....	22° 00
Quebec.....	15° 80
St. John, N. B.....	21° 42
Halifax.....	25° 00

March, with his lungs full of wind, blows the trumpet of the year as the herald of spring. He is a blustering fellow, who, though he may sometimes commence his career in disguise, is sure to reveal his true character before we have done with him. Hence the proverb, that if March comes in like a lamb it will go out like a lion. The sprightly writer whom we quoted, as representing January and February in the character of a venerable couple with snow-white hair, speaks of March as "some shrew of a maid, following up the old people with a tremendous clatter of brooms and great clouds of dust."

The rigour of winter sensibly abates during this month, as experience testifies and the meteorological tables demonstrate.

MEAN TEMPERATURES FOR MARCH.

Stratford.....	25° 51
Hamilton.....	29° 14
Barrie.....	35° 02
Toronto.....	27° 60
Belleville.....	28° 85
Montreal.....	26° 16
Quebec.....	21° 00
St. John, N. B.....	29° 00
Halifax.....	29° 00

Dr. Holmes tells us that the good people living in that extreme "down East" point, the State of Maine, are wont to talk about having six weeks' sleighing in March, but he says, "we in Massachusetts do not expect more than a month's sleighing in March—in fact, not so much as that." The Maine style of comment on the month indicates continued plenty of snow, along with a milder temperature and greater length of day. Maine has undoubtedly a less hospitable

climate than Western Canada, for we do not have any more sleighing in March here than they do in Massachusetts, judging by the above quotation. Our Yankee neighbours are hard to persuade that Canada is as good a country as New England. They generally look upon it as a very cheerless region, a wilderness of ice and snow far inferior to the Eastern States. But we presume that our Province of Quebec is, on the average, quite equal to Maine, while Ontario in its easterly section is the counterpart of New England in general, and in its westerly section very like New York.

April may be said, in this climate, to be the first month of spring. It brings us fairly out of winter; unlocks the ground so that the plough can gain admittance; wakes all nature from slumber; and calls man to the tug of active outdoor farm work. Now indeed begins the busiest season of the year, and it usually comes with surprising suddenness, insomuch that we can hardly credit the fact that a transition of such magnitude has actually taken place. Winter holds undisputed sway in March, sometimes all through the month; at other times the sceptre of the ice-king is broken, and his abdication rendered imminent, before the month is more than half through. But whatever may be the character of March, spring is ushered in by April. It scarcely answers to the description of the month current in Great Britain, where "March winds" and "April showers" are reputed to "bring forth May flowers." We have often more of the stormy March than the showery April during this month. Indeed it is very variable in its characteristics, being sometimes dry, sometimes wet, and often exceedingly pleasant and seasonable. One feature, however, it always has, it is far milder than March. The weather moderates but gradually from January to March, but in April it makes a sort of jump toward temperateness and geniality. One would scarcely think the advance toward summer so rapid as it really is in April, were it not for the testimony of the thermometer, for we have now and then chilly days which makes us ask, when will the winter be over? But this is our impatience, as well as the natural effect of the fine, pleasant days we occasionally have, and which are so delightful that we naturally wish to have more of them. It will be interesting to compare the mean temperature of April, given below, with the table for March, and to note the great progress indicated for the present month.

MEAN TEMPERATURES FOR APRIL.

Stratford.....	45° 55
Hamilton.....	46° 04
Barrie.....	43° 02
Toronto.....	43° 90
Belleville.....	45° 85
Montreal.....	41° 80
Quebec.....	41° 40
St. John, N. B.....	39° 10
Halifax.....	40° 00

May is welcomed by everybody with expressions of gladness. We have indeed no "May-

day" festivities such as are common in some countries. Our variable climate hardly admits of it. We have known the first of May, in some rare instances, to be very wintry. Within a week or so of that date, we have sometimes had a snow-storm which left the ground with a white wintry covering of from two to six inches in depth. Nor do we ever have such a profusion of blooming flowers as would render the first of May an appropriate time for a floral festival. At this date, anything wintry can only be spasmodic and ephemeral, and, let appearances be what they may, "we know that summer is nigh."

The mean temperatures do not rise so fast this month as last.

MEAN TEMPERATURES FOR MAY.

Stratford.....	47° 73
Hamilton.....	50° 87
Barrie.....	48° 22
Toronto.....	48° 30
Belleville.....	50° 42
Montreal.....	50° 25
Quebec.....	48° 30
St. John, N. B.....	46° 70
Halifax.....	47° 00

It is noticeable that, at points where the cold of winter is very severe, the mean temperature is now quite as high as at places considered to have a much milder climate. Thus a Quebec May is precisely like a Toronto May, while Montreal is within three-fifths of a degree of the Hamilton average the present month. In June, it is rather warmer in Quebec and Montreal than it is in Toronto and Hamilton.

The rapidity with which vegetation advances, when once growth has commenced, is one of the peculiarities and charms of our Canadian climate. No sooner is the frost out of the ground than the grass begins to sing, "Here I come creeping, creeping everywhere." Very little sunshine makes the pulses of the sugar-maple bound with life, so that the sap streams out wherever an incision is made in the bark. After a very few warm days the children exclaim,

"See the tender catkins cover
All the slender willows over."

In fine, the change from winter to spring is almost magical. It is as if the scene had been touched by some fairy's wand, and suddenly transformed from dreariness and death to life and beauty.

June is indeed a charming month in this climate. It is a delightful compound of spring and summer. The uncomfortable wintry chilliness is gone, and the scorching July heat has not yet come. Bright sunshine glorifies the nature; innumerable flowers display their loveliness; the fields are decked in their freshest green; the forests are bursting into leaf; the air is vocal with the chirp of insects, the song of birds, and the gentle music of the spring breeze. Activity and beauty are to be seen on every hand.

MEAN TEMPERATURES FOR JUNE.

Stratford.....	61° 82
Hamilton.....	63° 50
Barrie.....	62° 27
Toronto.....	60° 20
Belleville.....	63° 17
Montreal.....	63° 66
Quebec.....	62° 20
St. John, N. B.....	54° 53
Halifax.....	56° 00

July brings the indubitable summer, and is chiefly remarkable in this climate for a degree of heat that, with occasional most welcome reliefs, keeps us almost constantly in a sweltering condition, and makes our anticipations and memories of the month rather painful than otherwise. We hail June, but dread July. "Ike Marvel" says: "I picture July as a stout woman perspiring fearfully; yet she wears a cheery, honest face, and if she have none of the bridal freshness of May and June, she wears the honours of maternity, and leads in a great brood of flowers and fruits in her train."

MEAN TEMPERATURES FOR JULY.

Stratford.....	66° 64
Hamilton.....	72° 47
Barrie.....	71° 88
Toronto.....	70° 40
Belleville.....	71° 87
Montreal.....	69° 35
Quebec.....	71° 00
St. John, N. B.....	61° 75
Halifax.....	61° 00

The above table shows nearly four degrees difference between Toronto and Stratford, makes Toronto and Montreal nearly alike, and, strange to say, gives Quebec slight superiority in point of heat over both Toronto and Montreal.

August brings wane to the summer, and abatement to the heat. These are welcome and pleasant reflections always as July draws to a close, but they are especially so when, as occasionally happens, the month proves unusually hot.

MEAN TEMPERATURES FOR AUGUST.

Stratford.....	59° 16
Hamilton.....	62° 57
Barrie.....	57° 31
Toronto.....	60° 80
Belleville.....	61° 73
Montreal.....	60° 13
Quebec.....	64° 60
St. John, N. B.....	59° 16
Halifax.....	62° 00

From the above it appears that Hamilton has an average of nearly two degrees greater heat than Toronto the present month, while Quebec is about four degrees, and Halifax between one and two degrees hotter than either Toronto or Montreal.

September is one of the pleasantest months of the year. As June is a delightful compound of spring and summer, so September is an agreeable mixture of summer and autumn. We have mid-day heat, but it is tempered by cool nights. Indeed, some time this month, Jack Frost may

be expected to appear on the scene, committing his first depredations on our melon, tomato and grape vines, blanching the corn leaves, and putting the first faint hues of loveliness on the forest leaves. Summer will soon abdicate the throne, and after a brief October interregnum, winter will be crowned king. On all the beauty and life of nature may now be clearly read the inevitable doom, "PASSING AWAY."

MEAN TEMPERATURES FOR SEPTEMBER.

Stratford.....	53° 59
Hamilton.....	58° 90
Barrie.....	54° 31
Toronto.....	55° 20
Belleville.....	56° 29
Montreal.....	51° 46
Quebec.....	54° 47
St. John, N. B.....	55° 66
Halifax.....	58° 00

October, it has been well observed, "is regal, and walks the woods royally with great show of purple and crimson, while a veil of golden mist streams from the tiara of the queenliest of the months." The mean temperatures for this month are very similar to those for May, as will be seen by comparing the following table with that given for May.

MEAN TEMPERATURES FOR OCTOBER.

Stratford.....	47° 93
Hamilton.....	50° 92
Barrie.....	48° 82
Toronto.....	49° 09
Belleville.....	49° 58
Montreal.....	46° 76
Quebec.....	46° 30
St. John, N. B.....	44° 35
Halifax.....	45° 00

But if there be similarity between May and October in temperature, there is a very decided dissimilarity in other respects. The air is not spring-like. It is not charged with the juiciness and stimulus that distinguish the season of growth. There is no show of young shoots, nor smell of wood and soil. Instead of the bursting forth of activity and life throughout nature, there is the hush of repose and the sense of leisure. It is plain that the year is composing itself to rest after its appointed season of toil and bustle. Peace broods upon the hills and valleys. Beauty shines through the mists of morning, and golden glory paints the sunset at even. The forests are decked in a coat of many colours, and all nature puts on a holiday attire. Very graphically does Henry Ward Beecher portray this month in one of his "Star-F. pers." "October! Orchard of the year! Bend thy boughs to the earth, redolent of glowing fruit! Ripened seeds shake in their pods. Apples drop in the stillest hours. Leaves begin to let go, when no wind is out, and swing in long waverings to the earth, which they touch without sound, and lie looking up, till winds rake them, and heap them in fence corners. When the gales come through the trees, the yellow leaves trail, like sparks at night behind the flying engine. The woods are thinner, so that we can

see the heavens plainer, as we lie dreaming on the yet warm moss by the singing spring. The days are calm; the nights are tranquil. The year's work is done. She walks in gorgeous apparel, locking upon her long labour, and her serene eye, saith "It is good." This description is peculiarly applicable to the fall season of Canada, and nowhere in the world, perhaps, is the splendid colouring of the dying foliage at this period of the year so striking or beautiful as in our Canadian forests. The marvellous hues that give our woods their autumnal beauty, so rich that a painter can scarcely depict them faithfully without laying himself open to the charge of extravagance, are chiefly due to the prevalence of the maple in our woodland scenery. No other tree can vie with this in the variety and loveliness of the tints which the foliage assumes in its departing glory. The oak, the elm, and beech, with their appropriate drapery, add to the charm and grandeur of the scene. Nature puts on a royal robe well befitting the solemn repose that precedes the sterner reign of winter.

November is a month of very uncertain character in this climate. It is hard to say how it will behave. Sometimes it begins with a rough cold snap that startles us into a conviction that winter does really mean to come again, and, as if to make amends for its rough behaviour at the outset, closes with a delightful reminder of a departed season which we call "Indian Summer." Or this order is reserved, in which case summer in pretence begins the month, and winter in earnest closes it. The well-known March proverb is not inapplicable to November. If it come in like a lamb it will go out like a lion, and vice versa.

MEAN TEMPERATURES FOR NOVEMBER.

Stratford.....	36°.75
Hamilton.....	39°.76
Barrie.....	37°.99
Toronto.....	38°.36
Belleville.....	38°.82
Montreal.....	34°.76
Quebec.....	35°.50
St. John, N. B.....	37°.40
Halifax.....	38°.00

December brings the indubitable winter, as July does the summer. Whatever dreamy expectations we may have had of possible Indian summer, vanish now. Pleasant weather indeed we may have, but it will be pleasant wintry weather, with perhaps now and then a day so fine and warm that it seems to have lost its proper place in the year. Clear, bracing, but chilly, air will quicken the pulse, and send the blood coursing through the veins with unusual vigour. The snow will wrap the earth in its white coverlet, and all things will yield to the sleep of winter, and to the reign of the frost king.

MEAN TEMPERATURES FOR DECEMBER.

Stratford.....	22°.65
Hamilton.....	25°.96
Barrie.....	23°.94
Toronto.....	26°.05
Belleville.....	22°.85

Montreal.....	24°.12
Quebec.....	21°.20
St. John, N. B.....	25°.93
Halifax.....	28°.00

We are accustomed to think and speak of winter as a season of comparative rest and leisure for the farmer. But how far that is true and applicable to individual cases, depends on a variety of circumstances. Winter affords but little respite to the man who has a large area of land to clear, or a numerous herd of cattle to feed. These, however, are exceptional cases, and most farmers, when winter fairly sets in, feel that they are less driven than at any other period of the year. But while "broken weather," as it is often termed, lasts, every one has enough to do. That charming writer on rural affairs, "Ike Marvel," says: "Even into December, country improvements may go safely forward; the clearing of land, the thinning of over-crowded forest-growth, the building of walls, the construction of walks and roads,—for these, severally, or together, no better time can be found than that which immediately precedes the locking frost of winter. And when the dead-lock is fairly established,—so far treatment of the land goes,—the open sunny weather of December still invites us many a day out of doors. If we have rocks to move, they glide easily over a frosted and stiffened turf; the brambles and waste growth of outlying pastures cut easiest when the earth is locked unyieldingly about their stems; the woods, despoiled of their leaves, give free insight and oversight to their most sequestered nooks." These are but examples of a thousand and one things that may be done just at the setting in of winter, and there are few so beforehand with their work as not to be caught by the "dead-lock" with some needful preparations or unfinished undertakings that must needs be postponed until another year. Happy are those on whom winter does not shut down with a host of half-accomplished schemes of preparation and improvement!

Arts and Manufactures.

ACOUSTICS AND BUILDINGS.

In the July number we noticed a lecture published in the *London Builder*, on the subject of our heading, and especially referring to the most approved form of ceiling for public rooms, for the reflection of sound, and the advantage of using a large portion of wood lining, or screens, for the reinforcement of the speaker's voice. The lecturer next drew attention to the practice of the ancient Greeks, whose theatres were built chiefly of stone or marble, and who "sought to make up the lacking reinforcement, owing to the want of elastic materials in their structures, by employing the aid of resonance." Hollow earth-

enware, or other vessels, carefully graduated as to size, were placed under the seats, and were found greatly to strengthen the speaker's voice. Each vessel selected "from the speaker's voice a note which was in unison with itself, and by its resonance reinforced that note."

Cavities in the walls of buildings act in the same manner, as also do hollow spaces below the floor, or above the ceiling of a room.

Open spaces beneath the seats, below the floors, and behind the wooden walls of the theatre of the Royal Institution, add greatly to its acoustic properties; and in some of the opera-houses of Italy the orchestras are constructed of thin wood, with hollow spaces beneath.

Attention is also drawn to the difference between "this strengthening of the voice by resonance, and the "prevention of its decay by proper reflection and condensation,"—the two latter securing increased loudness, while the former "gives a musical character or richness to the voice of the speaker."

The answer to the enquiry as to how the large volume of air in a building can reinforce the comparatively rapid vibration of a speaker's voice, and the best form of buildings for acoustic qualities, we give in the author's own words:

"The air within a building behaves very much like the air in the interior of a gigantic organ-pipe. The entire mass of air in a large room, if it could be thrown into vibration as a whole, would yield a note of a pitch so low as to be quite inaudible. By subdivision, its parts can, however, vibrate more rapidly, and give rise to that resonance which is often called the *note* of a room. This note you may observe by making a noise in a room: a sharp ear can then often detect a faint musical sound lingering after the noise. So, in speaking, it is desirable to find the *note* of the room, and endeavour to pitch the voice to suit that note.

This brings us to the question, what determines these subdivisions?—for as they determine, to some extent, the acoustic properties of a room, whatever influences them must be important. In altogether satisfactory answer I cannot give. Two points, however, seem worthy of consideration—namely, the dimensions of a room, and the presence of rows of pillars in a regular series, recesses, &c., all of which, more or less, favour subdivision. In a flute, for example, the note can be raised by uncovering the holes, these holes determining the nodes of the vibrating column of air within the tube. Probably an action somewhat analogous may occur in a building. The dimensions, however, are also important. It appears that for good acoustic properties a building

should be so constructed that its different dimensions shall be in some simple relationship to each other. An analogous effect is well known in music, for if two notes have the simplest possible relationship to each other's rate of vibration, as 1 to 2, or an octave, the combination of those two notes is more harmonious than any other combination. Next to this would be the rate of 2 to 3, or the fifth, and next the ratio of 3 to 4, or the interval of a fourth; the harmony decreasing with the simplicity of the combination. Further, in the case of three numbers a musical or harmonic proportion exists when the first is to the third as the difference of the first and second is to the difference of the second and third: thus, 2, 3, 6 are in harmonic proportions because $2:6::1:3$. And that an approach to an harmonic proportion between the three dimensions of a building is better than an unsymmetrical arrangement, gains some support by citing the following proportions of buildings famous for their good acoustic properties.

FREE TRADE HALL, MANCHESTER.

Height, 52 ft., or as 2; unit, 26 ft.
Width, 78 ft., " 3.
Length, 130 ft., " 5.

ROYAL INSTITUTION THEATRE.

Height, 30 ft., or as 2; unit, 15 ft.
Length, 45 ft., " 3.
Width, 60 ft., " 4.

WESTMINSTER CHAPEL.

Height, 50 ft., or as 2; unit, 24 ft.
Width, 67 ft., " 3.
Length, 120 ft., " 5.

"In all you will perceive a very simple ratio of their proportions. The last quoted is a building recently erected, and has proved a great acoustic success. Besides its excellent proportions, this building has in its interior a smooth apse behind the speaker, which may assist, by reflecting the voice, and certainly with the curved ceiling prevents the waste of sound arising from oblique incidence. Then, the extensive wooden ceiling, and other wood surfaces, greatly aid by their reinforcement; and finally, the large hollow spaces above the roof and below the building, afford cavities where resonance can take place. I am inclined to attribute to this form of ceiling great value in the acoustic construction of large buildings.

"Such, then, is a rapid and confessedly imperfect outline of some of the more important points connected with the acoustics of buildings. Summing up what should be avoided, and what it is desirable to secure in the construction of buildings, as regards speaking, what we have learnt can be comprised under three heads.

"I.—*We have to avoid the waste of voice:* (a) by the production of rollers of sound from oblique incidence; (b) by echo and reverberation from improper reflection.

"II.—*We have to secure the prevention of the decay of voice:* (a) by condensation of the sound; (b) by proper reflection; and (c) by a proper arrangement of the seats.

“III.—*We have to secure a reinforcement of the voice:* (a) by lining the interior of a building with elastic materials, such as wood, and, where possible, having the ceiling of the same; (b) by employing the resonance of cavities within a building, having spaces above its ceiling and below its floors; (c) by endeavouring to obtain some simple ratio between the various dimensions of the room.”

GOLD BEATING.

The art of gold beating, says the *London Builder*, is a very ancient one. There seems great probability, that, like some other arts, it has been known and practiced and forgotten. Homer refers to it; Pliny, more practical, states that gold can be beaten, one ounce making 550 leaves, each four fingers square—about four times the thickness of the gold now used. This is most probably such gold as was used in the decoration of the Temple—“It was covered with plates of burnished gold.” The Peruvians had thin plates nailed together. It is possible that if decorations of this character were used in these parts, their insecurity would so trouble some folks that they would have no rest till they were effectually “nailed”. The Thebans have in their wall histories some gold characters done with leaf said to be as thin as the gold of the present day. Coming down with a jump from the long past to the present age, we find our country celebrated for its gold-leaf. Italy used to excel us, but Italy has been in a long sleep, and is only just awakened. It is one of the last things our overgrown offspring undertook to make for herself. Until very recently she imported all the gold-leaf she required from this country. The gold-beater’s skin made here is still the admiration of the world (of gold beaters). This skin is gut skin, stretched and dried on frames, after which each surface is very carefully leveled, a labor intrusted to the delicate hands of young girls. A mold (as the number of square pieces of skin beaten at one time in the gold-beating process is called) is an expensive article, costing from £9 to £10, and when useless for gold beating is still of some value. Fifty or sixty years back a workman made 2,000 leaves of gold from 18 or 19 dwts. of gold; now, by better skin and skill, he is enabled to produce the same number from 14 or 15 dwts., showing a considerable reduction in the cost of produce, and, as may be expected, a deterioration in the quality of the article. One grain of gold beaten between this skin can be extended to some 75 square inches of surface, the thickness of which will be 1-367650th part of an inch. These figures represent what may be done. What is done for the purpose of trade is somewhat less—namely, 56½ square inches per grain, 1-280000th of an inch in thickness. To give an idea of its thinness, it would take 120 to make the thickness of common printing paper, 367,650 sheets of which would make a column half as high as the Monument.

THE MANUFACTURE OF PINS.

About the middle of the last century, the Ryland family introduced into Birmingham the two new industries of wire drawing and pin making, which at that period were regarded as twin handicrafts. After a steady development of five and twenty years the pin trade was transferred to an ancestor of the present eminent firm of Thomas Phipson & Son. A few years since every schoolboy’s manual contained a sketch of the operation of pin making as a remarkable instance of the division of labor. A single pin had to undergo the manipulation of not less than fourteen pairs of hands before it was ready for the cushion in a lady’s bodice. This forcible illustration no longer applies. Pin making like other industries, has been subject to the scientific progress and improvement of the age, and the process is now comparatively simple. An American engineer, named Wright, patented in 1824 a pin machine which during the revolution of a single wheel produced a perfect pin. Mr. Thomas Phipson thus describes Wright’s machine, which, having undergone many improvements, is now in operation at the factory of the former, here: The principal shaft gives motion in its rotation to several sliders, levers, and wheels, which work the principal parts of the machine. A slider pushes forward pinces, which draw wire from a reel at every rotation of the shaft, and advance such a length of wire as will produce one pin. A die cuts off this length of wire by the descent of its upper “chop,” and the latter then opens a carrier which takes the wire to the pointing apparatus. Here it is received by a holder, which turns round while a bevel-edged file wheel, rapidly revolving, gives to the wire its rough point. It proceeds immediately by a second carrier to a second and finer file wheel, by which the pointing is finished. A third carrier transfers the pin to the first heading die, and by the advance of a steel punch one end of the pin wire is forced into a recess, whereby the head is partially produced. A fourth carrier removes the pin to a second die, where the heading is completed. When the heading bar retires a forked lever draws the pin from the die and drops it into a receptacle below. It is then ready to be “whitened” and “stuck”. The whitening is performed in a copper vessel placed on a fire in which the pins are boiled in water along with grains of metallic tin and a little bitartrate of potash. When the boiling has continued for about one hour the pins and tin grains are removed, thoroughly washed, dried, and polished in bran. Various kinds of apparatus are employed for sticking the pins in sheets of fluted paper, and also in folding paper for the wrappers.—*The Engineer.*

SPECTACLES.

With most persons, there is an epoch in life when the eyes become slightly flattened. It arises, probably from a diminished activity of the secreting vessels. The consequence is

the globe is not kept quite as completely distended with fluids as in youth and middle age. The axis thus an elongated axis of vision. A book is held further off to be read. Finally, becoming more flattened by the same inactivity within, the difficulty is met by putting on convex glasses. This is the waning vision of age. If, however, when that advancing imperfection is first realized, the individual persists in the attempt to keep the book in the old focus of vision—even if he reads under perplexing disadvantages, never relaxing, but perseveringly proceeding just as he did when his eyes were in the meridian of their perfection, the slack vessels will at last come up to his assistance, and the original focal distance will be re-established.

This statement will unquestionably be combated, energetically, by those who use glasses. But it will be a waste of forensic powder, because the fact is established beyond cavil. We do not pretend it will be successful in every instance; but generally, if glasses are once resorted to, then the opportunity of doing without them is forever lost.

Very aged men may be noticed reading fine print; and ladies, too, by scores, who resisted glasses at the age of life referred to who enjoy all the comfort of distinct vision, and they will, until, like the deacon's chaise, every stick in the vehicle falls to pieces at the same time.

Therefore, begin with a firm resolution never to use glasses of any kind, for reading or writing. The ancients knew nothing about such contrivances; if they had, there would have been poor eyes in abundance, and oculists to meet the emergency. Cicero never complained of imperfect vision at the age of sixty-three. He even wrote his last letter by torchlight, on the eve of being put to death by the waiting soldiers. Humboldt died at ninety-two, having never been embarrassed with those modern contrivances, lunettes. John Quincy Adams, illustrious for scholarship, at a ripe old age saw without them. Indeed, it would be a laborious enterprise to collect a catalogue of names in the chronicle of literary fame, of men and women, who are independent of glasses—*Dr. J. V. C. Smith.*

PHILOSOPHY OF SAW FILING.

The editor of *Hearth and Home* gives this instruction:—

The philosophy of putting any kind of a saw in order consists of having the very points of all the teeth range as perfectly as may be practicable. When one tooth is only a trifle longer than two or three on either side of it, too much is required of it. When ten men of unequal stature are required to carry a stick of timber on their shoulders, the taller ones must bear all the burden, while the short men carry nothing. This illustrates the case precisely in regard to saw-teeth of unequal lengths. When a few teeth are so much longer than those on each side of them, the points take such a rank hold of the wood that the saw jumps, and the teeth do not

cut a true kerf. This requires more power to work the saw, and the teeth will not cut so smoothly, so easily, nor so fast as if all the points were of a uniform length, and all were standing in rows, as straight as a mathematical line. When the teeth of a good saw are properly set, and correctly filed and whetted, a saw will run through a board like a warm knife-blade through cold butter.

To put a saw in order, secure the blade in the saw-clamps; joint the points true with a flat file; then file the points to a sharp edge. And always file where there is sufficient light to enable you to see the points distinctly. Be exceedingly careful to stop filing as soon as the tooth is filed to a perfect point. One thrust with the file after a tooth has been brought to a complete edge, will shorten it, put the saw out of order just in proportion as the point is filed off. Let the points be set uniformly, and only a little. Go over the teeth with an old file, to give them a more perfect cutting-edge. Then lay the blade flatly on a smooth board, and pass a fine gritted whetstone along the side of the points to remove the wiry edge, and to give the teeth as fine a cutting-edge as practicable. A good saw, when in prime order, is one of the most-effective tools in use.

VALUE OF VINE LEAVES.

A correspondent of the *Philosophical Magazine* says: "From experiments which I have made, I find, that on being dried, which should be done in the shade, and infused in a tea-pot, the leaves of the vine make an excellent substitute for tea. I have also found that on being cut small, bruised, and put into a vat or mashed tub, and boiling water poured on them, in the same way as is done with malt, the prunings of the vine produce liquor of a fine vinous quality, which, on being fermented, makes a very fine beverage, either strong or weak as you please; and on being distilled produces an excellent spirit of the nature of brandy. In the course of my experience I found that the fermented liquor from the prunings, particularly the tendrils, when allowed to pass the vinous and to run into the acetous fermentation, makes uncommonly fine vinegar."

COLOURLESS VARNISH.

Dissolve two ounces and a half of shellac in a pint of rectified spirits of wine; boil for a few minutes with five ounces of well-burnt and recently-heated animal charcoal. A small portion of the solution should then be filtered, and if not colourless, more charcoal must be added. When all colour is removed, press the liquor through a piece of silk, and afterwards filter through fine blotting-paper. This kind of varnish should be used in a room of at least sixty degrees Fahr., perfectly free from dust. It dries in a few minutes, and is not liable afterwards to chill or bloom. It is particularly applicable to drawings and prints that have been sized, and may also be used on gilding.

CONVENIENT ASH LEACH.

I would like to give your readers the plan of a lye leach we are using; it may be something new to most of them, and it will be found cheap and simple. The box (which is made of inch boards) is about three feet deep, and about three feet square on top; runs down wedge fashion, so that it is but 9 inches wide on the bottom, one way, and three feet the other.—There is a board nailed on the bottom with grooves cut in it to carry of the lye. This box is put into three frames made of 2x4 inch stuff; by this means the box or boards do not have to be nailed, without you choose to nail them, to the frame. The first frame is near the top of the box, the second above the middle, and the third near the bottom.—There is a two inch hole put through the centre of the middle frame and box, which lets through a two inch round, which passes through the box, and the ends rest upon two upright posts, either set in the ground, or setting on bed pieces braced—ours is on a frame. When fixed in this way the leach can be dumped at pleasure.—*Cor. Western Farmer.*

CURE FOR WARTS.

More than a half-century ago, I was "put out to live"—as the saying is—with Mr. K., of W. After living with him a few years, and I had arrived at fifteen or sixteen years of age, my hands were literally covered with warts. One evening Mrs. K. handed me a piece of chalk and said, "rub your warts with this a few evenings, before going to bed." I confess that my faith in that kind of medicine was not large—say about the size of a tobacco seed. After a week or ten days, Mrs. K. came up to me in a very pleasant manner, and said: "P., what is the matter with your hands?" I looked, and "nary" a wart was to be seen. My hands were covered with light-colored spots where the warts had been. I had washed them off without knowing it. My son and many others have cured them in the same way.—*Cor. Western Rural.*

COFFEE AS A DEODORIZER.

A late number of the *Journal of Chemistry* speaks in high terms of the value of coffee as a deodorizer for the neutralization of foul odours that emanate from organic bodies in a state of decay, as it can be used to advantage where other disinfecting agents would be inadmissible. In cases where rats die in the spaces between the floors of dwellings the intolerable odor arising therefrom can be most effectually removed by placing a pound or two of fresh burnt and ground coffee between the floors. For the purification of a sick room it is incomparably superior to burning rags, as it has a beneficial chemical action on the atmosphere of the room, and gives besides an agreeable perfume.

ARTS AND MANUFACTURES GLEANINGS.

If well-seasoned shingles be dipped in lime wash, and dried before laying, they will last much longer, and not become covered with moss.

Common shellac dissolved in alcohol makes the strongest cement for wood; it will unite the fractured legs of your chairs and tables as firmly as if they had never been broken.

A French doctor has discovered that turpentine is a sure antidote to phosphorus, and he commends this discovery most especially to parents whose children have been sucking lucifer matches. It appears that in more than twenty cases of this kind he has employed turpentine (one teaspoonful neat) successfully, and his report on the subject of these cures has been favorably received by the Academy of Medicine.

A correspondent of the *Rural New Yorker*, who has filled the walls of many framed houses in with brick, resulting in a dry wall, warm rooms and rat-proof, rips a lath twice, making three strips about one-half inch wide, nails these to inside of studding three inches from the face, and then lays the brick on edge, slushing at the end; thus keying with mortar on each side of the strip—the first course to be laid flat. A vacuum is thus formed on either side of the brick wall.

In years gone by there was a clergyman named Elder Stone, who preached at Belledia, Monroe county, N. Y. One day the reverend old elder sawed off a block of wood to make a beetle, and commenced to bore a hole through it to put in a handle; but owing to the shortness of the block, it would not lie still, but would turn with the auger.

A half-witted fellow, commonly called Al-bright's fool—Bill Albright by name—came along, and said in a lispng manner,

"Elder Stone, I can tell you how to bore your beetle; put it in a hog trough, and then you can bore your beetle."

The old parson turned round and looked at Bill, and said,

"Bill, there is something to be learned from almost any fool."

"Yes," replied Bill, "I thought so, Elder Stone, or there would not so many people go to hear you preach."

RICE FLOUR CEMENT.—This cement, much used in China and Japan, is made by mixing fine, rice flour with cold water, and simmring over a slow fire until a thick paste is formed. This is superior to any other paste either for parlour or workshop purposes. When made of the consistence of plaster clay, models, busts, bas-reliefs, &c., may be formed of it, and the articles, when dry, are susceptible of high polish, and very durable.

VENTILATION.—The Massachusetts Medical Society offers a prize of fifty dollars for the best dissertation, worthy of a prize, which shall describe, in plain language, briefly, "An effective

and ready method of ventilating sick rooms—one that can be put in operation at once, at the moment needed, with least difficulty and expense, in houses of ordinary construction." The committee of award consists of five well known physicians; namely, Morill Wyman, George H. Lyman, Henry G. Clark, Edward H. Clarke, and William Read.

SPEED OF ELECTRICITY.—Recent experiments in France, have shown that a message on a telegraph wire travels several thousand times faster than does sensation through the nerves of animal organisms. The time required for electricity to pass through one hundred feet of wire is so small that it can hardly be estimated; but were a whale, one hundred feet long, wounded in the tail, one second would elapse before the brain would be conscious of it, and another second before the tail could be made to lash in response to the injury.

WHEAT-BRAN.—"If chemistry has rendered no higher service to common life," says the *Heath and Home*, "than to analyze our daily bread, it would have placed society under perpetual obligation. It is now generally understood that in bolting ground wheat, the sieve takes out the best and most nutritious parts of the grain. A process has of late been patented in England for grinding the bran into fine powder, and mixing it with the flour. A German chemist has discovered a method by which bran may be bleached entirely white so as to be cooked with the flour, thus adding to its nutritive power without affecting its color.

TO COOL WATER.—In order to cool water by evaporation, it has long been the practice, in warm countries, to wrap a pitcher or other vessel containing the water with a wet cloth, to prevent the evaporation from which served to reduce the temperature of the vessel, and, consequently, of its contents. An English manufacturing firm have applied the same principle in a portable refrigerator. The inner vessel for holding the liquid, or substance to be cooled, is surrounded by an outer one containing water, and closed at the top by a layer of porous textile material. This latter draws up the water by capillary attraction, and the water, evaporating from the upper surface, produces the requisite reduction of temperature.

THE FARMER'S SHOP.—Every farmer should have a shop fitted up with such tools as are used by the carpenter, joiner, machinist and blacksmith, or with those that would be valuable in making repairs. Above all, a foot-lathe is very desirable. A good foot-lathe costs from sixty to one hundred dollars, and the money is well expended in the purchase. Articles of use and ornament, made of wood and ivory and metal, may be turned out by the foot-lathe convenient to use in the house or on the farm. The practice on the lathe is one of the most fascinating times for a stormy day or an unemployed evening. Apart from its use in making and repairing, it is a pleasant companion for the business-haunted and brain-weary. One who adopts

it as a companion of his leisure hours, will soon become an adept; and the more he uses and becomes acquainted with it, the better he will like it. He will be surprised at the number and elegance of the little articles of use and ornament he can produce from the rough material, and at the pleasure that the practice of a mechanical art can afford.—*Exchange*.

TUNGSTEN STEEL.—It is many years since Mr. Mushet proposed to alloy iron with tungsten in the formation of steel. We reported a year or two ago that M. Leguen, in France, had made experiments with the same alloy, employing iron converted by Bessemer's process. Then he used a common gray pig, not fit for conversion, but produced, nevertheless, an alloy of very good quality. Lately, he has continued his experiments, now employing good white cast-iron, and has produced a steel of excellent quality. A portion of the iron is first alloyed with one-tenth wolfram, in a cupola furnace, and is added to the rest in the converter. The conversion is carried further than usual, so that the carbon is reduced to one-half the ordinary proportion. The steel so produced is soft, but very tough, and tempers remarkably well. M. Leguen mentions that it will be found extremely useful for machines, some parts of which require to be tempered, while others are kept soft. The objection brought against this alloy is that it is expensive, but the amount of tungsten employed by M. Leguen is so small—only 0.55 per cent.—that it can make but a very small addition to the cost of the steel—*Mechanics' Magazine*.

PREPARATION OF SUPERPHOSPHATE OF LIME AND DISSOLVED BONE MANURE.—At a late meeting of the Chemico Agricultural Society of Ulster, Dr. Hodges said, that as some members were anxious to obtain directions for the preparation of dissolved bones, he considered that it would be useful to give some advice on the subject. He would recommend the farmer to adopt the following plan:—Place in a wooden trough or tub the bones broken into as small pieces as possible, and pour upon them one-third of their weight of boiling water, and having steamed the mass so as to render the bones completely moist, and one-third of the weight of the bones of sulphuric acid and common vitrol of the bleacher, and mix the materials completely by stirring them by means of a wooden shovel or old spade. The mixture may be conveniently made in an old sugar hoghead, and should be allowed to remain some weeks previous to being used. It may be mixed if necessary with dry peat, mould, or real charcoal, or with sawdust; but lime should not be added to it. By carefully following these directions, the farmer may obtain a compound of high fertilizing value, and much superior to many of the specimens of dissolved bones offered for sale. The addition of slack lime and soapboilers' refuse, which some persons occasionally use, should be avoided. By employing the bones, as described, the manure will be found to contain a large amount of soluble phosphate, which very few of the advertised manures afford.

Music.

YOUR MISSION.

Moderato

p. cres.

1. If you can not on the o - cean Sail a-

dim.

mong the swift - est - fleet, Rock - ing on the highest bil - lows, Laugh - ing

cres.

at the storms you meet; You can stand among the sailors, Anchor'd

dim.

YOUR MISSION.

(Continued.)

rit.

yet with - in' the bay, You can lend a hand to help them, As they

pp *rit.*

launch their boats a - way, As they launch their boats a - way.

2 If you are too weak to journey
Up the mountain, steep and high ;
You can stand within the valley,
While the multitudes go by ;
You can chant in happy measure,
As they slowly pass along,
Though they may forget the singer,
They will not forget the song.

3 If you have not gold and silver
Ever ready to command ;
If you can not t'wards the needy,
Reach an ever open hand ;
You can visit the afflicted,
O'er the erring you can weep,
You can be a true disciple,
Sitting at the Saviour's feet.

4 If you cannot in the conflict
Prove yourself a soldier true,
If where fire and smoke are thickest,
There's no work for you to do ;
When the battlefield is silent,
You can go with careful tread,
You can bear away the wounded,
You can cover up the dead.

5 Do not then stand idly waiting,
For some greater work to do ;
Duty calls to present effort,
And a crown's laid up for you.
Go and toil in any vineyard,
Do not fear to do or dare,
If you want a field of labor,
You can find it any where

Hearth and Home.

A TALK WITH THE YOUNG FOLKS ABOUT THE MONTH.

August is here with its grains and fruit, which spring rains and summer suns have ripened for our use. What a wonderful thing the growth of plants is! Not all the skill of all the human beings that ever lived could make a grain of wheat, or a seed of any kind that, when put into the ground, would grow. When you come to think of it, a seed is a little world of wonders in itself. It wraps up in its tiny shell, the leaf, the stalk, the flower, and the fruit. It has a principle of life, lying dormant, but capable of being awakened by sun, air and moisture. What a change it is from a little dry-looking seed into a beautiful flowering plant! The farmer goes out in Spring with his bag of wheat, oats, or barley, scatters the seed, and in a few short weeks there is a field of golden grain ready for the reaper. Man can do very little toward the result. He can plough, sow, harrow, and cultivate, but God must give the increase. We may well feel astonished at God's power, and thankful for his goodness. "O Lord, how manifold are thy works, in wisdom hast thou made them all, the earth is full of thy riches."

Harvest is a time of rejoicing, as well it maybe. There is a custom in England, which is so good and right that it were well if it prevailed all over the world. It is the celebrating the end of harvest, by what is called a "harvest home." The people gather in church, and there is a thanksgiving service. Then they have pleasant parties, games, and a very happy time. It is a "feast of ingathering." Some of these old customs which the world is outgrowing, are far better worth keeping up, than some others that are taking their place. Our American neighbours, or cousins as they are often called, keep "Thanksgiving Day" every year, generally in the month of November, when they celebrate the goodness and bounty of God.

Harvest is made to teach us a very solemn lesson in the Word of God. Life is a brief summer-time, a transient harvest. We sow and reap for eternity. There is danger of our wasting the summer, and losing the harvest. Careless ones,—neglectors of the great salvation,—are represented as exclaiming in bitterness of soul, "The harvest is past, the summer is ended, and we are not saved." God gives us all a harvest and summer time of our life on earth. Let us make haste to improve it. Be it the language of our hearts—

"In vain these moments shall not pass,
These golden hours be gone,
Lord, I accept thine offered grace,
I bow before thy throne,"



AUGUST.

Poetry.

RESOLUTION.

- | | |
|---|------------------|
| If you've any task to do,
Let me whisper, friend, to you, | <i>Do it.</i> |
| If you've any thing to say,
True and needed, yea or nay, | <i>Say it.</i> |
| If you've any thing to love,
As a blessing from above, | <i>Love it.</i> |
| If you've any thing to give,
That another's joy may live, | <i>Give it.</i> |
| If some hollow creed you doubt,
Though the whole world hoot and shout, | <i>Doubt it.</i> |
| If you know what torch to light,
Guiding others through the night, | <i>Light it.</i> |
| If you've any debt to pay,
Rest you neither night or day, | <i>Pay it.</i> |
| If you've any joy to hold,
Next your heart, lest it get cold, | <i>Hold it.</i> |
| If you've any grief to meet,
At the loving Father's feet, | <i>Meet it.</i> |
| If you're given light to see
What a child of God should be, | <i>See it.</i> |
| Whether life be bright or drear,
There's a message sweet and clear
Whispered down to every ear— | <i>Hear it!</i> |