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THE ONTARIO FARMER,

A MONTHLY JOURNAL OF

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

VOL. II.

HAMILTON, FEBRUARY, 1870.

No. 2.

HINDRANCES TO THE ADVANCEMENT OF AGRICULTURE.

In our last, under the head of "Editor's Book Table," we briefly noticed the publication in pamphlet form, of an able address delivered by our esteemed friend and *collaborateur*, Professor Buckland, before the New York State Agricultural Society at its last Fair, entitled "Some of the hindrances and helps to the advancement of agriculture." We stated that we had a great mind to transfer the address bodily to our columns at some future time. To do this would perhaps be wearisome to that class of readers, a large one we fancy, who prefer to be fed like fledgelings, "little and often," instead of having much at once. We have therefore decided to break the lecture into fragments, and accordingly publish in this number the portion which treats of hindrances to the advancement of agriculture, for which we bespeak a thoughtful perusal.

"Orators and poets of all ages and countries have extolled the importance of Agriculture, and sung of the charms and beauties of rural life. As the first want of man is food, and the only supply the produce of the soil, the cultivation of the earth and the keeping of flocks and herds must have been coeval with the first fixed forms of human society, and the history of this necessary art may be justly regarded as the history of civilization, itself. Not only do we depend on the skill and industry of the husbandman for the staff of life,—“our daily bread,”—but also, in a great measure, for the raw material, as it is termed, which the manufacturing and ornamental arts of an ever-advancing civilization work up into the necessaries and adornments of social and domestic life.

If, therefore, agriculture be so ancient and indispensable, not only to the general well-being of society, but to the very physical existence of man, removed but a degree from the savage state, the question naturally arises in every reflective mind, acquainted with its general or particular history, How is it that this most valuable art has not kept pace with the other industries of life, but has gener-

ally been found lagging behind, and frequently exhibiting symptoms of a feeble and sickly existence? There have been laws and customs in most of the countries of the old world, affecting the acquisition, distribution, and management of landed property, that have done much, and unhappily in some cases yet continue, to impede the progress of a national agriculture, causes from which we, of the new world, are in great measure, or altogether, free. But the question naturally occurs, whether, under favorable circumstances, there is anything in the nature of agricultural pursuits, *per se*, that tends to render its improvement and progress comparatively slow? I think there is.

In the first place, in countries of the temperate zone, at least, it requires a whole year for the farmer to make a single experiment, and, as the art advances, much longer periods, as rotations of four, seven, or more years are involved, before safe conclusions can be drawn from well established data. If to this be added the differences of soil, even on the same farm, the variable character of the seasons, and the many substances now employed as manures, it will be at once apparent that agricultural experiments are, in their very nature, highly complicated, and the number that comes within the experience of the busiest and longest life, must be necessarily restricted. In most other industrial arts, experiments may be almost indefinitely multiplied within ordinary limits of time, and subjected to a series of rigid correctness, so that reliable results may, in most cases, be readily obtained.

Again: The isolated character of the farmer's life must necessarily tend, in some measure, to retard the progress of his art, as compared with those carried on in the populous centres of human industry. In cities and towns, merchants and manufacturers come in daily contact with one another; inquiry hence becomes stimulated, information rapidly and widely diffused, experiences compared; and whatever may occur to affect the interests of any particular branch of industry, those who pursue it can meet without delay, and take counsel in regard to their common welfare. Farmers, from

the nature of their pursuits, even in this wonderful age of cheap and rapid intercommunication, are necessarily cut off, more or less, from each other, and can only come together at infrequent intervals. It is noteworthy to remark how comparatively rapid has been improvement in agriculture, both in the old world and the new, since the general introduction of the railway, which, with other agencies, has been a chief means of quickening the agricultural mind, not merely by cheapening transit, and in some instances creating new markets, but chiefly by enabling the tillers of the soil to extend the sphere of their observations, of witnessing and comparing different systems of culture, and of obtaining valuable information of a reliable character from each other's observations and different modes of practice. I can remember the time when large numbers of English farmers seldom went beyond the boundary of their own country; some even hardly passed the limits of their own or adjoining parish. What a change has been effected since the introduction of the railway! Farmers may now be seen travelling hundreds of miles to an Exhibition, or in company as members of a Club, paying periodic visits to inspect the practices of distinguished individuals of their craft in different parts of the country. A little perambulating of this sort has a most salutary effect in enlarging the farmer's circle of observation, enabling him to gain new ideas, to break loose from traditional prejudices, and to improve his practice by adapting it to the new lights which science and enlarged experience throw across his path:

Among the causes that have retarded the progress of husbandry may be mentioned the absence of a healthy and efficient agricultural literature. It is true, that a number of treatises on this ancient and indispensable art were written by distinguished men belonging to the two most cultivated nations of antiquity—The Greeks and the Romans—and in such of their works or fragments as have come down to us, we find interspersed not a little that is excellent and practical, from which we might profit in the present day. These writings, however, and even those of a much later date, contain, as Lord Bacon said, "*no principles*;" that is, they are, notwithstanding the many valuable and practical directions which they contain, essentially empirical. Indeed, it could not possibly have been otherwise, as agriculture was incapable of being reduced to anything approaching the condition of a science, till chemistry and physiology, at least, assumed a definite form; a result that may be said to be quite recent. Going back to the early part of the present century, when Sir Humphrey Davy delivered his celebrated lectures on agricultural chemistry to the Board of Agriculture in England, and to the report

of Baron Liebig, on the same subject, to the British Association for the Advancement of Science, some thirty years ago, we discover the cause of the mighty impulse that has in these days been given to more earnest scientific research, and wider and deeper investigations, so as to put not only the laboratory, but also the printing press into a more active and harmonious operation. In all civilized countries, science, of late, has more or less been brought to bear on the practice of agriculture with beneficial results, and the Reports and Transactions of Agricultural Societies in different parts of the world, together with a legion of periodical journals in this great interest, unmistakably indicate the present healthy state of progress, the future limits of which it is quite impossible to define.

It has been remarked that, as a general rule, whatever is most valuable and enduring is of slow and progressive development. The globe we live on—at least its crust—appears to have been subjected to physical changes through untold and even unimagined periods of duration. Its vegetable productions, the trees of our own forests, for instance,—some will endure for centuries ere they become finally resolved into the mineral and organic constituents of which they are composed. Our Christian civilization has a most interesting and instructive history to tell; its numerous vicissitudes, sometimes apparently stationary and even retrograding, at others marked by decided if not rapid progress; and yet it has taken nearly nineteen centuries to reach its present imperfect condition. So, again, as regards civil government. What time, talent, statesmanship and philanthropy have been expended in reducing to a practical form the best way of ruling mankind, so as to obtain the legitimate object of all sound legislation, "the greatest happiness of the greatest number." In these matters our knowledge has to be corrected and enlarged by time and experience; and notwithstanding the progress, particularly of late, that has marked the history of many nations, who has the temerity to affirm of any one of them, that it has reached the *ne plus ultra* of perfection? So it may be that the slow advance of agriculture during the past centuries is in accordance with a principle of nature, of a much wider application than is generally perceived.

Whatever causes may have contributed to impede the onward march of agriculture, some more difficult to modify or remove than others, I have long felt a strong conviction that the most formidable obstacle to the general advancement of the art in all ages and countries has been, and unfortunately still is, the low estimation in which it is held, not only by communities, but also by the great mass of its followers themselves;—by this I mean, the little acquisition of an intellectual character which has

been regarded necessary to a farmer. I believe, and rejoice in the conviction, that a new era is commencing, or rather has already commenced in earnestness, in several countries of the Eastern hemisphere, and that to us here of the West, especially, a high and important trust has been committed, which, if faithfully executed, will be pregnant with untold blessings to all coming generations. To thoughtful minds the truth is beginning everywhere to be more or less distinctly recognized, that it is not every man who can, by the old routine of mere muscular toil, be made a prosperous and improving farmer, but that a good general education in the first place, supplemented by special study and training, with the acquisition of sound business habits, are the essential elements of success. The fact is, that farming, intelligently pursued, is quite as much an affair of the mind as of the body. Indeed, muscular force, as is well known in all other matters, spends itself for naught when not directed by mental power; and most assuredly the practice of husbandry is no exception to this great, general law; and he who successfully labors to base the art of culture on the facts and principles of science, dissipates the darkness and uncertainties of empiricism, and becomes in the highest sense, the improver and benefactor of his race.

"HONEST POVERTY."

A valued friend and correspondent, who has rendered us much good service at various times during our career as an agricultural editor, and whose views are entitled to the greatest respect, is much exercised at our having published Tennyson's "Northern Farmer" in our last issue, because it contains flings at the moral character of the "virtuous poor." He has been at the trouble to compose and transmit to us a number of stanzas in defence and eulogy of that class of people, in one of which, he affirms, what we are very sure cannot be demonstrated:

"The toiling, labouring virtuous poor man,
Never from his duty flies."

We would publish our friend's versification in full, and let it speak for itself, but unfortunately, like the rhymes in "The Farm" department of our last issue on "Rotation of Crops," it is "remarkably bad poetry," and would appear to very poor advantage as a rejoinder to Tennyson. Moreover, it is intended as an "antidote" to Tennyson's piece, which is really quite needless, as the Northern Farmer comprises within itself both bane and antidote. Our esteemed correspondent mistakes the whole drift and purport of Tennyson's lines, if he supposes, as he appears to do, that they are meant, in sober, serious, earnest, to advocate and disseminate the sentiments, into the adoption of which, the sordid, mean-souled Yorkshire clod-hopper tries to school

his son. Some ideas are so obviously and glaringly erroneous, that their utterance only suffices for their confutation. Is it possible for any one with the least vestige of a heart to read without loathing the old farmer's recital of his own matrimonial experience? And who doubts that the effect of the whole thing upon "Sam," was to make him sweeter than ever "upo' parson's lass," and more thoroughly determined to "marry fur luvv," spite of the contemptuous estimate formed of him so unanimously by his parents, and vulgarly expressed in the frank declaration, "boath on us thinks tha an ass?" "Sam" married the "parson's lass," like a sensible fellow that he was we have no doubt. The days he had spent at home had not been passed in blindness and deafness. He had seen enough of marriage without love in the dreary scenes of domestic life with which he had been familiar from childhood, and heard enough of rasping and friction of loveless matrimony at home, to convert his father's counsel into idle words, and make him feel that it was infinitely better to take his pretty sweetheart, poverty and all than to hunt up a second edition of another, "Wi' lots o' munny laaid by, and a nicetish bit of land." For palpable hollowness and wretchedness—for earnest, eloquent pleading against the reproduction of itself, there are few things in this world so truthful and honest as loveless marriage. It is ever saying to all beholders, "Be watchful and beware!

As to the slants against "honest poverty," contained in the old farmer's heartless rignarole, it must be observed that it is not honest but *dishonest* poverty against which he declaims. Who can deny that there is a great deal of this in the world? Who can deny that dishonesty is one of the temptations peculiar to a state of poverty? "Lest I be poor and steal," is the argument against poverty in the prayer of Agur contained in Holy Writ. The petitioner wisely asks for a condition of competence, equally removed from the straitness of poverty and the luxuriousness or wealth, that he may be saved from the temptations peculiar to both extremes of human life.

Poverty is often greatly lauded as though it had peculiar blessings and benefits associated with it, but nobody ever had fair trial of it without feeling as the desolate man all alone on the island of Juan Fernandez did about solitude, and finding his exclamation, varied in a single word most appropriate:

"O 'poverty' where are the charms
That sages have seen in thy face."

We have a deep, true sympathy with the poor, and abominate the contempt with which as a class they are treated by the proud. Poverty when honest, as it often is and always may be, is worthy of all honour. Nevertheless we are not enamoured

of the condition. We regard it as a state of affliction, to be borne patiently like any other affliction, when manifestly the will of Providence, but to be escaped from if possible, as gladly as from an attack of disease or a lot of suffering of whatever kind. The poor, who are so by reason of their own want of industry, energy, forethought, virtue and thrift—and this is true of many—have small claim on the pity of their fellows, and make a grievous mistake when they trace their lot as they are apt to do, to the inscrutable will of God. Still, after all exceptions and allowances are made, it remains a fixed fact, "the poor ye have always with you," and they are entitled to kind consideration, ready sympathy, wise encouragement and timely help.

CANADIAN DAIRYMEN'S ASSOCIATION.

We received, January 24th, quite too late for its publication in our columns to help the attendance, a circular announcing that the third annual meeting of the above-named organization, will be held in the Town Hall, Ingersoll, on Wednesday and Thursday, February 2nd and 3rd, 1870. More to show our good will than because it is likely to serve any useful purpose, we devote a column to a notice, which, had it been in our last issue, might have been of some service to the Association. When agricultural journals freely give space to notifications and recommendations of such bodies, the least their secretaries can do is to see to it that intimations are forwarded in good season.

The annual address will be delivered by X. A. Willard, Esq., on practical matters relating to the dairy.

Members of the Society are urgently requested to prepare papers to read at the approaching meeting, on subjects of their own selection, and to use their individual efforts to render the meeting valuable and interesting. This duty cannot be too strongly impressed on members, and it is hoped they will come prepared to perform it.

Among other subjects the following will be discussed:

1st. To what extent has the system of making cheese once a day been practiced the last year; have curd mills been more generally used, and what have been the results?

2nd. The proper treatment of acidity in cheese-making.

3rd. Rennet, its nature and effects.

4th. What has been the general reputation of our cheese in the English market the past season, and what are the defects necessary to be overcome to bring it nearer the standard of the best English cheese?

5th. Hoof disease: has it prevailed among dairy herds, to what extent, and the best mode of treatment?

Factory reports of statistics and operations for 1869 are earnestly desired. They should be handed to the Secretary at the Convention.

We trust there will be a very full attendance of the friends and representatives of this important department of Agricultural interest.

Arrangements have been made with the different railways to pass members of the Association over their roads at a reduced fare.

As we did not go to press with this number of the ONTARIO FARMER until after the meeting above notified had been held, we are enabled to furnish our readers with the following account of the proceedings, prepared by our own reporter.

The Annual Convention of the Canadian Dairymen's Association was held at Ingersoll on the 2nd and 3rd instants, and was attended by about two hundred members and a large number of ladies. This Association was organized about four years ago, and has met annually at Ingersoll ever since. These meetings have been held for the purpose of electing officers, listening to an Annual address, and discussing questions relating to the dairy business. In this manner the Association, by an interchange of the experience of individual members, becomes possessed of a large amount of practical information. Few people have a very intelligent idea of the extent to which this important branch of Canadian husbandry is practiced in the Province of Ontario, and fewer still are aware of the immense profit with which it can be carried on. The climate of the province and much of its soil are admirably adapted for dairying—the climate being healthful and the lands upland, rolling natural meadows, with enduring rills and springs innumerable. Large as the dairy business of Ontario already is, it is constantly on the increase; and when its great profits shall have become more thoroughly understood, it may confidently be expected to take a first rank among the agricultural industries of the country.

The first day was occupied with the Inaugural Address of the President of the Association, C. E. Chadwick, Esq., of Ingersoll, and the discussion of certain questions of importance to dairymen. Mr. Chadwick remarked that the County of Oxford has the honor of being, in the dairy line, the pioneer county of Canada, as it was there that the business first became developed as a specialty, and it was there that the "factory system" was first introduced from our American neighbors. Statistics of the cheese production of Canada cannot be accurately estimated, owing to the imperfect and irregular returns from the different factories.

The quantity of cheese shipped during the past year from Ingersoll and Woodstock, two stations on the Great Western Railway, was 2,594,544 lbs., at a total cost of \$350,000, of which \$315,000 was paid by

two Ingersoll buyers alone. These few figures will give some idea of the extent to which the business has been developed in a very few years.

The general experience of the members of the convention went to favor the system, now very generally practiced, of making cheese only once a day, namely, in the morning, keeping the night's milk over and agitating it during the night, so as to keep the cream from rising. Mr. Yates, of Belleville, pronounced cheese thus made better than if made twice a day, besides being less expensive and troublesome. Mr. Lossie, of Ingersoll, and several others, were of a similar opinion. Mr. Ballantine, of Stratford, took an opposite view. Curd mills were thought beneficial to some curds, and to improve the appearance of the cheese. The subject of wind-mills to pump water for dairies was discussed favorably. The method of "skimming" was strongly opposed.

In the evening the Hall was crowded with ladies and gentlemen to hear the Annual address, which was delivered by X. A. Willard, Esq., M. A., Dairy Editor of the *Rural New Yorker*. Mr. Willard is a practical dairyman of large experience, strong scientific proclivities, and his address contained a vast deal of important, practical information. The quantity of cheese produced in the United States in 1860 was, in round numbers, 470,000,000 of pounds; now it is 507,000,000 pounds, although the Americans export very little more than they did ten years ago. This is because of a large home consumption demand, and at better prices than can be realized in foreign markets. Mr. Willard strongly favored the system of speying, believing that speyed cows yield more and richer milk.

On Thursday the following officers were elected for the ensuing year: *President*, James Noxon, Esq., Ingersoll; *1st Vice President*, W. S. Yates, Esq., Hastings; *2nd Vice-President*, Thomas Ballantine, Esq., Perth; *Secretary and Treasurer*, R. A. Janes, Esq., Ingersoll.

An effort was made to have the next Annual Convention held at Belleville, but it did not succeed, and Ingersoll was again selected.

The raising of corn for fodder, sown either in drills or broadcast, was highly praised, the assertion being made that in this manner twenty tons of a sweet and nutritious provender can be raised. The general opinion was that the Western "horse-tooth" variety is the most profitable to raise in this way.

Grade Ayrshire and Durham were the favorite stocks for dairy purposes.

The financial report showed the total receipts of the Association for the year to be \$306.49, the expenditure \$268.86—balance on hand, \$37.63.

THE BEST WAY TO MAKE THE BEST BUTTER—\$50 PRIZE.

The proprietors of the Blanchard church, through their agents, R. H. Allen & Co., place in the hands of the publishers of the *American Agriculturist* the sum of *Fifty Dollars* (\$50), to be awarded for the best practical essay on making butter. The conditions are:

The essay should be brief, not exceeding fifteen pages of foolscap paper, and thoroughly practical in its whole character. It is intended to be used as a Manual for Butter-making, not only to instruct the novice, but to be useful as a source of valuable hints to experienced butter-makers. It should include the management of the milk from the time it is drawn from the cow, the treatment of milk and cream in the dairy, churning, working, salting, packing, and marketing butter. Each essay should be accompanied by the name of its author, in a sealed envelope, and must be received at the office of the *American Agriculturist*, (245 Broadway, New York) on or before March 10th, proximo. The essays will be submitted to a committee approved by the Editors, to be hereafter announced, and the prize essay, if deemed of sufficient merit, will be published in the *American Agriculturist*.

HOLDING PRODUCE FOR BETTER PRICES.

The *Journal of Agriculture* (St. Louis) complains that farmers are holding their wheat, and of course failing to pay their honest debts, very much to the annoyance of those who need what is owing them, in order to keep soul and body together. It says:

"If a farmer is independent, and has to meet no pecuniary obligations, then he may indulge in a speculation, may refuse to sell, and may keep his grain until the market suits him. Careful observations and records show that a farmer who sells his wheat as soon as threshed does better, taking one year with another, than he who holds off in the hope of higher prices. And when pecuniary obligations have been entered, it becomes a duty for the farmer to dispose of his produce."

Not only does the wheat grower do better to sell at once when an article is ready for the market, but the growers of all other grains or marketable products whatever. Nothing is gained in the long run by holding, whether the crop brings little or much.

The Jaym.

THOMSON'S PATENT ROAD STEAMER.

British Agricultural journals are jubilant over the hope that the great obstacle to successful cultivation by steam, has been at length overcome by the invention of an engine able to traverse a fallow like a team of horses. Heretofore it has been found necessary to have a stationary engine and to use stretches of wire rope to pull the plough, or other implements used to tear up the soil. But by the new contrivance named at the head of this article

a six-horse-power steam engine is hitched directly to a combination of ploughs turning four deep and wide furrows at once, and walking away with them as half a dozen live horses might do, performing the work more expeditiously, and in better style than the horses could do. Our readers will be interested with the following account of this new invention, which we copy from the *Globe* :—

"The "Thomson Road Steamer" is constructed something like the Traction Engine, but instead of the surface of the driving wheels being of iron covered with protuberances to prevent slipping, they are covered with a broad and thick band of vulcanized india rubber, made so thick, and so strong, as to pass over broken stone, macadamized roads, and other rough highways with perfect ease, and without jolting or injury either to the wheels or the machinery which they carry. These elastic wheel tires have such enormous tractive power, that they never slip as iron-shod wheels do, and the india rubber is so deep and thick, that such obstructions as are usually met with in common gravel or stone roads make no permanent impression. The impediment is pressed into the surface of the elastic wheel tire, which again springs out to its first position as soon as the impediment is passed. This property enables the wheels to pass over ordinary farming land without difficulty; and although the entire engine with its attachment weighs six tons, the wheels being broad, do not sink materially in the soil, but are enabled to resist and overcome the obstructions of the ploughs, &c., which they are made to drag. The following is an excellent description of the performance. We condense it to save room.

The last, and perhaps the most remarkable performance of the road steamer, was as follows: At a trial of ploughs and moving machines at Edinburgh, on Tuesday, the 17th of August last, a good opportunity occurred of testing the engine, which was accordingly on the ground. It passed over all sorts of soil without difficulty, and while awaiting its turn, displayed its manageableness and handiness in various ways, and most strikingly when requiring water; it ran down a long steep grass hill, with gradients of 1 in 4, to a tarn (or creek), where it filled its tanks, then ran up the hill again. At last the moment came for it to engage in its new task of ploughing. Two of Power's double furrow ploughs were attached to it, and it commenced work. With these ploughs, when the handles are once set, no guidance is needed; and so four furrows were turned simultaneously without a hand being put to the plough. Arrived at the further end of the field it turned with far greater ease than horses could do, and ploughed its way back again up a hill which inclines 1 in 12. The ploughs were set as deep as possible, and the work done was quite first-rate. The contrast between the road steamer and the plough horses was most remarkable; whilst three horses were most painfully struggling along with one double furrow plough, through exceedingly hard, dry, stiff soil, the steamer was drawing its two double furrow ploughs with such facility that it was evident there was an immense supply of power to spare, and that it could have taken another couple of double furrow ploughs behind it. If ran on the unploughed land in front of the ploughs, thus avoiding all possibility of compressing or poaching the soil after it had been turned up. All present

were fully satisfied with its performance and declared its behaviour was perfect. It was at once seen that it could equally well be employed in mowing, reaping, hauling, &c., &c. It could fetch its own water and fuel, carry manure, and, in short, do every description of farm work, even to taking produce to market, for the whole affair is so compact, that it passes through towns and crowded thoroughfares with the same ease as any other vehicle, and with enormous power. It can go at eight miles an hour on any good road, and at three and a half or four miles an hour on the worst possible road, and it improves, instead of injuring the ordinary carriage track.

WILL FARMING PAY?

Horace Greeley is writing a series of essays on "What I Know of Farming." The first topic he discusses is, "Will Farming pay?" Judging from current rumors of Mr. Greeley's farming operations, it is hardly possible that his answer to the question is based upon his own personal experience; but his essay contains some very good suggestions. We make the following extracts from it:

"I commence my essays with this question, because, when I urge the superior advantages of a rural life, I am often met by the objection that 'Farming don't pay.' That, if true, is a serious matter. Let us consider:

"I do not understand it to be urged that the farmer who owns a large, fertile estate, well fenced, well stocked, with good store of effective implements, cannot live and thrive by farming. What is meant is, that he who has little but two brown hands to depend upon, cannot make money, or can make very little by farming.

"I think those who urge this point have a very inadequate conception of the difficulty encountered by every poor young man in securing a good start in life, no matter in what pursuit. I came to New York when not quite of age, with a good constitution, a fair common-school education, good health, good habits, and a pretty fair trade—that of printing. I think my outfit for a campaign against adverse fortune was decidedly better than the average; yet ten long years elapsed before it was settled that I could remain here and make any decided headway. Meantime, I drank no liquors, used no tobacco, attended no balls or other expensive entertainments, worked hard and long whenever I could find work to do, lost less than a month altogether by sickness, and did very little in the way of helping others. I judge that quite as many did worse than I as did better; and that of the young lawyers and doctors who try to establish themselves in their professions, quite as many earn less as earn more than their board during the first ten years of their struggle."

Mr. G. mentions several instances illustrating the success that men, within his knowledge, have achieved from very small beginnings, by patient, intelligent, well-directed effort. "Depend upon it," he says, "young men, it is and must be hard work to earn honestly your first thousand dollars. The burglar, the forger, the black-leg (whether he play with cards, with dice or with stocks), may seem to have a quick and easy way of making a thousand dollars; but whoever makes that sum honestly, with

nothing but his own capacities and energies as capital, does a very good five years' work, and may deem himself fortunate if he finishes it so soon."

Probably no man in this country applied scientific facts to practical agriculture more successfully than Prof. J. Mapes, to whom Mr. Greeley refers in the first of the following paragraphs. He illustrated "scientific farming," by raising such crops as filled those who saw them with wonder:

"Walking one day over the farm of the late Prof. Mapes, he showed me a field of rather less than ten acres, and said: "I bought that field for \$2,400, a year ago last September. There was then a light crop of corn on it, which the seller reserved and took away. I under-drained the field that Fall, ploughed and subsoiled it, fertilized it liberally, and planted it with cabbage; and, when those matured, I sold them for enough to pay for land, labor, and fertilizers altogether." The field was now worth far more than when he bought it, and he had cleared it within fifteen months from the date of its purchase. I consider that a good operation. Another year the crop might have been poor, or might have sold much lower, so as hardly to pay for the labor; but there are risks in other pursuits as well as in farming."

"A fruit-farmer on the Hudson above Newburg showed me, three years since, a field of eight or ten acres which he had nicely set with grapes, in rows ten feet apart, with beds of strawberries between the rows, from which he assured me that his sales exceeded \$700 per annum. I presume his outlay for labor, including picking, was less than \$300 per annum; but it cost something to make this field what it then was. Say that he had spent \$1,000 in under-draining, and enriching and tilling this field, to bring it to this condition, including the cost of his plants, and still there must have been a clear profit here of at least \$300 per acre.

"I might multiply illustrations, but let the foregoing suffice. I readily admit that shiftless farming don't pay—that poor crops don't pay—that it is hard work to make money by farming without capital—that frost, or hail, or drouth, or floods, or insects may blast the farmer's hopes, after he has done his best to deserve and achieve success; but I insist that, as a general proposition, *Good Farming* does *p. y.*—that few pursuits afford as good a prospect, as full an assurance of reward for intelligent, energetic, persistent effort as this does."

REPAIRS ON THE FARM.

The *Journal of Agriculture* contains valuable hints upon a subject which is of very great interest to every farmer—the repairs on the farm:

These ordinarily cost more than most farmers would be willing to admit, and in many cases three times as much as they need to, for the reason that the team is stopped, and a hand sent to the mechanic, several miles away, to get some little job done that any farmer of ordinary ingenuity could do in half the time the messenger is gone to the mechanic's, if he had a few tools, and a little of the proper kind of material.

The thrifty farmer will always lay aside pieces of timber of different kinds, to be used for repairs.—These he often finds in his wood-pile, and he lays them up where he can get them, or send a boy for them at any time. He will also have a box of

screws of different sizes, with a good screw-driver and several gimlets. That first and last of all carpenter's tools for the farmer, the drawing-knife, will be at hand; also a box of different sizes of bolts, with nuts and washers to match; a brace and a good set of auger bits, from three-eighths to seven-eighths, and three augers, one inch, one inch and a half and two inch. These, with a hand-saw, make a very respectable kit for a farmer, and if he has any skill at all in using them, he will sometimes save much more than the cost of them in a few months.

Let any farmer, who has been accustomed to run to the shop for every little repair, supply himself with such things as we have named, and do his own repairing, and he will be agreeably surprised at the difference in his mechanics' bills.

Then there are the barnsuses. If the farmer uses several of them, he can save several dollars in the course of the year by having on hand two or three awls, a shoe-knife, a ball of shoe-thread and a ball of wax, all of which will cost less than a dollar, and will last several years.

When wheat sells at seventy-five cents a bushel, farmers will do well to look carefully to the incidentals.

A WASTED FERTILIZER.

The *Southern Farmer* (Memphis, Tenn.) in an article written by a professor of the University of Mississippi, says, in speaking of the utilization of human excrements:

"That the waste in cities has been fearful hitherto, but that it is to be hoped that the earth-closet will go far to prevent this unnecessary waste hereafter. The dried and pulverised earth will be conveyed to the houses of consumers, as coal is now; and after use will be taken back to be re-prepared, and when sufficiently enriched will become an article of commerce."

Not only has there been this waste in cities, but in the country. Little thought and less care has been given to the matter; and hence, instead of five or ten loads of the best fertilizing material that every ordinary sized family should make, there has been almost a complete loss of the whole.

When will farmers understand that a failure to save all enriching matter means a failure in business, not complete, but in proportion to the suicidal loss?—*Heath and Home.*

FARM GLEANINGS.

A Minnesota farmer, the past season, raised 60½ bushels of Canada Club Wheat from two bushels of seed.

As an evidence of the prosperity of Virginia, it is said that swamp land which, before the war, was sold for one dollar per acre, now brings twelve.

The *Western Farmer* says there is a project on foot to establish a second beet sugar manufactory at Fond du Lac, Wis., with a capital of \$300,000.

The Duke of Swnderland is a large land owner in England, and it is said he proposes dividing his large farms into small ones, thus entirely changing his system of letting.

It is suggested that the absorbent properties of dry earth, of which such excellent use is made in the recently-introduced earth closets, can also be taken advantage of in horse and cattle stables.

The Live Stock.

THE FAT SHORT-HORN HEIFER, "CLARA."

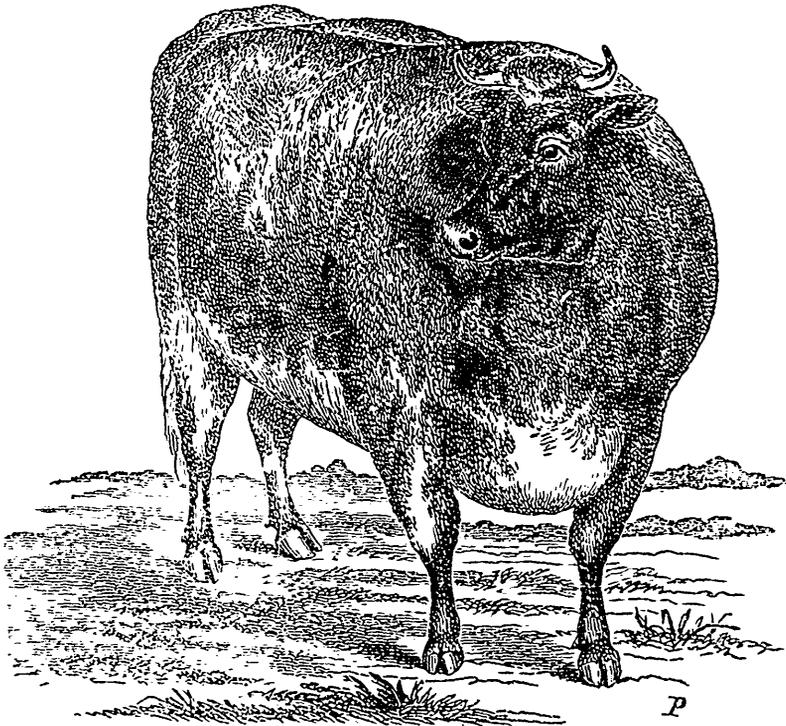
THE annexed beautiful Engraving will be recognized at a glance by all who attended the last Provincial Exhibition, as a life-like picture of the first prize fat heifer, "Clara," owned by Mr. Alexander Watt, of Salem, Township of Nichol, and County of Wellington, Ontario. This fine animal having failed to breed, was reluctantly put up to fatten, and visibly out-distanced all competitors at

the Provincial Fair. Our Artist, Mr. Page, has displayed his extraordinary ability by giving a somewhat unusual view of the animal, having "fore-shortened" her, (we believe that is the professional term for "Clara's" attitude), and it will be conceded by all judges that he has succeeded admirably in "doing" her to the life.

We subjoin the pedigree and a few particulars as kindly furnished us by the owner:

"CLARA," 23 New Series, red and white, calved May 29, 1866; bred by, and the property of Alex.

FIRST-PRIZE FAT COW OR HEIFER AT THE PROVINCIAL EXHIBITION OF 1869;



"CLARA," THE PROPERTY OF MR. ALEXANDER WATT,
SALEM, ONTARIO.

Watt, Nichol, Wellington County; got by North Wellington, (508); dam Mayflower 2nd, by Friar John, [273], 2892, (12905)—gr. d. Mayflower, by Fortworth Duke, (13892)—gr. d. d. imp. Margaret, by Snowball, (8602)—Redneck, by Harbinger, (9183)—by Nonsuch, (4581).

"Clara" was always a neat, compact animal, with a splendid constitution, very much inclined to fatten with moderate care, laying on layer after layer of beef, with surprising evenness, showing off

the points of a well-bred Short-Horn to perfection; in short, a perfect model of substance and beauty.

"Clara" was exhibited seven times, at Township, County and Provincial Exhibitions, always taking the red ribbon, twice as a calf, twice as a yearling, twice as a two-year old, and lastly as a fat heifer, at the Provincial Fair in London, last September, where she was sold to Mr. Smith, of Detroit, for \$300, to be fed until Christmas, and then slaughtered for holiday beef."

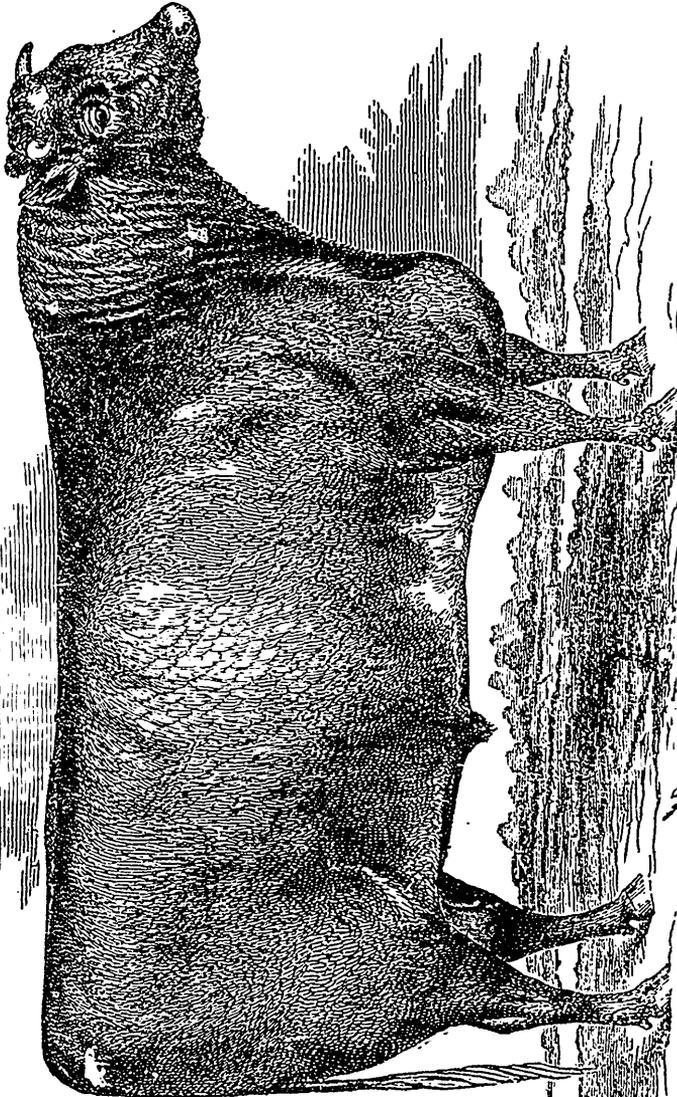
**PREMIUM SHORT-HORNED BULL
"LOUDEN DUKE."**

Herewith we present a fine engraving of the Short-horned bull most distinguished as a prizetaker at the last Provincial Exhibition. His fortunate owner, Mr. John Snell, of Edmonton, sends us the following brief account of his history, and achievements, together with his pedigree, which we publish, as we do his admirably executed portrait, with no small pride and pleasure.

"Louden Duke" was bred by Abraham Renick, of

Clark Co., Kentucky, and imported to Canada by his present owner when nine months old. He has distinguished himself in this country by winning the following Premiums at Provincial Fairs:—First prize as a yearling at the Provincial Fair at Kingston, 1867; First prize as a 2-year old at Hamilton, 1868; First as a 3-year old at London, 1869; and the sweepstakes prize for the best Durham Bull of any age. He also stood at the head of the herd which won the Prince of Wales prize of \$60, at the Provincial Fair in London, 1869. The following is his pedigree:—

PREMIUM SHORT-HORN BULL AT THE PROVINCIAL EXHIBITION OF 1869;



"LOUDEN DUKE," the property of Mr. JOHN SNELL, Edmonton, Ontario.

LOUDEN DUKE.—RED AND WHITE. Calved 14th March, 1866.

LOUDEN DUKE,.....	by Duke of Marlborough	3866	8½h dam	Red Rose 2nd.....	by His Grace	(311)
1st dam Mayflower 3rd,.....	by Airdrie	2743	9th "	Red Rose 1st.....	by Yarborough	(705)
2nd " Mayflower,.....	by Gen. Winfield Scott..	530	10th "	The American Cow by Favourite		(252)
3rd " Dorothy.....	by Prince Charles II..	861	11th "	".....	by Punch	(531)
4th " Thames.....	by Shakespeare	961	12th "	".....	by Foljambe	(263)
5th " Lady of the Lake.....	by Reformer	(2505)	13th "	".....	by Hubbac	(319)
6th " Imp. Rose of Sharon.....	by Belvidere	(1708)	14th "	".....	by Jas. Brown's Red Bull.	(97)
7th " Red Rose 5th.....	by 2nd Hubbac	(1423)				

CARE OF STOCK IN WINTER.

I. "Saving!" That's the word. The whole secret of success in the management of a stock of cattle in Winter rests with the farmer. If he uses judgment and care in feeding, his stock will come out in the Spring looking well, and on much less fodder than if no consideration had been used in putting out the fodder. Farmers often complain that their cattle waste their hay, don't eat it up clean, and leave orts. The fact is, it is the farmers themselves who waste it. The cattle are not to blame, when twice the quantity of hay is put before them that they need, if they do pick out the best; but it is unjust to charge to dumb animals the faults the farmer himself is guilty of. Be saving of the fodder. Do not stint the stock; give them all they will eat, but no more.

II. Feed regularly, and give a good meal at a time. We know farmers who are in the habit of throwing in a light sprinkling of hay before their cattle and horses, whenever they go into the barn. As a consequence, they are always uneasy and always hungry. If lying down, when for any cause the farmer enters the barn for a moment, up they all jump and begin to stretch and bellow for something to eat. The stock of such a farmer is always poor and always hungry. The true system of feeding is to feed regularly and uniformly. Three times a day is often enough for all kinds of farm stock; although in very cold weather it may be well to feed four times, and on moderate days only twice, especially to sheep.

III. In clear days give stock at least three hours' sun in the open yards, and see that the stables and tie-ups are well lighted. Nothing is more unfavorable for the health and comfort of stock than to be confined all day in a dark, unventilated tie-up. When the cattle are in the yards, take the opportunity to clean out the tie-up, and litter the floor with the orts that may have been left in the crib. At no other time should they be removed.

IV. Milch cows demand and should receive extra care and extra feed. In cold weather a greater amount of food is needed to keep up the necessary animal heat, and where but a sufficient amount is given for this purpose, how can an increase of milk be expected—indeed is it not more generally the case that in winter the yield of milk diminishes? But with a little extra pains, which will be more than made up by the extra flow of milk obtained, this can be done. Good hay, plenty of water, and a small quantity daily of some provender, will be found to pay well.

V. No farmer should attempt to winter a stock of cattle who has not a good supply of water. Stock of all kinds can get along on a small allowance of hay, for it can be made up in some other form; but nothing can take the place of water. It is needed for the very substance of life, and they cannot be denied it, or put off with half enough. See to it that by some means, every animal in your barns and yards has as much water, daily, as it will drink.

VI. More than all this, and not less important, every animal has still higher claims upon man, who has dominion over it. Food and drink are necessary, and must be provided for the wants of those who give so much in return—but every creature has also demands of kindness and affection upon his keeper. The man who feeds his cattle, but at

the same time abuses and beats and overloads his oxen and horses, and kicks his cows, is more of a brute than they.—*Maine Farmer.*

THE SMITHFIELD CATTLE SHOW.

The annual exhibition of the Smithfield Club, came off at Islington in the new cattle market for London, during the second week in December.—English agricultural journals, without exception, speak of it most favourably, not as presenting any features of extraordinary interest or merit, but as worthily sustaining the world-wide fame of the Smithfield shows and of British cattle. The highest prizes were awarded to Lord Aylesford for a Shorthorn steer, as the best animal in the show. Lord Aylesford's prizes in money and plate amounted to close on £300. As regards the various breeds of cattle, Shorthorns were, as usual, good; the Devons particularly good—as a class perhaps the best in the yard; Herefords were below the mark; and Sussex cattle unusually fine; there were also some very meritorious cross-breeds.

Her Majesty the Queen was one of the foremost exhibitors, with twelve lots, taking a first prize for a Shorthorn steer, second for a Hereford, and third for a Devon steer. The Prince of Wales also exhibited in several classes, and gained a first prize for a cow of the Sussex polled breed.

The sheep, though not making up a large collection, were beautiful specimens of their respective breeds; Lord Walsingham's Southdowns especially eliciting universal admiration. Lord Berner's took the lead in Leicesters. Cotswolds were very slenderly represented.

The show of pigs was larger than that of last year, and in general excellence quite up to the average mark.

In other departments of the exhibition, including agricultural implements and productions, there was a fine display, equal to that of any previous year. Some of the prize mangolds, we are told, exceeded forty pounds in weight. The general show of roots, however, particularly in turnips, was more distinguished by well-proportioned, well-grown, and solid specimens, than by mammoths, which are deservedly not much in favour, and are less nutritious and profitable than roots of medium size. Monster beasts are also less popular than formerly. The live weight of every animal is taken down as it enters the yard; that of Lord Aylesford's prize steer was a little over 2,100 lbs.—*Globe.*

NEW YORK STATE POULTRY SOCIETY.

The Second Exhibition of the New York Poultry Society, held at the Rink, on Third Avenue, near Sixty-third street, New York, was closed on Thursday, December 9th, and proved one of the finest and most complete collections of poultry ever seen in this country. In all breeds the competition was very close, and many more varieties were exhibited than at last year's show, which is an evidence of the work the Society is doing. Over twelve hundred entries were made, which, it is estimated, represented 100 dogs, 2500 fowls, 20 ponies, 12 rabbits, several cats, two fawns, a cage of ferrets, and last, but not least, a fish-hatching apparatus, showing the ova in shallow tin boxes,

in nine months' old trout, and those fit for the table in adjacent ponds. The Secretary, Mr. Gavit, exhibited a crested turkey, which he considers the finest in the world, and values it at a high price. Another bird of this species, the property of Tegetmoir, is now on exhibition in London, having been brought thither from Zanzibar, Africa. Two coops of capons also attracted considerable attention, being exhibited by D. W. Kerstine, President of the Pennsylvania Poultry Society.

We shall not attempt to enumerate all the varieties shown, only remarking that, in our opinion, the exhibition was especially good in Creve Cœurs, Cochins, Houdans, Dark Brahmas, Dorkings, and Game Fowls. Mr. Salisbury exhibited a pair of Rouen Ducks, which took the first premium at the Paris Exhibition in 1867, and there were several coops of fine ducks and turkeys.

Owing to the unfavourable weather, the attendance was not so large as was desirable, but the Society is deserving of great credit for the fine show of fowls and the successful management of the show. —*Hearth and Home.*

SPAYING OF COWS FOR MILK.

The following is a summary of a small pamphlet presented to the State of New Jersey by Mr. Vatte-mare, a French veterinary surgeon, on the "castration," or "spaying" of cows, which may prove of interest to some dairy farmer readers:—The effect of the "castration" seems to be that it produces a more abundant secretion of milk, which acquires at the same time a greater richness in quality, and results in the following advantages to the proprietor, viz:—1st. An increase of one-third in quantity of milk. 2nd. Certainty of having more constantly the same quantity. 3rd. The cow is not exposed to the accidents which often occur when she is in season. 4th. As she will not generate, all the accidents of gestation and calving are avoided. 5th. Greater disposition to fatten, when the milk fails, or the owner wishes to part with them. This is the experience of one man. Another writes as follows:—Of twenty-seven cows, aged from six to fifteen years, which we have castrated, we have obtained the following results: 1st. Increase of milk in cows of six or eight years. 2nd. Constant supply in those above that age. 3rd. The milk is richer than in the ordinary cow, and consequently yields more butter; the latter is always of a yellow color, and has a taste and flavor superior to that of a cow not castrated. These are strong testimonies. The results of many other experiments are given, but all unite in saying that the cow should not be operated upon until her lactative powers are fully developed—say at the age of six years, and about forty days after calving, when she will continue the same flow of milk as long as the owner chooses to keep her food, and other things being equal.

BIRMINGHAM POULTRY SHOW.

This great poultry show, which is almost unrivalled by any similar exhibition in the world, was held at the same time as the fat cattle show, during the first week in December. The number of entries, 2,453, was slightly below that of last year, owing perhaps to an increase in the amount of entrance fees; but the quality of the exhibition was quite up to the usual standard. There were 300 entries

of Dorkings, and among them many magnificent birds. It would not have been difficult to have selected ten hens that would have weighed together one hundred pounds. The best cocks weighed twelve pounds each. Mrs. Arkwright was again winner of the first prize. The Cochins, numbering 180 pens, was also a superb class; but the dark Brahmas seem to have been the most remarkable feature of the show, never before having been exhibited in such numbers, or of such extraordinary excellence.

The French fowls also seem to be gaining in favour, and were very numerous and admirably represented.

The show of ducks was one of the best ever seen even at Birmingham. The following are some of the weights of prize birds in the class of larger poultry, all being shown in pairs except the turkey cocks:—First prize, Aylesbury Ducks, 17 lbs. 12 oz; first prize, Rouens, 18 lbs. 14 oz; first prize, White Geese, 53 lbs. 8 oz.; Grey Geese, 57 lbs. 14 oz; first prize turkey cock, 34 lbs. 12 oz; turkey hens, 37 lbs. 4 oz. the pair. Pigeons were also well represented in nearly all the classes.—*Ex.*

APIARY FOR FEBRUARY—CARE OF STOCK.

As a general rule, disturb the bees as little as possible. Raise hives that are out doors, when a warm day has loosened them, and sweep out the accumulations of dead bees and fragments of comb—Danger from protracted cold is not over. See directions last month. Move such as are to have their locations changed before they mark their present places in the spring, otherwise the bees will return to the old spot and be lost. Give four or even six feet between the hives, unless crowded for room. Hives painted of different colors—light colors are best, because cooler—and standing with the alternate ones advanced a foot, will be found serviceable when they must be placed closer than four feet. Let each have its own stand rather than put all on a plank in common; then working at one hive will not disturb all. Be careful to shade the bees after light snows, if the sun comes out bright. A b.e.-house may now be set up, but I do not think them profitable. They crowd the hives too much. True, you may make artificial swarms, or furnish fertile queens two or three days after artificial swarms, or furnish the fertile queens two or three days after natural swarming, but this would hardly balance the advantages. As this matter of rearing queens both for the purpose just indicated and for changing native swarms to Italian, is of considerable importance, I will give a practical method.—*Quimby.*

SOILING CATTLE.

We condense the following notes on this important subject from *Hearth and Home*:

"The good farmer raises hay enough upon an acre to feed a cow through the winter, but devotes three acres to feeding her through the summer. If one acre will winter a cow, then less than an acre should summer her, as the same animal consumes one-eighth to one-fourth more in cold weather. In 1862 we tried a large experiment, soiling twenty steers, four years old, seven cows and six horses—being perhaps equivalent to thirty-five cows. We

set apart the amount of land which we supposed to be just sufficient to pasture this stock for the season—one hundred acres. These hundred acres were occupied as follows: ninety acres in timothy meadow, five in clover and timothy, two in clover, two in sowed corn, and one in oats. The order of feeding was as follows: first, the two acres of clover; second, the five acres of clover and timothy; next, the oats, and then the timothy meadow, till it became too tough; next the second cutting of clover; then sowed corn and hay till first of December—leaving a surplus of sixty-five tons of hay, which were sold for \$972. The soiling began May 20th, and continued six months and ten days. Fifty acres of this land were in poor condition, and the balance in good heart. Had it all been in prime condition, the surplus would have been very much larger. Now, let us dissect this experiment, and see whether it was profitable. The labor account is first to be examined. Three men, two hours each day were required to cut the grass and feed these animals. This, with the low wages prevailing at that time, amounted, with board, to the sum of \$65. If the expense of cutting and sowing this sixty-five tons of hay be estimated at \$1 50 per ton, (which is more than its cost), amounting to \$97.50, added to the labor of soiling, makes \$162.50, which being deducted from the \$972, leaves \$809.50 as the net profit of this soiling experiment. But it would be only just to estimate the gain in manure. One hundred loads were saved, and if we say this is worth double, thus saved under cover, what the droppings in the field would have been, then this was worth \$50 extra, making the whole gain \$859.50. To this might be added something for the better condition of the animals and the larger quantity of milk.

A GOOD COW.

A good cow does her utmost to minister to our pleasure and profit, and deserves careful and good treatment. Remember that after a sort, she is violating her nature to please us. The natural or wild cow gives milk to suckle her young a few months, and then runs dry some eight or nine months of the year, while our cow gives milk for ten months in the year. We deprive her of the pleasure of suckling her young, and say, "Grind this fodder into milk for us—work!" and she does it, producing some 3,000 quarts of milk for us per year. We have induced her to forego her own pleasure, to forget her child and to work for us, and for my part I hold her to be a lovely beast. He, therefore, who strikes a cow, or kicks a cow, or starves a cow, deserves a kick and starvation. When I am king, I propose to myself to keep for such fellows' use, a breezy knoll, wind always north, thermometer at ten degrees, a gentle sleety rain, seasoned with hail, a four-rail fence, mostly tumbled down. In this delicious retreat I propose to allow the Sol. Silcoxes to stand, without overcoats, with their backs up and their heads down; there they can chew the cuds and perhaps find them sweet—as the good cows do not.

What we ask the cow to do, and what she does do, is to convert cheap and unwhiting food into good and dear food. That is, we put into a cow per day, say,

Twenty lbs. of hay at $\frac{1}{2}$ cent per lb.....	10
Nine lbs. of shorts or meal at 2 cents per lb.....	18
Total.....	28

And we ask her to produce from it ten quarts of nice milk, worth at six and a half cents, some sixty or sixty-five cents. Now the cow does not wish to do this; she wishes to suckle her calf, to lick it and play with it, and then to wander at her own sweet will along the meadows and bushy pastures. But she forgoes her own wishes and pleases us; and more than that, she does it kindly and serenely. Is she not then, a most lovely beast?—*The Galaxy.*

BREAKING STEERS.

In the first place, make a yard forty feet square, with a straight fence, and so high that the wildest steer will not think of getting over. Now, put out two or four steers in the yard; then take some corn and pet them until they are not afraid of you. Then take your whip, a stock five or six feet long, and start one of the steers. He will go next to the fence; when he comes to the corner, put out your whip and cry "Whoa!" He must stop, for his head is against the fence. Now pet him a little; then drop your lash lightly on his left ear and cry "Haw!" which he has to do if he moves along. Keep on in this way, and in a short time you can "haw" him around under the whip. Now "gee" him around in the same way, till you can "gee" and "haw" at will. Then step off a few feet, and call one by name, and with the motion of your whip bring him to you. Then step a little further off, and continue to do so until you can fetch him to you anywhere in the yard. While at work with one, if he gets excited, leave him and take another. Then take your yoke; take out the near bow, and tie a rope fifteen or twenty feet long in the near bow hole, put the yoke on him and keep hold of the rope, so that he shall not hurt himself or the others. If he is afraid of it, let him work with it till he gets over it. Then put it on another, and let them have a turn at it. Then yoke them together, fetch them to you to yoke or unyoke, and yoke them on either side, drive them into the yard until you can "back," "gee" and "haw" them at will, which you can do if you keep cool and work mildly, with light blows, till he knows what you want. Then if you have an old yoke of oxen, bring them into the yard, hitch them together, and drive them around the yard a few times; then open your gate and take them out. They may bound a little at first, but will soon mind you as well out of as in the yard.

—*Cor. of Maine Farmer.*

MILK FEVER IN COWS.

During the discussions at the late New York State Fair, Mr. Harrison said "he had found great benefit in adopting the precaution recommended by the great English breeder of Shorthorns, Mr. Edward Bowly, of Cirencester, which was to give the cow once a week, for three weeks before calving, a dose of one pound of Epsom salts, with the addition (which should be made to every purgative dose administered to cattle) of an aromatic, generally using a table-spoonful of ground ginger. In cases of Milk Fever, of which he had several severe ones in both winter and spring, but never had a fatal one, the first object was to physic, and both purgative medicines and the enema syringe should be resorted to; the latter was partially valuable. The constipation once overcome, he thought almost all cases should end in recovery, if the animals were well

nursed and cared for. Another precaution against Milk Fever should always be observed—not to allow the cow to be chilled after calving, or to drink cold water. The chill should always be taken off the water.

"Referring to the administering of spirits of turpentine, he said that turpentine was a very dangerous remedy, unless in the hands of a veterinary surgeon. Properly used, it was a very valuable medicine, but the farmer would find it safer to use it for other than medicinal purposes. The bloating referred to was a usual and not at all an alarming symptom in Milk Fever; it generally ceased as soon as the bowels were freely evacuated, and if it returned, the enema syringe should be again used. He closed by expressing the hope that the discussions at the winter meeting, next February, would be as well attended and as animated as the present ones."

INJURIES TO THE HORSE'S FOOT.

The foot is frequently injured by a horse picking up a nail in travelling, or from a piece of glass or other hard body entering the sole or frog, and penetrating to the sensitive parts. The danger to be apprehended from these injuries will greatly depend on the situation of the puncture. If penetrating deeply, and close to the coffin joint, it is often attended with very serious results. Acute inflammatory action takes place in the joint, and this gives rise to severe constitutional symptoms. Whenever the sensitive structures are injured, the horse shows lameness, which gradually increases, and matter soon forms, causing great pain. The horse, when standing, keeps his heel off the ground, and knuckles over at the fetlock. If the hoof is pinched or struck with a hammer, he instantly evinces pain. These symptoms may be produced without the substance being lodged in the sensitive parts, and they also frequently follow in cases where the nail or other offending body has been removed, and the sole not thinned properly. Therefore, in all such injuries it is advisable to remove the shoe, and thin the sole around the injured part. If matter has formed, it must have free exit, or sinuses will form, which frequently prove incurable. Poultices should be applied until the pain and fever are quite subdued. When proud flesh sprouts up, mild caustics should be applied, as the chloride of antimony. In all cases where the sole becomes undermined or detached, the knife must be freely used. The after treatment consists in shoeing properly, and using a leather sole, with stuffing to protect the injured and weakened parts.—*Ex.*

REAR YOUR OWN COWS.

It has been remarked that cows seem to do better on the farm where they were reared, than anywhere else. At a late meeting of the Herkimer county (N. Y.) Farmers' Club, the Hon. Harris Lewis made a statement illustrating this.

He said that when he commenced farming he purchased one cow from a distance, and had one which was raised on the farm. The cows were both of the same age, and about the same size, and cost about the same to keep. The cheese made from both went to market together, and was sold alike. But the cow raised on the farm would make 700 pounds of cheese during the season, which at

prices then would amount to \$42.00, while the cow he purchased made but 200 pounds per year, which would sell for only \$12.00. The cost of keeping the cows was \$20.00 each per year. The cow he raised, therefore, afforded a profit of \$22.00, and the cow purchased, \$8.00 loss. At present prices, the cow raised would produce \$105.00 worth of cheese, and the cow bought, \$30.00 worth, making a difference between cows, in a season like the last, of \$75.00. He would here add that almost every dairyman in Herkimer county was year by year repeating this experiment.

He had been trying for a long time to persuade dairymen to raise their own stock, and he presented this instance merely as a proof of the superior value of stock raised on the farm where used. To do her best, a cow must be acclimated, then she must become acquainted to the ways of her owner, his habits of feeding, etc., and she must also become accustomed to the pastures where she feeds.

THE ENGLISH SHEPHERD.

There is not one farm in England of any magnitude, but has a shepherd; he is a set part of the establishment. The shepherd and his dog are as sure to be met with as the carter and his plough boys, and if the former were dismissed and the flock sold off any arable farm, there would soon be no occasion for the carter and his teams. It is the flock which keeps up the fertility of the soil, as on arable farms the fat sheep are sold in the spring or early part of the summer, generally in spring; the animals are most numerous in winter, and it is the eating of the root crops on the land which stimulates and enriches all the light soils in the kingdom. Any farmer who should attempt to farm ploughed land without the shepherd and his flock, would be certain to bring his land into an impoverished state. It behooves smart inventive men in America to set about making sheep pens which would give shade in summer and shelter in winter, devising means to follow the renovating system of sheep husbandry, as conducted in Great Britain.—*G. G., in Country Gentleman.*

WHAT HORSES BRING.

Horses of great reputation have always commanded great prices. At Newmarket, in 1805, a bay colt by Pipato sold for \$75,000. In the same year, a two year old colt by Benninborough, a two year old by Volunteer, and a three year old filly by Sir Peter, were sold for \$75,000 each. For the celebrated horse Shark, \$50,000 was refused, and O'Kelly declined to accept an offer of \$100,000 for his stallion. Tradition says that the Duke of Devonshire refused for Flying Childers its weight in gold. A few years ago the great sire Stockwell could not be bought for \$100,000, and we presume that when Gladiator was carrying everything before him on the English turf, the Count de la Grange would not have parted with him for \$150,000. Coming to America, we find that \$15,000 were paid for Lexington, and that his son Kentucky, was sold for \$40,000. Mr. Alexander refused \$50,000 for Asteroid, Kentucky's half brother, and Norwich, another half brother, was valued at \$40,000. Mr. Bonner paid \$35,000 for Dexter, and offers \$100,000 for one that can equal Dexter's waggon time.—*Turf, Field and Farm.*

LIVE STOCK GLEANINGS.

A Vermont cheese factory produced last season 90,607 lbs. of cheese from 857,674 lbs. of milk, furnished by 300 cows. The average receipts per cow were \$49 68.

A cow owned by Luther A. Lyman, of Hadley, Mass., recently gave birth to a calf with only one fore leg. The other parts are perfect and the calf is doing well.

J. H. Pickrell, of Harrison, Ill., took \$655 at four fairs, last Fall, on his bull, "Baron Booth, and \$400 in prizes on his herd of short-horns. "Baron Booth" was purchased of Mr. M. H. Cochrane, of Compton, Quebec.

A Vermont Yankee has a Durham cow from which, in seven months, he has made 311 lbs. of butter, besides selling 142 quarts of milk, and using what milk and cream the family needed.

The *American Agriculturist* says it has found no mechanical contrivance for milking which can be advantageously used, although several have been invented which would perform the operation.

The increase of cattle in the region of Valenciennes, France, in consequence of the culture of best sugar, is said to have been from 700, before this culture commenced, to 11,500 last year.

A little girl sent out to hunt for eggs came back unsuccessful, complaining that "lots of hens were standing around doing nothing."

A correspondent of the *Rural New Yorker* pronounces fried pork fat as good as anything he ever tried for sore teats on cows.

A Vermont farmer lately killed a hog 14 months old that dressed 734 pounds, giving a daily increase of one and three-fourths pounds.

A Pennsylvania correspondent of the *Country Gentleman* has practiced boiling corn, oats or buckwheat for hogs for several years, boiling the grain until the kernels crack open. He believes at least every tenth bushel is saved in this way.

A Frenchman—it must have been a Frenchman or a Yankee—has devised a plan for destroying the worms that so often infest corn and other growing crops. Knowing that fowls are the most indefatigable worm destroyers, he contrived a perambulating hen-house, by which they can be kept upon the fields or withdrawn as desired. He fits up a large omnibus-like vehicle with perches above and nests beneath. The fowls are shut in at night, and the vehicle is drawn to the required spot, and the doors being opened in the morning, the fowls are let out to feed during the day in the field. Knowing their habitation, they enter it at nightfall without hesitation, and roost and lay their eggs as well as in any other house.

An ingenious Yankee has invented an apparatus for feeding cattle at any desired hour, or during his absence. It consists of a hopper with a trap at the bottom, controlled by a small clock-work, upon the principle of an alarm-clock, which opens the trap and discharges the contents of the hopper within reach of the stock at the desired time.

Prof. J. B. Turner, of Illinois, in a communication to the *Prairie Farmer*, says that he has good reason to believe that slabbering is caused by a small, black, exceedingly acid insect, visible to the naked eye, which in some years is bred in clover heads by

the million, and some years not—usually found in the heads, when found at all, when in full bloom. He wishes to put sharp-eyed entomologists on the track.

A PROFITABLE APIARY.—A correspondent of the *Prairie Farmer* gives that paper an account of the apiary of Messrs. Francis, not far from Springfield, Ill. They have one hundred and twenty swarms of bees—being Italians and crosses of Italians with black bees. They think the crossed bees are the best workers. From a hive of half Italians they have taken, this season, one hundred and sixty pounds of honey, which netted about thirty cents per pound. From the whole apiary they have taken about four thousand pounds of honey, an average of 33½ pounds, or \$10 to the hive. The sale of bees paid all expenses of the apiary, leaving the honey net profit.

WARM SHELTER.—Cows in milk require warm shelter at this season of the year, or they will be apt to shrink rapidly in quality. At the same time, a barn that is too warm and not properly ventilated is to be avoided. A great deal of loss is occasioned by exposure to cold winds and storms. If the weather is cold and sunny, cows like to be out in the yard in the middle of the day, and no doubt it does them good. But to let them run out all day, and often in stormy weather, is what we hope no intelligent reader is guilty of. Feed them a few roots after each milking, beginning with the round turnip first, if there are any, then with the Swedes, and wind up in spring on the mangolds. We think a cow in milk ought to be carded quite often, and as this is not a very busy season of the year, why not set a regular time for it every day?—*Ploughman.*

HOW TO KILL LICE ON CATTLE.—A correspondent, "R. N.," of the *Country Gentleman*, "dissolved about a pint of strong soft soap in a pail of warm, soft water, and saturated the whole surface of a lousy cow's body with it; after about thirty minutes, repeated the operation, and in thirty minutes longer took a pail of clean warm water, and quickly and thoroughly washed out all the soap suds and dead lice in large quantities, put her in a warm stable, and covered her with a dry blanket. The next day, after being thoroughly dried, she looked, and seemed to feel, like a new animal; more than doubled her quantity of milk within twenty-four hours, and immediately commenced gaining flesh and general thriftiness."

WINTER HOUSES FOR BEES.—The following is the description of a house owned by Mr. A. R. Kingsly, which we find in the *Prairie Farmer*: "The inside is made of flooring, plowed and grooved, and driven tight. The walls are double, with four inches space between; the bottom and top are also constructed in the same way, and filled with dry straw. One inside and one outside door closes the entrance. Ventilation is secured by four half-inch holes close together near the bottom of the outside door, and the same number in different places of the inside one. The space between the doors is not packed with straw, but left vacant. These admit the pure air, while an aperture in the top of the room allows the impure air to escape. Mr. K.'s house is about five by seven, and six feet high. He places the stands close together on the floor and on a shelf, and claims that his bees winter on less honey, and in better condition than in any manner he has ever tried."

says, in confessing these failures, is to caution those not acquainted with the berry business to "make haste slowly" in entering upon such enterprises as that of raising them for market.

A New Jersey correspondent of the *Gardener's Monthly*, who has been experimenting on "Ten Acres Enough," sent several chests of strawberries to the Philadelphia market one day last season, for which he paid three cents per quart for picking. They were sold by his commission man for four cents per quart.

It requires a combination of advantageous circumstances to render small fruit culture profitable. There must be special fitness of soil, aspect and surroundings; proximity to market; ready and cheap transit; and withal, some business aptitudes in the cultivator. It is no uncommon thing to find persons hastily jumping to the conclusion that because somebody or other has made money in this or any other particular direction, they will infallibly do it; or because in some favored locality a large profit has been reaped, therefore the same thing can be done anywhere and everywhere. Judgment and care must be exercised about such matters, or disappointment and loss will be the sad result.

PANSIES.

Few gardeners consider their collection of flowers complete without at least one bed of these beauties. They are true violets, being all descended from the well-known heart's-ease or lady's delight, botanically known as *Viola Tri-color*—the three-colored violet.

They are beautiful, even down to the humblest member of this floral family—the old-fashioned heart's-ease. When properly cultivated, pansies may be brought to great perfection. In starting a pansy bed, attention should be paid in regard to seed, soil, situation, &c. Always procure the best of seed, and having prepared a rich, light soil, sow the seed thinly, broadcast, cover lightly with earth, and keep moist, shading the bed from the scorching noonday sun. When the young plants are large enough to bear moving, pick them out into a bed or border, setting them about six inches apart. The beds should be in some sheltered spot, as otherwise the storms and rough winds will often destroy the finest blossoms. While it is necessary to keep them moist, care should also be taken that the ground does not become too wet, and thus rot the plants. Fine varieties can be perpetuated only by cuttings, as seed cannot be relied on for this purpose. The cuttings should be taken from the young vigorous side-shoots, and set about an inch deep in light and rather sandy soil. Keep them shaded and

watered, and when they are well rooted and begin to grow with vigor, transplant them to some permanent place.

They should be covered up when the cold weather approaches. The best mode of doing this is to spread dry leaves over them, and then a layer of straw. These coverings ought not to be removed until the spring weather has fully set in, and then the plants should not be exposed to the rays of the sun too suddenly. They will soon be in fine flowering condition.

Exhibition blooms are expected to be of fine quality. A pansy may have many marks of beauty and yet not come up to the florists' standard. To do this the flowers should be round and flat, with thick velvety petals, a smooth edge, the three lower petals being of the same shade, and the upper ones quite alike both in color and figure.

In regard to size, the larger the better, other things being equal. About an inch and a half across may be considered quite fair. There are a number of minute rules and specifications for exhibition blooms with which pansy fanciers are familiar, but we will not lengthen this article by mentioning them. MIEW.

HARDY LIGNEOUS CLIMBING PLANTS.

There are many situations in small gardens where it is essential to give variety by intricacy of parts, and where the limited space renders its accomplishment impracticable by the ordinary expedient of planting a border of trees and shrubbery, but which may be effectually secured by erecting a screen of trellis-work to be covered with climbing plants.

To secure some degree of permanency in trellis-work, cedar or locust posts should be used, and covered with laths, made smooth, and thoroughly painted. What is called rustic work, for which many rural improvers seem to have a great penchant, is a very expensive ornament, requiring constant care in repairing, varnishing, etc.; and, after all, its rustic beauty is hidden in the twining foliage, which is frequently an improvement to the general effect.

Screens of trellis work for climbing plants should be constructed with a view to architectural effect, if in proximity to buildings, divided into panels by projecting piers, and the elevation relieved by moldings. A very appropriate division-wall, or fence between the flower and vegetable gardens, or for the purpose of defining any other portion of garden or lawn, may be formed by a low structure, as indicated above, the piers being capped and surmounted with vases. Much of the adaptability and propriety of this arrangement will depend upon its position and the manner in which it is connected with contiguous objects.

The following list comprises the best of hardy climbing plants, with remarks upon their peculiarities and habits of growth:—

Trumpet-flower (*Tecoma radicans*).—This is a robust plant, and is fitted only for large arbors, or for covering walls. It is well adapted to plant against old or mutilated trees, such as are often present in old grounds; and they may be utilized by allowing this climber to cover their nakedness, and soften their rugged points. It produces a profusion of dense clusters of flowers, which are favorite haunts of the humming bird; and it has the valuable property of adhering firmly to walls. It must, however, be occasionally pruned, or it will, from its weight, ultimately break down the overhanging branches.

Golden Bignonia (*Bignoni cap. col. it.*).—This fine flowering climber is not so commonly planted as its merits deserve. It supports itself by tendrils, and has great adhering powers; a very choice plant,—nearly an evergreen.

Virginia Creeper (*Ampelopsis quinquefolia*).—Also called American Ivy. A well-known plant of great beauty of foliage, more especially in Autumn. At this season it assumes a crimson shade which deepens into scarlet, producing a striking contrast with evergreen foliage, as may be seen when it takes possession of the red cedar, a tree for which it seems to have a natural partiality. Its delicate tendrils clasp very minute projections, and hence it may frequently be seen profusely covering brick walls. In such situations it is very liable to be blown down during storms, unless care is exercised in trimming, and keeping the branches close to their support. This plant is eminently cleanly and neat, with leaves elegantly formed and of a shining green color during Summer. It is also of rapid growth, quite flexible, and readily trained in any desirable position.

The Poison Ivy (*Rhus toxicodendron*) is sometimes mistaken for the Virginia Creeper, but they can easily be distinguished by the leaf. The Poison Ivy has its leaflets in threes, the Virginia Creeper in fives, the leaves of the latter being large, and the leaflets oblong.

Carolina Jasmine (*Gelatinum sempe v. en.*).—Although this plant is tender north of Virginia, yet it succeeds in sheltered city gardens further north. It is one of the most attractive plants, with large yellow fragrant flowers. In cool greenhouses or conservatories, it is an admirable plant for twining around pillars and other supports.

The Pipe Vine (*Aristolochia siphon*).—In rock soils this plant will make a large growth, and cover a great extent of trellis in one season, producing leaves from 10 to 12 inches in breadth, and of a vivid green color. In poor soil it is less beautiful in color, as well as diminished in size. It is liable to be infested by a large black caterpillar, easily destroyed, if carefully watched, before the plant is disfigured. The peculiar shape of the flowers gives it the name of Dutchman's Pipe, to which they have a very strong and remarkable resemblance.

The Climbing Bitter-Sweet (*Celastrus scandens*) is a twining plant of much beauty, especially in Autumn, when the orange-colored capsules open, and show the scarlet seed-covers; the vaccine-like clusters hanging like small bunches of grapes. It should not be planted near, or at least ought not to be allowed to twine upon, any choice tree or plant. Its tough twining stem clasps so closely, as to interfere

with the swelling of the bark; and instances have been observed where young trees have been so far cut through by the wiry coil of this climber, as to kill the plant.

The Japan Honeysuckle (*Lonicera b. achypoda*) is a more beautiful vine than the older known Chinese evergreen (*Lonicera J. japonica*). The leaves of this species are somewhat larger, of a bright, shining or glistening green color; flowers delicate and of sweet fragrance—there is no hardy trailing or climbing plant that can excel this as a covering for verandah pillars, arbors or trellises. One of the most agreeable beds in a flower garden is a large, oval figure rounded to a pyramid (by filling up with soil in the center) and completely covered with this evergreen—for in such a position it is truly an evergreen, although it will lose its foliage in Winter, when exposed on a high trellis. In order to produce the best effect in trellis work, it should be carefully trained, so that the branches may be regularly distributed over the entire surface to be covered. A regular system of winter pruning, which consists in removing all the young growth of the previous year, will keep a neatly covered surface. This surface will be supplied yearly with a graceful growth of young, drooping and slender shoots. If the lower branches show diminishing vigor, they may be strengthened by pruning the upper portions of the plant during summer.

Chinese Wistaria (*Wistaria Sineni*).—A strong-growing, woody climber, adapted for large trellises, or for climbing upon trees. Its racemes of flowers are large and fragrant, and it will rapidly cover a large surface, if planted in a good soil and favorable situation.

Coculus (*Coculus Carolinus*).—A native climber, with ornamented fruit hanging in clusters of a deep red, nearly scarlet color, and resembling a bunch of the common red currant.

Moonseed (*Menipe m. m. Canadense*).—A small-foliaged, delicate climber, producing clusters of black fruit in Autumn.

For covering a large trellis or an arbor in a very short time, our native grapes are among the best plants, and where fruit is not an object of particular consideration, any of the varieties of the frost grape (*Vitis Cordifolia*) will be preferable to those of the larger and coarser fox species.

Ivy (*Hederis Helix*).—This fine evergreen climber requires to be planted on a northern aspect. It adheres readily to a tree or stone wall, but requires a slight support against a brick structure, at least until it becomes well established. The dryness of our walls prevents it from clasping to walls with that tenacity for which it is famed in Europe. There are many varieties in cultivation, having great diversity of foliage, the most beautiful being variegated with white and yellow.—*Report of the Commissioner of Agriculture.*

MARKET GARDENING.

In the immediate vicinity of New York, there are tracts of land, formerly barren and rocky, that, under the high culture bestowed on them by enterprising and skilful market gardeners, have become enormously productive. It is no mean art, no despicable skill, that have wrought such changes and effected such results. When we re-

member that similar revolutions from unproductiveness to fertility are practicable all over the continent, we begin to realize what hidden stores of wealth there are in the bowels of the earth, and feel that it would be well if nine-tenths of our farmers could go to school for a while to these thorough-going cultivators of the soil. Of their work, *Heath and Home* says:

The skill and success of these market gardeners are such that on land the yearly rental of which is from fifty to one hundred dollars per acre, vegetables are grown with profit which are consumed thirty miles inland, where the rental of an acre is less than twenty dollars. These little patches of deep-tilled and highly-manured earth do double duty, and in a climate where there is ice in the middle of April and hard frost by the middle of October, the short season is so crowded by the energy of these unwearied husbandmen that they gather two profitable harvests—one about the 4th of July, the other by Thanksgiving time. As a specimen of what these gardeners can do on an acre, one of the most noted and skillful of these vegetable growers, Mr. Peter Henderson, of South Bergen, makes the following show, pronouncing it an average for the past ten years, from grounds that have been brought up to the standard of fertility necessary to the market garden:

OUTLAY ON THE ACRE.

Labor.....	\$300
Horse labor.....	35
Manure, seventy-five tons.....	100
Rent.....	50
Seeds.....	10
Wear and tear of tools, etc.....	10
Cost of selling.....	100
Total.....	\$605

RECEIPTS FROM THE ACRE.

12,000 early cabbages, five cents per head, marketed about the 4th of July.....	\$600
14,000 lettuce, one cent per head, set between the cabbage, and sold in May and June.....	140
80,000 celery, at two cents per head; set in July and August, and marketed during the winter.....	600
Total.....	\$1340
Deduct the outlay.....	605
Profit in clear money.....	\$735

An hour's conversation with this successful cultivator and his foreman, as well as a study of his book and a visit to his grounds in South Bergen, near the classic shores of Communipaw, would convince most of our farmers that nothing can be more vicious and profitless than our old hereditary way of scattering manures and labor right and left, over a wide, half-tilled, half-utilized surface. A detail of his system and his methods would make, what he has made, a book on profit in market gardening. We can only give the conclusions to which a scrutiny of the reasons of his success has carried us.

1. For the green and bulky crops, such as cabbages and celery, a wide surface is a seduction and a snare to the cultivator. It is well for him when a speculative value in lands near a great city confines him to a limited area.

2. An abundance of manure and skill in gardening are a full offset to high value of lands near cities. With manure and the requisite knowledge; a gardener, on acres worth \$2,000 each, may grow

rich by selling vegetables to the man whose acre is worth \$200.

The great crops of the market garden are grown by filling the soil every season with bulky, and, for the most part, vegetable manures. While the market gardener may spread a ton of guano on an acre, it is applied not as a substitute, but as a co-worker with manufacturing and stable composts.

4. The vicinity of towns large enough to support big horse-stables, breweries, and slaughter-houses, affords the area for very profitable gardening, no matter how unpromising the soil.

5. Next to manure, the market gardener must have abundant and timely supplies of labor. When the earth is not in the dead-lock of winter, he wants as many men as he has acres.

6. This business requires nerve. To venture timidly and hug the shore is to fail. Rank manuring, frequent stirring of a deep, well-drained soil, and weedless perfection of culture, are not advisable simply—they are vital to success.

SOME OF THE NEW ANNUALS OF LAST YEAR.

BY JAMES VICK, ROCHESTER, N.Y.

RHODANTHE MANGLESII MAJOR.—I have seen charming plants of *R. Manglesii* in Europe almost a shower of graceful rosy bells, but never anything more beautiful than a bed of this new Rodanthe, in my grounds the present season. It is like *R. Manglesii*, except that the flowers are about twice the size, and the plant far more robust. In Western New York the summer has been wet and cold, something like an English summer, and this may have been the cause of success.

THE PETUNIA is one of the most useful of our hardy annuals, and its improvement in the past twenty-five years has been quite marked. Only a few years since the Petunia was a poor, white, papery flower. Then small purple flowers were produced. Now we have them of every desirable color, except yellow, and perhaps blue, though some of the purples are very near blue, and both double and single. For making a good showy bed, the single sorts are the best.

There are two classes of Petunias one of the same habit as the old Petunia, with tough, slender, wiry branches, bearing a mass of flowers, and also giving abundance of seeds. The best variety of this class is the *Countess of Ellesmere*, a bright rose, with a white throat. This variety flowers so freely, and is of such a bright rose color, that it makes a bed on the lawn or a border of great beauty. It always comes true from seed. The *Blotched and Striped* of this class is also very desirable—of almost every conceivable style of marking. There are also mixed varieties of almost every color. Plants of this section make a very long though slender growth. I have measured plants this season which covered with their prostrate branches spaces ranging from 12 to 18 feet in diameter.

The *Grandiflora* section have thick, short, succulent branches, covered with a sticky substance, very large leaves, and enormous flowers, often from four to five inches across. They flower very freely, but not as abundantly as the small flowered ones. They produce but very little seed, and none in the open ground, as a general rule, though perhaps a little could be obtained in a very dry season. To obtain

seed of this fine class, the plants must be grown in pots, and kept in the house out of the way of dew and rain, and even when this precaution is taken, the product of seed is very light.

Among the best of this section is *Kermessna*, a deep crimson; *Maculata*, motiled, striped and blotched in every conceivable manner; *Venosa*, of various colors, but covered with a network of purplish veins; *Rosea*, deep rose, generally with a clear white throat, *Marginata*, which has flowers of various colors, that are curiously margined with green.

In my Petunia house, devoted to saving Petunia seeds from pot plants, this summer I discovered a plant producing flowers that startled and delighted me; they had a pretty, deeply cut fringe. My first impression was that this fringe resembled that of the Fringed Gentian. I hope to prove, next season, that the peculiarity will be reproduced from seed.

DIANTHUS HEDDEWIGH DIADEMATIS fl. pl.—All of which means Double Diamond Pink. This is altogether the most desirable acquisition of the year. It is of the style of *D. Heddewigii*, but more dwarf and compact in habit. The flowers are from two to three inches in diameter, and when true, perfectly double; of all tints, from the most delicate to the deepest velvety purple, and of the most gorgeous markings; as the grower wrote me a year since, "Each petal is a marvel of beauty in its drawing." Only about one-half the plants produced from seeds are true, or at least give flowers that are equal to the description, but these are so good that no one would mourn over those that fail.

ZINNIA DOUBLE—Three new Zinnias appeared among the European novelties last season, one claiming to be dwarf in habit, but it was no more dwarf than thousands I have had every season, and had no merit that I could discover. One, represented as quilled, proved curious and very good, though only a few of the plants produced flowers with quilled petals. For many years we have been wishing, working and waiting for a good *double white Zinnia*. I had grown a good many of a pinkish white, and of a dirty, yellowish-white, but none that satisfied me.

A friend in Europe wrote me that he understood Vilmorin, Andrieux & Co., of Paris, had succeeded in producing a good double white flower. In answer to inquiries on this subject, these gentlemen wrote me that they were laboring in this direction, and not without some success, but were not yet prepared to send out anything they had yet produced as a White Zinnia. My efforts have thus far been equally unsuccessful in this direction, yet I hope, in a year or two, not only to exhibit good double Zinnias of snowy whiteness, but those beautifully striped. I had one plant last season producing flowers as clearly and distinctly striped as the best flake Carnation; another with a row of snow-white petals, then a row of crimson, alternating through a little irregularly to the centre. Others with stripes and blotches of red and yellow I shall watch these changes most anxiously for a year or two. If the striped flower reproduces itself from seed next season, I shall feel that its character is pretty well established. I have already obtained everything that can be desired in perfection of form and size of flower, and have every desirable shade of color except blue, which we never expect to see, and white, which I hope to exhibit be-

fore long; while I feel quite confident that another year or two will give a collection of fine and well-established striped varieties.

Soon after the introduction of the Double Zinnia, I became satisfied that it was destined to become one of our most popular flowers, being hardy, showy, and enduring in its individual flowers, and set to work earnestly to improve its character in every possible way. I am more than satisfied with the results thus far obtained, and await a year or two more of experiment with patient confidence.

CALANDRINA SPECIOSA ALBA.—A dwarf variety, with pure white flowers in the greatest abundance, and if it kept in bloom during the whole season would be valuable. Unfortunately, the plants acted early in August as though they had fulfilled their mission, stopped blooming, and left me without the white stripe in the ribbon.

FRUIT AND VEGETABLE CULTURE AT ST. MARY'S, ONT.

To the Editor of the Ontario Farmer :

SIR:—Some time ago I promised to write for your journal a brief description of the kinds of fruits and vegetables that I have found to succeed best in this part of the province, and my method of cultivating them.

My orchard consists of 150 apple, 40 pear, 50 plum, 15 cherry, and some peach, apricot and pear trees. It has all been planted during the past ten years. The soil is a strong clay loam to the depth of two or three feet, and then a bed of pure gravel, being perfectly drained by nature.

I plant my trees in the Spring, as soon as the ground is dry enough to crumble fine. In planting I am careful not to expose the roots even a short time in the sun or drying winds. A half hour's sun will kill the fine, fibrous roots, and the tree cannot grow until new fibres spring out of the large roots, and before those spring out the tree is often dead. I have my ground worked by the plough and perfectly pulverized to a depth of ten inches. I dig the holes broad but not deep, so that when the tree is planted and the earth settled around it, it will be the same depth that it stood in the nursery. I believe that thousands of trees, on heavy clay soil, are lost by planting too deep. Many planters dig out the sub-soil two feet deep, and then fill with surface-soil. This soil becomes saturated with water and remains so until dried up by the sun. No tree can possibly thrive in such a condition.

After my trees are planted I always mulch them with half-rotted straw, putting about two wheelbarrows full to each tree. Coarse manure will do, if not too strong. I have never watered my trees, as they are better without it if well mulched. I seldom if ever loose a tree in transplanting. I have kept my orchard under hoed crops all the time, and perfectly clear. I plow it all the one way, first leaving a dead furrow in the centre of the

space between the trees; the next time, I plough from the trees. As soon as there is danger of the whiff-trees striking the trees, I stop ploughing and use a one-horse cultivator. By this means I make the ground clean and mellow, without barking the trees or breaking the roots. I keep the land well manured, putting on about thirty loads to the acre annually, spread evenly over the land, except directly under the trees. Rank, strong manure close to the tree is injurious, and I have seen instances where young trees have been killed by putting strong manure close to them. Many trees are killed by mistaken kindness. I knew a man who killed all his gooseberry bushes by throwing salt around the roots. Another buried a dead pig close to a fine apple-tree. In six months the tree was only fit for fire-wood. A neighbor of mine oiled his trees two or three times with goose oil, and one day when I was passing called me in to see his discovery, and how well his trees looked. I told him to wash it off with soap-suds. He did so, but it was too late, and most of them died.

ST. MARY'S, ONT.

S. H. MITCHELL.

To be Continued.

GRAPE VINES FOR TRIAL.

THE Directors of the Fruit Growers' Association of Ontario have issued the following offer to the members, in a circular from the Secretary :

"SIR,—The Directors of our Association desire me to ask you if you are willing to accept of a new variety of Grape Vine, on the condition of taking good care of it, and making an annual report to the Secretary, from five years from the time of planting, of the results of your trial.

D. W. BEADLE,

Secretary."

We are much gratified to see the public spirit that animates the Directors of the Association, and have no doubt the offer will be accepted by a large number of the members. It is in this way that new varieties of promising fruits can be rapidly disseminated, and their value in the different parts of the country reliably ascertained. The Society is doing a good work, and every person who cultivates fruit should be a member. One dollar a year is the condition of membership, which can be sent to the Secretary at St. Catharines. Each member will receive a copy of the annual report, worth twice that sum. The offer contained in the circular is open to new subscribers, and any such who may wish to avail themselves of it are requested to forward their subscriptions, and intimate their wish in the matter, to Mr. Beadle as soon as possible.

BOXES FOR STARTING PLANTS.

Several devices, patented and otherwise, have been offered in which such plants as are injured by a disturbance of their roots may be started and afterwards readily and safely removed to the open ground. We gave, some time ago, a box with

moveable partitions in which melons, cucumbers, etc., could be started in the hot-bed or window, and the plants removed at the proper season without disturbing them. A correspondent, V., Antrim, N. H., says in reference to these boxes :

"I formerly used such an one, but I have lately used *paper boxes*, which I like better. The paper of my boxes, not being entirely decayed, holds the earth firmly in its place until the plant is set out. To make these boxes, cut strips of thick paper about 6 inches wide and 17 long; paste the ends together, lapping an inch, which will make a circle 16 inches in circumference; then press the sides of the circle together flat, and double once, making a book of four uncut leaves; now, open with the fingers, pinch down the corners properly, and a bottomless box four inches square is the result. Place as many of these as are needed close together in a wooden box, fill with earth, and sow seeds or prick out the plants. After trying boxes of wood, birch-bark, earthenware, etc., etc., I have for two or three years fallen back upon these paper ones as the simplest and best. It is best not to have the box that holds the paper ones so high by two inches as they are, as the paper then does not decay so rapidly as in higher boxes, and holds the earth together better in transplanting.—*Am. Agriculturist.*

FILLING ORDERS FOR FRUIT TREES.

At a recent meeting of the Iowa State Horticultural Society, the following resolution, after considerable discussion, was adopted by a strong vote:

Resolved, That the practice of Nurserymen in advertising their stock for sale, of stipulating that in filling orders for trees they shall have the right to substitute varieties other than those named in the order, instead of refunding the money, is reprehensible in the extreme, unworthy of honorable men, and a serious drawback to that general dissemination and culture of fruits which is so eminently desirable.

MAMMOTH CALIFORNIA FRUITS.

A correspondent of Moore's *Rural New Yorker* enumerates twenty-three varieties of apples that were on exhibition at the Industrial Fair held in San Francisco in October. He gives the weight and measurement of each variety, a few of which we transcribe :

Gloria Mundi.....	15	x15½ inches;	weight 26 oz.
Tompkins County King.....	15	x14	" " 19 "
Fall Pippin.....	13½	x13½	" " 16 "
Spitzenberg.....	11	x11½	" " 12 "
Newtown Pippin.....	12½	x12	" " 12 "
Rhode Island Greening.....	11½	x11½	" " 15 "
Baldwin.....	13	x12	" " 16 "
Roxbury Russet.....	11½	x10½	" " 11 "

All the other varieties being of a similar proportionate weight and size. Although so much larger than their New England progenitors, they are said to be equal, and in some cases superior in flavor, though not as good in "keeping" qualities. [We doubt the former part of the story.—Ed. O. F.]

The pears (nineteen varieties) ranged in weight all the way from four and a half ounces up to thirty.

GARDEN GLEANINGS.

THE Japanese wrap the roots of living plants which they wish to transport in a mixture of earth and ground carrots.

The *Detroit Tribune* estimates the value of the fruit crop in the peach belt of Western Michigan for 1869 at \$870,165, of which \$563,722 was for peaches.

"CLAPP'S FAVORITE PEAR," John J. Thomas says, "is likely to have a drawback, namely, rotting at the core." But he adds, what is proven true,—early gathering will prevent this.

THERE is an orange tree in Los Angeles Cal., on half of which hang 500 ripe oranges, while the opposite branches are thickly covered with fresh blossoms which load the air with their rich aroma.

THE great means of destroying most kinds of weeds is to keep the leaves and stems from appearing, by frequent mowings or cuttings. Cutting them before the seeds have ripened is, of course, absolutely essential, but not always sufficient.

At a recent meeting of the New York Fruit Growers' Club, several samples of Concord and Isabella grapes were tested with the saccharometer, and the Concord proved to be the sweetest, by one degree.

THE Squash Bug, the Entomologist reports, has not touched the White Bush Scollop squash, while it has almost ruined the Hubbard squash alongside of it. To kill this bug, lay down pieces of boards along the rows. The bugs will gather, during the night, under the boards and may be destroyed in the morning.

The editor of the *The New England Farmer*, having advised fruit-growers to "cut down and cast into the fire every wild cherry tree, as they are a complete nursery for caterpillars," a correspondent of that very useful paper takes exceptions to this opinion, and says that the reason given for destroying them is the very reason he gives for planting them, as they attract the caterpillars from every other tree, and as the cherry trees are low the caterpillar may be easily taken and destroyed. In reply to this, the editor reiterates his opinion, and substantiates it by cogent reasons.

It is astonishing to see how much can be done year by year to adorn and beautify the farmer's home and its surroundings. A few trees set out here and there, a few old and decayed trees grubbed up perhaps, and removed, an unsightly wall or fence taken out of the way, in a thousand ways, indeed, beauty may be made to spring out of deformity, and that, too, without any serious expenditure of time or money because each one is undertaken when work is not over pressing, and as a means of filling up idle time.

RED DIAPER PLUM—John J. Thomas says of this fruit in *Country Gentleman*:—"This excellent variety, the fruit of which is large, handsome and excellent, has the drawback of rather slow and feeble grow. On the fertile soil of the West it appears to grow vigorously, and to prove valuable. We observe in an essay read by L. C. Francis before the Illinois Horticultural Society, as published in the *Horticulturist*, that at Springfield it is regarded as standing at the head of the list—being hardy, a thrifty grower and "prodigious bearer."

Our Country.

IMMIGRATION.

The Government of Ontario are renewing the efforts made by them last year to induce immigration to this Province. The Hon. John Carling has issued a circular to the heads of the different municipalities asking for returns of the number of persons for whom employment can be found, specifying the class of laborers required. A similar circular issued last year brought answers from a large number of localities, and, in accordance with them, immigrants were sent on their arrival, and are, as a general rule, doing very well. Some municipalities did not reply; not, we fancy, because employment could not be found for any who might come to seek it, but on account of apathy. It is to be hoped that this year the replies will be general, and that the municipal corporations in Ontario will exert themselves to make the immigration movement a practical and permanent success. The hearty co-operation of the people generally is essential to a successful immigration policy. Every one recognises the importance of directing to Canada a portion of the stream of emigration annually leaving the Old World; and it requires but active effort on the part of the people to secure this. Some of the municipal councils of the Province last year, in addition to sending their returns to the Department in answer to the circular addressed to them, appointed special committees to receive and provide for the immigrants on their arrival. It would be well if this were done more generally; as, by such combined effort, the movement can be made much more successful.

Mr. Carling, in addition to the registering of the labor market, has also asked for information in relation to partially cleared farms for sale. It is expected that there will, during the coming season, be a considerable immigration of tenant farmers with small means, whose object will be to purchase partially cleared farms in the more settled parts of the Province. These men, coming among strangers, will find it a great advantage to have a complete list of the farms for sale, with particulars concerning them, registered in the immigration offices. It will save them from much loss of time, and prevent their being dependent upon land agents for information; while the advantage to those having farms for sale is too manifest to require pointing out.

In addition to these arrangements within the Province, the Government have again appointed Mr. Thomas White, Jr., to visit Great Britain, and, by lectures and letters to the press, diffuse information on the subject of this Province. Mr. White's

efforts last year have met with approbation from all parties both in the Legislature and the press, and his selection for a second visit will, we are sure, meet with the cordial approval of the people of Ontario. His acquaintance with the work will enable him to perform his duties with even greater efficiency than before; and the experience of the immigration of last year will enable him to guard unsuitable people against the disappointments which are almost certain to overtake them. The season of the year at which he goes is the best that could be selected; as he will be in England about ten weeks before the emigration movement commences. We understand that it is his purpose to visit the principal agricultural centres, and to press strongly the field which Ontario presents for the agricultural laborer, and the small tenant farmer. For these classes there is, fortunately, an almost unlimited demand, and no risk is run in advising them to come to Canada in almost any numbers. Mr. White sails for England by the City of London from New York on the 5th instant. We wish him a prosperous voyage and a successful mission; and shall keep our readers fully informed of such of his doings as may possess interest for them.

We are glad to learn that the Dominion Government is waking up to a full appreciation of the importance of this immigration movement; a fact due, to a large extent, to the bold and outspoken criticism of their former apathy by Mr. White, after his return from England last autumn. They are about erecting large immigration sheds at Toronto, which we hope will be so constructed as to afford to the newly arrived immigrant all the comforts possible during the time he is compelled to remain in them. We hope they will also put up better buildings at Quebec, where the immigrant first arrives, and from his treatment at which point, and the provision made for his reception, he is very apt to form his impressions of the country.

THE LAST TEN YEARS OF CANADIAN HISTORY.

A lecture on the above subject was delivered in the Music Hall, Peterboro, on Thursday, the 27th ultimo, by Thomas White, jr., Esq., under the auspices of the Mechanics' Institute. The chair was occupied by William Helm, Esq., President, who briefly introduced the lecturer. The Hall was filled by a most intelligent audience, who, by their deep attention to the lecture, showed their appreciation of the manner in which the subject was handled. The following is a brief and inadequate summary, and it but partially indicates the line of

thought of a most able, eloquent and interesting lecture:

Mr. White, on rising, was received with loud applause. He expressed the satisfaction he felt in once again meeting his old friends in Peterborough, and thanked them warmly for the cordial greeting with which they had received him. When invited to lecture for the Mechanics' Institute, he had felt some doubts about his ability to do justice to any subject which would be of interest to a mixed audience, as his time was so fully occupied that he had little to spare for ordinary literary labor. But when it was pressed upon him that his presence would insure a good audience, and might be the means of promoting the interests of the Institute, he resolved to accede to the request, choosing as his subject one upon which he could probably interest them for an evening, without imposing any serious labor upon himself. After choosing it, however, it had occurred to him that to an audience of ladies and gentlemen, it was scarcely such a one as would be altogether acceptable. There was a popular idea that ladies had no concern with questions of politics; and perhaps of a very goodly number of Canadian ladies, this might be said to be true. Yet at a time when, among our neighbors in the States, woman's rights conventions were the order of the day; and when even in Old England, remarkable for conservative and old-fashioned notions, women had imposed upon the courts the task of deciding whether they had not the right to vote under the late Reform Bill, he might fairly assume that to the less strong-minded (though more sensible) ladies of Canada, the history of this new Dominion, its past, its present and its future, were matters of warm interest and of deep concern. He did not propose to trouble his audience with matters of dry detail, important as they were; but there were certain facts, as illustrative of the progress of Canada during the last ten years, for which we had not any returns, that might at the outset be briefly stated. The blue books of Parliament were not the most fascinating reading; and perhaps the least fascinating of them all were the Trade Returns. Yet nowhere could we find material more important in estimating our material progress as a people. We had no returns later than those of 1868, and in order to make his review complete for ten years, he would go back for comparisons to the corresponding year of 1858. In that year our imports amounted to \$29,078,527; and in ten years they had nearly doubled, having reached the large sum of \$57,805,013. Our free list during that time had increased from \$8,373,614 to \$18,772,007. These imports represented fairly our growth in population and in wealth, but there were tables which more accurately told the tale of our progress in practical industry and development. Our exports in 1858 reached in value \$13,472,609, while in 1868 they had risen to more than double that sum, \$47,499,876. Of these, the products of the forest, in which the people of Peterboro were so deeply interested, had increased from \$9,284,514 to \$14,471,697, while our exports of agricultural produce had risen from \$7,904,400 to \$12,642,083. Our exports of manufactures, though still very much below what they should be, had considerably more than doubled, rising from \$325,376 to \$834,158; and our exports of the mines, neglected as they have been, had risen from \$314,823 to \$607,101. He left this part of the subject with the one remark, that a community

whose aggregate trade had increased in ten years from \$52,551,136 to \$105,304,889—more than double—could not with truth be charged with being sluggish in the march of material improvement (Cheers.) Entering as we were upon a new decade, we might with great advantage review the leading events of that which had but dropped into the eternity of the past. The last ten years of Canadian history had been fraught with events and with lessons of the greatest import. In the very first year of the decade, we had been rather rudely awakened from our sleep of fanciful security, and had learned the lesson which all free communities had been compelled, sooner or later, to learn. Scarcely had the American war broken out, when the flag of England, which we all revered, and under which he prayed God we might long continue to live, was rudely insulted upon the high seas. When the news reached this country, a common impulse actuated the entire community. Without distinction of party or creed, all men had united in the resolve that the honor of the country must be maintained; and no one for a moment stopped to count the cost. Fortunately the cloud which for a moment darkened the horizon cleared away, and we were saved the terrible evils of actual war. But we had learned for the first time, in a practical form, the lesson that free institutions carried with them the responsibility of being prepared to defend them. Mr. White referred to the position in which the volunteers of Canada stood before the Trent affair and afterwards, holding that the first event of importance in the decade was the general recognition of the duty devolving upon us of maintaining an efficient defensive organization. We had had frequent causes for recognizing more fully that duty ever since. The St. Alban's raid was the first event which called for active duty on the part of the volunteer force, and it was something to be proud of that the first force actually maintained in the field by the Government of Canada, since the old Union, was so maintained in vindication of the laws of good neighborhood, and in enforcing the duty of neutrality imposed upon us by the Queen's proclamation. The next call to arms was for a far different purpose. For months after the close of the war an organization, calling itself by the pretentious name of the Irish Republic, having, with the connivance of the Amer. Government, its civil and military organization in full blast, threatened our frontier; and so serious appeared the menace, that the Government, sitting in midnight Council at Ottawa, resolved to call out 10,000 volunteers. The order was issued at two o'clock on the morning of the 8th of March, 1866, and before ten o'clock the same day 14,000 men giving a hasty parting kiss, and a fervent God bless and protect you, to their mothers or wives or sisters, and with the watchword *pro aris et focis* had rushed from their homes and stood shoulder to shoulder ready for any duty that might be assigned to them. [Cheers.] For that day the threatened invasion did not come; the volunteers had been withdrawn, and we were flattering ourselves that all was secure, when on the 1st June, the Fenian raid had actually occurred. Mr. White gave particulars of the raid, and of the conduct of the volunteers, and referred especially to the willingness with which the Parliament of Canada voted the indemnity to ministers for the unauthorized expenditures connected with that raid. He contrasted the action of the American Govern-

ment at that time with that of the Canadian Government when the St. Albans raid occurred; and held that the contrast afforded sufficient answer to the charges which had been so frequently made against Canada by the American press. For a time indeed even yet, we have rumors from time to time of an intention on the part of an O'Neil to renew his attacks; but the training of the last ten years, the spirit of self-reliance which it had brought with it, had enabled us to bear with philosophical composure, these repeated threats. Politically the last ten years had been eventful years for Canada. He did not propose to touch upon any point of disputed party difference; but the broad facts of political changes which had occurred, were entitled to notice. Never, since the old union, had party feeling run higher than at the commencement of the last decade. Parties were evenly divided and crisis after crisis occurred. Governments on both sides of politics were more concerned about their own want of numerical support and the best way of receiving it, than they were about the interests of the country. He gave some amusing accounts of the stratagems of members to withdraw their opponents from the House, in the hope that the absence of even one member would have the effect of defeating the Government. These things, amusing as they were, were discreditable to Parliament, and injurious to the country. Fortunately they did not last very long, and in the agreement between the two great parties in 1864, on the basis of a settlement of constitutional differences between Upper and Lower Canada, and the confederation of the British American Provinces, a solution of our difficulties was found. Mr. White rapidly sketched the proceedings connected with the movement for confederation, down to the passage of the British American Act. Of the practical advantages of that Act he had no doubt; an enthusiastic unionist from the day that he first thought of political questions, he had confidence that in this union would be found the germs of a great nation. Already we were by no means an insignificant people. As a maritime power we stood forth in the world; and we possessed within ourselves all the elements necessary to national greatness. We started with a population rather larger than that of the United States at the time of the declaration of independence. Our aggregate trade to-day amounted to over a hundred and thirty millions of dollars, and every year was adding largely to it. In it about twenty-nine thousand ships with an aggregate tonnage of six millions and a half was engaged. The temper of the Canadian people had been severely tried in another respect during that time; the reciprocity treaty which had proved of immense advantage both to Canada and the United States, during the time that it was in existence, had been withdrawn; and at first gloomy predictions were uttered as to the result of this change. The grounds of its adoption, and the grounds of its withdrawal had been explained in the celebrated Pouter speech at Detroit, and those grounds were not commercial but political. We were then informed that reciprocity was conceded in the hope that closer commercial relations would lead to closer political affinities, and ultimately to annexation. Their hopes in this respect had been disappointed; and they then resolved to try the opposite course, of starving us into annexation by a withdrawal of reciprocal trade relations. In this they had been equally unsuccess-

cessful; neither their favors nor their frowns, tempting the people of Canada into a change of allegiance. And there was this curious fact which ought not to be overlooked; that our exports to the States in spite of their high tariffs were nearly a million dollars more in 1868 than in 1858 under the Reciprocity; those of agricultural products being about a hundred thousand dollars in excess. Having thus referred to some of the events of the past ten years, Mr. White referred to the future. Our growing importance and increased influence brought with them increased responsibilities. We possessed resources and advantages of the greatest value. Ours was emphatically a land of freedom.

"The beam that gilds alike the palace walls
And lowly hut, with genial radiance, falls alike
On peer and peasant;—but the humblest here
Walks in the sunshine, free as is the peer
Proudly he stands with muscle strong and free,
The serf—the slave of no man, doomed to be.
His own, the arm the heavy axe that wields;
His own, the hands that till the summer fields;
His own, the babes that prattle in the door;
His own, the wife that treads the cottage floor;
All the sweet ties of life to him are sure;
All the proud rights of manhood are secure."

We had before us, as a work worthy the best efforts of our statesmanship, the building up of a British nationality on this continent. There were difficulties in the way, but these should but stimulate to more earnest effort and to a purer patriotism. He referred to the Red River difficulty, expressing his conviction that it would be speedily removed, and the fertile plains of the great West be admitted, on equal terms with the other Provinces, into the British American Confederacy. He commented on some tendencies in our society against which we ought to guard, and none was more marked than the disposition on the part of many of our young men to crowd into the cities and towns under the false notion of obtaining a respectable livelihood. We had, if but true to ourselves, a bright and prosperous future before us.

"Fair land of peace! O may'st thou ever be
Even as now the land of liberty!
Treading serenely thy right upward road,
Honored of nations, and approved of God!
On thy fair front emblazoned clear and bright—
FREEDOM, FRATERNITY and EQUAL RIGHT."

Mr. White concluded by thanking the audience for the kind attention they had bestowed upon his glance of ten years of Canadian history, and resumed his seat amid loud applause. The lecture occupied about an hour and a half in its delivery, the lecturer being frequently cheered.

BEAUTIES OF THE FAR-WEST.

The Iowa Homestead complains that the freights on wheat from that State to New York are so large that the profits are wholly absorbed by the transportation charges, and alleges that the extravagant salaries paid to railroad officials, and other constantly increasing expenses which attach to many of the leading lines, make a high freight tariff necessary in order to meet current expenses; and urges that something must be done, or else people and railroads are pretty soon to "go to the dogs."

The Central Union Agriculturist, Omaha, complains loudly that the farmers of Nebraska and

other portions of the West cannot sell their grain at remunerative prices. Every stage to the westward takes a slice or a shaving off the market price of grain, and renders farming less profitable. Let all who are smitten with western fever make note of this, and "look before they leap" toward the setting sun.

Arts and Manufactures.

HOW A GRAIN ELEVATOR WORKS.

An exchange gives a description of the enormous fire-proof "Niagara" grain elevator at Buffalo, which is only one of twenty-five lining the river on both sides for a mile from the harbor's mouth. We extract the following:—

"Now, let us suppose that a vessel full of grain has arrived. The steamer upon which I am now sailing up Lake Erie, the Dean Richmond, is capable of carrying 38,000 bushels of wheat. Imagine, if you can, the labor of transferring such a cargo by the old process, with pails, tubs, half-bushel measures, bags, hands, shoulders, carts and horses. Now, as soon as the hatches are off, a signal is given to the engineer, and directly the machinery of the tower begins to rumble, and a ponderous iron case rises until high enough to swing its foot out over the hatchway. Another signal, and down it drops into the pile of grain. This is the "leg," and contains a belt of iron buckets, which scoop up the grain and carry it into the first story of the tower. There it is poured into the hopper of a weighing machine, gauged exactly for one hundred bushels. The moment the scale turns, the man in charge stops the supply and opens the valve at the bottom, which lets out the grain while he is making his score; it should be self-registering—perhaps it is. Then he closes the lower valve and opens the upper; repeating the operation so often that 7,000 bushels an hour are thus weighed. As fast as it falls from the scale hopper it is taken up by another elevating belt, and emptied into a receiver at the top of the tower, whence it runs to any part of the building. If it has to be cleaned, it is re-weighed and loss charged, as well as a small charge for cleaning. The quality, quantity and owner's name of the wheat in each bin is registered, the elevator proprietors being responsible for the contents. The grain is sold by sample, but can be readily inspected and quantity ascertained by visiting the bins. If the grain heats it is immediately transferred to other bins, the operation giving it a thorough airing. As the floor of the bins is twenty feet above the ground, it will readily be seen how easily canal boats or cars can be loaded, while the unloading and elevating go on simultaneously.

Suppose a cargo of wet grain arrives at this elevator. The same machinery is applied to its discharge, but instead of being stowed in the bins or shifted about to dry it in the air, it is sent into a spout which conducts it into another building owned by the same company, and built for a model malt house, with all the modern improvements. Here, upon drying kilns, each fifty feet square, 15,000 bushels of wet grain can be dried daily. At the time of my visit the kilns were all in full blast

with a cargo of oats from a sunken canal boat. This malt house is 212 feet long and 54 feet wide, of solid blue limestone, with slate roof, iron gutters and fire-proof floors, where the barley is sprouted, after having been steeped, 500 bushels at a charge. The kilns are heated by anthracite fires in the basement, and the flues are conducted up to and form the bottom of the kilns, which are of perforated iron, so that all the air or gas of the furnace may pass out through the grain. The finished malt or dried grain can be delivered directly from the store-rooms of the malt-house to the cars, which run between the building and the elevator."

THE WALTER PRINTING PRESS.

The principal merits of the "Walter" printing-press, just invented by the son of Mr. Walter, of the *London Times*, are its simplicity, its accurate workmanship, its compactness, its speed, and its economy. While each of the ten-feeder Hoe machines occupies a large and lofty room, and requires eighteen men to feed and work it, the new Walter machine occupies a space of only about 11 feet by 5, or less than any newspaper machine yet introduced, and requires only three boys to take away, with half the attention of an overseer, who easily oversees two of the machines while at work. The Hoe machine turns out 7,000 impressions, printed on both sides, in the hour; but the Walter Machine turns out 11,000 impressions complete in the same time. The rapidity with which it works may be inferred from the fact that the printing cylinders (round which the stereotyped plates are fixed), while making their impressions on the paper, travel at the surprising speed of 200 revolutions per minute. As the sheet passes onwards, it is first damped on one side by being rapidly carried over a cylinder which revolves in a trough of cold water; it then passes on to the first pair of printing and impression cylinders, where it is printed on one side; it is next reversed and sent through the second pair, where it is printed on the other side; then it passes on to the cutting cylinders, which divide the web of now printed paper into the proper lengths. The sheets are rapidly conducted by tapes into a swing frame which, as it vibrates, delivers them alternately on either side, in two apparently continuous streams of sheets, which are rapidly thrown forward from the frame by a rooker, and deposited at tables at which the boys sit to receive them. The machine is almost entirely self-acting, from the pumping up of the ink into the ink-box out of the cistern below stairs, to the registering of the numbers as they are printed, in the manager's room above.

FRAILTY OF AMERICAN ARCHITECTURE.

A correspondent of the *Omaha Republican*, speaking of the frailty of many of the public structures in America, that are built quite too light for the service required of them, alludes to the fearful accident in Montreal occasioned by a building falling with an audience of two thousand people, and seriously, if not mortally, wounding several persons.

That many large buildings fall down quite frequently, when subjected by such weights as their capacity was designed for, and sometimes with

such terrible results, is evidence enough, without any comparisons with other parts of the world, that we do not build them strong enough. This is criminal culpability, which must, perhaps, be equally shared by the architects and the proprietors. Often the better judgment of the architect is overruled by the desire of the proprietor to build large and with style, at the smallest amount of expense; and the result is an insecure building. Sometimes, too, we opine, the architect is incompetent to his trust.

Wherever the fault may be, in a given case, it is a fact that we build too slightly. Much criticism has been expended on the arrangement of our tenement houses in great cities, whereby often, in cases of conflagration, they have been simply huge man-traps. But the resisting power of our great structures is little better than the arrangement of our tenement houses. In this is the radical fault of our architecture. It is one which calls for reform with the awful voice of human lives sacrificed and human bodies maimed for life. When shall we have this reform? Must the sacrifice of human life go on for many years yet? We fear so, unless architects will make themselves more familiar with the strength of materials.

CLEANING COAT COLLARS.

Mrs. C. Montrose, Md., writes: "For cleaning coat-collars and all woolen goods I recommend the Soap-tree Bark (*Quill ya saponaria*) which can be procured at the drug stores. Break a piece about two inches square into small bits, and pour over it half a pint of boiling water; let it stand an hour or two, then sponge the collar well with the liquor; a second sponging with clear water will clean it nicely. Both washing and rinsing water should be as warm as for flannel. We have, by using this bark, washed black and blue Empress cloths successfully, and have cleaned hair cloth chairs, which had been soiled by contact with the head."

There are several vegetables which are in use in different countries as substitutes for soap. The natives on the North-west coast use a soap-root; the Mexicans use one or more vegetables as soap, and the one referred to by Mrs. C., the Soap-tree bark, is largely employed by the Chilians. All these make a lather with water, and serve to remove grease without injury to the fabric. The Soap-tree bark has been used to some extent in tooth-washes and in preparation for cleansing the hair.

REMOVING RUST FROM POLISHED STEEL OR IRON.

Sometimes rust can be removed from polished iron or steel with little difficulty; but sometimes it cannot be made to disappear without polishing the surface anew. Rust is oxide of iron. The oxygen of the iron unites with the iron chemically, thus forming a thin scale on the surface, not one thousandth part of an inch in thickness. Red rust may be formed on the polished surface a thousand times without materially corroding the metal, provided it be removed soon after it has formed. The usual manner of removing red rust is to cover the rusty portion with common olive oil, and rub it in well with a woolen cloth. After

it has stood a few hours, rub the parts with finely pulverized slacked lime, or Spanish Whiting, until the rust is all removed. If red rust is allowed to accumulate until the polished surface is corroded, sweet oil and a severe rubbing will seldom remove it. The entire surface must be re-polished with emery, or some other grit, before black rust will disappear from polished steel or any other metal.

VALUE OF ICE.

Independently of the use of ice as a cooler of food and drinks, of late years it has been applied to a vast number of purposes in the arts and sciences, and in trading operations. Without ice it would have been impossible to lay the Atlantic electric cable. In order to secure a calm passage, without which it would have been impossible to have paid out the three thousand and odd miles of cable, the summer months were fixed upon for the operation; but the heat is so great at this time that the cable, coiled up in vast cisterns, would have lost its gutta-percha covering by melting. To obviate this insuperable difficulty, the tanks were enclosed in surrounding tanks of ice, and in the most sultry weather the cable went over the stern, notwithstanding the tremendous friction, as hard as a bar of iron.

HOW TO CLEAN OLD AND MUSTY BARRELS.

At this season of the year the farmer and beef and pork packers are often greatly troubled with musty, filthy-smelling barrels, bottles, etc. How to cleanse them for use is an important question which chemistry will answer satisfactorily.

Permanganate of potassa will entirely destroy all fungoid growths and fermenting matter, and render the barrel or bottle perfectly sweet and clean.

A pint of the permanganate is a sufficient quantity for a cider or beer barrel. Its deodorizing and disinfecting qualities are wonderful, as it contains five equivalents of oxygen, and will even deodorize carbolic acid and remove its pungent smell from the hands immediately.—*Hearth and Home.*

A NOVELTY in street locomotion is now attracting attention in Paris. One of the road-steamers, with india-rubber tires to the wheels, invented by Thompson, of Edinburgh, Scotland, is running through the streets of the French capital, dragging behind it a heavy omnibus with fifty passengers, compared to which the six-horse power engine looks like a steam-tug towing an Indiaman. On the report of the French government engineers, leave has been granted to the road steamer to ply over two routes, several miles in length, and including some busy parts of Paris. The engineers report it more handy and manageable than horses, and in no way dangerous to the public. The huge India-rubber tires save the machinery from jolting and the road from ruts. The speed is that of a fast omnibus, and it travels up and down rising ground without the least difficulty.

There will be a domestik eklipse this year (visible only tew the naked eye), kaused bi the new Comet Sorosis jumping out ov her pasture, and cantering around promiskuss.

Hearth and Home.

FARMING FOR BOYS.

CHAPTER III.

A POOR DINNER—WHAT SURFACE DRAINAGE MEANS—THE VALUE OF DRAINAGE—WET BARN-YARD—WHAT CONSTITUTES MANDRE—HELP YOURSELF—THE YOUNG PEDLER.

As might be expected, the party thus invited to dinner had anything but a hospitable time of it. In a general way, the boys received pretty fair treatment from Mrs. Spangler; but on that particular occasion they saw that they were called in merely to be fed, and, the feeding over, that it would be most agreeable to her if they would thereupon clear out. Things had gone wrong with her on that unfortunate day, and they must bear the brunt of it. The good man of the house was absent at the neighboring tavern, it being one of his rainy days; hence the wife had all the remaining household at her mercy, and, being mostly an uncomplaining set, she could serve them with impunity just as the humor of the moment made it most convenient. The dinner was therefore nothing to speak of, and was quite unworthy of the great noise which the tin horn had made in calling them to it. There was a bit of boiled salt fat pork, almost too fat to eat, with potatoes and turnips, while the dessert consisted of pumpkin-sauce, which the dinner-party might spread upon bread, if they thought proper.

Uncle Benny devoured his share of this rainy-day repast, but inwardly concluded that it was next of kin to the meanest dinner he had ever eaten, for he was too well bred to take open exception to it. As boys, especially farmers' boys, are not epicures, and are generally born with appetites so hearty that nothing comes amiss, Joe and Tony managed to find enough, and were by no means critical,—quality was not so important a matter as quantity. It is true there was a sort of subdued mutiny against the unseasoned pumpkin-sauce, which was a new article on Farmer Spangler's table, that showed itself in a general hesitancy even to taste it, and in a good long smell or two before a mouthful was ventured on; which being observed by Mrs. Spangler, she did unbend sufficiently to say that she had intended to give them pumpkin-pies, but an accident to her lard had interrupted her plans, so she gave them the best she had, and promised the pies for next day.

As Uncle Benny and the boys all knew that they had been called in merely to eat, and not to lounge about the stove, and were therefore expected to depart as soon as they had dined, when the scanty meal was over, they stepped out on their way to their wonted rendezvous, the barn. The rain had ceased, and there were signs of a clearing up. But

the wide space between house and barn was wet and muddy, while in several places there were great puddles of water, around which they had to pick their way. These low places had always been an annoyance to Uncle Benny, as every rain converted them into ponds, which stood sometimes for weeks before drying up. They were so directly in the path to almost everything, that one had to navigate a long way round to avoid them; yet, though an admitted nuisance, no one undertook to fill them up.

When the party got fairly in among these puddles, the old man stopped, and told them he would teach them something worth knowing. Bidding Joe bring him a spade and hoe, he led the boys to a small puddle which lay lower on the sloping ground than any other, and in a few minutes opened a trench or gutter leading from it toward an adjoining lowland. The water immediately flowed away from the puddle through the gutter, until it fell to the level of the latter. He then deepened the gutter, and more water was discharged, and repeated the operation until the puddle was quite empty.

He then directed Joe to open a gutter between the puddle thus emptied and a larger one close by then to connect a third with the second, until, by means of hoe and spade, he had the whole series of puddles communicating with each other, those on the high ground discharging their contents into that first emptied, as it lay lower than the others. When the work was completed, there was a lively rush of water down, through the gutter first cut, into the meadow.

"Now boys," said Uncle Benny, "this is what is called drainage,—surface drainage,—the making of water move off from a spot where it is a nuisance, thus converting a wet place into a dry one. You see how useful it is on this little piece of ground, because in a few days the bottom of these ponds will become so dry that you can walk over them, instead of having to go round them; and if Mr. Spangler would only have them filled up, and make the whole surface level, the water would run off of itself, and all these gutters could be filled up, leaving the yard dry and firm. These gutters are called open or surface drains, because they are open at the top; but when you make a channel deep enough to put in a wooden trunk, or brush, or stones, or line of tiles, for the water to flow through, and then cover up the whole so that one can walk or drive over it, it is called an under-drain, because it is under the surface of the ground."

"But does draining do any good?" inquired Joe. "Why," replied Uncle Benny, "it is impossible to farm profitably without drainage of some kind; and the more thoroughly the land is drained of its su-

perfluous water, the surer and better will be the crops. I suppose that not one of you likes to have wet feet. Well, it is the same thing with the roots and grains and grasses that farmers cultivate,—they don't like wet feet. You know the corn didn't grow at all in that low place in our cornfield this season; that was because the water stood there from one rain to another,—the corn had too much of it. You also saw how few and small were the potatoes in that part of the patch that runs close down to the swamp. Water is indispensable to the growth of plants, but none will bear an excessive supply, except those that grow in swamps and low places only. Many of these even can be killed by keeping the swamp flooded for a few weeks; though they can bear a great deal, yet it is possible to give even them too much. Our farms, even on the uplands, abound in low places, which catch and hold too much of the heavy rains for the health of the plants we cultivate. The surplus must be got rid of, and there is no other way to do that than by ditching and draining. Under-draining is always best. Let a plant have as much water as it needs, and it will grow to profit; but give it too much, and it will grow up weak and spindling. You saw that in our cornfield. There are some plants, as I said before, that grow only in wet places; but you must know that such are seldom useful to us as food, either for man or beast. Nobody goes harvesting after spatter-docks or cat-tail. This farm is full of low, wet places, which could be drained for a very little money, and the profits from one or two crops from the reclaimed land would pay back the whole expenses. Indeed, there is hardly one farm in a thousand that would not be greatly benefited by being thoroughly underdrained. But as these puddles are nearly empty, come over to the barn-yard,—they will be dry enough to-morrow."

Uncle Benny led the way into a great enclosure that was quite full of manure. It lay on a piece of sloping ground adjoining the road, in full view of every person who might happen to drive by. It was not an agreeable sight to look at even on a bright summer day; and just now, when a heavy rain had fallen, it was particularly unpleasant. In addition to the rain, it had received a copious supply of water from the roofs of all the barns and sheds that surrounded it. Not one of them was furnished with a gutter to catch and carry off the water to some place outside the barn-yard, but all that fell upon them ran off into the manure. Of course the whole mass was saturated with water. Indeed, it was not much better than a great pond, a sort of floating bog, yet not great enough to retain the great volume of water thus conducted into it from the overhanging roofs. There was not a dry spot for the cows to stand upon, and the place

had been in this disagreeable condition so long, that both boys and men went into it as seldom as possible. If the cows and pigs had had the same liberty of choice, it is probable they, too, would have given it as wide a berth.

The old man took them to a spot just outside the fence, where a deep gutter leading from the barn-yard into the public road was pouring forth into the latter a large stream of black liquor. As he pointed down the road, the boys could not see the termination of this black fluid, it reached so far from where they stood. It had been thus flowing, night and day, as long as the water collected in the barn-yard. The boys had never noticed anything but the disagreeable part of the thing, as no one had taken pains to point out to them its economic or wasteful features.

"Now boys," said Uncle Benny, "there are two kinds of drainage. The first kind, which I have just explained to you, will go far toward making a farmer rich; but this kind, which drains a barn-yard into the public road, will send him to the poor-house. Here is manure wasted as fast as it is made,—thrown away to get rid of it,—and no land is worth farming without plenty of manure."

"But the manure stays in the barn-yard," replied Tony, "It is only the water that runs off."

"Did you ever suck an orange after somebody had squeezed out all the juice?" asked Uncle Benny. "If you did, you must have discovered that he had extracted all that there was in it of any value,—you had a dry pull, Tony. It is exactly so with this barn-yard. Liken it to an orange, though I must admit there is a wide difference in the flavor of the two. Here Mr. Spangler is extracting the juice, throwing it away, and keeping the dry shell and insides for himself. Farmers make manure for the purpose of feeding their plants,—that is, to make them grow. Now, plants don't feed on those piles of straw and cornstalks that you say remain in the yard, but on the liquor that you see running away from them. That liquor is manure,—it is the very life of the manure heap,—the only shape that the heap can take to make a plant grow. It must ferment and decay, and turn to powder, before it can give out its full strength, and will not do so even then, unless water comes down upon it to extract just such juices as you now see running to waste. The rain carries those juices all through the ground where the plant is growing, and its thousands of little rootlets suck up, not the powdered manure, but the liquor saturated with its juices, just as you would suck an orange. They are not able to drink up solid lumps of manure, but only the fluid extracts. Boys, such waste as this will be death on any farm, and your father must make an entire change in this barn-yard. Don't you see how

it slopes toward the road, no doubt on purpose to let this liquid manure run off? He must remove it to a place of level ground, and make the centre of it lower than the sides, so as to save every drop. If he could line the bottom with clay, to prevent loss by soaking into the ground, so much the better. If he can't change it, then he should raise a bank here where we stand, and keep the liquor in. Then every roof must have a gutter to catch the rain, and a conductor to carry it clear of the yard. The manure would be worth twice as much if he would pile it up under some kind of cover. Then, too, the yard has been scraped into deep holes, which keep it constantly so wet and miry that no one likes to go into it, and these must be filled up."

"But wouldn't that be a great deal of work?" inquired Tony.

"Now, Tony," replied the old man, "don't expect to get along in this world without work. If you work to advantage, as you would in doing such a job as this, the more you do the better. You have set up to be a farmer, and you should try to be a good one, as I consider a poor farmer no better than a walking scarecrow. No man can be a good one without having things just as I tell you all these about this barn-yard ought to be. Whatever you do, do well. I know it requires more work, but it is the kind of work that pays a profit, and profit is what most men are aiming at. If this were my farm, I would make things look very different, no matter how much work it cost me. I can always judge of a man's crops by his barn-yard."

"Then I am afraid this is a poor place to learn farming," said Joe. "Father don't know near as much about doing things right as you do, and he never talks to us, and shows us about the farm like you."

"He may know as much as I do, Joe" replied Uncle Benny, "but if he does, he don't put it into practice;—that is the difference between us."

"I begin to think it's a poor place for me, too," added Tony. "I have no friends to teach me, or to help me."

"To help you!" exclaimed the old man, with an emphasis that was quite unusual to him; you must help yourself. You have the same set of faculties as those that have made great men out of boys as humbly born as you, and you will rise or sink in proportion to the energy you exert. We can all succeed if we choose,—there is no fence against fortune."

"What does that mean?" demanded Tony.

"It means that fortune is an open common, with no hedge, or fence, or obstruction to get over in our efforts to reach it, except such as may be set up by our own idleness, or laziness, or want of courage in striving to overcome the disadvantages of our particular position."

While this conversation was going on, the boys had noticed some traveller winding his slow and muddy way up the road toward where they were standing. As he came nearer, they discovered him to be a small boy, not much larger than either Joe or Tony; and just as Uncle Benny had finished his elucidation of the fence against fortune, the traveller reached the spot where the group were conversing, and with instinctive good sense stepped out of the mud upon the pile of rails which had served as standing-ground for the others. He was a short, thick-set fellow, warily clad, of quick movement, keen, intelligent look, and a piercing black eye, having in it all the business of a juvenile Shylock. Bidding good afternoon to the group, and scraping from his thick boots as much of the mud as he could, he proceeded to business without further loss of time. Lifting the cover from the basket on his arm, he displayed its flashing contents before the eyes of Joe and Tony, asking them if they didn't want a knife, a comb, a tooth-brush, a burning-glass, a cake of pomatum, or something else of an almost endless list of articles, which he ran over with a volubility exceeding anything they had ever experienced.

The little fellow was a pedlar. He plied his vocation with a glibness and pertinacity that confounded the two modest farmer's boys he was addressing. Long intercourse with the great public had given him a perfect self-possession, from which the boys fairly shrunk back with girlish timidity. There was nothing impudent or obtrusive in his manner, but a quiet, persevering self-reliance that could not fail to command attention from any audience, and which, to the rustics he was addressing, was particularly imposing. To Uncle Benny the scene was quite a study. He looked and listened in silence. He was struck with the cool, independent manner of the young peddler, his excessive volubility, and the tact with which he held up to Joe and Tony the particular articles most likely to attract their attention. He seemed to know intuitively what each boy coveted the most. Tony's great longing had been for a pocket-knife, and Joe's for a jack-knife. The boy very soon discovered this, and, having both in his basket, crowded the articles on his customers with an urgency that nothing but the low condition of their funds could resist. After declining a dozen times to purchase, Tony was forced to exclaim, "But we have no money. I never had a shilling in my life."

The pedler-boy seemed struck with conviction of the truth of Tony's declaration, and that he was only wasting time in endeavoring to sell where there was no money to pay with. He accordingly replaced the articles in his basket, shut down the lid, and, with unaltered civility, was bidding the

company good-by, when Uncle Benny broke the silence for the first time.

"What is your name, my lad?" he inquired.

"John Hancock, sir," was the reply.

"I have heard that name before," rejoined Uncle Benny. "You were not at the signing of the Declaration of Independence?"

"No, sir, replied the courageous little fellow, "I wish I had been,—but my name was there."

This was succeeded by a colloquy between them, ending with Uncle Benny's purchasing, at a dollar apiece, the coveted knives, and presenting them to the delighted boys. Then, addressing the pedler, he inquired, "Why do you follow the business of peddling?"

"Because I make money by it," he quickly replied.

"But have you no friends to help you, and give you employment at home?" continued the old man.

"Got no friends, sir," he responded. "Father and mother both dead, and I had to help myself, so I turned newsboy in the city, and then made money enough to set up in peddling, and now I am making more."

Uncle Benny was convinced that he was talking with a future millionaire. But while admiring the boy's bravery, his heart overflowed with pity for his loneliness and destitution, and with a yearning anxiety for his welfare. Laying his hand on his shoulder, he said: "God bless you and preserve you, my boy! Be industrious as you have been; be sober, honest and truthful. Fear God above all things, keep his commandments, and, though you have no earthly parent, he will be to you a heavenly one."

The friendless little fellow looked up into the old man's benevolent face with an expression of surprise and sadness,—surprise at the winning kindness of his manner, as if he had seldom met with it from others, and sadness, as if the soft voices of parental love had been recalled to his yet living memory. Then, thanking them with great warmth, he bade the company good-by, and, with his basket under his arm, continued his tiresome journey over the muddy highway to the next farmhouse.

"There!" said the old man, addressing Tony, "did you hear what he said? Father and mother both dead, and I had to help myself! Why, its yourself over again. Take a lesson from the story of that boy, Tony!"

HEARTH AND HOME GLEANINGS.

If anything testifies to the patience of the Lord it is his forbearance in our wanton abuse of the bodies he has so wonderfully made.

SLEEPING or lying in a room where fruit is stored is very injurious to the health. When first stored the fruits absorb oxygen, and afterward disengage carbonic acid, the volume of which is very much larger than that of the oxygen they absorb. The liberation of this latter gas, which is uniform, stops completely at periods, and is again resumed with a greater force than at first. The elevation of temperature favours these transformations. It has not been observed that more or less light has any effect on fruits in this condition.

It is an old notion that it is healthier to sleep with the head pointing, like the needle, toward the North pole. Even if it does no good it can do no harm, and a physician writes to the *Dublin Journal of Medicine* in support of the old theory as really substantial. He has tried the experiment in the case of sick persons, with marked effect, and insists that there are known to exist great electric currents, always crossing in one direction around the earth, and that our nervous systems are in some mysterious way connected with this electrical agent.

Mr. JONES was afflicted, and thus he told his sorrow—"By dabe is Jodes—Daddle Jodes. I ab the bost miserabel bnd udder the sud. I ab eterdally catchig cold, so that I dever can talk plaid I tried everythig id the world to prevedt it; subberad winter, it is all the sabb. I breath through by bouth from Jadyary to Deceberber, from the begiddig to the ed of the year. I've tried every systeb of bedidic, but id vaid. All kides of teas, brobs, ad old wilbbid's dostrubs have bid tried; I've swallowed edough of theb to drowd me; but it's do use. Dothig udder heaved had keep by feet warb; dothig keep be from catchig cold.

DR. DIO LEWIS guarantees lean people their share of adipose blessings if they will seek jovial society, go to bed at 8 or 9 o'clock and get up when they get ready, and eat freely of oat meal and graham mush, cracked wheat and stewed fruit. Fat folks, on the other hand, he warrants to bring down from 240 to 160 pounds in a year, if they will rise early, sleep little, walk an hour before breakfast, exercise into a profuse perspiration at least once a day, reduce the quantity of their food one quarter—increasing their animal food—and at the end of three months reduce the quantity another quarter. Doubtless very good rules in general; and there will be enough exceptions to "prove" them.

THE man is on the safe side pecuniarily who spends a little less than his income, and so with the man who does not quite as much work as he has strength for. Or, as an exchange says: "A man who has strength to do twelve honest hours of labor in twenty-four hours and no more, should do but nine or ten hours work. The reserve power keeps the body in good repair. It rounds out the frame to full proportions. It keeps the mind cheerful, hopeful, happy. The person with no reserve force is always incapable of taking any more responsibility than he already has. A little extra exertion puts him out of breath. He cannot increase his work for an hour without danger of an explosion. Such are generally pale, dyspeptic, bloodless, nervous, irritable, despondent, gloomy—we all pity them."

THE *Herald of Health* remarks that many persons have feet which emit a very disagreeable odor, and do not know how to treat them: The cause gene-

rally lies in little ulcers between the toes, or a diseased condition of the skin, caused by the toes being pressed too closely together and deprived of air and light. The best remedy for this condition is to go barefooted a few months in summer, when the toes will spread, and the air and light will produce a healing effect. Where this is not practicable, the dry earth cure is nearly as good. Occasionally cover the surface between the toes with a coating of this dry earth. It will at once absorb the offensive odors, and then healthy granulations will take place, when a new skin will be formed and health result. Washing the feet in warm water, or soap and water, is not in this case sufficient, as this does not destroy the surface that secretes the poisonous matter which is so offensive. Still another good application, and one that at once destroys the odor, is an application of carbolic acid diluted in water.

IF PEOPLE would only do a thing as soon as they were convinced it was the right thing to do, ministers would have an easier time and physicians a poorer practice. In these matters of health, there is not so much need to teach ignorant people the rules of health as to persuade intelligent people to practice them. We are all of us sinners in some of these respects. We eat mince pie and fried cakes before going to bed in the face of the absolute certainty that we shall be twisted with bad dreams before morning and the dyspepsia before middle life. We run out of doors in mid-winter bareheaded, although we know we are liable to catch a cold that will inconvenience us more than to put on our hat every time we step out all winter. We give to work the hours that belong to sleep, with broken-down people on every hand to warn us of its folly. We feed our children on candy and high-seasoned dainties, knowing that the appetites thus provoked are the first steps in the path that leads to tobacco, strong drink and all sensual self-indulgence. We go about with wet feet, certainly inviting rheumatism and fevers. We neglect to take sufficient daily exercise, while we see monuments to such folly in half the ministers and book-keepers of our acquaintance. Or we mercilessly work our bodies, day in and day out, like team-horses, although we know we shall be round-shouldered and rheumatic by the time the farm is paid for.

CANDY, as a tickler of the palate, says an exchange, is a success. Deliciously sweet, aesthetically perfumed, pervaded with subtle, mouth-cooling essences that gently stimulate without intoxication, moulded into convenient prisms and nodules, that may be carried in a tiny hand or pocket without much daubing to either, ready made to one's mouth, with no skins or husks or shells to be peeled or cracked off, and no vexatious seeds to be eviscerated, what wonder that juvenile appetites prefer it to big apples with no handles to them, to nuts that require stout jaws and then have worms in them, or to peaches and grapes, part of which have to be culled and rejected by tedious and ill-mannered processes. But there is another side to it, as we are reminded by the revelation of the amount of adulteration that is practiced in the manufacture of confectionery. Many children are doubtless yearly sacrificed by the absorption into their systems of these abominations, inadvertently given by parents. Terra alba, or white earth, costing but 1½ cents a pound, is extensively used in-

stead of sugar, and lozenges are produced by cheap dealers at from two to five cents a pound less than the cost of the sugar at wholesale. In the manufacture of gum drops, glue is used in lieu of gum arabic, the former costing but a few cents a pound, and the latter about forty cents. The common method of flavoring candies, in order to produce them economically, can be readily accounted for. Poisons are much cheaper than genuine extracts. Peach flavors in candied almonds and sugar plums are obtained from fusil oil, which is very poisonous. The bitter almond flavor is derived from unadulterated prussic acid; pine-apple is produced from very rotten cheese and nitric acid. Candies are made purporting to be flavored with fruits from which no extracts can be obtained. The imitations are all poisonous. The toothsome chocolate creams are compounds of terra alba, sugar, lard, (to make 'em melt on the tongue) painted over with a mud of ground cocoa-shell.

HEALTHFULNESS OF THE APPLE.—No vegetable is more extensively used as an article of food, or more universally relished, than the apple. Every farmer should have an apple orchard. To lay in a good supply of apples every autumn bespeaks a good housekeeper. There can be no more economical investment in all the line of culinarics. An apple—a good mellow one—is digested in a single hour after it is eaten, and also aids in digesting other food, while fresh pork takes from five to six hours to digest. No more healthful dessert can be used than a stewed, baked or even a raw apple. It may be taken at breakfast with simple coarse bread, and produces a healthy result upon the system by removing constipation, correcting acidity, mitigating feverishness, and producing a much more happy effect upon the body than medicine. Apples would be an excellent substitute for pastry, cakes, and the whole paraphernalia of sweetmeats; and if they were made to take the place of those articles of cookery with which children are so often crammed, they would be much more healthy, and doctors' and apothecaries' bills greatly diminished. — *Good Health.*

The *Country Gentleman* (Albany) has an article on the drainage of cellars. Taking a sanitary view, it says:—"When we reflect what the soil of a cellar-bottom has absorbed, in half a century's use, of the juices of turnips and onions, of cider and brine, not to mention cats, rats and mice, and a thousand nameless horrors, we may imagine what sort of a soup is produced by the rising of the water to the depth of a few inches, and its stagnation beneath the floors of our parlors, dining-rooms and kitchens."

THE AGRICULTURIST STRAWBERRY.—Mr. Stevenson, of Guelph, reports that he considers this variety the most profitable where a large yield is desired, and that it has proved with him, after five years' trial, to be the most hardy kind grown, the plants forming large stools, never killing out, like the Wilson and many other sorts, after the second year.

THE BORER.—Mr. James Cowherd, of Newport, reports to the Fruit Growers' Association that the Borer attacks more or less such apple trees as lean to the northeast. Can any of our readers give the reason why, or corroborate the statement?

The secret of success in transplanting trees is in carefully covering the ground after the trees have been well planted, with a good, thick mulch.

JUCUDA STRAWBERRY.—Mr. Knox, of Pittsburgh, Pennsylvania, after no little trial of different methods of cultivation, has decided that the best method for this variety is to set the rows two feet apart, the plants a foot apart in the row, and keep the runners carefully cut off. His fruit is very large and fine, ten or twelve making a pint.

To keep the mice from gnawing your fruit trees, just wrap a piece of tarred paper around the trunk of the tree, extending upwards from the ground for about two feet.

Andrew S. Fuller says that as a scientist he should say it is impossible for wheat to turn into chess but as a farmer he feels like saying he does not know.

WIT AND WISDOM FROM BILLINGS.

A lie is like a kat, it never comes tew yu in a straight line.

What is an old bachelor? The hero ov a cot bed-stead.

A debt is alwus a growing; if it don't gro in size, it grows in heft.

Tew git wrong things out ov yure child's head—comb it often.

If a man hain't got a well-balanced head, I like tew see him part his hair in the middle.

Q. How long kan a goose stand on one leg? A. Try it—that's the way the goose found out.

The devil iz a mean kuss; he never keeps his own promises, but alwuz makes us keep ours.

Love iz sed tew be blind; but i know lots ov phellows in love, who kan see twice as much in their sweethearts as i kan.

There is only one good substitute for the endearments of a sister, and that iz the endearments ov sum other phellow's sister.

Poetry.

IN SCHOOL-DAYS.

BY JOHN GREENLEAF WHITTIER.

Still the school-house by the road,
A ragged beggar sunning;
Around it still the sumachs grow,
And black-berry vines are running.

Within, the master's desk is seen,
Deep scarred by raps official;
The warping floor, the battered seats,
The jack-knive's carved initial.

The charcoal frescoes on its wall,
Its door's worn still betraying
The feet that, creeping slow to school,
Went storming out to playing.

Long years ago a winter sun
Shone over it at setting;
Light up its western window panes,
And low caves' icy fretting.

It touched the tangled golden curls,
And brown eyes full of grieving,
Of one who still her steps delayed,
When all the school were leaving.

For near her stood the little boy,
Her childish favor singled;
His cap pulled low upon a face
Where pride and shame were mingled.

Pushing with restless feet the snow
To right and left, he lingered;
As restlessly her tiny hands
The blue-checked apron fingered.

He saw her lift her eyes; he felt
The soft hand's light caressing,
And heard the tremble of her voice,
As if a fault confessing;

"I'm sorry that I spelt the word,
I hate to go above you,
Because—the brown eyes lower fell—
"Because you see I love you!"

Still memory to a gray haired man
That sweet child-face is showing;
Dear girl! the grasses on her grave
Have forty years been growing.

He lives to learn in life's hard school,
How few who pass above him
Lament their triumph and his loss,
Like her—because they love him.

Music.

JESUS PAID IT ALL.

1. Nothing, eith-er great or small, Re-mains for me to do; Je-sus died, and
2. When he from his lof-ly throne, Stoop'd down to do and die; Ev-ery thing was
3. Wea-ry, work-ing, plod-ding one, Oh, where-fore toil you so? Cense your do-ing—

GOLDEN CENSER.

CHORUS.

paid it all,—Yes all the debt I owe. }
ful-ly done; "Tis finished," was his cry. }
all was done; Yes, a-ges long a-go. }

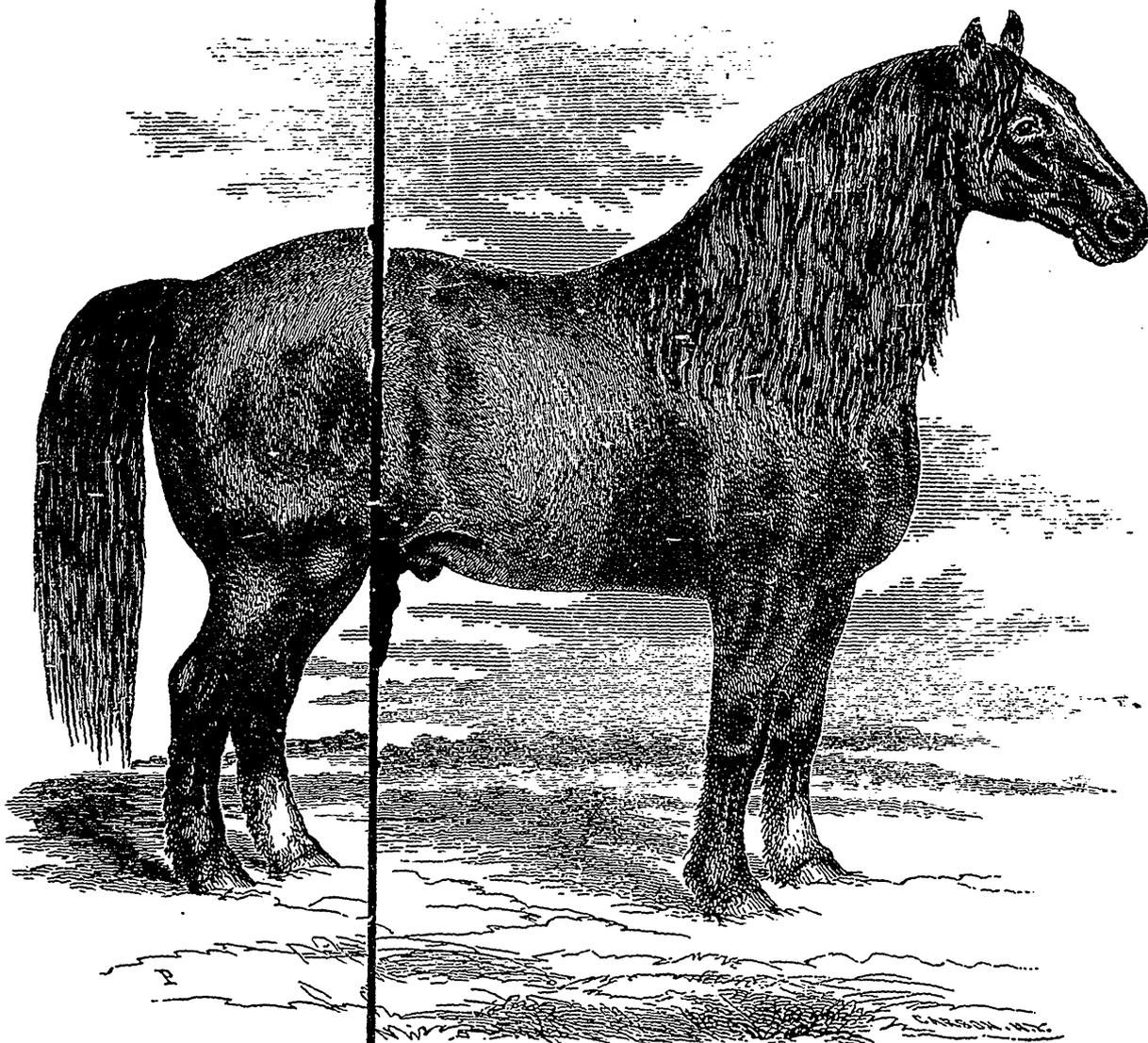
Je-sus paid it all.....

Je-sus paid it, paid it all.

All the debt I owe,
Je-sus died and paid it all, Yes, all the debt I owe.

4. Till to Jesus' work you cling,
Alone by simple faith,
"Doing" is a deadly thing,
Your "doing" ends in death.—Clio.
5. Cast your deadly "doing" down,
Down all at Jesus' feet;
Stand in Him, in Him alone,
All glorious and complete.—Clio.

FIRST PRIZE HEAVY DRAUGHT HORSE AT THE PROVINCIAL EXHIBITION, 1869,



"ENGLAND'S GLOLY,"

IMPORTED AND OWNED BY MR. J. J. FISHER, BEN MILLER, HURON, ONT.