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THE ONTARIO FARMER,

A MONTHLY JOURNAL OF

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

VOL. II.

HAMILTON, JULY, 1870.

No. 7.

STEAM PLOUGHING.

BY PROFESSOR BUCKLAND.

The agricultural world seems certainly, if not rapidly, adopting a new power in the cultivation of the soil, and for diminishing manual and animal labor, that will form a new and striking epoch in the history of the art. I refer to the application of steam to farm work. The steam plough has already obtained a firm footing in the British Islands, and several European countries, in Egypt and India, in Australia and New Zealand. From what I saw last year of its working both in England and Scotland, and the severe and extensive trials to which it was subjected at the Royal Show at Leicester, the few misgivings I might have had relative to its practical and extensive adaptation were certainly removed. Not only is steam culture cheaper than horse, but it can be made deeper and more thorough than it is possible to do by the ordinary methods. It has been said that the age of the plough, the old characteristic symbol of husbandry, is gradually drawing to a close, and that this ancient implement will be superseded by the cultivator or grubber. Without endorsing this opinion in its entirety, there is no doubt some reason in its favor. For many purposes, and in particular conditions of the soil, the action of the grubber is far more advantageous than that of the plough, as a more perfect disintegration and commingling of the whole mass is thereby effected; and there seems a growing tendency in an advancing agriculture to produce this thorough breaking up and mixing the soil in preference to the simply turning of it over, as is done in ordinary ploughing. There is, besides, an increasing conviction among those that have adopted steam cultivation that better crops are thereby produced; and from the opportunities I have had for observation on this matter, I am constrained to agree with the conclusion. I could not help remarking last summer on the farms of the Messrs Howard, of Bedford, the renowned agricultural implement makers, as also in other parts of England, that the growing crops appeared more luxuriant and promising where steam culture had been adopted, all other conditions, soil, ma-

nure, &c., being apparently equal, than when, sometimes in the same field, what was considered good horse-power cultivation had been practiced. The difference in favor of the former was explained by the facts, that steam power effects a deeper, more thorough and uniform moving and intermixing of the soil, without subjecting it to the tramping of horses, which in wet weather and on heavy land, every practical man knows is very detrimental. The steam plow has, as yet, been only introduced for experimental purposes, I believe, in this country. Various causes have combined hitherto to prevent its general introduction.

Notwithstanding, I feel it is a moral certainty that on this continent, particularly on the immense prairies of the great West, the steam plow will one day achieve its proudest triumphs. The richest soils, after the exhaustive cropping to which they are commonly subjected, will require deeper and more perfect cultivation in order to sustain their wonted fertility; and there can, I think, be little doubt that in, it may be a few years, these improved modern appliances will renovate many of our already deteriorated soils, and impart a fresh impetus and give a new and much improved character to American agriculture.

[NOTES BY EDITOR O. F.—*Apròpos* of the above, we insert the subjoined clipping from an Australian paper.]

“ Among the Victorian farmers the steam-plow is coming into high favor, and no wonder. With the aid of this machine, they are getting land plowed nine inches deep for 14s. per acre. To those who have been taking off crops year after year without returning anything in the form of manure, every acre broken up by the steam-plow is equal to an acre of new land. The merits of a system which introduces such a noble mode of cultivation are not easily overestimated. It at once does away with the great cause of failure in Australian cultivation—shallow culture, with its attendant evil consequence to the farmer whether the season brings him too little or too much moisture. The system upon which the work is done in Victoria appears equally applicable to large districts in Queensland. The Darling Downs, the Logan and Albert, the Mary, the Pine Rivers, and the district surrounding Brisbane, all offer inducements for the introduction of steam-plowing machinery. The plows are owned by enterprising men, who move about the country, plowing and harrowing for about the rate per acre mentioned.”

ABUSE OF AGRICULTURAL FAIRS.

In our visits to the State Fairs annually held by our American cousins, we have lamented to observe a tendency to divert these exhibitions from their proper end, and to foster appendages which in the long run must be fatal to the institution on which they fasten their parasites. In this country we have thus far avoided these evils; and if the experience of our neighbors be correctly read by us, we shall continue to avoid them. We are glad to find such a journal as *Hearth and Home* adopting such a healthy moral tone on this subject as the following extract evinces:

"Any person with his eye half open can see that the farmers' annual festival is becoming more and more perverted. Originally designed to promote the interests of husbandry, it is now made, in many quarters, to answer the purposes of a grand holiday, to take the place of the old 'training days,' or to be a sort of second Independence Day. In many places, auctioneers, showmen, pedlers, gamblers, and humbug catchpennies of all sorts, hang about the Fair-ground, begetting vulgarity and vice. Drinking and betting, wrestling and fighting, follow close behind mammoth women, hogs with five legs, and nimble Jacks, to the great annoyance of sober people, to the moral injury of the young and inexperienced, and to the degradation of the farming interests. Female equestrianism and horse-racing complete the circle.

"Perhaps it will do little good, but we mean to utter our remonstrance against this perversion. The new policy may swell the number of those who attend our fairs, but does it not also bring in the mob? Farmers and respectable, sober-minded people find themselves elbowed aside by horse-jockeys and 'fast' people of all sorts; and year after year, the fairs are made up of less and less of those for whom they were originally established. We beg the managers of these annual festivals to look ahead and act wisely."

HOW ANNEXATION WOULD AFFECT THE CANADIAN FARMER.

The farmers of our loyal Dominion are, perhaps, as little inclined to look with favor on Annexation views as any other class of our people, and certainly there never was a time when such views were in greater disfavor than at present. Nevertheless, it is well to look at the strong reasons there are for letting well alone, and being content with our lot. We have pleasure, therefore, in transferring to our columns the following judicious remarks on this subject, which we find in a recent number of the *Globe*:

"The question of annexation has been frequently discussed by our papers of every shade of politics. We propose merely to see if there be any possible incentive justly held out to the Canadian farmer sufficient to induce a change of flag.

"First. There are some things in which we should gain nothing. Our markets would not be benefitted. The Americans must have our cattle, sheep and wool, our timber, our barley, flour and

apples. This is plainly shown by the fact, that ever since the abrogation of the Reciprocity Treaty, they have obtained from us large quantities of such agricultural products. Notwithstanding the thirty per cent. duty, which would seem to be almost prohibitory, they pay as good a price for their purchases in the Canadian market as they did before the Treaty was annulled. A glance at the market quotations and the yearly statements will prove that the above assertion is correct.

"As our sales, then, have not been perceptibly affected by the loss of the Treaty, we should gain nothing in market prices were the duty removed by the union of the two countries.

"Secondly. In many respects we should find ourselves losers. It is stated on the authority of United States organs that whereas ships are built at \$22 per ton in Nova Scotia, the cost on their own side is \$45 per ton. The same relative difference of cost will apply to the manufacture of farm implements. The high wages paid to mechanics on the other side is due to the heavy taxation and the great cost of living. Were we annexed, we should, of course, be subject to such expenses, and should certainly lose the difference between the present cost of our implements and the price we should have to pay under the new regime.

"Then the question of taxation comes up. In considering this point, we will take for a basis the statement issued in a late number of the *Chicago Tribune*, that the expenditure of the people of the United States is computed at \$10 per head, while that of our own country stands at \$5 per head; thus our average taxation under the present form of Government is but one-half of that of the Americans. After annexation each farmer would have to consider his taxes doubled; the tradesman must advance the price of his goods in proportion to this increased assessment. We should have to pay very much more for our provisions, clothing, and labor, etc.

"On the whole, the Canadian farmer has every reason to be contented with his present condition, and would lose in every particular by annexation. Our agricultural prospects have never looked brighter than they do to-day. That great plague, the midge, has lost the worst of its sting; our taxes are light; our wages and rates of living restrained within reasonable bounds.

"Were we annexed to-morrow, taxes would be immediately doubled, the prices of provisions, clothing and living greatly increased; the privilege of the vote, hitherto wielded by every farmer amongst us without fear or favor, would be overridden by the bribery of ignorance; and we do not believe that our market prices would be raised one iota in gold. Let the Americans keep up protective tariffs, they must have our products and at our own prices. Instead of being as free a country as exists, we should, after annexation, become but a small corner of the great republic, bearing our full share of the enormous taxation, in close competition with the Western States, and our prices ruled solely and only by the American market; there would then be no alternative between their prices and no sale. We should lose our name of Canadian farmers, a name of which each one amongst us is justly proud, and have to rest contented with such a share of republican glory as would be in proportion to our population and our isolation.

"At the present time, especially, it is incumbent on us to show, by an outspoken unanimity of opinion on this subject, that if our neighbors think to drive us into annexation by these villainous raids on our borders, they have woefully mistaken the spirit of the Canadian people. Such unprovoked and inexcusable aggressions, from the responsibility and guilt of which it is impossible altogether to exonerate the rulers of law and public opinion in the United States, will but force the two nations more widely asunder, while indirectly they may turn to our advantage—call forth and educate our self-reliance, teach us to value our independence and freedom, and fix the love of our country more deeply than ever in our hearts."

HORTICULTURAL SHOWS.

GUELPH.—The Spring Exhibition of the Guelph Horticultural Society was held June 28th, and was perhaps an average show. Its special feature was a magnificent display of Fuchsias, which we have rarely seen equalled,—certainly never surpassed. The flowers and floral ornaments were very creditable, but we have doubts if the fruits and vegetables were quite up to the usual mark.

PARIS.—The Spring Show of the Paris Horticultural Society was held on Dominion Day. Having never before attended an Exhibition in Paris, we cannot speak of it comparatively. An old resident informed us that better Exhibitions were held in Paris many years ago; but distance of time, as well as distance of space, often "lends enchantment to the view." What we thought grand in youth would, if reproduced now, seem quite insignificant. It is very difficult in small towns and villages to keep up the steady interest needful to make Exhibitions a success. The few, not the many, support them. Taking the size of the two places into account, the Paris Exhibition was quite equal to any we have ever seen in Toronto. The greenhouse and parlour plants, cherries, gooseberries, and long-keeping apples, were very fine. Horticulturists in small places ought not to be discouraged. They should remember that every show is a school; that part of their work is to educate the people; and, moreover, that the public is a dull, slow scholar.

MR. ARNOLD'S NEW WHEAT.

As will be seen by a reference to our advertising columns, Mr. Arnold has been induced to put his new hybrid wheat into the market the present season. From repeated inspections of it, we entertain much hope and confidence in regard to its proving a boon to the farmers of the Dominion and Continent. A like opinion is entertained by most of our intelligent agriculturists, who have had opportunities of judging in regard to the matter. It is a well-known fact that fruits, vegetables and grains

have a tendency to "run out;" in fact all forms of life waste, and must be renewed and reinvigorated. Crossing, when judiciously done, improves both animal and vegetable forms. Too often such improvement has been the result of "posting," and of accident. Our grains and fruits are continually being crossed by the agency of insects; and what they do by chance, man has done and can do on scientific principles. Attention to the quality of seed is just as useful in good and successful farming, as attention to manuring, tillage, or rotation of crops. Many think, and with reason, that the diminished crops of wheat in late years are as much owing to degeneracy of seed as to any other cause. Under these circumstances, the labors of a skilled hybridist like Mr. Arnold are of the greatest value and importance. The wheat now offered by him has been produced and thoroughly tested in our own soil and climate. It has, therefore, everything to recommend it. The large yield per acre is a most encouraging fact. Every farmer who claims to be enterprising and progressive should try this wheat. We learn that large orders for it have already been received from the United States, and only hope that Brother Jonathan will not be allowed by Canadians to get the lion's share of it.

IMMIGRATION SOCIETIES.

On the above subject, the *Globe* of June 24th says: We have frequently advocated the importance of a scheme of combined effort in assisting newly-arrived immigrants in this country, and it is gratifying to find that the subject is attracting attention, and being practically tested in various localities. A recent circular from the Hon. Commissioner of Agriculture has again brought the matter before the notice of municipal authorities, and the great advantage of concerted action on their part, to provide for this increased population in such a way that we may retain the larger portion of it within our own borders, is set forth by the instance of a society that has been organized for this object in the county of Peterborough. Every county should have some organization; and as a guide in their formation, we give extracts from the constitution of that society, as furnished by Mr. Carling's circular:

"This Society shall be hereafter known as the 'Peterborough Immigration Society,' and shall have the following officers, to be elected annually on the first Wednesday in May, in each and every year of the existence of the Society, by those present at such annual meetings, namely, a Chairman, Secretary, Treasurer, Registrar, Medical attendant, and a Managing Committee, consisting of five members, and of which Committee the Chairman, Secretary, Treasurer and Registrar of the Society shall be *ex-officio* members—in addition to the said five members—three of the said Committee to be a quorum.

"The Managing Committee shall have the charge and direction of all business coming within the objects of the Society, and may from time to time direct the payment of such sum or sums of money as may be deemed necessary—such payments to be made by the order of the Chairman (countersigned by the Secretary) on the Treasurer, or in the absence of the Chairman, then by the order of three members of the committee, countersigned by the Secretary, and the said Committee shall report to the Society their proceedings, and shall carry out of each directions as may from time to time be given on behalf of the Society.

The Society shall meet whenever convened by the Chairman, and at such meetings shall receive reports from the Managing Committee, and transact such business as may, to them, seem calculated to advance the objects of the Society.

"It shall be the duty of the Secretary to notify members of meetings, keep a record of the proceedings of the Society, and take charge of all papers connected therewith.

"It shall be the duty of the Treasurer to receive all moneys contributed for the benefit of the Society, and give receipts therefor, to hold the same, subject to the order of the Chairman, countersigned by the Secretary, and render an account thereof to the Managing committee, or Society whenever requested to do so.

"The Registrar shall keep a book for the purpose of registering such information as the Managing Committee may from time to time direct—said book to be furnished by the Managing Committee at the expense of the Society.

"The Managing Committee shall, as soon as practicable in each year, ascertain the approximate number of persons requiring immigrant labor, of all classes, in the town and surrounding townships.

"The Managing Committee shall procure, at a moderate rental, during the summer season, a suitable place for immigrants on their arrival, more especially for those who are pecuniarily unable to provide for themselves, and shall endeavor to provide employment for them with as little delay as possible.

"The Managing Committee shall solicit the Town Council and other municipalities in the county (or in any other way they may deem expedient) to contribute funds for the purposes connected with the maintenance and welfare of the Society, and the relief of the destitute immigrant—such sums to be paid over to the treasurer.

"Your Committee would respectfully suggest the early discussion by the Society of the most available course to be pursued towards advancing the settlement of the land in the back townships."

We hope this example will be largely followed throughout the Province of Ontario.

HEARTH AND HOME.—This enterprising and ably-edited journal is constantly adding to its many attractions—Its issue for June 25th contains the first of a series of sketches entitled "*Jethro Tump's Night Thoughts*," concerning which the publishers state:

"These sketches are by John Thomas, who is no other than Petroleum V. Nasby. The great humorist will take an honest country boy to the city, conduct him through the usual experience, and re-

store him to his home a sadder and wiser boy, satisfied that the peaceful, honest and temperate life of the farmer is the best and safest life that can be lived. This is a lesson greatly needed at this time, and Nasby is the man to teach it."

THE CANADIAN POULTRY CHRONICLE.—We have received the first number of this publication. It presents a neat, tidy appearance, and contains a number of useful articles, both original and selected. The inaugural takes the ground that agricultural journals do not give sufficient attention to poultry matters, and hence the necessity of a journal especially devoted to them. We think this is hardly just or true. Poultry farmers have not aided such editors by original contributions to the extent they might have done, or more space would have been given to poultry; as it is they have had very considerable attention, and the Poultry Association has had the free use of both *Canada Farmer* and *ONTARIO FARMER* columns. We are not a bit jealous of this new aspirant to public favor; we wish it all success; but we scarcely think it has a mission or a field in this country; and we doubt whether in these days of cheap literature, a periodical of 16 pages—one-third smaller than our own—will get patronage enough at \$1 50 per annum to pay its way. Moreover, we think it a mistake that such a journal should be anonymously edited. Let us know who it is that is to speak *ex cathedra* on poultry matters to the fowl-fanciers of Canada. Subscriptions and communications are to be addressed to the editor of the *Canadian Poultry Chronicle*, Box 25 P. O. Toronto.

NEW YORK STATE FAIR.—The New York State Agricultural Society announce that they will hold the next fair at Utica, on the 27th to the 30th of September, the week previous to our own Provincial Exhibition. Entries close on the 31st of August.

The original poetry in our last, entitled—"The Settler's Lament for the Death of his Ox," was contributed by our well-known native poet, Mr. Alexander McLachlin.

EDITORIAL GLEANINGS.

A correspondent of the Boston *Cultivator* says that since he commenced keeping farm accounts he has cleared double the money he did before.

The danger of eating diseased meat is alarmingly illustrated in a case reported from Leicester, where seven families, including twenty children, have been poisoned by eating "brawn" made of putrified meat. Several of the sufferers were dangerously ill.

THE OHIO STATE FAIR.—The fair of this Society will be held at Springfield, September 12 to 16. Competition is open, and the premiums have been so increased that the aggregate will amount to more than \$25,000,—the largest sum ever offered by any State Society in the Union.

The East Middlesex and City of London Agricultural and Horticultural Societies have fixed upon the 27th, 28th, and 29th of September for a united Exhibition. The prize list has been issued, the total amount of premiums offered reaching the handsome sum of \$6,000. The novel feature of a market on the exhibition grounds, for the sale of all kinds of stock, manufactures, etc., is to be introduced on the third day of the "Fair."

The City of Ottawa Agricultural Society have issued their prize list for the Fall Exhibition, to be held in the Society's grounds, at Ottawa, on September the 21st to 23rd inclusive. The premiums are on a liberal scale, amounting in the aggregate to \$2,500. Excellent arrangements have been made for the convenience of exhibitors, for whose accommodation the building and grounds will be open three days before the admission of the public, to allow time for the proper disposal and display of their goods.

As evidence of the extent of the British trade in foreign wools, it is stated in a recent English exchange that, within a few days of the month of May, the arrivals of wool in London have been almost unprecedented in extent, having, on the 12th, 13th and 14th of May, amounted to not less than 76,581 bales, representing a value of probably upwards of £2,000,000. With the exception of a few Capes and Monte Videos, they are all Australian and New Zealand wools.

The Farm.

LUCERNE.

To the Editors of the Ontario Farmer:

Sir—In reading your June number, I noticed that Lucerne was recommended in this country as a green crop. It is a capital grass if you can grow it. The climate of this country is, however, too hot. In England, it would cut *threetimes* generally, and would last for five or six years, but requires good, deep culture, well manuring, and continued mowing in the beginning. I tried it here, and gave it all these chances. It was certainly early timed; but it only came to one cut, and that a poor one. Older soils and cooler seasons make a difference.

If you think the above worth inserting, I will be obliged to you to do so in your next number.

I remain

your obedient servant,

W. H. PARKET.

Bushy Farm, Guelph, June 14, 1870.

WILKERSON ON GROWING GREEN FODDER.

I see a good deal o' talk in the papers, off and on, about growin' corn for fodder: well, so far as green fodder goes, it's a good thing to do, I don't care how many doctors have their say ag'inst it; and I never had no great trouble in making my creature's eat it, whether they were horses or milkin' cows. The sweet corn is rather the best, if you get the big evergreen sort; but I've had pretty good luck wit' what we call horse-tooth corn, which is the best Southern sort. It makes a bigger stalk, and in the heat o' the season grows faster, so that you get heavier bulk on it in the same time than you do from any other.

But you must manure well. It ain't no kind o' use tryin' to help out pastur' by sowin' corn on poorish ground, where it grows flimsy and turns yaller. You can't put too much manure, nor too rank, on the ground where you want corn-fodder.

Then, my notion is, it should always be put in rows. You may sow it by hand, if you like, in a shallow furrow, same as you would peas; or you may put it in arter a good tidy fashion, with one o' Billin's corn-planters (which I don't think much of for plantin' corn in hills, because it won't do it regular.) With corn in drills about two feet apart, you can shrink up your cultivator and give it a good dressin'; most times you won't have a chance to do it more'n once, but that has an amazin' effect, and it keeps the weeds under till the corn comes to shade well. And when you come to cut your corn, you've got a cleanish piece o' ground in first-rate order (considerin' the coarse manure that's been rottin') for a crop o' turnips-

If I lived where I could keep a milk-cart agoin', as some folks do, I'd go in in a big way for sowed corn to feed green; but whenever I could, I'd give it one day's wiltin' afore bein' cut. You may depend on it, there's more milk in it. And if the doctors can tell why, let 'em.

So much for green fodder; as for sowin' it to get a stock o' winter reed, all I've got to say is, it's the peskiest thing to cure ever I had anything to do with.

If you've got an old open shed where you can set it up a ton at a time, so's the wind'll draw through it, and can leave it there for a month, say, before you stack it or mow it, there's a good chance of its not gettin' het; or if you can shock it up tidy on dry, gravelly ground, and let it stand with a cool snug cap on it for about six weeks, then fling down for a good hot day's sunshine on the butts, there's another pretty good chance; or if you've got an old airy loft where you can set it on end without mowin' at all, there's another chance o' your keepin' bright, sweet food; but in the general way, there's a pretty large chance o' corn-fodder spoilin'.

Clover is good too to help out with the cows; but a man must be mighty careful how he gives too much green clover to cows just off a slim pastur'. I've had one cow blow herself up with it, as if shed' been a foot-ball, and I don't want to try it ag'in. As for rye cut green, I don't much believe in it. I never could make my cows take to it much, arter the first three days. It comes 'arly, and when there ain't much else that can be cut; if we could get hold o' some o' that Western winter barley they talk about, I've a notion it would serve a good deal better.

Squire Mopsey's folks have got some feed a growin' they call "luzern," and it's a prime article. If I was gone into the milk business. I should try pretty hard to keep an acre of it under the scythe. They sow theirs in drills about four inches apart, and keep it clean the first season, without gettin' much of a show o' food—that's the way the old countryman that manages matters for the Squire's folks says they do at home. They've had one good cut, goin' on three weeks, and it's most big enough tho' cut ag'in. Four goodish cuts in a season is a daguety good show for most any kind o' fodder.—*earth and Home.*

IRRIGATION.

The subject of irrigation is one destined at no distant day to interest a large portion of the farmers of this country. Hitherto, little has been done to utilize water, and yet we believe that the marketable products of some sections of this Union might be doubled and perhaps increased in a greater proportion by the appropriation of what now literally runs to waste.

A recent report of a distinguished European traveler, with regard to Italian farming, incidentally mentions the wonderful effects of irrigation in that country, and also its wide-spread adoption. In the province of Lombardy, in a total area of six millions of acres, more than one million are irrigated, and to do this more than three thousand miles of canal have been built, besides arteries to lead the water to private and remote properties. The system there is not new. Dating back several centuries, it has demonstrated its value; and especially where sewage-water has been used, the result has been astounding.

In giving specimens of the effect of irrigation, the traveler says:

"The irrigated plains of Lombardy present a most rich and luxuriant appearance, as a large proportion of the watered land is under perennial grasses of fine quality. One farm of ninety acres near Milan was visited, of which only one-third was meadow, and the remainder arable, as vegetable and other crops are raised especially for consumption in the city. The grass when seen on August 24th was twenty-four days old, was then fit for cutting, and had been cut seven times previously since the beginning of the year. There was also a crop of cabbages then covering the ground well, and these had been planted after a crop of wheat, taken off exactly two months before. The ground had been irrigated twice for these, once before and once after they were planted, and in a few weeks more they will be fit for market. We are not told anything about the treatment of the land in regard to manures; but the water is said to be used eleven times over, from where it enters the farm to where it leaves it—which, we may presume, means that it passes through so many compartments. The supply must be abundant to allow of any passing away after going over such an extent of heated land."

In this province, the water is usually paid for by the individual who uses it, according to the size in the opening in the canal; and of so much consequence is the water regarded, that pumps, worked by a process quite expensive, send it back from the lowest to the highest point, that it may re-traverse the fields, and reinvigorate the growing crop.

Irrigation has doubled the product of most farms, and increased the quantity of produce in sections of others three and four fold.

There is no question as to the value of water. The writer of this article once turned a stream on to six square rods of gravelly loam for the months of April and May, and the result was a crop of hay double that cut in any former year in quantity, and worth at least three times as much—bringing in, as it did, an abundance of red clover, where little but June grass grew before.

This subject must be brought to the attention of American farmers; and the adoption of a system of irrigation will some time in the future increase our products to an extent quite beyond our present belief.

DOES FARMING PAY?

This is a question continually being asked through the Agricultural press. To explicitly say it *does* or *does not pay*, without qualification, would not answer the question in a satisfactory manner, for both may be truthfully asserted, though manifesting a seeming paradox.

We are confident the farming community of the West, as a class, have come far short of realizing 10 per cent. interest on the investment, with all the toil and care bestowed from year to year unremunerated.

Money in the past has found a ready market at 10 per cent. interest, leaving the hands free—outside of the farm—therefore the logical conclusion is that farming does not pay. We are told—and are aware of the fact—that farmers are well to do in the world—independent as a class, if they have but few comforts; yet we must not overlook the fact that but a few years ago the present land holders, as a rule, had but little money to be sure, but all that was necessary to possess, and own in fee simple the best farms in the country. Aside from the improvements throughout the land—which are only passable—the farmer's surplus earnings do not relieve him from the onerous labors of the farm, even in age.

While the fact is apparent that farmers have become well off from holding in fee simple the lands which have become so valuable in a few brief years, by its products having been made accessible to the outer world by the railroads which have become the main arteries of commerce, yet it is no less apparent that under the present system of farming, young men, dependent upon their own resources entirely, cannot pay for farms at from \$60 to \$100 per acre, but must be "left out in the cold," or go among the cheap lands of the West and grow up with the country, as their fathers did.

Above we have given expression to the belief that farming does not pay, in a general sense, and while our thoughts have been dwelling upon the subject, we perceive no flattering inducements for the uninitiated to accept farming as a business with any certainty of success, in becoming surrounded with the necessary temporal comforts, not becoming mentally and socially developed in the leisure moments the independent farmer is said to enjoy. And perhaps it is true that while all other branches of industry are making progress—yea, while rapid strides are being made in the arts and sciences—many farmers pursue the old routine of plodding

away, perhaps taking no Agricultural paper, nor reading anything, whereby general information is obtained, not only rejecting all this as nonsense, or "book-farming," but giving no encouragement to their own thoughts as to the proper direction of their operations.

The head should enlighten the hands in their work. Where principles of self alone are involved, a degree of success, in a pecuniary sense, will attend the efforts of the man with a very moderate allowance of brains. But some farmers, seemingly destitute of brains, follow in the ruts made by our fathers, which secures neither certainty nor satisfaction.

Don't become discouraged, brother farmer, while we are dwelling on the dark side of the picture, for the question has an affirmative, and though there is a seeming contradiction, we say that *farming does pay*; though the very marked success attending a small minority of the farming community is not due alone to the skilful and persevering manner in which it is done, but in a measure upon the misfortunes of others; for if the broad prairies of the West had the tillage of some of the older countries, it would "glut" the markets of the world with its products.

This article has extended to a greater length than we anticipated, yet we are inclined to go a little further, and define the reasons for our conclusions in the matter, by drawing a parallel between the *pay* and *don't pay* kind of farming.

There are little items of daily occurrence throughout the whole year, that the practical farmer turns to account, in reference to the kind and quality of the stock, the quantity and quality of the food, the time and manner of feeding it, and the manner of putting, cultivating, and taking care of the crops, etc., too numerous to mention in this connection, that the blind man to his own interests fails to observe, or, seeing them, thinks them unworthy of notice, or which is too often the case, leaving these little matters of so much importance (upon which the success of the farmer wholly depends) in the hands of hired men, who not only are inexperienced, but do not take the necessary interest, or no interest at all, in making the business profitable.

To demonstrate distinctly between the characters we are endeavoring to portray, take one of that larger class, who barely skins his way through the world. To illustrate, for instance, take the care of hogs, which gives better profit at present than most other branches of agriculture, though it will apply to other branches as well. He takes little care of his brood sows, so that one-fifth are lost when they come, leaving 40 out of 50 that should be on every farm of 100 acres, where hog-raising is a business. Then, for want of proper care in many ways—as improper food given irregularly, or none at all—the pigs become diseased, and one-fourth of the remainder die from the effects of cholera, leaving 30 which are so dwarfed that, together with bad management all the way through, at 18 months old, they are made to average only 200 pounds, worth, say \$7 per 100, amounting to about \$420. The same management with the corn crop—which applies throughout to this large class of farmers, as they are consistent in these things—and he has barely enough to fatten them; so that in this connection it may be truly said, Farming don't pay.

On the other hand, the careful, systematic farmer

raises at least 50 pigs, always attending to his business personally, and to the wants of his young stock in providing proper food at proper times and in proper quantities, which not only prevents disease, but adds wonderfully to their growth, so that at the end of 18 months he has 50 pigs, averaging 400 pounds, worth \$8 per 100, amounting to \$1,600. The same care produces corn in abundance to feed them. Now you will observe that these men have the same amount of land, and the same opportunities all the way through, and if the former barely paid his expenses, the latter realized \$1,150 clear profit. We claim this not to be an overdraw picture, for we see it demonstrated year after year by hundreds of living contrasts.

When the truth is known among farmers, they will find that success depends not upon luck alone. In this we have but touched upon some of the points which interest the would-be successful farmer, but will leave the rest for a future article.—*Correspondence Western Rural*

FARMING.

For a man who is thoroughly in earnest, farming offers a grand field for effort; but he who is only half in earnest, who thinks that costly barns, imported stock, and a nicely rolled lawn are the great objects of attainment, may accomplish pretty results, but they will be small ones. So the *dilettante* farmer, who has a smattering of science, whose head is filled with nostrums, who thinks his salts will do it all, who doses his crops now to feebleness and now to an unnatural exuberance, who dawdles over his fomentations while the neighbor's oxen are breaking into his rye field—who has no managing capacity, no breadth of vision, who sends two men to accomplish the work of one—let such a man give up all hope of making farming a lucrative pursuit. But if a man, as we said, be thoroughly in earnest, if he has the sagacity to see all over his farm, to systematize his labor, to carry out his plans punctually and thoroughly; if he is not above economies, nor heedless to the teachings of science, nor unobservant of progress elsewhere, nor neglectful of such opportunities as were the Yale Agricultural opportunities—Lectures—let him work, for he will have his reward. But even such an one will never come to his "four-in-hand," except they be colts of his own raising (?) or to private concerts in his own grounds, except what the birds make.—*D. G. Mitchell.*

AGRICULTURAL EXPOSITION AT PARIS.

We learn from the *Mark Lane Express* that a proposal was recently made for holding a universal agricultural exhibition in Paris in 1871, and the idea seems to have been favorably received. Already the sum subscribed from private sources towards the expenses of the exhibition amounts to £2,800, while the Society of Agriculturists of France has voted for its part the solid subscription of £2,000, making an aggregate of £4,800 already obtained. With such a beginning it appears to be considered well nigh certain that for the first time in her history, France will next year have a universal agricultural exhibition organized by private initiative. It may be remarked that the subscriptions made do not represent so much cash parted with for ever, but are rather loans made to the enterprise,

and even these loans are not to be paid up until there are 300 subscribers. The liability of each subscriber is limited to the amount of his subscription, and the surplus receipts of the exhibition, after payment of the working expenses, are to be devoted to the repayment of the subscriptions either wholly or in part. At present the subscriptions are solicited in sums of \$40 each; but if the amount required (£12,000) cannot be raised by £40 subscriptions, each share of subscription will be reduced to £20, and 600 subscriptions will be solicited. If his plan failing, the subscriptions will be reduced to £10 each, and 1,200 subscribers sought for. The Royal Agricultural Society has been invited to take part in the exhibition, and to furnish a report on British Agriculture. The Council have determined to accept this invitation, and have suggested the following as subjects worthy of discussion, and affording opportunities of illustrating the present position of English agriculture: Drainage, Implements and Machinery, Manures, Rotation of Crops, Fattening of Cattle and Sheep, and the Labourer. From Belgium a like hearty response to the invitation has been received.—*Globe*.

CULTIVATION OF BEET-ROOT IN IRELAND.—A letter, giving the result of some experiments in beet-root cultivation, has been addressed to the Kilkenny Moderator by the Hon. L. Agar Ellis, M.P. for Dun- can, of Minchinglane, London, having sent him some sugar-beet seed last spring, he had it sown in different localities in the country of Kilkenny, and the roots when grown were sent to Professor Vœlcker, who made an analysis of their constituents. The crop was sown under favorable circumstances incidental to a first experiment. It is necessary that the soil should be heaped up to the top of the root, in order to preserve its saccharine properties. A considerable portion of the sugar is lost by exposure to the atmosphere. The proper weight of the roots is from 2½ lbs. to 3 lbs. Some useful information upon this and other points connected with the treatment of the crops are given in the letter. Sugar-beet is pronounced to be the least exhaustive of all root crops, provided the refuse pulp is consumed by live stock on the farm. The white Silesian beet is considered the best for this country. The result of the experiments in Kilkenny establishes the fact that sugar-beet can be grown in the county of a quality which will remunerate the manufacturer. It is calculated that a proportion of 8.5 of crystallizable sugar will pay, and in some instances comprised within the range of experiments there was a yield of 10.91 and of 8.94. Mr. Ellis observes, that to make the crop worth growing, either the present sugar-refiners of Ireland must put up machinery for "converting" it, or different districts must erect the necessary works. The climate of the south-east of Ireland is suitable for the growth of such a crop. Some years ago the manufacture of beet-root sugar was attempted at Mountmellic; but, owing to explainable causes, the speculation failed. There is an opportunity now of renewing the effort to establish this branch of agricultural manufacture under more favorable conditions.—*Mark Lane Express*.

FARM GLEANINGS.

The *Canada Farmer* proposes the following mode to kill Canada thistles:

"Let the thistles grow out as thick and as high as they will, until they are just in full flower; then if they are too thick for the horses to walk through, as is often the case, they are mowed, and the land is thoroughly plowed. The cut thistles, which are almost as good as a green crop, are ploughed in and the ground well cultivated. The thistles have made their growth to the utmost, and the roots are in the weakest and most expanded state, and two ploughings with cultivating will then make clean work."

Hon. J. S. Ely, now residing in the city of Norwich, says that a patch on his father's farm was once cleared of these pests by cutting them three times in one year: first, when in full bloom; next, when vigorously started the second time, perhaps a month after; and last, later in the fall, when the remaining juices in the root had started a new and the last stalk. The next spring they did not start at all.

MISS LOUISA STRATTAN, of Cass county, Indiana, challenges any man in the State to a plowing match with her. She proposes a two-horse team, each competitor to drive the horses and hold the plow.

A NEW machine for loading hay was successfully tried at Troy, N. Y., recently. The machine saves the labor of pitching the hay upon the waggon, and also that of rolling it as it takes it from the wind-row. It consists of a light frame hinged to the rear axle of the waggon, extending backward, and is suspended at its rear end to the rack by chains, by which it can be raised or lowered at pleasure. Upon this stands an upright frame provided with rollers at its bottom and top, around which pass leather belts armed with steel spurs, which take and carry up the hay as the waggon passes along astride of the wind-row. Near the top of this last frame is a discharger, which releases the hay from the spurs when at a proper height, and it falls upon the load. It is driven by pulleys clasped to the hind wheel of the waggon, and can be attached and detached in less than two minutes. The machine works smoothly and rapidly. It does not weigh more than 150 pounds, and will load a ton of hay in ten minutes.

AN OLD FARMER'S EXPERIENCE.—That the success of farming is in experience.

That to ask a man's advice is not stooping, but often of much benefit.

That to keep a place for everything, and everything in its place, saves many a step, and is pretty sure to lead to good tools and to keeping them in order.

That kindness to stock, like good shelter, is a saving of fodder.

That to fight weeds is to favor grain, and to do justice to your neighbors.

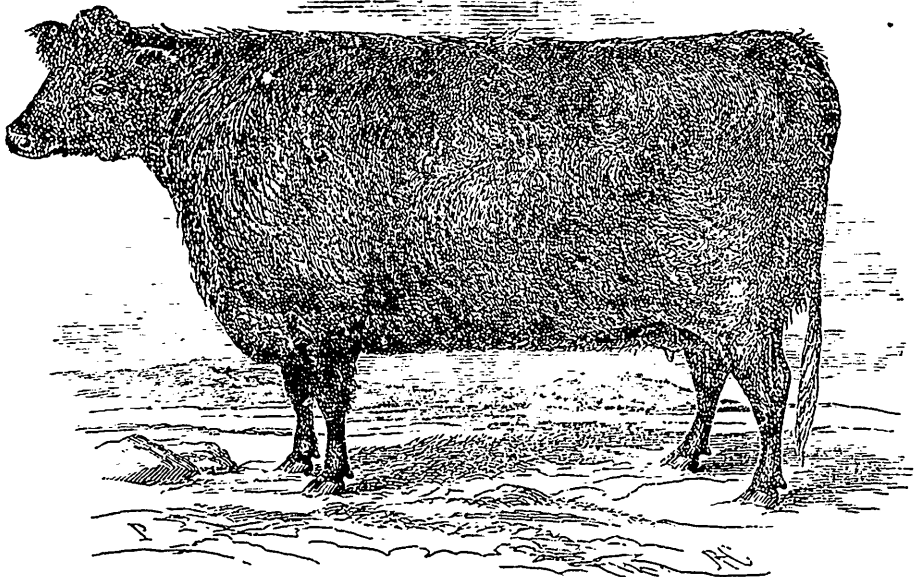
That in making home agreeable, you keep your boys out of the city.

That it is a good thing to grow into farming—not to jump into it.

That it is a good thing to keep an eye out on experiments, and to note all, good and bad.

That it is a good rule to sell your grain when it is ready.

FIRST PRIZE THREE YEAR OLD GALLOWAY COW AT THE PROVINCIAL EXHIBITION OF 1869.



THE PROPERTY OF MR. WM. HOOD, GUELPH, ONT.

The Live Stock.

DISEASES OF BONE.

FOR THE ONTARIO FARMER.

Exostosis, an enlargement, or bony tumour, examples: splint, ring-bone and spavin.

Anchylolysis, is the union of two or more bones together; may occur in any joint.

Curies, is ulceration or disintegration of the bony texture.

Necrosis, entire death, or mortification of a bone.

Enchondroma, is a cartilaginous growth on a bone.

Osteo-sarcoma, consists of a tumour partly fleshy and partly bony, occurring especially on the jaw and ribs of working oxen, but all bones are liable to it.

Exostosis, is a common disease in Canada. It is notoriously hereditary, and if a mare is not fit for work on account of spavin or ring-bone, the farmers say she will raise "good colts," and if you tell them what will be the consequence you will get laughed at for your pains.

Bone Spavin.—There are two distinct kinds of bone spavin; one similar to splint, arises from inflammation of the *periosteum* (covering of bone), the other kind from internal inflammation of the hock

joint, which causes ulceration and ultimately *anchylolysis*, and from the first causes intense pain and lameness. When the spavin is coming on only occasional lameness, always worse in leaving the stable. If the animal strikes his toe against a stone he flinches with that leg and limps for a while. In some cases of spavin the muscles of the haunch are much wasted, the leg is not brought so well forward, the joint is stiff, he points that foot, &c.

Treatment not very satisfactory, in the first place, the Veterinarian is not consulted until some quack has doctored it. I have seen a valuable mare killed by a quack cutting off a spavin, of course he produced an open joint, and she died from the effects of it. Rest in this case is absolutely necessary. Allay inflammation with hot or cold water, then apply a counter irritant. Biniodide Hydo, is the best for *exostosis*. If a seaton is run in over the tumour in a proper manner it acts well, in some cases it is necessary to fire. I must say that I do not approve of the firing iron, and milder treatment is generally the most successful. Whatever irritant is made use of, keep the animal in the stable for two weeks, then give him a run at grass for a couple of months.

G. W. THOMAS, V. S.

GUELPH, June, 1870.

THE WOOL CLIP OF 1870.

The farmers of Ontario are now in the middle of the wool season, and we are consequently in a position to reach a pretty accurate conclusion in regard to the wool clip of 1870. Judging from information derived from different sources, we are confident that the clip will not be as large as that of last season. In one of the best wool producing districts, the falling off is estimated at one-third! This is a large decrease, and would be rather startling, were it not for the explanation that large numbers of sheep have been sent from that locality during the past year to the United States. Many farmers, who formerly had forty or fifty fleeces, have only twenty this season, and we are inclined to think that other districts, than the one to which we specially refer, will also show a moderate decline from the same cause.

Buyers report the quantity of the wool as excellent, and as manifesting that steady improvement which has been going on for some years. There are not so many "cotted" fleeces, and more attention is evidently being paid to washing and preserving the wool after shearing. But there is still room for improvement, particularly in the newer townships, where the farmers appear to be negligent in attending to these important matters.

The price being paid at various points averages about 30c. per lb.—the figures rising a little above or falling below, according to locality and quality. Prudent buyers are paying much attention to the classification of wools this season, and this must necessarily influence prices. This will not be regretted either by the manufacturer, or the intelligent farmer who raises the best samples and carefully prepares it for market. Coarse, dirty wool should no more obtain as high a price as finer and cleaner, than satinett should command as good a price as broadcloth, and we may therefore expect in future to see a closer connection between quality and price than has been customary heretofore.

The Americans will, doubtless, take a large share of our wool clip this year as usual. But the heavy duties they have imposed upon our wool have largely decreased our sales to them. In 1868, our total exports of wool were 1,603,633 lbs., and last year they increased to 2,820,562 lbs. Although the great bulk of this was absorbed by the United States, yet the figures show a great falling off as compared with the years immediately preceding the abrogation of the Reciprocity treaty. It is fortunate for the agricultural community that they can find a market for much of this product among our own manufacturers; but for the existence of so many woolen mills in our midst we fear the price of wool would not be so high as it is to-day.

The annual wool crop of Ontario has been estimated at 6,000,000 lbs. This can only be a rough estimate, but if we take 5,000,000 lbs. as the maximum which will be marketed by the close of this season, as it is generally believed that there is a falling off of 1,000,000 lbs. we will then have (at 30c. per lb.) \$1,500,000 put into circulation among the farming community. This must have a beneficial effect upon business—an effect which must be felt in commercial centres like Montreal, Toronto, Hamilton and London, as certainly as it is in the localities where the money is first distributed.—*Monetary and Commercial Times.*

BUYING COWS.

The following, from the *Nashville (Tenn.) Union*, is decidedly rich:

For some time past, two of our prominent citizens have had a hankering after fine blooded cattle. In fact they had bovine blood badly. Sundry and divers conferences they had between themselves as to how they would procure the finest specimens of blooded cattle to be had, and astonish their neighbours by a sudden display of their selections. They kept up a close scrutiny as to where and how this stock was to be procured. From the papers they learned that there was to be a show and sale of blooded cattle at Xenia, O., and to Xenia they went. They left the city one morning last week, and arrived safely at Xenia aforesaid. They are both wealthy, and they looked complacent-like upon the unpretentious western Buckeye town. On the first morning of the fair and sale they sallied forth to the grounds, having, as they thought, "rhino" enough to bid for every cow, and calf, and specimen of horned stock that would be there. On reaching the ground, they discovered that if "the cattle of a thousand hills" were not there, the cattle of several valleys were. There were Durhams, and Devonshires, and English thoroughbreds, and cows, and calves, and bulls, of every size, grade, and colour. Stock men, and judges, too, were there from several States. Lucky men were our heroes. They had been led by green pastures. Wouldn't they surprise their neighbours? Our friends took their places in the front rank of the steepest buyers. Instantly it became whispered through the crowd that two of the wealthiest men of Tennessee were there with immense sums to buy "blooded stock." Those having stock for sale chuckled. The buyers were crestfallen at such formidable competition. Aye! Tennesseans, "forty" cow-buyers looked upon you. The sale commenced. A fine, blooded bovine was brought forward, and the auction commenced. Our friends were ready to bid, in fact they were going to "go for it." They thought, however, that they would wait for somebody to "start" the animals, when they would come down with such bids as would astonish the natives, and stop the competition at once. The cow was put up.

"Two thousand dollars!" bid an Ohioan.

Our friends stretched their eyes

"Three thousand dollars!" said a Hoosier.

Our friends dropped their chins.

"Four thousand dollars!" bid a western reserve man. Tennesseans were aghast. The auctioneer looked at them; the people looked at them. Nary a bid came from that quarter. They had never heard of such prices for cattle as that; and, though they could command thousands at home, and are liberal, they had not provided themselves with funds enough on this occasion to bid for a sucking calf with short horns, of the McMillen herd, near Xenia. Here was a dilemma. They looked at each other, they looked far away, and looked in all directions at once. They were evidently put out of the ring, and a short time found our speculators in the outskirts of the crowd. After casting a few furtive glances at each other, one of them exclaimed, in mournful tones, "Let us go home."

"Agreed," said the other. A few minutes after

they were back in Xenia, and were soon on the train homeward bound. Few and short were the words they said until the Ohio river rolled between them and the short-horned, blooded cattle of the McMillen herd, Xenia.

Our friends reached home in safety, after an absence of 54 and a-half hours, and all that is necessary to excite in the bosom of either of them all the wrath of Achilles, is to ask them if they bought any short-horns of the McMillen herd, near Xenia.

HARNESSING A HORSE.

A correspondent of the *Utica Herald* talks thus sensibly upon this subject:

Let me say a word about the correct way to harness a horse. Very few of those who are accustomed to use horses from year to year perform the operation scientifically. It is true that many get a harness on the horse, and it may fit well, and it may fit like father's boots on the little boy. It requires much more science than many persons imagine.

I will mention a few material points important to be secured. The collar is the first point of importance. That huge thing that will admit a bundle of straw between it and the neck of a horse is totally unfit for a horse to work in. The collar should fit as neatly and closely to the neck as a pair of boots to the feet. It will then seldom gall the skin if the hames are properly made and correctly adjusted. The hames should not be too far apart at the top; this is often the case. See that the staples which hold the side strap and traces are not too far up at the lower ends.

It is impossible for a horse to draw with ease when the traces are attached near the top of his neck. It will invariably gall the upper part of the neck. Should this be the case, take out the staples and place them lower in the hames. If the backbands are right for a waggon, they will be too short for plowing, and will be very liable to gall the hips of the team. Let the hip strap be properly adjusted, otherwise they will gall the parts of the horse.

While horses are at the plow there is not that relief in drawing as when attached to wheels. On this account the necessity of harness fitting properly is imperative.

REARING TROUT.

Any one with a spring of good soft water at his command can secure the luxury of brook trout upon his table every morning for six months in the year. We heard of a Massachusetts farmer who, last season, besides supplying his own table with these delicious fish, sold 300 pounds of fish at 50 cts per pound. His pond was made and stocked only two years ago at an expense of \$35, and covers about an eighth of an acre of land, and he fully expects to tripple the product next season. Now, independent of the pleasure derived from rearing the fish and the luxury of eating them, and taking a mere practical dollars and cents view of the case, we cannot conceive how an eighth of an acre of land can be made to yield as much clear profit under any species of cultivation.

Solon Robinson, who is known to all agricultural readers as a practical man whose opinions are worth something, was among the fish-breeders of New

England last Summer, and says that the only difficulty he can see in the way of pisciculture becoming a profitable branch of rural economy is the difficulty of providing for the fish a sufficient quantity of animal food. We fancy the animal offal from most households would go a long way toward furnishing a supply. Let the viscera of poultry and animals slaughtered for the table and for market be passed through an ordinary sausage grinder or cutter, and they will furnish ample food for many more trout than would suffice the home demand.—*Turf, Field and Farm.*

BLEEDING CATTLE.—The *American Stock Journal*, in an article on the bleeding of cattle, enumerates the case in which the practice is advisable, and which may be briefly classed as follows:—1. Cutaneous irritation, with febrile symptoms and loss of hair. 2. Inflammatory diseases. 3. Blain. 4. Enlarged glands about the neck. 5. Injuries about the head, and wounds and accidents generally. 6. Catarrh or cold. 7. The Yellows. With regard to the foregoing recommendations, we have just one exception to make, namely—strike out seven of the number. We consider the advice most pernicious, and calculated to encourage the almost exploded practice of bleeding in every case. The feat will rarely be used by a well-informed and scientific veterinary surgeon of the present day, and in the hands of the ignorant, is simply an instrument of mischief.

LIVE STOCK GLEANINGS.

A CORRESPONDENT of *Heart and Home* recommends the following simple, and, as he says, effectual plan of scaring birds from grain or fruit:

"Suspend a piece of looking-glass by a string, so that it may swing in every direction, which gives the appearance of something coming, and scares of the birds. Not even the most foolhardy of birds will remain in the neighborhood of the scarecrow."

A SPECIAL car for the transportation of valuable horses has been provided by the N.Y. Central Railroad. It contains two box stalls fitted up with everything necessary for the comfort of horses. It is to be attached only to express trains.

A FRENCH farmer announces, that being short of pasture for his hogs, he turned them into a field of buckwheat, then in flower, and which he was about plowing; in about half an hour afterwards the animals exhibited all the symptoms of drunken madness: they furiously attacked and devoured the shepherd's dog, and the herdsman escaped their attentions by climbing a tree.

THE *Irish Farmers' Gazette* gives in its answers to correspondents the following cure for bloody murrain: "The only remedy is to open the bowels thoroughly. Give a pound of Epsom salts and a pound of treacle in gruel or warm water, and repeat same in half doses every six hours until purging commences. Keep the bowels open by small doses of linseed oil, and the diet should consist of mashies, linseed gruel and fresh-cut young grass."

Origin of certain diseases of cattle: "Foot-and-mouth disease arise from contagion or infection; puerperal or milk fever usually from high condition, and also from changing immediately previous to calving from scanty to luxuriant keep."

M. H. COCHRANE, Montreal and Compton, P. Q., has lately sold the following short-horns: To W.T. Benson, Edwardsburgh, Ont., the cow "Charlotte" and heifer calf "Maude;" to Col. Pomroy, Compton, P. Q., bull "Star of Promise," cow "Strawberry," imp. cow "Fashion;" to A. Smith, Compton, heifer "Isabel;" to Major Greig, Beachville, Ont., cows "Fashion 2d," "Moss Rose," "Young Rose," and "Flora Temple," the heifers "Princess Louan 2d," "Martha," "Cambridge 7th," "Minnie," "Bessie Bell 3d," and bull "Harold;" to John Dougall & Sons, Three Rivers, L.Q., the bull "Magnet;" to J. Iles, Springfield, Ill., cow "Jubilee 9th" and her bull calf; and to Isaac C. Boyes, Metamora, Ill., bull "Eclipse."

The London *Gazette* publishes a synopsis of an order, emanating from the Council Chamber, with regard to the transit of stock, which we further abridge as follows:

1st. Every car used for carrying cattle shall have the best of spring buffers.

2d. The floor thereof shall have proper footholds.

3d. There shall be no crowding, but each animal shall have ample room to stand separate from all others, and at certain specified distances the cattle shall be watered and the car cleaned.

The *Mark Lane Express* chronicles the recent sale of short-horn cattle in several localities, where they did not bring such enormous prices as in former years, giving evidence that real and not fancy values are coming to be the rule.

One lot of fifteen cows sold for an average of £60 each.

At another sale, forty-one head brought an average of £32 each, while in this lot was a bull, one of the best in England, that brought 240 guineas.

Another lot of nearly one hundred cows, heifers, and bull calves, only averaged £24.

All this is favorable to the wider dissemination of the best blood, and is suggestive of a state of things where the same food will produce much more milk and butter than it does now, fed as it is to common breeds instead of the best.

The Massachusetts *Ploughman* embodies in an article some facts with regard to milch-cows, which we give:

"The weight of the celebrated Oakes' cow's milk (the most remarkable animal in the first twenty years of the present century) was, in the height of the season, forty-four and a half pounds a day; and from May 15th to December 20th of the same year (1816) a period of 220 days, she made 467½ pounds of butter, and an average over two pounds a day for the whole time.

"A cow, 'Jean Armour,' imported by Mr. Peters, of Southboro, in 1858, gave during the month of July an average of fifty and five-sixths pounds a day, and although her milk was not made up into butter, it was set for three days in July, and made six pounds and three ounces of butter.

"An Ayrshire cow, owned by Mr. William Birnie, of Springfield, reached thirty seven and a quarter pounds a day, which was considered remarkable for an Ayrshire cow.

"A Jersey cow, owned by Mr. J. C. Converse, of Southboro, gave the first week in June, 1867, one hundred and fourteen quarts of milk, and made eighteen pounds of butter."

REMEDY FOR WHITE HAIRS.—J. W. B. writes:—"A correspondent of the *Rural New Yorker* asks for a remedy for white hairs that appear on horses from

the use or wear of the saddle or harness. My remedy is a very simple one. Take a piece of fresh butter or lard, large enough to give the spot a thorough greasing; rub the same with the hand until it becomes quite hot, repeating the operation at least three or four times, and the white hairs will soon come out and hairs of natural color take their place. I have tried this on several horses, and never knew it to fail. Think the best time to do it is in the winter before the new coat starts."

THE MANAGEMENT OF SWINE.—G. W. Bushnell thus gives the readers of the *Prairie Farmer* his way of getting on with the porkers: "Sows, while suckling pigs, should have grain in addition to good clover pasture. If the grain is cooked or ground and fed in swill, it is worth at least one-third more than when fed in the usual way. Barrows should have no grain while on good clover pasture: a change of feed is beneficial. About the first of September is the usual time to commence fattening. But little grain should be given at first, and the quantity daily increased for two weeks, when they should be placed in a feed lot just large enough to give them plenty of exercise, and supplied with plenty of fresh water, a good floor to feed upon, and a trough containing a mixture of four parts salt, one of soda, and one of sulphur. Coal is fed to hogs for the sulphur contained in it; and our experience has been that the large quantities of coal eaten by hogs when they have access to it, brings on costiveness and is very injurious to them."

The Garden.

HOUSE PLANTS.

It is astonishing how much pleasure may be derived from the cultivation of house-plants. Though they may be few in number, yet when properly cared for, and tastefully arranged, they will give an air of comfort and refinement to an otherwise dreary apartment. Persons residing in the crowded streets of cities where it is quite impossible to have a flower-garden, will find this a most interesting as well as instructive manner of employing their spare time, as well as an easy method of securing a little rural beauty. Each plant comes to be regarded as an old acquaintance, and the opening of new leaves and buds is watched with growing interest. This is especially the case in winter, when the outer-world is wrapped in snow, the trees are leafless and bare, and everything appears sad and dreary. Then do we find our house-plants to be a luxury indeed. In selecting plants to begin with, the first consideration should be not to have a larger number than can be properly attended to, for it is better to have only what half a dozen pots of healthy vigorous ones, than a multitude of such as are dwindling and diseased. The soil should be rich, but not heavy. Leaf mould is the best, but where this cannot be obtained, good garden mould will answer every purpose. Bits of charcoal should be placed in the bottoms of the pots for drainage, previous to filling with mould. When first potted,

plants should be shaded from the rays of the sun or excessive light, until they have taken root. For the winter months a south window is best as the plants will then have the sun all day, but as spring draws on and the days become warm, a south-east or even eastern aspect is preferable, as the early morning sun is then sufficient for them. Close dark rooms are very injurious to plants, they should always have plenty of light and air, but never be exposed to a thorough draught. In regard to watering, much depends on the weather and the condition of the plant. If they are growing vigorously or in bloom, a plentiful supply will be required, but where the growth is not so rapid, or the leaves are few, water should be applied more sparingly. On the other hand, if the plant is allowed to become dry, the smaller outside roots will perish, the leaves turn yellow and drop off; and though it may recover after new roots have been formed, yet for the time its beauty is lost. Saucers under the pots are useful to catch any water that run through; but water should never be allowed to stand in them except for such plants as lilies when in bloom. Frequent syringing or sprinkling is very beneficial, especially in warm, dry, weather; it counteracts the dryness of the air, keeps the leaves free from dust, at the same time giving them a fresh, glossy appearance. This may be done very tidily even in a sitting room, by holding the plant outside of the window in one hand, and sprinkling it from a small watering-pot in the other. Plants that are too large to be lifted should have the leaves gently sponged. The greatest difficulty is often experienced in keeping the leaves free from insects, and unless they are destroyed, it is quite impossible to raise healthy plants. The red-spider is one of the most troublesome, it is so very minute that when seen by the naked eye, it appears to be only a small red speck, but although it is so very minute, it is capable of doing great mischief, for where it is not quickly destroyed, the leaves very speedily turn brown and drop off. This like most other insects is generally found on the under-side of the leaf. It delights in a hot, dry atmosphere, and is seldom seen where the plants are sprinkled as they should be. The green-fly is much larger than the red-spider, and, therefore is sooner detected; but while the red-spider delights in a dry atmosphere, this insect reveals in the other extreme, preferring moisture and shade. In green-houses this pest is prevented or destroyed by fumigating very frequently with tobacco smoke, but as this cannot be done in rooms, dipping the plant in tobacco water about the colour of strong tea will have the desired effect. Persons having only a few plants can easily keep them clear of this nuisance by looking them over every morning, picking off the insects by hand, and destroying them. The

mealy-bug is a white downy-looking insect, and often proves very troublesome among house-plants, if not immediately destroyed when discovered. The most effectual way of doing this, is to crush it with the finger. Its eggs may sometimes be seen on the under side of the leaf. These should be rubbed off at once, as prevention is always better than cure. Watering the roots occasionally with lime-water will prevent any annoyance that may arise from worms in the soil.

Hanging-baskets make a pleasing variety among house-plants. The prettiest of these are made either of wire or crooked boughs and roots, the latter nicely put together form very tasteful rustic-work. They should always be lined around the sides and bottom with moss to keep the earth moist, as it will dry out much sooner than in an ordinary pot. The centre plant should be of a low growth, some of the bright variegated-leaved geraniums are very suitable. The outer ones should be of trailing habit to hang over the sides. Moss should be placed on the top of the basket between the plants, as it preserves the moisture and gives the whole affair a more finished appearance.

PLANTS FOR A SMALL GARDEN.

A subscriber asks for a list of plants that will give a succession of flowers from early spring until November. As he did not state whether he wished annuals or perennials, we will name a collection from the latter class, as they require less attention, and will grow in soils where many of the former would fail.

Our description of each will necessarily be brief, but the height and color will be a sufficient guide for their proper arrangement.

The time of blooming is for the latitude of New York city:

Arabis alpina.—Flowers small, pure white. Four inches high. April.

Achillea millefolia.—Deep red. Fifteen inches. Last of May.

Achillea ptarmica pleno.—White, very double. Ten inches. August.

Anemone Japonica.—Purple. Two feet. September.

Aquilegia.—Many colors, all good and worthy of care. Two feet. July.

Antherium liliistrum.—Flowers white, resembling small lilies. One foot. June.

Anterrinum.—Many colors, from pure white to dark purple. One foot. June to October.

Bocronia cordata.—Small pink; the foliage showy. Eight to ten feet. July. Too large for a small garden.

Callirhoe involucrata.—Flowers large, deep crimson, very showy. A trailing plant, blooming from early summer until killed by frost.

Campanula carpatica.—One with white and another with blue flowers. Six inches. June.

C. Grandiflora (*Wahlenbergia*).—Flowers similar to *caerulica*, but much larger. Two to three feet. June and July.

Clematis integrifolia.—Fine blue, bordered with white. Two feet. June.

Chelone coccinea.—Bright scarlet. Three feet. June and July.

Dietanmus alba.—White. Fifteen inches. June.

D. rubra.—Same habit as the preceding, but with red flowers.

Dicentra spectabilis.—Rosy crimson, a well-known and indispensable plant. Three feet. May and June.

Delphinium.—There are many beautiful species and varieties, but *Hendersoni*, *Formosum*, and *Ranunculiflora* are among the very best.

Funkia alba odorata.—Large, pure white, and very fragrant. Two feet. June and July.

F. Variegata.—Pale blue, but foliage beautifully variegated. One foot. July.

Geranium ibericum.—Bluish purple, nearly two inches in diameter. One foot. July.

Gilleneu trifoliata.—Small, white. Two feet. July and August.

Iberis candidissima.—Pure white. Six inches. May.

Lychnis flos-cuculi pleno.—Double crimson. One foot. May.

Oenothera Missouriensis.—Sulphur yellow, large. Eight inches. July and August.

Orobis vernus.—Purple. Two feet. May.

Phloxes.—Of many colors, and growing from three inches to four feet high.

Pentstemon coqueous.—Deep scarlet.—Two feet. June and July.

P. Digitalis.—White, slightly tinged with purple. Eighteen inches. July.

P. Grandiflorum.—Pale lilac. Four feet. August.

Saxifraga crassifolia.—Pink, in clusters. Six inches. April.

S. lingulata rubra.—Red, with dark reddish leaves. Six inches. April.

Scutellaria Japonica.—Small, dark blue flowers. Eight inches. July.

Spiraea filipendula pleno.—White, double, handsome. One foot. June.

S. Japonica (Astilbe).—White, in long spikes. Two feet. June.

S. lobata.—Bright red. Three feet. June.

Statice coccinea.—Bright scarlet. Six inches. May.

Tritoma uaria.—Orange scarlet, three feet. August to November.

Yucca filamentosa.—White. Four to six feet. July and August.—*Hearth and Home*.

THE ROSE SLUG.

The Rose Slug (*Selandria Rose*) is a light green translucent little fellow, varying from 1-16 of an inch, to nearly an inch in length. There are evidently two species or varieties, one of which confines its ravages to the lower side of the leaf; the other eats it entire. The first is by far the most destructive here. In a few days after the plants have been attacked, they appear as if they had been burned.

The only remedy we have found is a preventive one, which, in fact, ought to be used against all insect life. Before the leaves of the roses appear, just as soon as the buds begin to develop, apply whale oil soap, in the proportion of one pound to eight gallons of water; this steadily applied for ten days with a syringe or garden engine, has, in my experience, entirely prevented the attacks of this insect. But once let it get a foothold, and it can scarcely be driven off by this application, unless it be made strong enough to injure the foliage, making the remedy worse than the disease.

The species of Rose Slug that eats the entire leaf, seems to confine its depredations more to young plants, and later in the season. We have found it quite troublesome in June and July among our young roses, which had been planted out in May and June, and as these were young and tender plants, the whale oil soap remedy could not safely be applied; so we have often had acres of young roses covered by myriads of these slugs, before they were observed, and nothing could be done except to shake the plants, and kill the insects when they fall to the ground. In the summer of 1866, we had sum nine or ten boys shaking the plants and killing the slugs, for upward of a week, and by this means saved our crop of roses. Last year (1868) we had a whole army of volunteer exterminators, in the thousands of English sparrows, that have frequently favored us with their presence, and which we feed and house with the greatest care during winter.

We observed immense flocks of them actively engaged for days in picking up something in our rose-beds, and had imagined it to be seeds obtained from the refuse hops which we had used in mulching. At times we felt inclined to believe that they would pick the tender leaves of the roses, to use by way of a salad, having always believed them to be strictly "vegetarians," or seed eaters. Finding, however, that we were less troubled with the rose slug that season than usual, it occurred to me that perhaps we were indebted to our noisy, feathered-friends for the immunity. To test the matter, a victim was necessary; accordingly, a plethoric fellow was shot, when, sure enough, his well-filled crop revealed seeds, rose slugs, and aphid, or green fly, in great abundance, demonstrating, beyond all question, the great value of these birds as insect destroyers.—*Henderson's Practical Floriculture*.

HOW TO HAVE PLENTY OF CUCUMBERS.

A CORRESPONDENT of the *Horticulturist* writes:—I had a narrow border, not more than two and a-half feet wide, on the edge of a high fence. I planted three cucumber hills in the border, and laid some brush (such as is used for pea vines) between them and the fence. As soon as they crept up to the bush, I pinched off the ends of the vine which thickened rapidly around the roots, and in every direction, throwing out the most vigorous foliage and profusion of flowers.

I did not allow the cucumbers to grow, but watched them, and such as I wished to reserve for the table I picked as soon as they became of proper size; and all the rest were gathered every day for pickles; every day pinching off the bud at the end of each shoot. In this way the hill continued fresh and productive until they were touched by frost. Some judgement can be formed of the value of this practice when I add that more than a barrel of pickles were

made from three hills, besides allowing a supply for the table.

Whenever a leaf began to look rusty or yellowish, it was removed, and the cucumbers and leaves were cut off with large scissors, so as not to disturb or wound the vine. There is an advantage in having them run upon brush instead of trailing over the ground; because they are much injured by being trodden on, and by being kept low on the bushes they can be easily and thoroughly examined over every day, which is essential, because if cucumbers are overlooked, and grow very large, it stops the yield of that vine.

THE ANTIRRHINUM.

This plant will flower quite freely from seed the same season of sowing it, and can very readily be kept over from year to year, by means of cuttings, the same way as any of the ordinary bedding plants. Farther south, where the winters are not so severe, it is entirely perennial in character, and may easily be kept over here, by means of a cold frame, or otherwise protected from too hard freezing.

We have often kept them over by just taking them up in the fall, laying them in and covering them entirely with soil. Vick says in his catalogue:—"This plant is gold to the florist," but exactly in what way we do not know, as it is not a plant the masses buy freely; partly, doubtless, from the ease with which it can be kept over or raised fresh from seed.

It is not a plant particularly adapted to massing together for brilliant coloring, but rather as isolated plants in the mixed flower bed or border.

To our mind it is a very pretty object, forming a neat bush of from one to two feet high, covered with spikes of its singular shaped gaping flowers. Its common name, Snapdragon, is doubtless in allusion to its mouth-like flowers.

There are now quite a large variety of colors, yellow, white and scarlet, with many intermediate shades of color.

It is very easily transplanted from the hot bed; hence may be sown with other annuals, or in the absence of the hot bed or other similar convenience, may be sown out of doors early in the spring, but will not then flower much before the end of summer.—*Prairie Farmer.*

GENOTHERA, (EVENING PRIMROSE).

A very fine genus of showy plants, opening their flowers suddenly in the latter part of the day, and making a most brilliant exhibition during the evening and early in the morning. Some of the newer varieties will attract as much attention as anything that can be grown. Some are perennials, but the following, which are the best, all flower the first season.

Veitchii, a very pretty half-hardy annual, growing about one foot; flowers bright yellow, with a red spot at the base of each petal.

Rosea, dwarf; perennial; not quite hardy; flowers first season; rose-coloured.

Acaulis alba, a very dwarf, or rather stemless plant, the leaves lying close to the ground. The flower is snowy white, about four inches across, with a calyx tube four or five inches in length. Each plant produces one and sometimes three of

these beautiful flowers every evening. Grow plants in frame or seed-bed, and set about six inches apart.

Lamarckiana grandiflora. This is one of the most showy of the genus. The plant grows about three feet high; branches freely, and blossoms most abundantly. Flowers bright yellow, four inches or more in diameter, borne in large clusters. Flowers well the second year, unless the plants are exhausted by blooming the first.—*Vick's Floral Guide.*

BIRDS vs. JUNE BUGS.

For some days past there has been a man (civilized?) engaged in the neighborhood of the writer's residence shooting robins, ducks and fowls, because they eat his potatoes! His lot, which has only potatoes and apple-trees on it, was turned up from grass this spring; the June bugs, the grubs to which are similar in habit to those of the cockchafer, have been unusually abundant, and the robins have resorted to the turned up ground to feed upon the grubs and beetles, the former of which would probably destroy the young shoots of the potato, the latter, the leaves of the apple-trees. Yet this senseless being shoots the robin. We almost wish to anathematize, such foolish ignorance with Athanasian-like energy. But as all anathemas will only, if fulfilled, spread scourges upon ourselves—may some one who knows the laws on the subject prosecute the wretch, and may an honest judge be found to reach the only seat of what glimmering of reason he has—his purse.—*Scientific American.*

GARDEN GLEAMINGS.

Fruit prospects are very promising in most sections of the Province.

The *Cincinnati Chronicle* gives the following as a remedy for the great hindrance of squash rising:—"Fine-cut tobacco, sprinkled lightly on the hills of squashes, will keep off the large stinking bugs so fatal to those vines—especially to the Hubbard squash."

The *Western Farmer* says that the great enemy of the potato—the Colorado potato-bug—has made its appearance in great numbers, covering the leaves with their eggs, and making sad havoc with the tender plants. It says that the only sure remedy is hand-picking, which is a slow, tedious, wearisome, and nasty process, but that it is the only means by which the early crop can be saved.

We find the following in a daily paper:

"A New Haven agriculturist called his friends to a social gathering in his pear orchard the other evening, and desired each one to pick out a branch on which should grow the pears for his or her eating, the name of the person being affixed upon a label. In the harvest time they will meet again and enjoy the fruit so generously and ingeniously disposed of."

The State Pomological Society of Michigan recommended planting: *For Summer*—Duchess of Oldenburgh, Sweet Bough, and Red Astrachan. *For Fall*—Cayuga Red Streak, Maiden's Blush, and Snow or Fameuse. *For Winter*—Baldwin, Wagener, Rhode Island Greening, English Golden Russet, Northern Spy, Talman Sweet, Hubbardston Nonesuch.

M. D. Norris, of Hardin county, Iowa, writes of the General Grant Tomato, that though he does not find this tomato earlier than many other varieties,

yet it has many good points. He thus speaks of it: "Good size; color, dark crimson; round flattened; meat thick and solid, with but few seeds; prolific; flavor excellent. It must be a good market variety on account of its color, which is very attractive, and its solidity enabling it to bear transportation well."

Rev. A. L. Stone of San Francisco stated, while in Boston recently, that the vineyards of that State are already telling upon the morals of its people; that wine is common on their tables, that church members use it freely, and that the young men and women are becoming drunkards on all hands.

RECIPE FOR DESTROYING INSECTS.—"Take equal parts, say half a pound, of strong soft soap, potash (or soda), and tobacco (the stems will do for that); or in absence of tobacco, take walnut leaves. Boil these in three gallons of water for a short time, stirring it all the while. After boiling, add two gallons more of water, and mix it well. When cold, apply it with a syringe, or in any other convenient way. It does not hurt the plants or the foliage, and destroys the insects." The foregoing recipe was furnished by Mr. Bauer, of Hamilton, and is the mixture for killing insects on vines and plants mentioned by him at the Fruit Growers' meeting.

NECESSITY OF PRUNING RASPBERRIES AND BLACKBERRIES.—It stands to reason that any fruit or plant must get *well rooted* before being allowed to yield a full crop; and, too, it is an admitted fact that if any tree or plant is checked in its growth, it will throw out stronger and more side branches, and grow more stocky; consequently it seems strange to me that any person who has had any *experience* in growing fruits, should argue against trimming black raspberries. Now, we have simply *practiced both plans*, side by side, and know if they are not pruned they must be staked. The crop will not average half as much, the plant is but short lived, and it is impossible to get among them to work them out as they should be if left unpruned; while if cut back the first season to within one foot of the ground, and after that three to four feet (if the growth attains that height) they will be long lived, and yield immense crops every season.—*Countryman.*

STOCK, TEN-WEEKS (*Malthiola annua*).—The Ten-Weeks or Annual Stock presents nearly or quite all the requisites of a perfect flower-plant—good habit, fine foliage, beautiful flowers of almost every delicate and desirable tint, delightful fragrance, early flowering, and abundance of blossoms. Flowers in splendid spikes. The seeds offered are from the best German grower of this splendid flower, all from selected pot-plants, and more than three-fourths will produce fine double blossoms. Seeds may be sown in the hot-bed or cold-frame; or in the open ground in May. Easily transplanted when small. They should be removed from the seed-bed before they become "drawn," or slender, or the flowers will be poor. Make the soil deep and rich. Set the plants about twelve inches apart. Half-hardy annuals.—*Tick's Floral Guide.*

MILDEW ON ROSES.—I venture to send you a receipt for the cure of mildew on roses. I may state at once that this is not a discovery of my own, but a remedy recommended to me by a lady who is a most successful grower of flowers, and she received it from a nurseryman. It asserts that it is a complete cure. Rub down in a gallon of soft water one pound of soft soap, with the solution syringe the upper and under surfaces of the foliage, and the mildew

will disappear as if by magic. Mr. Rivers recommends a cure in soot. Perhaps soap is more cleanly; it is, I am sure, as effectual—though I do not for a moment doubt the efficacy of soot—and an outlay of one shilling will clear one hundred plants from every vestige of the disease, if properly applied. I find it useful to syringe the trees with clear water, next day, to rid them of the whitish deposit which fixes on the edges of the leaves after the application of the solution. There is no necessity to cut off the blooms; the solution could only damage these in proportion to the force with which it hit them, and as contact with the mildew is all that is required, no force is necessary.—*Cor. Coll'ge Gardener.*

A CORRESPONDENT of the *Myrland Farmer* says:—"The following effectually protected my melon, squash, cucumber and other viues from the 'striped or cucumber bug,' the past season, with only one application, viz.—a strong solution of hen-house manure—say one peck of the manure to one and a half gallons of water—let it stand twenty-four hours, and sprinkle the plants freely with it after sunset. The above was suggested to me by a negro woman living on my place, who has some practical experience in gardening, and says she has used it for years, and has never known the first application to fail to drive them off, and they never return."

Poetry.

THE INDEPENDENT FARMER.

Let the sailor sing of the windy deep,
Let soldiers praise their armour,
But in my heart this toast I'll keep—
The Independent Farmer.
When first the rose in robe of green,
Unfolds the crimson lining,
And 'round the cottage porch is seen
The honeysuckle twining;
When banks of bloom their sweetness yield,
To bees that gather honey,
He drives the team across the field,
Where skies are soft and sunny.

The blackbird chucks behind the plough,
The quail pipes loud and clear,
The orchard hides beneath its bough
The home he loves so dear;
The gray and old barn doors unfold
His ample store of measure,
More rich than heaps of horrid gold,
A precious, blessed treasure,
While yonder in the porch their stands
His wife, the lovely charmer,
The sweetest rose on all his lands—
The Independent Farmer.

To him the Spring comes dancingly,
To him the summer blushes,
The Autumn smiles with mellow ray,
His sleep old winter hushes,
He cares not how the world may move,
No doubts or fears confound him;
His little flocks are linked in love,
And household angels round him;
He trusts in God, and loves his wife,
Nor grief nor ill may harm her,
He's Nature's nobleman in life,
The Independent Farmer.—

—*North Missourian.*

Our Country.

REPORT OF THE COMMISSIONER OF AGRICULTURE AND ARTS FOR THE PROVINCE OF ONTARIO, FOR 1869.

(Printed by Order of the Legislative Assembly.)

We propose to glance through the first Appendix to Mr. Carling's Report, consisting of an analysis of the Reports of Agricultural Societies, with a view of giving our readers such brief sketches as will likely be of some interest and practical utility. The Electoral Division Societies are arranged alphabetically, with the Township Societies of each respectively in the same manner. It is to be regretted that so many of the Reports, both of County and Township Societies, contain no remarks, but simply a brief financial statement of their income and expenditure. This defect, it is hoped, will be diminished by degrees, so that every Society receiving Legislative aid will furnish the Commissioner with information relative to the state of Agriculture and its cognate arts, within the sphere of its operations.

The new Society for the district of ALGOMA has quite a long and interesting report, containing reliable information relative to the state and capabilities of that extensive region, "steady progress in which is being made in clearing and fencing." The cultivation of some of the hardier artificial grapes is recommended, though the wild sorts often produce well naturally, and most kinds of Spring grain are raised in abundance, and generally of excellent quality.

The NORTH BRANT Society refers with feelings of encouragement to Mr. Arnold's extensive experiments in hybridizing wheat, grapes and strawberries. The two subjoined extracts from the SOUTH BRANT Report are well worth reproducing entire:—

"The wheat crop of this County is rather improving. The red wheat, which was introduced a few years ago, is now a much better and finer sample than it was at first, and brought a very fair price last year. But we feel that we cannot enough impress upon the minds of the farmers the great loss sustained by continued wheat growing, this course of husbandry being ruinous to all concerned. On the other hand, it cannot be sufficiently published, for the benefit of all, the great gain which may be made by adopting a judicious system of rotation; the growing of green crops, roots, and vegetables. This mode of operation, combined with a careful selection of cattle and a few swine, feeding the roots and vegetables to the same, with a view to soiling, and thus save the droppings, although apparently a loss, will be found in the end a source of great profit."

After referring to the importance attached to agriculture by the ancients, and the great progress made by them in several departments of the liberal arts, demanding knowledge and refinement, the Report proceeds.—

"We therefore say, educate your sons and daughters; never cease, in season and out of season, to impress upon their minds the nobility, dignity, yes, the blessedness of labor, the god-like virtue of truth, the necessity of honesty and liberality in their dealings with all men. Purchase books, old and new, for the use of your families; spend less in adorning the person, more upon the mind; more usefulness, less worthless display. Place the minds of your sons and daughters, by means of books, in direct communication with the best minds that have lived during the last three thousand years, and thus endeavor to make the rising generation giants, mighty men of renown, who will go forth into the world to make their mark as artisans, mechanics, chemists and farmers,—men who will be eager to aid industrial progress of every kind, to help forward a new social organization, having for its object the banishment of poverty and distress from the face of the land, together with other much-needed reforms; then, after a lifetime spent in usefulness and self-abnegation in doing good, and helping their weary, toil-worn fellow men, they will have fought the good fight, and will be prepared for the welcome summons which will call them hence to a new and more glorious life, in which they will enjoy eternal peace and rest, leaving behind them honorable names, to be emblazoned on the pages of history along with those of other great and good benefactors of humanity."

In NORTH BRUCE the ravages of the wheat midge have been gradually extending of late years, and what are termed "midge-proof" varieties have been tried with varying success. The report states:—

"In reference to the modes of cropping, we can only state that most farms being but recently cleared, the methods pursued have to be adapted to circumstances. We are happy to be able to say, however, that many of our best farmers adopt, as far as practicable, a proper rotation of crops, and pay particular attention to systems calculated to prevent the soil from unnecessary deterioration, and we would urge upon the whole farming community the necessity of adhering rapidly to such systems of husbandry as will preserve farms, now valuable, from becoming comparatively worthless, through careless and improper tillage.

"In a few years, we may expect to see all the improved implements, calculated to facilitate the labours of the husbandman, in use amongst us. The long "iron plough" (perhaps one of the best patterns in use in the Province, McArthur's Patent, and other ploughs of improved patterns), are rapidly superseding the old wood plough, which, of necessity, performed its part for many years among the stumps; and as these latter disappear, the roller of an improved kind is taking its place among the implements of our farmers. In a short time, also, the mower and reaper will be no novelty amongst us."

The SOUTH BRUCE report among much that is interesting and suggestive, contains the following:

"We may safely say that anything like a proper system of agriculture is seldom met with among our farmers. The custom being too prevalent of sowing wheat year after year in the same field, instead of endeavouring to raise a greater variety of cereals, and roots in rotation will, ultimately, in our

opinion, greatly deteriorate the productive qualities of the soil and finally impoverish altogether. That little insect, the midge, which has, during the past season so seriously injured our wheat crops, may be to us a warning sent by an allwise Providence to teach us that, notwithstanding our fine wheat growing county, we should not place our whole dependence upon wheat, but adopt a system of rotation of crops, increase the growth of turnips, carrots, and mangel wurtzel, clover and other grasses adapted for the fattening of stock, from which we may expect sufficient manure of such quality as will replace the nutritious ingredients forced from the earth and thereby maintain its productiveness.

"We would next direct your attention to seeds. It is of the utmost importance that seed grain should be of the best quality, fresh and pure. In wheat, several new varieties of midge proof have been brought into the riding, the most prominent of which are the Deihl and Treadwell, and some fresh spring wheat.

"We notice with pleasure the erection of several new and improved farm buildings, grist and saw mills, during the past year; these testify to our progress, and we hope to see more of our farmers following the example."

The following extract is from the EAST DURHAM report:

"Your Directors congratulate the members of this Society, and the agricultural community generally, on the improvements in the Bureau of Agriculture since its present incumbent came into office, and hope that the efforts of the Commissioner to bring about a better state of things, will be responded to by the public. The short crops of the past few years, caused by the exhausted state of the land and unfavorable seasons, has had a tendency to make the farmers look about them for some other way of making money besides depending on grain crops, and a number of cheese factories have been started in this county during the past two years. In the fall of 1867, a Joint Stock Company was formed in the Township of Hope for the manufacture of cheese and butter. They have erected a good substantial building, about two miles from Port Hope, through which a never failing stream of pure cold water runs. The location of the factory is one of the finest in the Province, and their first year's operations were very satisfactory, the quality of the cheese being first-rate. A butter factory has been established at Port Hope during the past year, which is doing a good business. A woolen factory, on a small scale, will be in operation in Port Hope next summer, and another in the township of Hope. These mills are being erected on sites formerly occupied by sawmills. The water power in Hope is very great, and as the pine is becoming exhausted, the old sites afford opportunities for the erection of buildings for the manufacture of other raw material. There is a scutching mill at Millbrook, in Cavan, but flax has never been grown to any extent in this county; but it is our opinion that much more will be grown, if the price of grain comes down to the old figure."

The ESSEX Society, among other interesting matters, reports:

"Your Directors are of the opinion that the agriculturists of the county are progressing gradually in the right direction. Perceptible improvements

can be seen in the management of various farms in the introduction of improved farming implements, such as mowing and reaping machines, threshing machines, sorghum mills, corn shellers, improved ploughs of various patterns, not to mention other minor though indispensable articles, and also in the introduction of the various kinds of improved stock from the best herds in the Province.

"While the soil and climate of the county are well adapted to the production of the different kinds of grain, the county is no less adapted to the raising of all kinds of stock. The climate is milder than in any other section of the Dominion. Our winters are some weeks shorter. The pastures in the summer are, as a general thing, good, and the farmers can realize as much by the sale of their stock annually, as they can by the cereal products of the soil."

HALDIMAND OBSERVES:

"The manures generally used in this county are barn-yard and gypsum. For immediate benefit to the grain crop, a good top-dressing with barn-yard, well-rotted, is found to be very effectual. For meadows, either top-dress with barn-yard, well rotted, or with plaster of Paris. In order to keep a farm in good order, there should be a proper rotation of crops. A meadow should not be mown more than twice without breaking up. For fall wheat, summer fallow; for spring crops, fall plough. Grow two crops of grain or roots, then set down again properly with clover and timothy. Sow the timothy seed, if possible, in the fall. By adhering closely to these rules you will, as a general thing, find beneficial results."

The HAMILTON Society refers to the visit of a number of American gentlemen to its annual exhibition, in the following graceful terms:

"It must be gratifying to us all to hear the high encomiums passed by our numerous American visitors, who seemed struck by the high standard of our stock in every branch, as well as our agricultural products and manufactures; and still more so by their kindly-expressed acknowledgments of the attention and courtesy shown them while amongst us, which was so ably reciprocated by the President in his closing address."

KENT REMARKS:

"Your Directors observe, with pleasure, that the attention of Government is being turned to the drainage of the low lands of Kent and Essex; this matter is of so much importance to the agricultural interests of this district, that your Directors earnestly recommend every individual to join in bringing a united influence to bear upon Government, with the view of obtaining aid for so important a work. Your Directors think it would be well for the County Council to get copies from the Government of the maps and plans of Mr. Molesworth, as they would serve as a guide to any local drainage that may be carried out by the municipalities interested."

"Your Directors purchased a car load of spring wheat and peas; they are sorry to say that the result to the Society was a loss, but still as it is of so much consequence to the farming community to be able to obtain a change of seed, your Directors are of opinion a fresh supply of those kinds thought to be most requisite should be purchased. Perhaps if the option were given to the members to buy on

credit or cash, the result would be more favorable. The attention of the Society should be given to the purchase of stock, as these purchases will materially help improvement of the various kinds. In fact, if these purchases are discontinued, the utility of the Society will be considerably weakened.

"The red midge-proof wheat still seems to answer here. The "Deihl" white wheat is a complete failure in this part, as the midge injures it very much. Your Directors understand that the "Treadwell" white wheat has turned out well and free from the midge.

"The farmers in this district are trying to get a spring wheat that will answer, as they appear to wish to change the Fife. Many have tried the 'Rio Grande,' but it is not spoken so favorably of as the Fife was at its first introduction."

The following are useful, practical suggestions, from the report of the CHATHAM Society (*Kent*):

"The Directors would also suggest that in order to awaken an interest in the minds of the farming community in the success of this Society, and to accomplish the purposes for which such organizations are formed, it would be advisable to hold a few meetings during the winter season in the school-houses in different parts of the Township, at which meetings (they being open to the public) agricultural subjects might be discussed with much profit and advantage. Farmers would then have an opportunity of giving their experience of the best rotation of crops, and of discussing the cheapest and most effective modes of manuring, and of applying the same to the land; the cheapest and best modes of fencing, which will soon become an interesting subject in this Township; and various other subjects could there be discussed with advantage to those who might attend. These meetings would also prove convenient in getting new subscribers, and in giving an opportunity to the old members to pay in their subscription money. The present Directors recommend this plan, they having experienced much trouble in getting the money paid into the Treasurer's hands in time to meet the requirements of the Agricultural Act; so much so, that during the last year they were compelled to employ a person to canvass the Township for the purpose of obtaining the necessary number of subscribers, and to collect the subscription money, which is a very unnecessary expense, if intending subscribers and the old members would only hand in their subscription money to the nearest Director, who could at the next meeting of the Directors hand it over to the Treasurer."

The subjoined portion of the KINGSTON report, in reference to Horticulture, is deserving of serious and general attention:—

"A great impetus has of late years been given to fruit growing, and especially to the culture of grapes both in the open air and under glass, and with such marked success that we trust the time is not distant when every owner of a farm, and even cottage and town plot, will raise his own grapes and other small fruits, and that, instead of seeing only a great staring barn and naked homestead—treeless, shrubless, fruitless, flowerless,—we shall behold tasteful gardens and rich luxuriant orchards, with the apple and vine and honeysuckle vying in beauty, and intertwining themselves round the trellises and the hearts of the children, making the memory of home

sweet to them in all after years; for there are few external things that endear home and refine the feelings like a rich and pretty garden, no matter how small.

"No less an authority than Lord Bacon tells us that 'When ages do grow in civility and elegance, men come to build stately sooner than garden finely, as if gardening were the greater perfection.'

"Of course, the spacious barn and naked farm ought to come first; but now that this has been attended to by our farmers, by the energy of their hearts and right hands, we would urge them to the further step of making ornament minister to utility, for the cultivation of the apple, the pear, the strawberry and the grape, may, one or all of them, be made to serve the interest of the pocket, no less than gratify the taste.

"Willingly we would not misdirect the farmer, with whom and his pursuits we so widely and heartily sympathise; but we do think that he might, without damaging his larger material interests, give more attention now to things that are calculated to refine, and that children educated to take an interest in fruits and flowers, and the beautiful orderly processes of nature, will not be more likely to seek their enjoyments in the strong excitements of the bar-room with its (oft) train of demoralizing consequences in after life."

The LAMBTON Society speak most encouragingly of the general progress of that section of the Province, which is destined, after drainage and other improvements are effected, to occupy a foremost rank:—

"In meeting you again at this our annual gathering, your Board are pleased to be able to refer to the general manifestation of prosperity around us. The country is being cleared up, good roads are being formed, swamps are being drained, comfortable dwelling houses and substantial farm buildings are being erected; our towns and villages are increasing in size and wealth. With the single exception of the oil business (and that appears to be reviving), every branch of industry has prospered. Nor as a people are we merely aiming at prosperity in material things. The numerous and commodious school houses, the spacious, neat, and in some cases, splendid buildings, recently erected, and now being erected, as meeting houses, in different parts of the County, manifest that the attention of our people is not confined to physical improvements, but that they seek after mental, moral, and spiritual culture as well."

From the SOUTH LEEDS report, we take the following:—

"Several small cheese factories have been started in this neighborhood, and have been quite successful. Most of our farmers, however, still adhere to making butter; and some contend that, at the comparatively high prices which it has of late years sold for, it pays better than cheese. For raising calves or feeding swine, *butter milk* is certainly much more valuable than *whey*. Some of our farmers now sow or plant patches of corn to cut for green fodder for their cattle, when the extreme heat of summer affects the pastures, and find great advantage from so doing.

"In Gananoque, which may be considered the metropolis of this Electoral Division, manufacturing

is on the increase, and the following articles are now produced on a large scale, viz : carriage springs, carriage axles, carriage bolts, carriage wheel hubs and spokes, ploughs, spades, shovels, manure and hay forks, rakes, wheels and wheel heads, nails, hinges, scythe snaths, hames, sewing machines, castings and machinery of all kinds, wrenches, braces, cultivators, staves, barrels, mattress filling, leather, flour, sawed lumber, shingles, potash, etc."

The EAST MIDDLESEX Society united with that of the city of London in holding an exhibition, which was eminently successful.

"It was felt to be an experiment, and by many regarded as a very doubtful one, to offer upwards of \$2,000 in prizes, besides incurring heavy preliminary expenses, relying in a great measure on the admission fees for repayment. But we are happy to say that every vestige of doubt regarding success in future is entirely dispelled. The utmost confidence is felt, and freely expressed, that if Western Fairs in future are properly managed, they will be amply supported. The results of the show this year have demonstrated that the enterprise and ability of this district only require to be properly directed to maintain an exhibition worthy of the most fertile section of Ontario, and an honor to the whole Province.

"We believe there has been a steady improvement in the live stock of this County, and a marked improvement in the large number of reaping machines and other labor-saving implements, that have been purchased by the farmers of this section within the last year or two, thereby enabling them to secure their crops in better condition, and also giving them more time to make other improvements on the farm."

With reference to past difficulties of wheat culture, the report observes :—

"Farmers, warned by past failures, have almost universally sown the earlier varieties, such as the Treadwell and Mediterranean, which, although rather coarser in the grain, have the advantage of ripening soon enough to escape the midge. There was a large amount of spring wheat imported into this County last spring, for such of the so-called midge-proof varieties, and many of the farmers, presuming on the nature of the wheat to withstand the midge, sowed much earlier than usual. In such cases, the crop was generally destroyed. The conviction has forced itself on most minds that there is no kind of wheat midge-proof, and the farmer's only chance to secure a crop is by sowing fall wheat early enough, and spring wheat late enough, to avoid the season when the insect is most active."

SOUTH NORFOLK Society remarks :—

"We believe great improvement can be made by a well-regulated system of underground draining, particularly on the heavy soils. Our principal crops are wheat, oats, Indian corn, rye and buckwheat. All the root crops cultivated in the Province thrive well in this county. Wheat and barley are the most important crops, always commanding a ready market, at a fair price. Several hop yards have been made during the past two years, attended with such success, that hop growing is likely to be very generally resorted to.

"The great drawback to the farmer during the past few years has resulted from the ravages of the midge ; particularly in white wheat, the raising of

which this South Riding of the county is especially adapted.

"We are of opinion that early sowing, improved tillage and proper draining will in a great measure, overcome the difficulty, by bringing the crops earlier to maturity. Stock is susceptible of great improvement ; some good stock can be found in various parts of the riding, and we believe that, generally, the farmers are taking greater interest in this matter now than formerly.

"We believe our soil and climate are well adapted for the growing of fruit as any portion of the Province. Grapes, peaches, cherries, plums, all produce well here. Apples of all varieties, with proper cultivation, produce abundantly ; and, we have no doubt, can be raised so as to be highly remunerating. Vineyards on a small scale have already been planted, with every prospect of ultimate success. The riding abounds with living streams, and possesses unsurpassed water power, affording every facility for manufacturing purposes. A large woollen factory, at Port Dover, has been for some time in successful operation.

The NORTH OXFORD Society appears to be in a prosperous condition, and doing a good work. A large number of spectators attending the trials of reapers and mowers, in the comparative operations of which a great deal of interest was elicited. It was calculated that at least six thousand persons visited the exhibition, which was continued for two days. In the departments of live stock, grain and implements, it was, both in magnitude and quality much superior to any of its predecessors. Nearly 2,000 entries were made, and the awards amounted to \$750.

"These figures exhibit the North Riding of Oxford taking something like its proper position among the agricultural exhibitions of the Province. It has long stood high for its agricultural development and prosperity, but until lately it ranked low as regards its exhibitions. This, we are proud to say can no longer be predicated of it. With regard to the merits of the articles exhibited, it is no undue praise to pronounce them highly creditable to the county. It would be out of place here to notice in detail the many articles exhibited, or even those which carried off the prizes. The farm and dairy produce, however, demand a word of special commendation. The samples of grain were numerous and of surpassing quality. No less than 500 bushels tasked the patience and discerning skill of the experienced judges. The specimens of dairy produce were in every way worthy of the county's high reputation as a dairy district. The Directors would take this opportunity of again commending cheese manufacture as a branch of farming. Oxford is fast becoming the Cheshire, or Ayrshire, or Herkimer of Canada, and there is nothing that we are aware of to prevent it from rivaling those famed counties in the quality of its article. The beneficial influence of cheese dairying is already being experienced among us not only in its direct profitability, but in the yield per acre of grain, and in the enhanced value of our farm property. To Oxford farmers then we diffidently, yet confidently, address the council, continue to prosecute this new feature of Canadian husbandry, but do so in the exercise of a

wise discretion, remembering that too much cheese produces constipation in the market, and that the generality of farmers are the better of having more than one string to their bows. Another feature in the exhibition which it would be inexcusable not to mention, was the excellent, though not extensive, display of domestic manufactures. The production in this our county town and elsewhere of articles of household utility, refinement and luxury, such as were exhibited, evidences the mechanical skill of our tradesmen, and, at the same time, is a fair criterion of the commercial and agricultural prosperity of the district. Mutual dependence is a social law. The farmer cannot say to the mechanic, I have no need of thee, and the converse is equally true. Again, wealth creates wants, is another social law. These two ligaments of the social bond we are happy to say are in force among us, and long may Woodstock flourish by "God speeding the Plough." In this connection the Directors have much pleasure in gratefully acknowledging the many liberal donations in money and goods amounting to the sum of \$259, received from the merchants and tradesmen of Woodstock for the purpose of swelling the price list, and thus rendering the exhibition more attractive. Although some may say that their doing so is like "throwing out a sprat to catch a whale," we credit them with a more honorable motive, "the public good." No doubt it is their interest, according to the social law of mutual dependence, to further agricultural progress, yet, at the same time, there is a little doubt that those generous gifts were prompted by the desire to see in Woodstock an exhibition worthy of its position as the centre of a great agricultural district, and we have reason to know that they exulted in the success of the exhibition this year as much as farmers did themselves. Their continued co-operation in this patriotic endeavour is most respectfully and earnestly entreated."

Arts and Manufactures.

CHINA GRASS.

RHEEA, or, as it is commercially called, "*China Grass*," is a sort of succulent shrub, closely allied to the nettle, and has for some years been extensively cultivated in Assam and East Bengal. It grows so rapidly that it is cut for fibre four or five times a year, and requires, in suitable situations, little skill or labor in production.

The Chinese have for centuries made, by hand labor, various descriptions of "grass cloth" from this plant, well known both in Europe and America as possessing much strength and beauty. British manufacturers have at different times imported quantities of this grass, and endeavored to work it up by means of machinery, but until very recently with results anything but satisfactory,—heavy losses, in fact, having been often experienced. Within these few years, some have succeeded, by chemical means, in bringing the fibre into a state most closely resembling the best mohair or other bright worsted, and have worked up great quantities of the refined material as a substitute for worsted

in many kinds of stuff goods, always, however, in combination with cotton (the warp being of cotton and the weft of the China grass), as they have not been able to work it properly alone.

The grass manufacture in England is yet, of course, only in few hands, but its progress appears certain. The market value of the raw material is about £80 stg. a ton, with no immediate prospect that the supply will so exceed the demand as to lower materially present prices.

The Government of India, after communication with the various Agricultural and Horticultural Societies in that extensive portion of the British Empire, and with persons interested in the subject, has arrived at the conclusion that the only real obstacle to the development of an extensive trade in the fibre of China grass, is the want of suitable machinery for separating the fibre and bark from the stem, and the fibre from the bark, the cost of effecting such separation by manual labor being great. To stimulate the invention, or adaptation, of such machinery or process, the Government of India have offered a prize of £5,000 stg. for the machine and process that best fulfils all the requirements of the case.

It may be added that the China grass requires a moist and uniformly warm climate, the conditions necessary to the maturing of rice, cotton, and even sugar; and consequently its culture is precluded from this portion of the American continent.

EASY METHOD OF RESTORING JEWELRY TO ITS ORIGINAL LUSTRE.

MESRS. EDITORS,—Years ago, when electro-plating was first introduced into this country, I perceived, while experimenting on the new process, that cyanide of potassium was a valuable article for restoring the lustre of tarnished jewelry; but supposing that the fact must already have been revealed to the trade by the electro-platers, who could not be ignorant of it, I paid no further attention to the subject, beyond using the article in my own business.

About fifteen months ago, however, a gentlemanly-looking individual came into my store and offered to sell for five dollars a receipt for cleaning my goods, assuring me that it had been carefully prepared, under his direction, by a celebrated chemist.

Upon my declining to purchase, he became anxious for me to witness the effects of his mixture. The result, although not so decided as it should have been, was satisfactory, and the conviction flashed across my mind that I had my old acquaintance, the cyanide, before me. A smell at the mixture verified the fact.

"This is cyanide of potassium," I remarked.

"Cyanide is one of the ingredients," he replied, "the principal one; but there are four or five others. There is ammonia in it."

I doubted his assertion, but experience has taught me not to reject without a fair investigation even

doubtful information, because it is opposed to my pre-conceived opinions; so, although I refused to purchase his receipt, I willingly gave him an article to which he had taken a fancy for two of his vials. From a commercial point of view I was a loser by the transaction, but scientifically considered, a gainer, as it had led me to a series of experiments which confirmed my impression that a solution of cyanide of potassium in water—pure and simple—was equal if not superior to any compound that could be used, its action on the articles submitted to it being thorough and instantaneous. A piece of jewelry, so tarnished and dirty as to be unsaleable, immersed in it for a few seconds, then rinsed in clean water and dried, was as clean and bright as when it came from the manufactory. At first I hesitated about submitting costly pearls and coral to its action, but soon found that the lustre of the pearls, instead of being injured, was improved by the thorough cleaning of the settings around them; the same being the case with the coral, the liquid cleaning all those parts of the work which neither brush, buff, nor thread, could reach. Fine flagee and Tuscan work, French or fire gilt work, plated and galvanized goods, were equally benefited; the only articles which could not safely be dipped being those which washing would injure, namely, work with imitation pearls and paste gummed in, or with transparent stone mounted in close settings with foil behind. Locketts, and box and glass pins, can be done by removing the glasses.

When I kept a manufactory, I derived considerable profit from my wholesale and retail customers by cleaning their goods which had become tarnished and dirty by exposure. The work which then occupied a whole day can now be done by the new process in a couple of hours, the rouge and lathe being unnecessary.

Among the thousands of retail dealers scattered over the country, there are many to whom the process is still unknown. To them the knowledge of it will be valuable, as it will enable them to clean their own goods at a saving of both time and money. I therefore send it for the benefit of your readers, naming the smallest quantity of the material that can be used with advantage.

Dissolve one ounce of cyanide of potassium in three gills of soft water. Turn up the end of a piece of brass or iron wire into a hook. Attach to it the article to be cleaned, and immerse it in the solution, shaking it backward and forward for a second or two; then take it out, and rinse well in clean water. Wash it with warm water and soap to remove any film of cyanide that may remain; rinse again, dip into spirits of wine, and dry in boxwood sawdust. The advantage of dipping in spirits of wine is the immediate drying of the work without any sticking of the sawdust to it. When done with the solution, put it in a bottle and cork tightly. It may be used again and again for some months. Do not forget to label the bottle POISON.

One caution is necessary; do not bend over the solution so as to inhale its odour, nor dip the fingers in it; if one of the articles drops from the hook, better empty the solution into another vessel. The cyanide is a violent poison, and although there is no danger in cautiously using it, carelessly inhaling it is injurious, and its absorption through the pores of the skin even more so.—ALEXANDER ALLAN in *Scientific American*.

Hearth and Home.

FARMING FOR BOYS.

CHAPTER X.

HAVING A DOZEN FRIENDS.—KILLING A SNAKE.—CRUELTY
CONDEMNED.—LECTURE ON A WORM-FENCE.—VALUE
OF AGRICULTURAL FAIRS.—A RETURNED ADVENTURER.

The party soon took their departure. As this was the first time that Uncle Benny had been over Mr. Allen's farm, he was proportionately surprised at what he had seen there, and felt vexed with himself at having thus long overlooked so useful a school of instruction which stood open almost at his very door. But he treasured up the valuable hints he had received, and was ever ready to set before the Spangler boys the strong moral of the example they had so fortunately witnessed. The incidents of the afternoon formed the staple of their conversation during a slow homeward walk. Tony King had been powerfully impressed by them. They seemed to operate on his young mind as discouragements to hope, rather than as stimulants to perseverance and progress. He had let in the idea that the distance between his friendless condition and the prosperous one of Mr. Allen could never be overcome by any effort he could exert. In this frame of mind he suddenly exclaimed, looking up to Uncle Benny, "How I wish I had some friends to help me on!"

The old man stopped, surprised at this explosion of discontent, and replied by saying, "Tony, you have a dozen friends without appearing to know it."

"Who are they?" he eagerly inquired.

"Hold up your hands!" replied the old man. "Now count your fingers and thumbs. There! you have ten strong friends that you can't shake off. There are your two hands besides. What more had Mr. Allen, or the little pedler who sold you that knife? They began with no other friends, no more than you have, and see how they carved their way up. If you can't use this dozen of friends to help you on in the world also, it will be your own fault. It will be time enough for you to pray for friends, when you have discovered that those you were born with are not able to provide you with what you may need."

Before Tony could reply to this home thrust, a little garter-snake, only a few inches long, came running across their path, directly in front of the boys. Bill Spangler, observing it, cried out, "Kill him! Kill him!" and Tony also noticing the delicately striped little creature, as well as that it was hurrying out of the way as quickly as it could, instantly jumped upon it, and with his heavy boot stamped it to death at one blow.

Now, in most men, and certainly in all boys, there

seems to be an instinct that must be born with them, which impels them to kill a snake whenever he happens to come within reach of boot or stick. If not a natural instinct, descending to them from our first mother, it must be one of those universal propensities that boys learn from each other with the ready aptitude of youth, and with a sanguinary alacrity. It is another great illustration of the strength of the imitative faculty among our boys. It is of no moment what may be the true character of the poor wriggler that happens to cross their path, whether venomous or harmless: the fact of its being a snake is enough, and if they can so contrive it, it must die.

It was this propensity that caused Bill, the youngest of the three, to shout instantly for the death of the little garter-snake, and impelled Tony to spring forward, with sympathetic promptness, and stamp its life out. There was not a moment's pause for thought as to whether the creature were not in some way useful to man, nor had either of the boys been taught to remember that, even if a living thing were of no use, there was still room in the world for both them and it. Hence, no sooner had the snake come within sight than its fate was sealed.

Uncle Benny did not belong to that class of men who think themselves justified in killing insects or reptiles wantonly, merely because they happen to be disagreeable objects to look upon. The slaughter of the poor snake had been accomplished with so much suddenness that he had no time to interpose a good word in its behalf, or he would have gladly spoken it. The act was therefore a real grief to him, not only from pity for the harmless creature whose body still writhed with muscular activity, even after consciousness of suffering had departed, but because it showed a propensity for inflicting needless pain on the unoffending brute creation, which he had never before seen developed in these boys.

"That was very wrong, boys," said the old man; "that snake did you no harm, nor could it injure any one. On the contrary, these field snakes of our country are the farmer's friends. They devour insects, mice, and other enemies to the crops, but never destroy our fruits. They do not poison when they bite. They are not *your* snakes,—you did not give them life, and you have no right to take it away. There is room enough in the world for all living things that have been created, without a single one of them being in your way. Now get up here."

Saying this, he mounted himself on a huge rider of Spangler's worm fence, and, when the boys were all seated beside him, produced a newspaper from his pocket, and, observing that he was going to give them an extract from a lecture of the Rev. Mr.

Beecher, proceeded to read the following appropriate sentences:—

"A wanton destruction of insects, simply because they are insects, without question as to their habits, without inquiry as to their mischievousness, for no other reason than that wherever we see an insect we are accustomed to destroy it, is wrong. We have no right to seek their destruction if they be harmless. And yet we rear our children without any conscience, and without any instruction whatever toward these weaker creatures in God's world. Our only thought of an insect is that it is something to be broomed or trod on. There is a vague idea that naturalists sometimes pin them to the wall, for some reason that they probably know; but that there is any right, or rule, or law that binds us toward God's minor creatures, scarcely enters into our conception.

"A spider in our dwelling is out of place, and the broom is a sceptre that rightly sweeps him away; but in the pasture, where he belongs, and you do not,—where he is of no inconvenience, and does no mischief,—where his webs are but tables spread for his own food,—where he follows his own instincts in catching insects for his livelihood, as you do yours in destroying everything, almost, that lives, for your livelihood,—why should you destroy him there, in his brief hour of happiness? And yet, wherever you see a spider, 'Hit him!' is the law of life.

"Upturn a stone in the field. You shall find a city unawares. Dwelling together in peace are a score of different insects. Worms draw in their nimble heads from the dazzling light. Swift shoot shining black bugs back to covert. Ants swarm with feverish agility, and bear away their eggs. Now sit quietly down and watch the enginery and economy that are laid open to your view. Trace the canals or highways through which their traffic has been carried. See what strange conditions of life are going on before you. Feel, at last, sympathy for something that is not a reflection of yourself. Learn to be interested without egotism. But no, the first impulse of rational men, educated to despise insects and God's minor works, is to seek another stone, and, with kindled eye, pound these thoroughfares of harmless insect life until all is utterly destroyed. And if we leave them and go our way, we have a sort of lingering sense that we have fallen somewhat short of our duty. The most universal and the most unreasoning destroyer is man, who symbolizes death better than any other thing.

"I, too, learned this murderous pleasure in my boyhood. Through long years I have tried to train myself out of it; and at last I have unlearned it. I love, in summer, to seek the solitary hillside,—

that is less solitary than even the crowded city,—and, waiting till my intrusion has ceased to alarm, watch the wonderful ways of life which a kind God has poured abroad with such profusion. And I am not ashamed to confess that the leaves of that great book of revelation which God opens every morning, and spreads in the valleys, on the hills, and in the forests, is rich with marvellous lessons that I could read nowhere else. And often things have taught me what words had failed to teach. Yea, the words of revelation have themselves been interpreted to my understanding by the things that I have seen in the solitudes of populous nature. I love to feel my relation to every part of animated nature. I try to go back to that simplicity of Paradise in which man walked, to be sure at the head of the animal kingdom, but not bloody, desperate, cruel, crushing whatever was not useful to him. I love to feel that my relationship to God gives me a right to look sympathetically upon all that God nourishes. In his bitterness, Job declared, 'I have said to the worm, Thou art my mother and my sister.' We may not say this; but I surely say to all living things in God's creation, 'I am your elder brother, and the almoner of God's bounty to you. Being his son, I too have a right to look with beneficence upon your little lives, even as the greater Father does.'

"A wanton disregard of life and happiness toward the insect kingdom tends to produce carelessness of the happiness of animal life everywhere. I do not mean to say that a man who would needlessly crush a fly would therefore slay a man; but I do mean to say that that moral constitution out of which springs kindness is hindered by that which wantonly destroys happiness anywhere. Men make the beasts of burden, that minister to life and comfort, the objects, frequently, of attention that distresses them, or of neglect that is more cruel. And I hold that a man who wantonly would destroy insect life, or would destroy the comfort of the animal that serves him, is prepared to be inhuman towards the lower forms of human life. The inhumanity of man to animals has become shocking. I scarcely pass through the streets of Brooklyn or New York, that I do not behold monstrous and wanton cruelty. There are things done to animals that should send a man to prison every day of our lives. And it is high time that there should be associations formed here to maintain decency and kindness toward the brute creation, as there have been formed in Paris and London, and almost all civilized countries except our own. Cruelty to animals tends to cruelty to men. The fact is, that all those invasions of life and happiness which are educating men to an indulgence of their passions, to a disregard of God's work, to a low and base view of creation, to a love

of destructiveness, and to a disposition that carries with it cruelty and suffering, and that it is hindered from breaking out only by fear and selfishness, lead to a disregard of labor and the laborer. The nature which they beget will catch man in his sharp necessities, and mercilessly coerce him to the benefit of the strong and the spoiling of the weak. And it is the interest of the poor man, and the oppressed man, that there should be a Christianity that shall teach men to regard the whole animated kingdom below themselves as God's kingdom, and as having rights—minor and lower rights, but *rights*—before God and before man."

"You see, boys," continued Uncle Benny, "what this gentleman thinks and says on this subject, and I trust you will remember, hereafter, that all God's creatures have as perfect a right to live in his world as you have."

There was a peculiarity of Uncle Benny's mode of correcting the bad habits of the boys,—he was careful to avoid a continual fault-finding. His idea was that rebukes should always be couched in soft words, but fortified with hard arguments, and that, to make censure most effectual, it should be mixed with a little praise, whenever it was possible to smuggle it in.

Somebody has said that, "when a fault is discovered, it is well to look up a virtue to keep it company." This was Uncle Benny's view of things. In fact, he was generally as careful to express approbation of good behavior as disapprobation of that which was bad. He believed that any one could do a casual act of good nature, but that a continuation of such acts showed good-nature to be a part of the temperament, and that even a temper or disposition which was naturally sweet and equable might be soured and made morose and petulant by incessant fault-finding.

Hence he was never guilty of a regular scolding, but preferred persuasion, with an effort to convince the judgment by argument, and illustrations drawn from facts so plain that they could not be denied. His practice was thus found to be so different from the discipline of their father's kitchen, that they bore any amount of the old man's pleading and argumentation without ever becoming ruffled in temper or tired of listening. But his frequent readings were probably the most popular part of the many discourses he felt called upon to deliver to them.

When this last one was finished, they all got down from the worm fence and continued their way. It had been an eventful afternoon for the boys. They were continually speaking of the novelties they had seen, and wondered how it happened they had never known of them until now,

though living only two miles away, and resolved not only to go again, but to get Uncle Benny to take them to some other farms in the neighborhood, that they might see what was going on there also. They felt that they had learned much from this single visit, and presumed that visiting in a wider circle would be equally instructive.

Uncle Benny said, in reply to this, that he was glad to see they were thinking so sensibly, and to find that their curiosity had been sharpened. He would gratify it as far as might be in his power. He told them the way to acquire knowledge was to go in search for it, as neither knowledge nor profit came to a man except as the result of some form of effort to obtain it. He explained to them that it was for the purpose of disseminating knowledge among farmers that agricultural fairs were annually held all over the country. They had never attended any, but he would tell them that they were great gatherings of farmers and others who had something to exhibit or to sell. Thousands of people attended these fairs, some for amusement only, but hundreds came to see if any new or improved machine was on exhibition, or a better stock of cows, or sheep, or pigs, or fowls, or a fine horse, or any superior variety of fruit or vegetables. If they saw what pleased them, they were pretty sure to buy it. At any rate, they did not fail to learn something valuable, even if they made no purchase. They saw, gathered up in a small compass, what was going on in the farmer's world, and this within a single day or two. Thus they accumulated a fund of knowledge which they could not have acquired had they remained at home.

On the other hand, these county fairs were quite as advantageous to the parties who thus brought their machines, or stock, or vegetables to be exhibited. Many of them manufactured the machines to sell, and so brought them where they knew there would be a crowd of farmers in attendance. It was just so with other articles exhibited. There were customers for everything on the ground. Even those who came to make sales were benefited in other ways. They made new and profitable acquaintances. This gave them a knowledge of men which they could not have acquired had they not gone to the fair in search of it. Thus there was an extensive interchange of information and ideas between man and man, for no one could be expected to know everything. Hence such gatherings as these county fairs were highly beneficial to the farming and manufacturing community; and it might be set down as a good rule, that a farmer who felt so little interest in his business as never to attend an agricultural fair would commonly be found far in the background as regarded progress and improvement.

"Could n't you take us to a fair, Uncle Benny?" inquired Tony.

"Certainly," replied the old man, "if we can get permission."

"And won't we take Nancy and the pigs?" demanded Bill.

"Yes," interrupted Tony; "somebody will buy them and give a good price."

"Sell Nancy?" demanded Bill, with a fire unusual to him. "You sha'n't do it. I won't have Nancy sold."

"Well, never mind Nancy," responded Tony "we'll take the pigs and the pigeons."

"Not all of them, anyhow," replied Bill, almost beginning to cry at the mere mention of letting Nancy go, while the dispute went on in so animated a style as to fairly startle the old man.

"Stop, boys," he interposed. "There is time enough for all this. There is no hurry about the matter. The fair will not be held for several months yet, and you don't know whether Mr. Spangler will let us go. Wait a little longer, and I will settle this thing for you."

The mere suggestion of their not being permitted to go to the fair was an effectual check to this unusual effervescence, and the whole party relapsed into silence. But from this they were presently roused by the near approach of a traveller, whom they had noticed for some time in the road before them. No one appeared to recognize him; but when he came within hailing distance of the company he took off an old cap, waved it over his head, and shouted, "Hurrah! Uncle Benny! Back again to Jersey!"

The party were taken by surprise, but when the speaker came close up to them they saw who he was.

"Why, that's Frank Smith, sure enough. I didn't know him," exclaimed Joe Spangler; and then there was a crowding up to him and a general recognition and shaking of hands.

"Why, Frank," said Uncle Benny, "we're glad to see you. Did you say you'd come back to Jersey? But what's the matter? What's brought you back?"

"Got enough of New York,—sick of the dirty place, and never want to see it again," he replied. "Put me among the Allens once more, and blame me if you ever catch me quitting the farm as long as I live. I'm pretty near to it now. How nice it looks! Tony, don't you ever think of going to New York."

Here was a most unexpected conclusion to their afternoon's diversion. The boy before them, Frank Smith, was a lad of fifteen, an active, intelligent, ambitious fellow, an orphan nephew of Mr. Allen, who had been taken by his uncle, when only ten

years old, to be brought up as a farmer. He had been clothed and educated as his cousins, but for two or three years his mind had been bent on trying his fortune in the great city. No persuasion could wean him from his darling project, and becoming restless and dispirited under what he considered the monotonous routine of the farm, Mr. Allen finally yielded to his importunities, and permitted him, the Christmas previous, to try for himself how much better he could succeed in New York. He fitted him out respectably, paid his fare on the railroad, and gave him a little purse of money with which to keep him clear of actual suffering until some profitable employment should offer. Thus equipped, he plunged into the great city, having learned no trade but that of farming, with only a general idea of what he was to do, and without a solitary acquaintance among the thousands who were already fighting the battle of life within its densely crowded thoroughfares.

He had been gone for months; but in all that time he had written but one or two letters home, and they said nothing that was encouraging, though they contained no complaints. The last one did say, however, that he would n't mind being back on the farm. It was clear, thought Mr. Allen, that he had been disappointed, and was not doing much. But as Frank had been told, when leaving home, that he was welcome to return whenever he had enough of the city, no pressing invitation was sent, in reply, for him to come back. It was thought best to let him sow all his wild oats at once. His pride being strong, he could not bring himself to the mortifying position of admitting, by turning about and coming home, that he had committed a grave mistake, until driven to it by absolute suffering. So he held out until holding out longer became dangerous, and there he stood in the highway, like a prodigal son returning to the parental household.

He went away with new clothes, clean linen, and a robust frame. He was now shabby, dirty, ragged, and his features indicated slender rations of food. It was this changed appearance that prevented the boys from recognizing their old friend until he was close upon them. He had travelled all the way from New York on foot, yet his step grew lighter and more elastic the nearer he came to his old home. Of course there was a world of questions as to how he liked New York, what he had been doing there, whether he made any money, why he came back, and every other conceivable topic or inquiry that could suddenly occur to the minds of three raw country boys.

Frank was in no hurry to leave his friends for home, as it was now in sight, and he felt himself already there. Neither did he seem at all unwilling

to give them as much as he then could of his adventures in the city, and so replied to their numerous enquiries as fully as he was able to. He was a frank, open-hearted fellow, without a particle of false pride about him, and so admitted from the beginning that he had made the greatest mistake of his life in insisting upon leaving the farm. He even called himself a great fool for having done so. But after all, he thought it might be a good thing that he made the trial, as it taught him many things that he never would have believed possible unless he had gone through them for himself, and was a lesson that would be useful to him as long as he lived.

Though in reality he had but little to tell that would interest older folks, yet to the boys his story was particularly attractive. Going into a great city with no friends, but little money, and without a trade, he could find nothing but chance jobs to do. The merchants and shopkeepers refused to employ him, because he was a stranger, with none to recommend him for honest. When they found he was fresh from a farm, some said at once he was not the boy for them,—they wanted one who knew something. Others advised him to go home as quickly as he could, but not one offered to help him. He occasionally picked up a shilling by working along the wharves, but it was among a low, vicious, and profane set of men and boys, with whom it was very hard for him to be compelled to associate. Then he tried being a newsboy, bought papers at the printing-offices, and sold them about the streets and hotels, and other public places. But here he met with so many rebuffs, and was so often caught with a pile of unsold papers on his hands, that he found the business paid him no certain profit. The city boys seemed sharper and quicker, and invariably did better, some of them even saving money, and helping to support their aged or sick parents.

He went through a variety of other experiences that were very trying to a boy of his spirit, but, though exerting himself to the utmost, he made no encouraging headway. One of his greatest trials was being compelled to associate with a low, swearing, drinking class of people, and to live in mean and comfortless boarding houses because they were cheap. He never had a dollar to spare or to lay up. It required all he could make to keep him alive. As his clothes became worn and ragged, he was not able to obtain better ones. Still he was too proud to write home what he was undergoing, as he knew he had brought it on himself, and that it was exactly what his uncle had said would be likely to overtake him. Yet he was conscious of gradually becoming reconciled to the low and immoral set

around him, so different from those among whom he had been brought up.

One day, when in company with some of his associates, newsboys and boot-blacks, Frank saw a gentleman drop his pocket-book on the pavement. He ran instantly and picked it up, and was about following the loser to restore it to him, when his comrades stopped him, telling him he should do no such a thing,—that they had a share in it, as they were with him, and he must divide the money with them. The bare idea of stealing had never before crossed Frank's mind; but now that it was suggested, with the property of another actually in his hands, which he could appropriate without fear of discovery, he felt the temptation to steal it come over his thoughts. But it was only for a moment. The early teachings of a virtuous home were not to be thus suddenly forgotten. Breaking away from his dishonest companions, he ran after the gentleman and restored him the pocket-book, and was soundly abused by the others for doing so.

But Frank was so thoroughly alarmed by feeling that he had thus been tempted to become a thief, and so fearful that, if he continued to associate with thieves he would soon become one, that he resolved not to stay another day in New York. Even if he had but a hard time there, his integrity was yet sound, his conscience clear, and he meant to keep it so. As he owned nothing but the old clothes in which he stood, it was an easy matter to leave the city; so the next morning he started for home, with a few crackers in one pocket and a huge sausage in the other, but with the light heart of youth, made lighter still by the consciousness that strength had been mercifully given him to overcome a strong temptation. It was a two days' tramp even for his active limbs, but he went on joyously, and was never in better spirits than when he encountered the Spangler party in the road.

"But wouldn't you have got rich if you had stayed longer?" inquired Tony. "A great many poor boys in New York have become rich men."

"I don't believe it, Tony King," replied Frank. "Where there's one who gets rich, there are twenty that go to the dogs,—that get drunk, or lie and steal, or sleep in boxes and hogsheds on the streets, and turn out vagabonds. I thought just as you think, that all the poor boys make money, and wouldn't believe my uncle when he told me that life in the city was the worst lottery in the world. But I've found it just as he said, only enough worse. Now, Tony, you want to go to the city, I know you do: you and I talked it over before I went, and you want to go now. But if you don't stay where you are, you're a bigger fool than I was. You'll never catch me again leaving the farm to cry newspapers

and black boots in the streets. I'm made for something better than that."

With this sensible admonition Frank bade his friends good by, and started off on a half-run for his uncle's house, as if impatient for the surprise which he knew his sudden appearance would occasion among the family. Uncle Benny was not sorry that his three boys had received the full benefit of Frank's experience of city life, nor could he regret the tattered dress in which he had presented himself before them, as, if it were possible for eloquence to be found in rags, every one that hung about him became a persuasive witness to the truth of the experience he had related.

CHAPTER XI.

MISMANAGING A HORSE.—VALUE OF AN INCH OF RAIN.

—PLANTING A TREE.—VALUE OF SHARP HOES.—
A TREE-PEDLER.—HOW PLANTS GROW.

One of the striking results of the boys' visit to their neighbor's model farm was the change of conversation in the Spangler family. When they came in to their meals, they talked continually of what they had seen there, and when out at work there was no end to the references to what had somehow become a sort of standard for their imitation. Uncle Benny was therefore careful to encourage all the good resolutions which his pupils seemed insensibly to be making, as well as to answer the crowd of new questions that were put to him at every turn. The boys could not help making comparisons between the general neatness of the Allen farm and the squalid condition of their own; and they were not slow in endeavoring to copy their neighbor's, though their opportunities for doing so were not very great.

Farmer Spangler was of necessity obliged to listen to numerous discussions, in which his neighbor's superior management was so highly extolled and his own so much condemned. Luckily for all, Spangler was a man of few words, and hence was a capital listener. He very seldom replied to any attack on his management,—as much because of his habitual taciturnity as from a conviction that was insensibly taking possession of him, that there must be some truth in what was said. Generally, Uncle Benny was quite moderate in his depreciation of Spangler's style of farming, as he was unwilling to give offence. But there were occasions, such as when he witnessed some gross departure from good management, or some example that would be really injurious to the boys, and then he would explain himself to Spangler's especial benefit. But even then he talked at Spangler over the boys' shoulders; that is, though he addressed his words to them, he

was really intending them for the father. In this way he could drop hints in much sharper language than if he had spoken to the man himself. Spangler took no offence at these side thrusts, and rarely made any reply.

On one occasion, when the latter was putting a young and skittish horse to the wagon, he threw the harness suddenly and with great violence on its back, instead of gently placing it there. The timid creature, not yet accustomed to being harnessed, shrunk back and became quite unmanageable, and ended by treading on the wagon-shaft, which he broke in two. Seeing this, Spangler became enraged, and gave the horse a violent kick in the side. Uncle Benny and the boys were standing by, and saw it all.

"That will never do," said the old man, addressing the boys, but loud enough for Spangler to hear,

"A horse should never be kicked, or even punished. It is gentle treatment alone that makes a horse valuable, and cruel treatment makes him worthless. We Americans abuse our horses more unfeelingly than any other people, and control them through fear of us instead of love for us. Even the unchristianized Arabs never abuse their horses, nor do the Chinese ever punish theirs. 'As obstinate as a mule,' is a common expression; but a mule is not naturally obstinate, but is made so by being educated to bad treatment. The mule, which, in the hands of most Americans, would be not only useless, but dangerous to all who came near him, would, in the hands of a Chinaman, become quiet as a lamb and tractable as a dog. A vicious, jibing, or runaway mule is almost unknown among the Chinese, because of the uniform gentleness with which they treat them. They educate all other domestic animals by the same rule, securing obedience through the agency of love instead of fear. Cattle, pigs, ducks, and birds are equally cared for. These dumb beasts have sensibilities and affections as well as ourselves. Never let me see a horse kicked by any of you. A hired man who should kick *my* horse, or beat him with a shovel, as is often done, should be turned off immediately."

"That must be the reason why our Nancy and the pigs like me so well," added Bill Spangler when the old man had concluded. "I curry them up, and never scold them, and they come to me just like a dog."

"Yes," replied Uncle Benny. "the law of kindness operates as strongly on the brute creation as it does on human hearts. The man who is truly merciful will always be merciful to the dumb, dependent creatures around him."

This accident to the wagon-shaft delayed Spangler a whole hour in starting for Trenton, because, as he had but one wagon, the damage must in some way

be repaired. It was so broken that nailing would not answer; so they tied the shaft round with a small horse-blanket, and kept that in its place by ropes and straps, and with this unsightly contrivance Spangler drove off for Trenton. There was no real necessity for his going, even before the breakdown; but then there was to be a vendue, or auction sale, of household goods and farming utensils, and though he had no occasion to purchase any of them, yet he thought it would be well for him to be there, "just to see how they sold." There are some people in this world who have a passion for attending fanerals, and one of Spangler's fancies was for attending vendues, no matter how much home business he might neglect by going.

All this happened just after dinner, in the month of June, when there were strong indications of a thunder-gust. But off Spangler went, and, as Uncle Benny had expected, the gust broke upon him while he was on the road, and gave him a complete drenching. Of course it drove all hands into their usual place of refuge,—the barn; and there they sat while the rain poured down in torrents. It was the first good rain there had been for two weeks, and was much wanted by the farming community. It poured down so heavily, and continued so long, that Uncle Benny observed, "There must be at least an inch of this rain."

"What is an inch of rain?" inquired Joe Spangler, looking through a knot-hole in the side of the barn, over a great pond that had been suddenly filled by the shower. "I should say it was a foot."

"Well, boys," replied the old man, "an inch of rain don't mean the water that is collected in puddles where the ground happens to be full of holes, but that which falls on a level all over the land. Now, when this shower is over, look into the bucket out by the pump,—I remember it was empty when the rain began,—and whatever depth of water you may find in it will be the extent of the rain-fall. This is what we call a rain-gauge; and it is by having so simple a contrivance at all times in use that observing men, who watch the clouds and the weather, have been able to prove that about as much rain falls in one year as in another. Thus, if we have long spells of dry weather, they are succeeded by heavy rains, and thus very extraordinary rains are followed by long dry spells, making the rain-fall of many years average about the same."

"But an inch of rain don't sound much, though it looks to be a great deal," exclaimed Tony King.

"Why, Tony," replied Uncle Benny, "an inch of rain weighs more than a hundred tons to the acre, and is equal to nearly twenty-three thousand gallons. A watering-pot must have a big nozzle to discharge that quantity in an hour, as the clouds often do for

us. This rain will be worth a great many thousands of dollars to the farmers about here, especially if it should be followed by really fine weather.

"Fine weather," he continued, "is a wonderful thing for the farmer!—next among his blessings to the Divine promise that seed-time and harvest should never fail. A single day of sunshine is considered worth ten millions of dollars to the farming interest of England in a season of doubtful harvests. There is said, in Europe at least, to be more war in a day's rain than in the ill-temper of the most quarrelsome monarch, and more peace in a morning's sunshine than even in a treaty of commerce; because people, having their time occupied and their stomachs full, have neither leisure nor disposition to quarrel."

"What can be the use of so much rain, Uncle Benny?"

"Use?" returned the old man; "it has a thousand uses. Water is the great nourishment and stimulant of vegetation. Some plants will seem to live on water alone, neither needing nor receiving manure beyond what nature enables them to gather from the water below and the air above. Take one of your corn-hills as an illustration. The cornstalk stands exactly where it grew. It spreads its roots all around, but does not change its place. As it cannot travel about in search of food, such as it may need must therefore be brought to it. Who is to do this? Not you, because you supposed you had done all that was necessary when you planted the grain. It is water, the rain-water, that performs this important office of bringing to the plant the food which has been deposited in the soil. A mere sprinkle will not do this; it must be just such a soaking shower as we are now having. Besides, water dissolves many substances which exist in the air as food for plants,—so graciously has Heaven provided,—and then, when these are brought into the soil by rains, they there come in contact with another set of substances which the plants require also, and the whole being thus combined and liquefied with water, they constitute the very food by which vegetation lives and grows. The water, thus saturated with vegetable food, travels along under ground, feeding the plants which Providence requires to remain stationary. This is one of the great uses of so much rain."

The next morning being bright and sunny, the old man piloted the boys into the two-acre cornfield they had planted. On the way thither they passed under a fine Mayduke cherry-tree, then loaded with delicious fruit. The rain and wind had shaken off quantities of cherries, which lay upon the ground. These the boys stopped to gather and eat, spitting out the stones in every direction. Noticing their actions, Uncle Benny spoke up: "Boys, when I was

in Spain, I learned a proverb which has been in use in that country for centuries,—'He who plants trees loves others besides himself.' It means, that, as it takes nearly a lifetime for many trees to grow and produce fruit, the chance is that he who plants the tree will hardly live long enough to eat the product, and that he must therefore love those who are to come after him, or he would not plant trees of whose fruits they are more likely to partake than he. Now, whenever a Spaniard eats a peach, or cherry, or a pear by the roadside, he works out a little hole in the ground with his foot, and plants the stone; he thinks of those who are to come after him,—he loves others besides himself. It is a thank-offering to the memory of the kind soul by whom the tree was planted from which he has just eaten. Hence the roadsides through that beautiful country are lined with abundance of the most tempting fruits, free to every one. Boys, not one of you has ever planted a tree. I shall never live to gather the fruit, but all of you may be spared to do so. It is our duty to leave the world as good at least as we found it,—better if we can. I have no good opinion of the fellow who is content to snore under the shadow of a noble shade-tree without planting another for the next generation to enjoy, or to eat the fruit from trees which others have planted, without at some time imitating their example. The sooner one sows, the sooner will lie reap. There, boys, right along the fence, two or three for each of you."

Each boy struck his heel into the soft ground, made a slight hole, dropped into it a couple of cherry-stones, covered them over, and pressed down the earth with his foot. It was certainly a very small affair, but it was nevertheless something for the boys. Each one could not help feeling that he had done a good deed, for he had planted a tree.

"O," exclaimed the old man, "what a country this would be if every owner of a farm would go and do likewise! The roadsides would everywhere be lined with noble trees, glorious to look upon, grateful in their shadiness, and affording bountiful harvests of delightful fruit,* free to the passing traveller, and yielding a profusion even to the birds. There would be plenty of fruit for all. Even the thieves who now prey upon the fruit-growers would have no further inducement to steal."

Finding the ground too wet for hoeing, they deferred that operation for a week, when Tony ran twice over the cornfield with the cultivator, to mellow up the ground and cut off the weeds. Then all hands turned in with hoes to clean up the rows and give the corn its first hilling. Before undertaking this, Uncle Benny had brought a large file from his tool-chest, with which he had sharpened up the boys' hoes to such an edge as had never before been

seen on Spangler's farm. The hoes were great, clumsy things, unfit for the hands of a small boy; but they shaved off the weeds with so much ease that the excessive weight of the tool was forgotten in the sharpness of the edge. Instead of two or three chops being required to cut up a stout weed, a single clip went clean through it. There could be no doubt that the trifling work of filing enabled the boys to get over two or three times as much ground as if they had been working with dull hoes. There was a real economy of time in thus beginning right, besides comfort, and a thorough execution done upon the weeds.

The whole party worked together, each taking a row. Uncle Benny, having an old back, which he knew would very soon begin to ache if he should stoop much, had provided himself with a long-handled hoe. This enabling him to work without stooping, he flourished it about among the weeds so actively as to surprise the boys, who observed moreover, that the old man contrived somehow to keep a little ahead of them all. Between the sharp hoes and the full force of hoers, the weeds had a poor chance of surviving that day.

Presently the youngest boy, Bill, while chopping vigorously at a thistle, struck his hoe violently against a stone. He was about repeating the blow, when the old man called out to him to stop and examine his hoe. Bill did so, and found a great indentation had been made in the edge. The other boys of course came round to see what was the matter, and they too saw how the keen edge of the tool had been turned by the blow against the stone.

"Now, Bill," said Uncle Benny, "pick up the stone, put it in your pocket, and when you get to the end of the row we'll put it under the fence, where you may be sure it will not be likely to dull your hoe a second time. All of you must do the same with the stones or broken bricks or oyster-shells you meet with, as I won't have anything on this ground big enough to dull a hoe. If you calculate on having sharp tools, you must keep the ground clear."

Such careful management was new to the boys, but they had equally been strangers to the luxury of a sharp hoe. Dull hoes, and plenty of brickbats to strike against, were regular incidents of their early agricultural education, and they now thought this new lesson of Uncle Benny was one of the queerest he had ever taught them. But they soon discovered there was something to be gained, for, on coming out at the end of his row, each boy found that he had three or four shells or stones in his pocket, all which were carefully placed under the bottom rail of the fence.

As all farm laborers have an hour allowed them for dinner, there was time, after that meal, for

Uncle Benny to sharpen their hoes again. The morning's experience had made each boy a full convert to the new doctrine. Indeed, as they were taking up the line of march for the cornfield, for the afternoon's work, Tony inquired of the old man if it would n't be a good thing to put the file in his pocket and bring it along;—the hoes might want sharpening again before night. During the afternoon's work there was a good deal of slashing among the stones, and an occasional demand for the file to retouch the hoes, which quite pleased the old man.

Well, after worrying through some rows that were much fouler than the others, the parties drew up to the fence, and Uncle Benny proceeded to file up the hoes for the second time that afternoon. He could see no actual necessity for doing so, but thought it could do no harm to gratify the boys. While thus engaged, with his hoe resting on the fence, which ran along the public road, a stranger stepped up, and inquired if he would like to buy some trees or grape-vines. At the same moment he opened a large book which he carried in his hand, and, resting it on the top rail of the fence, displayed a highly colored picture of a bunch of grapes, larger and finer in appearance than had ever been seen by any of the party. They all gathered round the book, as the man ran over the leaves with just enough deliberation to afford a full view of the magnificent specimens it contained. There were great bunches of peaches, apples, plums, cherries, currants, and other fruits, colored up and set off in just such a style as would be likely to tempt every one who examined them to become a purchaser.

Uncle Benny took the book in his hand, and made a long examination, during which the stranger was very lavish of his praise of each specimen as it fell under the old man's eye. Then addressing the stranger, he inquired, "Did you raise all these trees?"

"O no," was the reply, "my business is to sell them."

"Where were they grown?" inquired Uncle Benny.

"Well, a good way off," answered the stranger.

"But can't you tell us where they were cultivated, and who is the nurseryman?" continued Uncle Benny.

"Well, not often," was the answer.

"No," rejoined the shrewd old man; "I don't think we want to buy anything from a nurseryman who is ashamed of his name."

He closed the book, returned it to the stranger, and resumed his business of touching up the hoes. When the stranger was fairly out of hearing, the

old man addressed the boys: "This man is what is known as a tree-pedler. Now, Tony, if ever you get a farm of your own, take care how you buy anything from a tree-pedler. Things sold by these fellows are generally considered cheap because the price is low. But what is thus called a cheap tree or vine is the very dearest thing you can buy. You can't get a really valuable article without paying for it a fair price. Plants that are sold at an excessively low price should be avoided, as they invariably have some defect about them. They have either been badly grown, or been stunted, or have a poor supply of roots, or they are the refuse of a nursery which has been bought up by a pedler, to be worked off among the farmers. Especially you should never touch a plant, even as a gift, when the seller refuses to tell you where or by whom it was grown."

"But that was nice fruit that he showed in his book," interrupted Tony.

"O yes," replied Uncle Benny, "they looked very well on paper, like many other impositions. They sounded very cheap also,—peach-trees at three dollars a hundred, when the price is usually ten or twelve. Now, suppose I were to set out a hundred of these trees, saving five or six dollars in the price, and, after cultivating them two or three years, should then discover that, instead of their producing the fine fruit that was promised, it was scarcely good enough for the pigs? There would be the loss of at least two years' time and labor, and all the money I had paid, besides the vexation which every one feels on discovering that he has been cheated. It would be even worse in the case of pear-trees, for there one has to wait longer for them to come into bearing. By saving ten cents in the purchase of a tree, he may find that, instead of the Bartlett he bargained for, he has been cheated into the purchase and cultivation of a choke-pear. It is the poorest sort of economy to buy cheap trees; and it is sometimes dangerous to get them, even at full prices, from persons in whose character you do not have full confidence. But there are others who think just as I do on the subject, as I will show you.

Taking from his pocket a number of "The Country Gentlemen," he read to them the following article:—

"No man can obtain anything valuable without paying its full price. If he makes a purchase of a fine horse for a small sum he will probably find that the horse has some hidden disease,—heaves, founder, spavin, ringbone,—or else that he has obtained the name of a cheating horse-dealer, which is still more undesirable. If he attempts to build a house at a lower contract price than the builder can afford it, he will ultimately discover that a good deal of bad material has been used, or that he has a long string of extras, which, by dexterous contrivance, have been thrust in. It is so in buying fruit-trees. If a purchaser finds a lot offered at low retail prices, he will probably discover them to have been badly cultivated, neglected, moss-covered, or to have been carelessly dug up, with chopped roots,—or to consist of some unsaleable varieties, or to have been poorly packed, or the roots left

exposed till they have become dry and good for nothing.

"Now, suppose a purchase is made of one of these trees at five cents below the regular market price among the best nurserymen. The owner congratulates himself on having effected a saving of the sum of five cents. Let us see how much he is likely to lose. If the tree is stunted, it will be at least three years before it can attain the vigor of its thrifty compeer. In other words, he sells three years of growth, three years of attention, if it gets any, three years of occupancy of the ground, and three years of delayed expectations, for the sum of five cents. Or suppose the tree has been purchased below price because it is the last in a pedler's wagon, and has been dried or frozen. The owner pays for the tree, digs a hole, and sets it out; it will probably die,—in which case he loses what he has paid, the labor expended, and one year of lost time and expectation. He has gained nothing. If the tree lives, the former estimate will then apply. Or, again, suppose that he buys a tree, and saves five cents, as aforesaid, because the quality, or the sort, or the honesty of the dealer, as to the genuineness, may be questionable. After several years of waiting and labor, it turns out to be a poor sort, and the tree continues to bear this poor fruit for thirty years to come. The fruit, being unsaleable, will probably bring no more than ten cents a bushel. In thirty years the annual crop will be about three bushels, or ninety bushels in all, equal to nine dollars total value. But if, instead of this miserable specimen, the purchaser procures a tree at full price, and one of the most productive and marketable varieties, the crop will always sell in market at twenty-five, and sometimes fifty cents a bushel; and for the whole thirty years will average at least eight bushels annually,—sixty dollars for the thirty years, at the lowest computation. There is a loss of fifty-one dollars made by purchasing the cheap tree, all for the sake of saving five cents."

While the hoeing of this cornfield was going on, there was continual opportunity for observing the difference in growth of that end of the rows which received the drainage from the barn-yard. The plants were double the height of the others, and there was a deep, rank green that was nowhere else perceptible. Here too the weeds grew taller and stouter, as well as more abundantly. Uncle Benny had always taught the boys that the greatness of a farmer's crop was not to be measured by the number of his acres, but by the thoroughness with which he enriched his land and the care bestowed upon the crop. His theory was to put a large amount of labor on a small amount of land. The two-acre cornfield was an excellent illustration of his theories. The boys saw for themselves that in that portion which received the washing from the barn-yard they would have a far greater crop than from the other portion, because of the full supply of manure which it received. Whenever he came to a remarkably fine hill of corn, the old man would tell them that the earth was really of no use except to afford a standing-place for plants while the farmer was feeding them, and that money laid out in manure must not be considered as money lost, because it always reproduced itself in the crop. He rarely gave chemical reasons, or used scientific terms, as the boys had no knowledge of them.

But he explained how it was that plants acquired their growth. The earth kept them in an upright

position, but they grow feeding on the fertilizing materials added to the soil from water, and from the air which surrounded them. Both air and water were indispensable; hence the necessity for rain, and for the continued stirring up of the soil by harrowing the surface, so that the air should penetrate to the roots, and the water in a heavy shower, should soak into the ground, instead of running off and wetting only the surface. Thus, if the day's hoeing was useful to the growing crop, it was made equally instructive to the minds of the boys, for a practical lecture was delivered on the spot, with fact and illustration united. Lessons thus learned are usually the most instructive, as well as most likely to be remembered.

When the day's work was done, the old man sat down upon the stump of an apple-tree to rest, the boys gathering about him, and Tony asked, "Uncle Benny, how much money can an acre of ground be made to produce?"

"Ah," replied the old man, "you ask me too much. It would require a great book to answer that question, and even then it would be only half answered. I do not think the capacity of an acre of ground has ever been ascertained. You do not put the question in the right way. It is not the acre that produces the crop, but the man who cultivates the acre. All agricultural history is full of instances of this being the case. There are families who starve on fifty acres, while there are others who live comfortable on one or two. But another time we'll look a little further into this question, for it is one that a farmer's boy should have answered as promptly as possible. There are grown-up people, too, who would be benefited by examining the subject more closely than they have been in the habit of doing."

[To be Continued.]

Music.

ROLL, JORDAN, ROLL,

1. Roll, Jordan, roll, Thy foaming waters roll a-long; No ill fear, for Christ is near, His rod and staff are strong; My
 2. Roll, Jordan, roll, Thy foaming waters roll a-long; Be-yond thee lies fair Paradise, Where Christ's redeemed belong, Tho'

Lord will meet me on the shore, When heart and flesh shall fail; His presence dear my soul will cheer, When deep in Jordan's vale.
 sin and Satan join their pow'rs, To plunge me in the deep, The raging foe cannot o'erthrow, The soul that Christ doth keep.

CHORUS.
 Oh I saw'thy the Jordan rolls, Its billows are dashing on the shore; He'll bid the tide abase its pride, And bring me safely o'er.

3. Roll, Jordan, roll,
 Thy foaming waters roll along;
 The hosts of God thy bed have trod,
 With trumpet and with song;
 It's through thy waves with pomp divine
 The fiery pillar passed,
 In days of yore, and brought them o'er,
 To Canaan's land at last
 CHORUS.

4. Roll, Jordan, roll,
 Thy foaming waters roll along;
 Both young and old thy billows cold
 A-wild, y' count'less throng;
 Through fear of death through tremblers lie
 In danger all their life,
 My soul aspires with warm desires,
 In thee to end its strife.
 CHORUS.