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**Crop Prospect.**

Since our last issue the weather has been cold, in fact, we never remember having so little growth at this season.— We write this on the 20th of May. Yesterday we were on the farm; our boys were throwing straw from the remains of a straw stack, and cattle were eating it, the hay being all consumed; in this part of the country there is barely enough for the working teams, \$26 per ton having been paid by farmers in some instances, and farmers who have never purchased before have gone 20 miles in quest of it.— Cattle are thin; some have died, and there will be a scarcity of early beef this year; there is not yet a bite for cattle except in very favored situations. The fall wheat does not look as well as when the snow left it; some has been killed since, and the stooing process has not progressed as usual, on account of the continued cold.

The old meadows, we think, will cut but a light crop. The newly sown grasses have taken pretty well; the cold and damp weather has rather been favorable for them than otherwise. The cool weather has also been favorable for the working teams. The spring seeding has been well done, with some few exceptions, where the ground has been worked without giving it time to dry after the rains. We think the spring crops look promising and that the fall wheat will be about an average.

Potatoes will not be as extensively planted here as usual: the variety principally planted will be the Early Rose. The potato bugs will be thick; they are now found in numbers in the old potato ground and other favorable situations. The only way to save the potatoes from destruction will be a continual dusting of the vines with Paris Green or other poisonous ingredients. One pound of Paris Green is found to be strong enough to mix with 30 pounds of plaster, and from 60 to 100 lbs. of the mixture is found sufficient for an acre. We think the plants will require five or more dressings with the poisonous mixtures during the season. Buckwheat is recommended as being of great benefit as a protection to the potato vines, if sown in slips in the potato field or about the field. We have not tried it, but have read beneficial accounts from parties having practiced it.

WE ARE in receipt of some numbers of the *Poultry World*, which we can heartily commend to the poultry fanciers of Canada. It is well illustrated, and the articles are full of good, valuable information.— Address H. H. Stoddard, publisher *Poultry World*, Hartford, Conn. Terms, \$1 per annum.

**Agricultural Emporium.**

A preliminary meeting of the provisional directors of the Ontario Agricultural Emporium was held in the City Hall, London, on the 17th of May. It was decided to ask the readers of the *Farmers' Advocate* the following questions and request as many of them as possible to reply to the first question and any others you may see fit:—

1st.—Do you desire to take one or more shares in the Agricultural Emporium of Ontario?

2nd.—What peculiar advantages has your locality to offer for such an institution, as no decision has yet been arrived at as to what county the Emporium will be established in?

3rd.—What man in your locality would be most peculiarly fit for a director for such an institution?

4th.—How much stock do you suppose will be subscribed for in your neighborhood, and what are the names of such men as would be likely to take stock and be an advantage to the company by their membership.

Address your letters to *Farmers' Advocate*, London.

**Stock.**

Mr. Jno. Mason, of this city, has just returned from England. He brings four entire, yearling, heavy draft colts. We think his plan is a good one to import young stock; there is not so much danger or risk in bringing animals when young, as when matured.

Mr. R. Gibson, of London Township, is just about leaving for England for more stock. His last importations were much admired at the last Exhibition.

**Correction.**

In our notice of movements of live stock in May number, we ought to have said Mr. Peter Rennie, of Garafraxa, instead of Mr. Wm. Rennie, of Lyons, sold a beast for Easter at the rate of 10 cents per pound, on foot. The weight was 2500 lbs., making the neat little sum of \$250 for one animal.

WE WOULD call the attention of those wishing to procure Short Horn stock to Mr. Thomson's advertisement in another part of this paper. His previous sale gave so much satisfaction that those who purchased then will most likely purchase more there, if they require stock of that kind. We have known many sales, but few gave more general satisfaction than Mr. Thomson's. Send for his catalogue and see what he offers.

**Flax Seed, Oil Cake, &c.**

SIR,—On reading your article on Flax Seed, Oil Cake, &c., from A. F. Blenheim, it occurred to me that an extract from the *British American Cultivator*, published in 1846, would show how true the remarks then made of what Canada could produce, were:—

"The profits that might be made from flax and hemp growing, and manufacturing the fibre of these plants into the various articles required for domestic use, and also the preparation of the fibre for foreign markets, would be sufficient in a few years to place this country in a position entirely independent of other countries, as far as monetary matters are concerned. At least one million of pounds sterling might be realized annually from this single source, besides supplying our own country with upwards of one hundred thousand pounds worth of hemp and flaxen goods annually.

"Flax and Seed might be made an extensive article of export to the British Isles, for the purpose of crushing into oil and for sowing. The manufacture of Linseed oil might be made a considerable item of profit to this country, but probably it would pay better for sowing, so soon as the superior quality of our seed becomes generally known in the British markets. The more we have become acquainted with the flax and hemp crop, the better have we become convinced of its profitability and general adaptation to this country. We have no idea of urging the farmers to engage in this business, but we shall set an example, which, if they follow, they will never have reason to regret.—*B. A. Cultivator*, Aug. 1846.

Light lands are not remunerative for flax, but on rather heavy soils and reclaimed swamp, it is profitable if hands can be got to work it at the proper season. I tried it on an acre of drained willow swamp, and took the prize for it at the County Show. T. B., Stratheden.

Mr. Barnum, the noted showman, intends sending his monster exhibition to the principal towns and cities in Canada in the month of July. This, we believe, will be the largest and best menagerie and exhibition of curiosities that has ever been in Canada. Let the children see the procession at least—the old folks need not be too fastidious. We know from experience that we like to see a good display, despite our age and old-time notions.

Useful industry does not so much consist in being continually busy, as in doing promptly those things which are of the first importance, and which, will eventually prove most profitable.



### The Canadian Agricultural Emporium.

To the Farmers of Canada and Gentlemen Interested in the Agricultural Prosperity of our Dominion:—

Agriculture is and must be the mainstay of our country; to attain our proper position, our interests and our rights, it is necessary that we should be more united. All other businesses, professions, and powers are united.

Our weakness in advancing our interests consists in our lack of union; consequently, we are made subservient to all others. We are compelled to pay for all without receiving our just rights and position.—We have now obtained a charter (see in another part of this paper) which enables us to unite. Union is strength. Orators used to sway the public mind, but the press is now admitted to be a greater power.

It was considered impossible to establish or maintain a paper unless supported and maintained by a political party or sect; but this notion is now dispersed.—Your paper, the FARMER'S ADVOCATE, has now stood the test of over seven years, and has maintained its independent course. No one can say that it has been subservient to any political party or sect; the broad gauge of agricultural interests has been its principle. It has been true to its name, the Farmers' Advocate, and its object has been to establish a beneficial institution. Its pages can be referred to—exposing many measures injurious to the agricultural interests and advancing many that have been deemed of advantage. Ask yourselves did this paper do a good service in exposing the mismanagement of the old Board of Agriculture?—that it did good service in preventing the centralization of the Provincial Exhibition at one place?—that it did a good service in disseminating the Midge Proof wheat, the Deihl, the Treadwell and the Scott wheats, and the new varieties of potatoes, Crown Peas, Bug Proof Peas, &c., &c.?—has it done good in advocating a large agricultural representation in our Legislative halls?—has it done good in advocating the necessity and utility of an Agricultural Emporium for the introduction and dissemination of seeds, stock and implements, and affording a place where agricultural information can be obtained both for young and old?

The late Government endorsed the ideas and adopted the plans, and the present Government accepts them by carrying them into execution. But do we farmers accept them? yes, but not as a Government institution, unless we are ruled by party political feelings.

The Government may yet consider the steps taken by the Council and restore or repay to this Association its just and honest rights.

We do not ask the Government to tax us for the support of an institution to check private enterprise. We say that our agricultural affairs should be in the farmers' hands. Our Agricultural Societies can unite, our farmers can aid them. Our Government might have beneficially aided these struggling Agricultural Societies—the small and the large Societies. The farmers and gentlemen interested in our general prosperity would unite and carry on all importations, tests and educational agriculture that might be necessary.

The late Minister of Agriculture promised to aid the Canadian Agricultural Emporium; the present Minister of Agriculture said he would do nothing to injure this institution.

The Charter has now been granted with and by the consent of both the present and late Ministry and Ministers of Agriculture, and politicians on both sides.—The Agricultural Emporium Company will be placed in the hands and under the power, control and management of those that may become stockholders in it. An opportunity will be offered to 1250 of you

to take a share. If that number of single shares are not taken up, those wishing more shares may have the privilege of taking them. These gentlemen will from among themselves appoint their directors to manage and conduct the business as they may deem best. The paper now established, and having a larger circulation than any other agricultural paper in Canada, may, on the approval of the directors, become the property of this company.—There are many who may see the advantages to be derived from this institution, and be desirous or willing to participate in the undertaking and perhaps become directors, managers or agents, as they all have to be appointed.

Surely we farmers can select from among ourselves such men as we feel confident will manage the institution to our advantage. The present Board is only provisionally appointed: the general Board will be elected by and from the stockholders, and all will have the same opportunity of having a voice in the institution.

#### PROSPECTS OF A PROFITABLE INVESTMENT.

It is expected that the municipality in which the institution is established will allow it to be free from taxation; also, it may grant a sum of money towards its establishment.

It is further expected that the Government may make it a grant, as the institution has been a public benefit and has already done great service to the country, or the Government may yet see that it would be advantageous to them and to the country generally to place their Agricultural Farm under the control of this company. It is also expected that the R. R. Company or Companies on whose line or lines it may be established will grant a special rate for traffic and for passengers to and from the institution.

A handsome profit will be made from the sale of seeds, plants and roots that will be raised on the farm or garden; also a handsome profit from the sale of stock, as it is contemplated keeping stock on the farm for sale at all times. Implement manufacturers would be willing to supply the institution with machinery on the most advantageous terms. Transactions would be carried on with both England and the States in stock, seeds, &c.

A paper published weekly, semi-monthly or monthly would furnish the country with the most reliable agricultural information. The present paper, although it had a hard struggle at first and for many years, has now become a profitable and valuable property, and considered by many to be the best paying paper in Canada. It can be improved, and its power and profits increased. Agents from all parts of Canada would gladly unite to deal with this institution.

Farmers, shall we unite and tax ourselves at first, or remain deserver to be taxed involuntarily and continually to carry out these plans of information to farmers? Be up and doing: every man in his own neighborhood. Let us reasonably, rightly and properly ask for our rights as farmers; let us have the control of our agricultural affairs. It would be better for us and for the country, and take an immense amount of care and expense from the legislators, who now have enough to do.

MONTREAL is now the second commercial city on the continent of America, New York being the first. There is also one important difference between the two cities. The Western carrying trade, on which its wealth and prosperity so largely depend, is steadily decreasing in New York, while that of Montreal is rapidly increasing. The trade of Chicago and the lakes is being gradually diverted from this city to the St. Lawrence, with the result of increasing the trade of the harbour of Montreal beyond its capacity to accommodate it. There are now forty-one steamships plying regularly between Montreal and Great Britain, besides a large number of transient steamers.—N. Y. Bulletin.

### Garden and Farm.

#### HINTS FOR THE MONTH.

Every month in the year has its peculiar pleasures, but none comes fraught with joys more delightful than the balmy month of June. The garden and forest are luxuriant with their tens of thousands of blossoms of every charming hue, and the air is laden with their perfumes. The busy bee revels in their sweet stores as she gathers from their fragrant cups their rich store of honey. To the birds the season seems one of more than ordinary pleasure, joyful in its present and rich in its promises for the autumn.

But we must not forget that even June with all its pleasures calls on us to be attentive to our business. No profession demands more constant attention to the duties of every varying season more than agriculture, and its twin sister, horticulture; but we farmers have a blessing denied to others.—Our labors in the midst of the beauties of the country are a source of good health, and hearty, robust strength. The loved old haying season has always been a pleasant time. The ringing peals of laughter from the hay-makers and the fragrance of the new mown hay we did delight in.

Well, let us first go to the fields; here there is plenty of work to be done. Your potatoes have all been planted, but there is no time to be lost in preparing for the last of the root crop. Have your ground thoroughly prepared to have your turnips sown in the middle of the month. The last winter has been enough to convince the most heedless and doubting of the necessity of having plenty of provender for their farm stock.—Let not another hard winter catch us unprepared. The farmer who, having such opportunities in providing for the winter a sufficiency of such valuable cattle provender as turnips, mangolds, &c., and neglects providing them, will not find the keeping of cattle very profitable. Let the culture of root crops every year be a part of your regular farm course. Mangolds may also be still sown.

Corn for soiling may still be planted. It will give you a seasonable and abundant food for your stock when they need it, and not suffer the profits to fall away when the pastures become scorched and bare.

Millet and Hungarian grass may be sown in the early days of the month. They will be found useful for green feeding and for hay, if needed. They yield heavy crops.

Weeds must be attended to. Remember the old adage—"Ill weeds grow apace."—Keep them down; do not let them be drawing from the soil the nutriment that the crops need. Neglected weeds are a disgrace to the occupier of a rod of ground. Of the slothful man it is said:

"I passed by his garden and saw the wild brier,  
The thorn and the thistle grow higher and higher."

The cultivator and hoe will effectually keep down weeds among your drilled crops; but this is not enough. Every little corner—angles of the fields, strips along the fields—even the road sides should not be suffered to be the nursery for weeds. "One year's seeding is ten year's weeding." Let all weeds be cut down or dug up, and carted to the manure pit; then covered with muck and the droppings from cattle, and enriched by the soap suds, there will be a good beginning for the manure heap for your next year's crop.

Prepare the barns and sheds now before you have immediate need for them. Time will be too precious to be given to those preparations when the haying and harvesting are on you. Get ready your scythes, forks, rakes and cradles.

The Dairy claims especial notice this month. June is a great butter month. The butter made now is highly prized. The luxuriant richness of the pastures impart their richness and flavour to the cream and butter. We hope Canadian butter will no longer bear the bad name attached to it from careless handling, but will bear a character befitting our soil and climate.

Orchards must not be neglected in the hurry of agricultural business. The soil should be well cultivated. Ground freshly and often turned up in the summer inhales from the atmosphere with the moisture continued supplies of ammonia. Let a liberal supply of well rotted manure be mixed from time to time with the soil. Young trees need mulching to ensure their doing well. Examine your trees to see that the borer is not

making his way into the wood. It is easiest to eradicate him early in his work of mischief.

The garden requires a good deal of attention in June. Cabbages, cauliflowers, tomatoes and celery are to be transplanted. Beans, peas, lettuce and radishes should be sown at intervals of eight or ten days, to have them in a succession, affording a regular supply.—Gooseberry and currant bushes should be watched, and if the insects that, preying on their leaves, deprive us of these highly valued fruits, make their appearance, give them a slight sprinkling of hellebore. Fresh lime is by some recommended for this purpose; but we have never found lime or any other remedy so effectual as hellebore.

Cucumber and melon plants are apt to be destroyed by the striped bug unless well watched and protected. They may be got rid of by scattering ashes, lime or plaster over the plants, and also by being picked off by the hand.

#### THE TURNIP FLY.

From an article on turnip insects in England, by James Hardy, in *Newman's Entomology*.

During the summer of 1870 the turnip beetle, or "fly" (*Halica Nemorum*) has been a complete scourge throughout the border counties. Turnips might be sown early or very late, in either extreme there was no palliative, so long as draught prevailed; and plants, insufficient in force for the maintenance of the devouring myriads, kept up merely a feeble and struggling existence. It was only through the advent of showers long delayed, and a mild atmosphere, that the crops got established, and at length out-grew their persistent persecutors; for not only did they swarm on the seed lobes, but continued to perforate the foliage and delay the growth long after the plants were singled out, some even lingering in the fields till there were sizeable turnips.

Near the seaside the damage was not so great as further inland. My own Swedes did not require to be re-sown; but, as for the white turnips, it was by mere dint of persevering sowing that the ground got covered at all. Some parts of the fields here produce wild mustard, or "runch" (*Sinapis arvensis*). This was found to be a great preservative to the young turnip plants, in allowing them to assume the rough leaf unbiten. The beetles took as readily to the mustard as to the turnip, it being their natural food; and I noticed that when the Swedes were nearly forward for thinning, the mustard obtained the preference. Owing to this, although the insects in some places lay on plants like gunpowder, after side-hoeing and thinning the blanks were very few. I have heard that in other places, where mustard is in the soil, this also happened; so that it is not an unmitigated evil, being, in such seasons as the present, equivalent to thick sowing in fields not liable to this weed.

The turnip leaves were remarkably free from caterpillars; even the small caterpillar of the diamond moth was absent. In a few spots bordering the outcrop of rocks, which had supplied several breeding places, I had a space of secure yards breadth entirely eaten off by carwings. They stripped the leaves after the plants were thinned, leaving only the skeleton ribs; weeds and potatoes all went in the same way, till some change took place, perhaps the acquisition of wings by the young broods, when the nuisance abated. They fed only at night, and used to hide during the day in the soil, the fork at the tail being visible here and there at the surface, or clustered under clods or small stones. The workers killed numbers with their hoes, and for a few days the rooks and jackdaws held a high feast over the spot. This happened also at the sunny side of stone walls, the turnip leaves being holed for some distance off.

At an auction sale recently held in the County of Lambton, near Sarnia, a flock of 28 Leicester sheep was sold for \$433. The highest price received for any one pair was \$42.

A curious malady affects the potato in the neighborhood of Poitiers. The tuber, as sound and as nutritive as could be desired, instead of putting forth a robust shoot, develops from each eye a long slender filament of the thickness of a pack thread, which soon disappears when planted, the tuber itself decaying afterwards. Such potatoes are called "mules," from their unproductiveness.



An Act to Incorporate "The Agricultural Emporium of Ontario."

PREAMBLE.

WHEREAS William Weld, of the City of London, in the County of Middlesex; John Kennedy, of the Township of London; Henry Anderson, of the Township of Westminster; James Anderson, of the same place; John Pincombe, of the same place; Abdal G. Deadman, of the Township of Delaware; John Geary, of the City of London; William George of the Township of Westminster; Lucian McNames, of the same place; Frederick C. Rogers, of the Village of Delaware; Alfred Hebblethwaite, of the Township of London; Thomas W. Dyas, of the City of London, and others have by their petition applied for an Act of incorporation to enable them to establish a model agricultural or testing farm in the Province of Ontario; and whereas it is expedient to grant the prayer of the said petition:

Therefore Her Majesty, by and with the advice and consent of the Legislative Assembly of the Province of Ontario, enacts as follows:

1. CERTAIN PERSONS INCORPORATED—NAME AND SEAL.

William Weld, John Kennedy, Henry Anderson, James Anderson, John Pincombe, Abdal G. Deadman, John Geary, William George, Lucian McNames, Frederick C. Rogers, Alfred Hebblethwaite, Thomas W. Dyas, and such other person or persons, bodies corporate or politic, as shall become shareholders in the corporation hereby incorporated, are hereby constituted and declared to be a body corporate and politic by and under the name of "The Agricultural Emporium of Ontario;" and the said corporation shall have a corporate seal.

2. OBJECTS OF COMPANY.

The said corporation is hereby constituted for the purpose of establishing a model agricultural or testing farm, with power to import and export grains, seeds, roots, plants, fruit trees, shrubs, fruit, horses, cattle, sheep, pigs, poultry, agricultural and horticultural implements, manures, feed or medicine for horses and cattle; and the purchasing and vending thereof; and the purchasing and vending of all other the products of the forest, farm, dairy and garden; and the manufacture of farm and garden implements and all other machinery; to instruct and furnish information to farmers and others in agriculture; the dissemination of agricultural, mechanical and other useful information by means of publishing an agricultural newspaper or otherwise.

3. CORPORATION MAY HOLD LANDS.

The said corporation may purchase, acquire, lease, hold, use and enjoy for the purposes of said corporation, such stores, warehouses, offices and lands not exceeding one thousand acres, and make such improvements thereon and thereto as may be deemed advisable, or that may be requisite for the purposes of said corporation.

4. CAPITAL STOCK AND SHARES—APPLICATION OF CAPITAL.

The capital stock of the said corporation shall be twenty-five thousand dollars in twelve hundred and fifty shares of twenty dollars each, which stock shall be subscribed by such persons and corporations as may become shareholders in the said corporation; and the money so raised shall be applied in the first place to the payment of all fees, expenses and disbursements for procuring the passing of this Act and all the rest and residue of the said money shall be applied towards acquiring the real and personal property required in the undertaking and business of the said corporation.

5. INCREASE OF CAPITAL STOCK.

The directors of the corporation, if they see fit at any time after the whole capital stock shall have been subscribed and paid in, but not sooner, may make a by-law for increasing the capital stock of the corporation to any amount not exceeding one hundred thousand dollars, which they may consider requisite in order to the carrying out of the object of the corporation; such by-law shall declare the number and amount of the shares of the new stock.

6. SUCH BY-LAW TO BE SANCTIONED BY SHAREHOLDERS.

No by-law for increasing the capital stock of the corporation shall have any force or effect whatever until after it shall be sanctioned by a vote of not less than three-fourths in value of the shareholders at a general meeting of the corporation duly called for considering the same.

7. PROVISIONAL DIRECTORS AND THEIR POWERS.

William Weld, John Kennedy, Henry Anderson, James Anderson, John Pincombe, Abdal G. Deadman, John Geary, William George, Lucian McNames, Frederick C. Rogers, Alfred Hebblethwaite and Thomas W. Dyas, named

in the first section of this Act are hereby constituted the board of provisional directors of the said corporation, a majority of whom shall be a quorum; and the said provisional board of directors shall hold office under this Act; and shall have power to open stock-books and procure subscriptions of stock for the undertaking, and to receive payment of the amount of stock subscribed, and to make calls upon such subscribers in respect of their stock, and generally to do all matters and things necessary for the full organization and working of the corporation.

8. FIRST GENERAL MEETING FOR ELECTION OF DIRECTORS—WHO MAY VOTE AT SAME—TERM OF OFFICE OF DIRECTORS.

When and so soon as the shares to the amount of fifteen thousand dollars of the capital stock of the company have been subscribed for, and twenty per centum thereon has been paid, the provisional board of directors shall call a general meeting of the shareholders of the corporation at the City of London for the election of directors of the corporation, giving at least ten days' notice of the time, place and purpose of the meeting previously thereto, in some newspaper published at or near as may be to the place of such meeting, and at the said meeting the shareholders who shall have subscribed stock in the books of the corporation, and paid twenty per centum thereon, shall elect not less than three nor more than five persons qualified as hereinafter provided, to be directors of the corporation, which persons shall constitute the board of directors of the corporation, and shall hold office until the first Monday in April next.

9. ANNUAL GENERAL MEETING.

On the first Monday of April in each year thereafter there shall be a general meeting held at the principal office of the said corporation or at such other place as may from time to time be appointed by by-laws of the said corporation, within the Province of Ontario, at which meeting the shareholders shall elect such number of directors, not less than three nor more than five, as may be determined on or by-law of the said corporation in the manner and qualified as hereinafter provided, and due notice of such a nual general meeting, and due notice shall be given by written notice being forwarded to the address of each shareholder at least ten days before the day of such meeting.

10. DIRECTORS TO BE ELECTED BY BALLOT—QUALIFICATION OF DIRECTORS.

The election of directors shall be by ballot, each shareholder being entitled to as many votes as he, she or they have shares in the corporation; and the persons so elected if qualified as hereinafter provided shall form the board of directors of the corporation; but no person shall be so elected unless he is a shareholder owning stock absolutely in his own right and not in arrears in respect of any calls thereon, and may vote in person or by proxy.

11. FAILURE TO ELECT DIRECTORS—HOW REMEDIED.

If at any time an election of directors be not made or do not take effect at the proper time, the corporation shall not be held to be thereby dissolved, but such election may take place at any general meeting of the shareholders called for that purpose, and the retiring directors shall continue in office until their successors be appointed.

12. WHO MAY VOTE AT MEETINGS.

No shareholder shall be qualified to vote at any meeting in respect of any share unless all calls made thereon at the time of such meeting shall have been paid.

13. QUORUM OF DIRECTORS.

At all meetings of the board of directors a majority of the members of the board shall form a quorum for the transaction of business, and the board may employ one or more of their number as paid directors.

14. CHAIRMAN, OFFICERS OF THE COMPANY.

The directors shall elect from amongst themselves a chairman, and the corporation shall also have such subordinate officers as the by-laws thereof require.

15. OFFICERS TO GIVE SECURITY.

The subordinate officers shall be appointed by the directors and required to give such security for the faithful performance of the duties of their respective offices as may be provided by the by-laws of the corporation.

16. BY-LAWS.

The directors of the said corporation may make such by-laws as they deem proper;

- 1. For the management and disposition of the stock business of the corporation;
- 2. For the appointment of officers and prescribing their duties and the duties of all artificers and servants who may be employed by and for carrying on all kinds of business within the objects and purposes of the corporation; and
- 3. For the amending, altering or repealing any by-law of the corporation.

17. EVIDENCE OF BY-LAWS.

A copy of any by-law of the corporation purporting to be under the hand of the chairman of the corporation or other officers and having the corporate seal of the corporation affixed to it shall be received as *prima facie* evidence of such by-laws in all the courts of law or equity in this Province.

18. CALLS ON STOCK—FORFEITURE.

The directors of the said corporation may call in and demand from the shareholders thereof respectively all sums of money by them subscribed at such times and in such payments or instalments as may be provided in accordance with any by-law of the corporation; payment shall be made by the shareholders within sixty days after a personal demand or after notice requiring such payment has been published for six successive weeks in a newspaper published in the place where the business of the corporation is carried on as aforesaid, under the penalty of forfeiting the shares of stock subscribed for and all previous payments made thereon.

19. PAYMENT OF CALLS.

The said corporation shall have power to enforce the payment of all calls on the capital stock subscribed by action in any of the courts of law; and in any such action it shall be competent for any of the shareholders to be examined as a witness on behalf of the plaintiff.

20. STOCK BOOK.

The directors of the corporation shall cause a book to be kept containing in alphabetical order the names of all persons who are or have been shareholders of the corporation and shewing:

- 1. Their place of residence;
- 2. The number of shares of stock held by them respectively;
- 3. The time when they respectively became the owners of the shares, and
- 4. A statement of all the existing debts and liabilities of the corporation, and of the amount of its stock actually paid in.

21. DIRECTORS—THEIR POWERS AND DUTIES—CONFIRMATION OF BY-LAWS—PROVISO FOR CALLING SPECIAL GENERAL MEETING.

The directors of the corporation shall have full power in all things to administer the affairs of the corporation, and may make, or cause to be made, for the corporation, any description of contract which the corporation may, by law, enter into; and may, from time to time, make by-laws not contrary to law nor to this Act, for the calling of meetings, regular and special, of the board of directors and of the shareholders, the requirements as to proxies and the procedure in all things at such meetings; and the place or places where the business of the corporation other than farming shall be carried on; and generally all such by-laws as shall appear to them proper and necessary, touching the well ordering and conduct in all other particulars of the affairs of the corporation; and may from time to time, repeal, amend and re-enact the same; but no such by-law nor any repeal, amendments or re-enactment thereof, except for the purpose of regulating the working of the said corporation, the appointment, functions, duties and removal of officers and servants of the corporation, the security to be given by them to the corporation, and their remuneration, shall have any force or effect, until confirmed at the annual general or special meeting called for the purpose of taking the same into consideration, and confirming or annulling the same, and in default of confirmation thereof, shall be of no force or effect; Provided always, that one-fourth part in value of the shareholders of the corporation shall, at all times have the right to call a special meeting thereof, for the transaction of any business specified in such written requisition and notice as they may issue to that effect.

22. STOCK PERSONAL PROPERTY.

The stock of the corporation shall be deemed personal estate and shall be transferable in such manner only, and subject to all such conditions as by this Act, or by-laws of the corporation are or shall be prescribed.

23. ENFORCEMENT OF PAYMENT OF CALLS BY ACTION.

The said corporation may enforce payment of all calls and interest thereon, by action in any competent court, and in such action it shall not be necessary to set forth the special matter, but it shall be sufficient to declare that the defendant is the holder of one share or more, stating the number of shares, and is indebted in the sum of money to which the calls in arrears amount, in respect of one call or more upon one share or more, stating the number of calls and the amount of each, whereby an action hath accrued to the corporation under this Act; and a certificate under seal and purporting to be signed by the chairman or any officer of the corporation, to the effect that the defendant is a shareholder, that such call or calls has, or have been made, and that so much is due by him, her or them and unpaid thereon, shall be received in all courts of law or equity as *prima facie* evidence to that effect.

24. SHAREHOLDERS IN ARREAR NOT TO VOTE.

No shareholder being in arrears in respect of any call, shall be entitled to vote at any meeting of the said corporation.

25. CONTRACTS BY CORPORATION.

Every contract, agreement, engagement, or bargain made, and every bill of exchange drawn, accepted or endorsed, and every promissory note and cheque made by the chairman of the corporation, and countersigned by two other directors or such officers of the corporation as may be by by-law authorized to perform such or the like duties, and under the authority of a majority of a quorum of the directors shall be binding on the said corporation; and every such promissory note or bill of exchange shall be presumed to have been made by proper authority until the contrary be shown; and in no case shall it be necessary to have the seal of the corporation affixed to any such contract, agreement, engagement, bargain, bill of exchange, promissory note or cheque; nor shall the said chairman, directors or other officers be thereby subjected individually to any liability whatever to any third party therefor; Provided that nothing in this Act shall be construed to authorize the said corporation to issue any note payable to the bearer thereof, or any promissory note intended to be circulated as money, or as the note of a bank, or to engage in the business of banking or insurance.

26. LIABILITY OF SHAREHOLDERS.

Each shareholder, until the whole amount of his stock has been paid up, shall be individually liable to the creditors of the corporation to an amount equal to that not paid up thereon, but shall not be liable to an action therefor by any creditor until an execution against the corporation has been returned unsatisfied in whole or in part; and the amount of stock not paid up with costs shall be the sum recoverable against such shareholder.

27. LIABILITY OF SHAREHOLDERS LIMITED.

The shareholders of the said corporation shall not as such be held responsible for any act, default or liability whatsoever of the corporation, or for any engagement, claim, payment, loan, injury, transaction, matter or thing whatsoever related to or connected with the said corporation, beyond the amount of their respective shares in the capital stock thereof.

28. LIABILITY OF SHAREHOLDERS.

The shareholders of the corporation shall be jointly and severally individually liable for all debts due and owing to any of the labourers, servants and employees thereof for services performed for such corporation; but no shareholder shall be personally liable in the foregoing or any other of the cases in which personal liability is imposed by this Act for the payment of any debt contracted by the corporation, which is not to be paid within one year from the time the debt is contracted, nor unless a suit for the collection of such debt be brought against the corporation within one year after the debt became due; and no suit shall be brought against any shareholder for any debt so contracted, unless the same be commenced within one year from the time he ceased to be a shareholder in the said corporation nor until an execution against the corporation has been returned unsatisfied in whole or in part.

29. POWER TO BORROW MONEY—PROVISOS.

The directors of the corporation are hereby authorized and empowered from time to time to borrow for the purposes of the corporation any sum of money, and for the repayment of the money borrowed and the payment of the interest thereon, to mortgage the real or personal estate or both of said corporation; Provided always that the consent of two-thirds in value of the shareholders of the corporation shall be first had and obtained at a special meeting to be called and held for that purpose; Provided also that the said corporation shall not be authorized at any time to borrow a sum exceeding one-half the amount of the capital stock then paid up.

30. MUNICIPAL CORPORATIONS MAY TAKE STOCK.

Any municipal corporation may take and subscribe for stock in the said corporation.

31. MUNICIPAL CORPORATION MAY EXEMPT PROPERTY OF CORPORATION FROM TAXES.

The municipal corporation in which the said corporation shall establish their model farm, may in their discretion exempt the lands and personal property connected therewith from the payment of all taxes and municipal rates so long as the said land shall be used as such model farm.

THERE is a great tide of emigration to the Red River Valley and Manitoba, and it is confidently predicted that they will soon become two of the garden spots of the Continent. As an indication of the productiveness of the soil, the fact may be mentioned that fifty bushels of wheat to an acre have been raised in Manitoba this year, and the grain of the best quality.





AGRICULTURAL.

APPLYING LAND PLASTER.

Seeing an enquiry from E. E. Morse, when to sow land plaster on corn, wheat and clover, I will give my experience and observation for his and others' benefit.

Corn.—Soak the seed 12 hours and roll in plaster; or plant dry and drop a tablespoonful in each hill.

Wheat.—Make brine as strong as you can, and sprinkle the wheat and stir till all is wet; then put on what plaster there is needed to dry it, say 75 pounds per bushel, and thoroughly mix.

Clover.—Sow as soon as ground will admit of travelling on. If clover seed is sown with grain, and plaster is sown as above directed for wheat, no more will be needed till second or third year.

The above method of using plaster is based on the proposition that, with our short seasons and dry summers, it is of prime importance to give the young plant a vigorous start.

AGRICULTURAL.

I beg most respectfully to submit to my brother farmers a subject for their consideration, which I consider highly important, involving as it does the best interests of the entire agricultural community of this Province.

The subject of asking further aid from our Government and Legislature for the benefit and encouragement of a special branch of farm husbandry, namely, the purchasing for the use of the respective County and Riding Agricultural Societies through the Province, the best and most approved farm stock, has been frequently discussed by the members of the Agricultural Board of this County.

That in our opinion it would give a new and most beneficial impetus to the general improvement of farm stock, if the Government and the Legislature of Ontario would, in their discretion, supplement the Legislative Grant of County and Riding Agricultural Societies, for the sole and only purpose of introducing into the respective counties and ridings the most valuable farm animals.

The reasons urged by us were—that farmers and breeders differ in opinion in regard to the merits of the different breeds of animals; that the different breeds of domestic animals are not equally well adapted to all localities; that it would be infinitely to the advantage of farmers if they had a sum granted for that special purpose at their own disposal.

It was also suggested that the stock purchased by the several County and Riding Agricultural Societies of Ontario should be sold to the members of these societies under restrictions the most beneficial to themselves, and that all moneys arriving from such sales should be added to the Annual Legislative Grant, which system, if judiciously pursued, would, in a few years, create quite a large fund.

I am most happy to inform my brother farmers that the foregoing reasons and suggestions embodied in my letter were forwarded by our esteemed representative, Dr. Clarke, to the Hon. the Commissioner of Agriculture, and were most favorably entertained, giving us the assurance that when the contemplated revision of the Act for the encouragement of Agriculture, &c., comes before the Legislature, that the appeal introduced by us will not be forgotten.

My object in bringing this matter before the public in this way, is to secure the cooperation of all concerned. I shall be greatly obliged to County or Riding Agricultural Societies, or to individuals, if they will give public expression to their views and opinions of this subject, as well as to suggest any amendment to the existing Agricultural Act, which they may deem advisable.

I have no doubt that the scheme thus initiated will be carried to a successful issue, aided by the advice and instructions of those most interested.

D. W. FREEMAN.

Sec'y N. R. Co. of Norfolk A. S. Simcoe, Ont., March 26, 1873.

[Would it not be well to allow Agricultural Societies the privilege of expending the money, that is, if granted, for seeds, as well as stock, or for agricultural information?—Ed. FARMER'S ADVOCATE.]

POTATOES.

The Early Rose.—I speak of this potato because with all its justly accredited popularity, it is not, except by a very few, appreciated at its true value; for only a few know really what is needful to the highest success in growing it. This sort has this one peculiarity that distinguishes it from the old kinds, though it measurably characterizes its congenital varieties, so far as I know, such as all the varieties sent out by Mr. Breese, it makes its almost entire growth—the tubers—in about ten days.

The Peerless.—This, coming as it did from the same stock, has justly in common with the Early Rose, in spite of its later ripening, and in this variety it is very noticeable that after the plants have reached a certain stage, the tubers are made in a comparatively short time, short as contrasted with the Peach Blow, which grows about all the season.

And I will venture to say that whoever has tried this variety on suitable land and it has not given the best of satisfaction, the cause is to be looked for in the fact that during the time of not over ten days' duration, when the largest part of the growth of the tubers was made, the plants were suffered to be choked with weeds, or the ground for the lack of thorough culture was dried up, or the bugs had possession, that in some way the healthy functions of the plant were obstructed.

I have grown this potato for three seasons. The first season I planted but a few pounds. They did so well that I planted what seed I had, often thoroughly testing them on the table. These I planted round a seven acre field of corn. The hogs got in before they were ripe and took about half of the crop. I had at digging time between fifteen and twenty bushels—the quality altogether unexceptionable. I had that season a dozen sorts on trial, or more, and this was conceded to be the best.

Last year I raised about an acre. While the quality is not equal to what it was the year before, owing to the peculiarity of the season, long continued drouth and wet after it, this potato is so much better than the Peach Blow grown under the same circumstances, as to really entitle it to be called at least good; and while it cannot be claimed for it that it will grow as well under a system of utter neglect as some others, the time is so much shorter that must be given to its cultivation, that the balance is in its favor even on the score of labor.

I would not, however, as I said above, advise any man to plant it unless he can give it clear hill culture, or good land, not too rich—in other words, do his simple duty by a plant that is altogether worthy of it.

The Campbell's Late Rose.—As it may be of interest to some to know how I was enabled to grow so much as sixty bushels from one peck of seed, I will give my manner of procedure. In the first place I did not send for my potatoes as early as I should have done, consequently when they came they had sprouted to that extent that I lost a good many eyes, a handful at least. I carefully cut to single eyes and planted one eye in a hill, the hills three by three feet, on good land well prepared and dressed with manure and ashes.

This process, while it served to multiply the stock and to increase the yield, tended to retard the growth and consequently delayed the ripening, especially for the reset plants.

The drouth came on before the young plants had fairly got a good hold, as did also the bugs; and for some time I despaired of getting any crop at all. But after the rains came and I had had a most tremendous battle with the insect hosts of the Rocky Mountains, I took heart and gave the plants such care as the circumstances would permit.

I planted as above, three by three feet, and the one stalk to a hill had so grown before September came that the ground was as fully and entirely covered and matted with the vines as ever was seen in a field of Peach Blows, planted in the usual way.

With a usually favorable season and a peck of such seed as I now have, so I would lose none by loss of sprouts, and beginning early so as to make a hill of every shoot that the eyes from the peck of seed would make, I would run no risk in laying a wager, to raise one hundred bushels from the same seed from which I raised this sixty.

As to the quality, all of the crop did not, of course, fully ripen; but I have eaten today of this variety and so good a potato in all respects, flavor, fineness of texture and dryness, I have not eaten, or anything approaching it, except in the Peerless of the last season's harvest.

That it will fully equal for a late potato what the Early Rose is for an early in its best estate, I fully believe.

I will only say in closing that while I raised last year a dozen varieties of potatoes, and some that I shall continue to grow at least for a further trial, those mentioned are the three that, from present indications, I feel most safe to recommend.—B. H. in Michigan Farmer.

REPRODUCTIVENESS OF PLANTS.

Professor Beckman gives the following table, calculating the reproductive powers of some of our common weeds, which well enough illustrates a proverb, alas! too true: "One year's seedling, seven year's weeding."

Table with columns: Seed Samples, In a single plant, Remarks. Lists various weeds like Black mustard, Charlock, Shepherd's purse, Fool's parsley, Dens de lion, Stinking Chamomill, Mayweed, Sow thistle, Groundsell, Corncockle, and Common dock with their reproductive rates.

The facts just insisted upon apply with still greater force to seeds of our agricultural Papilionaceae, as these are so much smaller. The table I now append is the result of a careful examination of several packets of clover seeds from different seedsmen; it shows the number of weeds found in them: Alsike clover, 7,700; cow-grass clover, 18,400; broad clover, 56,720; white Dutch clover, 96,900.

THOROUGHLY CULTIVATED FARMS MOST PROFITABLE.

Much has been written and said concerning which are the more profitable, large farms or small ones. One of the peculiar traits of the American character is that insatiable thirst, or hankering for more land, with little regard to its profit as an investment, and often without any hope for its decent cultivation.

What results from this too common course? Just what we might expect. The farmers and their families live in discomfort, have poor farms, and wear out their lives to little purpose. Here is a man with 100 acres of land, all he can well manage with his means. Adjoining him is another tract of 100 acres which he is desirous of adding to his domain. He adds it, and by that means runs in debt for one-half or three-fourths its cost, thus using up all, and more than all his working capital.

A poor system and corresponding culture not only bears heavily upon those who practice it, but its influence is wide-spread, penetrating to every branch of industry. Cripple the agriculture of the country, and manufactures, trade, commerce and all business is affected or stagnates.

Large farms of themselves are not objectionable, especially if they are thoroughly cultivated. But when only one-half or two-thirds of a full crop, the capital is poorly invested and much of it lying idle. A farmer, on commencing operations, should sit down and count the cost, whether his capital is sufficient for his undertaking. He should consider the requirements to success, such as drainage, culture of varied crops, proper selection of farm stock, providing suitable shelter and accommodation for the stock, husbanding and judicious application of manure, selection of best qualities and varieties of seed, and the most suitable time and season for planting, etc., and also the adoption of the most suitable tools, etc., for securing the culture and harvesting of his crops.

If there be a deficiency in capital or agricultural knowledge, it would be far better to only attempt to cultivate so much as will best serve to educate, and conduce to skill in the cultivator. The old saying, "a little farm well tilled, a little till well filled," was never truer than at the present day. Thorough culture is the only culture that pays.—W. H. W. in Western Rural.

GEOGRAPHY OF THE FARM.

The Rural Sun in impressing upon its readers' minds the necessity of system in farming, as in everything else, urges the careful mapping out of the farm, with all its natural features and its artificial divisions, and adds:—

Nothing will so much conduce to the adoption of a system of working the farm as a prepared map, hung where the farmer can see it every day. It will be sure to set him thinking and planing how best to pitch his crops and how best to work to save work. And once the farmer adopts a system of farming he starts on the road to success. It matters not that the system is not the best that could be devised, so long as it is a system it is infinitely to be preferred to the haphazard practice of many farmers. We, therefore, advise every reader who owns a farm to make at once, or have made, a map of it and hang it up where he can see it every day. And having made it, study it.

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THE U. S. WHEAT CROP.

Report of the Agricultural Department upon Winter Wheat:—

The following is a summary of the condition of winter wheat, just issued from the Agricultural Department, on the first week of April:—

A considerable portion of the northern belt of the winter wheat area was covered with snow; the condition of that which was visible gave promise of general exemption from winter injury, leaving the crop subject to the meteorological vicissitudes of April.

In the Middle States great improvement upon the sowing of last spring is everywhere conceded, especially in New Jersey and Pennsylvania. The prospect in the States south of Maryland is less favorable than last year, and there were indications of a diminishing area of cotton States, although the acreage is not intended to be given in this Report.

Michigan, the only State of the northern border in which winter wheat is mainly grown, presents a green and vigorous growth wherever the snow has disappeared to reveal it, and Ohio makes far more favorable returns than last year.

In Kentucky more checkered showing is made, giving the present appearance a decidedly unfavorable cast, with indications of future improvement as the weather becomes settled.

In Indiana and Illinois unfavorable returns outnumbered the rose-colored. The dry autumn retarded the seeding and germination, and left the plants too weak and shallow-rooted to endure well the effects of the winter changes of temperature. Similar causes affect the condition of the wheat in Missouri, but a great improvement over last year is reported, and a still more favorable condition exists in Kansas.

In Wisconsin, Minnesota, Iowa and Nebraska, as is known, very little winter wheat is produced, but full reports are given of such experiments.

The indications from California all point to another year of great abundance, scarcely a county reporting unfavorably.

The condition, as a whole, of the wheat prospect at the close of the winter is more favorable than at the same date in 1872.

CHEMISTRY.

The following article, from the *Journal of Chemistry*, contains information which every farmer should possess:

The soil is that upon which the farmer spends his labor. The atmosphere and the weather he cannot control, although, by close observation, he may forecast it.

No plant will flourish and mature unless its roots are situated in a soil containing all the mineral elements found in the ashes of the plant. The soil is the home of the plant—its birth place and station, where it runs through all the different stages of its development and whence it receives its nutriment.

The fertility of the soil depends upon its fineness of particles, since the food of a plant must enter it in a state of solution. That is, the mineral matters must be dissolved in water, and the rapidity of their solution is in direct proportion to the extent of their surface exposed. Hence, the finer the particles of earth, the more abundantly will the plant be supplied with the necessary elements.

The soil has the power of absorbing moisture from the atmosphere, and condensing the same in its pores, and the absorption of water vapors determines its capacity for absorbing other vapors and gases.

The part which capillarity of the soil plays is somewhat analogous to that of a lamp—the soil is the lamp and the wick, and the water is the oil.

By the action of the sun and the wind the surface is rendered dry by evaporation, and as fast as the particles of water escape in vapor, their places are supplied by capillarity from the stores of moisture below; the ascending water brings along with it the soluble mineral matter of the soil, and thus the roots of the plants are situated in a stream of their appropriate food, and those particles of material not taken up in the tissues of the plant are brought to the surface to be washed down by succeeding rains. With a deep subsoil and good drainage capillarity aids gravitation, and the minerals brought to the surface then have a downward distribution.

It is easy to see, in a good soil well tilled, how capillarity thus acts, keeping the roots of the plants constantly immersed in a stream of mineral solution that is now ascending,

now descending, but never at rest, and how the food of the plant is thus made to circulate around the organs fitted for absorbing it.

The same causes that maintain this perpetual supply of water to the plant are also efficacious in constantly preparing new supplies. The materials of the soil are constantly undergoing chemical changes whereby the silica, lime, phosphorus, potash, &c., become soluble in water and accessible to the plant.

Water charged with carbonic acid and the oxygen is the chief source in the chemical changes. The more extensive and rapid circulation of water in the soil, the more mineral matter will be rendered soluble in a given time, and other things being equal, the less will the soil be dependent on manures to keep up its fertility.

Return to the soil, in the shape of manures compensation for the precious minerals taken off with the soil. Plow deep, pulverize the soil well, and with thorough drainage you can depend on grains to sell; and your farms will improve in productiveness—bearing in mind that different crops draw differently upon the mineral resources, and that the rotation of crops has a tendency to fertilize the soil; for instance, clover with its long roots brings to the surface the rare minerals and matures a fine crop where wheat fails to produce, and in addition to that there will be a residue of minerals rendered available through the chemical action of the clover sufficient to maintain a good yield of wheat or corn.

THE ROSE POTATOES.

"The Early Rose" was the pioneer of this family. It was originated by Mr. A. Bresse, of Brandon, Vt., who sold his then stock to Mr. D. S. Heffron, of Utica, N. Y. Up to this time it was known as "Child seedling," and was exhibited under this name at several agricultural fairs in the fall of 1867. Shortly thereafter Mr. Heffron sold half his stock to Mr. Conover, of New Jersey, and the other half to Mr. B. K. Bliss, of New York, at the same time changing the name to "Early Rose." The great excitement which accompanied the introduction of this new potato is fresh in the memory of potato-growers. It soon became the leading early potato, and is yet not excelled by any newer kind.

"The Late Rose," also known as "Thornburn's Late Rose," was introduced in the spring of 1872. This differs from most other named sorts in not being a seedling or original variety, but a sport or sub-variety. It was discovered by Mr. Eoe, of Washington County, New York, who, observing that a few vines among his Early Rose remained fresh and green for several months longer than the others, caused these hills to be dug separately and planted in the following spring, when they retained the characteristics shown the previous year, and their offspring have continued to do so ever since. Samples of this potato were exhibited for the first time in 1871, at the New York State Fair in Albany, where they attracted a great deal of attention. The Late Rose differs from the Early Rose in ripening later, being more prolific, and keeping better; in quality and appearance they are nearly alike. Bliss's Late Rose is identical with this one.

"Campbell's Late Rose" is a seedling by Mr. George Campbell, of Ohio. This variety seems to vary more than others when grown in different soils and localities. With me, on a somewhat heavy clay soil, it proved exceedingly prolific, more so than any other variety in my experimental field, but in quality it fell much behind expectations. It is very late, the vines are of a vigorous straggling growth, remaining green until killed by the frost. Some of the tubers grew very large, a few over twelve inches long, but more than one-half the crop too small for market; the medium and large ones are irregular, knobby and scraggy, and mostly hollow in the centre. In some localities, however, it has given better satisfaction. The whole appearance of the plant and tubers reminds one of the old Merino potato.

"Young's White Rose," introduced by Mr. M. K. Young, of Wisconsin, is a large, white and heavy potato, resembling the Harrison so much that, during three years' trial, I could not discover any difference between the two.

"Wainwright's White Rose" is a seedling by Mr. George Wainwright, of Pennsylvania. In shape and size it is something like the Orono, but its skin is rougher and not as white as the latter. It rotted badly the past

season, and has not developed any desirable qualities.

"Queen of the Roses" was raised by Mr. William Minnich, of Pennsylvania, from a seedling of the Early Rose. It is of exceedingly fine appearance, and, on the grounds of the originator, very prolific, but needs more extensive trials to determine its value.

The "Whither Forest Rose" is a seedling or an old kind under a new name; I cannot tell, but it looks exactly like the Monitor.—The first samples came from Vermont.

"Foster's Late Rose" is a seedling by Mr. P. H. Foster, of Long Island, probably the first variety named "Late Rose." It was exhibited at the American Institute Fair in 1870, a year before any other Late Rose became known. The priority to the name would therefore belong to this variety, but as it was never disseminated to any extent, the late variation of the Early Rose has now the right conceded to the name "Late Rose."

There have, no doubt, many other seedlings been made namesakes of Roses, poetical and otherwise, but those enumerated above are the only ones that came to public notice.—*Michigan Farmer*.

RED CLOVER—SUBSOILING.

At the last meeting of the Warsaw, Ill., Horticultural Society, the subject of red clover was incidentally brought up and the following discussion ensued:

Mr. Bliss did not think clover was grown very extensively; that which was grown was mostly for pasture. He spoke of its excellent qualities and adaptation as pasturage for hogs, cattle, sheep and horses.

Mr. Grover corroborated Mr. Bliss' statements, and added that it is valuable hay where it is properly handled. He had cut successive crops two and three times a year off the same ground for five years.

Mr. Hathaway said clover should be more extensively grown as a fertilizer rather than for hay or pasture; he thought that there were but few fertilizers used in this section except barn-yard manure, and that was poorly utilized; that our soils are impoverished by long continued croppings without a return of any fertilizing manures; would suggest turning under clover as the most ready and cheapest mode of renovation for over cropped lands; he thought clover would run out in two years, if the ground were not re-seeded.

Mr. Grover thought his clover, the Mammoth variety, did not run out; it had stood five years or more yielding well.

President Hammond agreed with Mr. Hathaway that medium clover was a biennial plant; would run out if not re-seeded.

Mr. McCune esteemed clover for pasture; it was good hay; half timothy for horses was preferable. He spoke of clover running out under certain conditions.

It was conceded by all that clover was eminently adapted for pasture and hay, and unsurpassed as a fertilizer.

The Chair announced the question of subsoiling. Mr. Bliss said as far as his observations extended subsoiling was only partially practised.

The question was raised—What is subsoiling, or of what method of turning up the substratum of soil did it consist.

Dr. Hollowbush gave a definition of subsoiling. Some think deep plowing, others, one plow to follow another, and others, turning up the substratum or hard pan. All the above modes appear to be more or less in use as the means and occasion suggest to the operator.—*Western Rural*.

GYPSUM.

When plaster first began to be used in France, to settle the question of its utility the French government authorized a commission to examine the subject, and a series of questions were asked of practical men, and the answers published for the benefit of others. I will give in brief the substance of the questions and answers as applicable to us:

1. Does plaster act favorably on clover? Forty answered Yes, and but three No.
2. Does it act favorably on clover on wet land? Answers, unanimously No.
3. Will it supply the place of organic manure? i. e., will a barren soil be made a fertile one by the use of plaster? No, unanimously.
4. Does plaster sensibly increase the crops of the cereals, to wit: wheat, rye, oats or corn? Of 32 opinions given 30 were in the negative.—*Western Farmer*.

NOTES OF AGRICULTURE FROM SCOTLAND.

From the Report of the Northern Agricultural Society of its spring Exhibition, held at Aberdeen, we note the weight of some of the principal prize grain exhibited:—

White seed wheat, any variety, 1st, 63 lbs. 10 oz.; Red seed wheat, any variety, 1st, 61 lbs., 12 oz.; 2nd, 58 lbs., 10 oz.; Chevalier seed barley, 1st, 56 lbs., 6 oz.; 2nd, 52 lbs.; Seed barley, any other variety, 1st, 53 lbs., 2nd, 54 lbs., 12 oz.; potato seed oats, 1st, 54 lbs., 2 oz.; 2nd, 45 lbs., 4 oz.; 3rd, 45 lbs., 12 oz.; 4th, 44 lbs., 12 oz.; Sandwich seed oats, 1st, 45 lbs., 4 oz.; 2nd, 44 lbs., 4 oz.; Seed oats, any other variety, 45 lbs., 4 oz.

We see from this report how much the wheat, oats, and barley over-weighed the weight of our Canadian grain of each kind, and especially the oats. The comparative weight of the grain of other qualities being equal, determines the superior merits of the sample, but of course this is not the only, nor indeed the principal point of excellence to be attained. So we see the heaviest grain is not always entitled to the prize.

We note, in the exhibition of potatoes, some of the old varieties still maintain their place. The varieties of potatoes exhibited were Irish Cups, Long Blue, Long White, Webb's Imperial, Kidney, Prince Regent, Glenherve, Paterson's Victoria (round white), Bresse's Peerless obtained a second prize as a new variety.

HINTS ON HAYING.

The main points to be observed in making timothy or meadow hay, with little or no clover in it, are:—

1st. Cutting the grass when in flower and before any seeds are formed. If we cut too early we lose substance, if too late we lose quality. If the hay is for market or for horses we should let it stand longer than if it is to be fed out on the farm to milch-cows or sheep.

2nd. Cut it so that if it is necessarily exposed to dew the dew shall fall on while the grass is green, rather than after it is partially cured. This is one of the most important practical points in hay-making. Dew or rain will not hurt fresh, green grass, provided it is got rid of before the grass begins to wilt. In heavy grass, therefore, that cannot be cured in one day, we should start the mower late in the afternoon, say four o'clock, and cut as long as we could see. Rain or dew will not hurt it any more than if it was standing uncut. The next morning, the moment the dew is off, or a little earlier, start the tedding machine lively, and keep it going, changing horses if necessary. The more frequently the grass is stirred, the more rapidly it will cure. If kept well stirred, the hay will be ready to draw in immediately after dinner.

3rd. When grass is cut in the morning, if a light crop and somewhat over-ripe, it may not infrequently be drawn into the barn the same day. But with heavy green grass this can rarely be done. Keep stirring the hay until about four o'clock in the afternoon.—Then rake into windrows, and put it into cocks for the night. If exposed to rain or dew while spread out on the land in this partially cured state, it will be very seriously damaged. The next morning turn over the cocks, or open them out if necessary, and draw in as soon as dry enough.

4th. When grass is cut, and rain sets in immediately, while the grass is spread out on the land as left by the machine, or in swaths, nothing can be done. It is better not to touch it until there is a prospect of getting it sufficiently dry to put in cock. As long as it is green it will not hurt.

5. When partially cured grass is wet with a sudden shower while spread out, it can not be turned or shaken out too quickly after the rain is over. Do not wait for the ground to dry. Better spread out lightly on the wet grass, so that the wind can get through it, than allow it to lie flat and sodden. It is necessary to be very careful to get such hay perfectly dry before drawing in. Spread two or three quarts of salt on each ton of this damaged hay when put in.

Clover hay requires more time in curing than timothy and meadow hay. But the principles involved are essentially the same, except that after the clover is partially dry care must be taken not to shake off the leaves and blossoms. If cut early the tedder may be used with great advantage. A good plan is to cut the clover late in the afternoon, and the next morning, as soon as the dew is off, shake it out with the tedder. Then, in an hour or two, rake it into small windrows five or six feet apart with a steel-toothed rake,—



Turn these windrows with a fork, say once before dinner, and then immediately after dinner. About three or four o'clock rake in to large windrows and cock up carefully for the night. If necessary, spread it out the next morning, and turn it over in an hour or two. That which was opened first will probably be ready to draw in by half-past ten or eleven o'clock. There are many other methods, but, all things considered, we prefer the one we have briefly prescribed. If we could be sure of the weather, we should cure the hay in cock, and it is often convenient to adopt both plans.—*American Agriculturist*

## EXPERIMENTS IN CURING HAY WITH LIME.

Last summer I put about five tons of hay in one stack, composed of about one-third each of timothy, clover and weeds. I put it up the same day it was cut, and it was quite green. I sprinkled it plentifully with lime, about half air-slacked; it commenced to heat immediately, and got so hot that I thought it would burn, but in twenty-four hours it had cooled off. It kept remarkably well, and moulded only where there were large stalks or weeds. The cattle ate it but did not like the lime.

I put the same amount of hay in a barn; this hay was better cured and drier than the other. To this I added both lime and salt, but it did not keep as well as the other. The salt appeared to take as much dampness as the lime took up, which rendered it useless. In another barn I put hay that was well cured. I added lime to it also; the horses didn't relish it as well as that which had no lime, but they appeared healthier and have less cough than when fed on hay that was not limed.

I would advise the use of lime only in a free stone country. A certain amount of lime is necessary to make bone for all animals, but in a limestone country they often get too much, which causes disease of the intestines and bladder.—*Ohio Farmer*.

## BENEFITS FROM HOEING.

Too many persons who use the hoe suppose that the chief benefit derived from it is to kill the weeds. That, certainly, is an important work, and one greatly neglected. Weeds are not only in the way of cultivating the crops which we plant, but they rob them of much of the nutriment which they need.—Hoeing, then, is an essential service in respect to destroying the weeds.

There are other advantages, however, which are quite commonly overlooked. Let us see:—

1. The loosening of the soil in the operation of hoeing is beneficial to the plants; as much as the destruction of the weeds, or more so.

2. Moisture abounds in the atmosphere during the hottest months, and is absorbed and retained most abundantly by a soil which is in the most friable state. Prof. Schuber found that 1000 grains of stiff clay absorbed in 24 hours only 36 grains of moisture from the air; whilst garden mould absorbed 45 grains, and fine magnesia absorbed 76 grains.

3. Then, again, pulverizing soil enables it better to retain the moisture absorbed.

4. The soil, in order to be healthy and active, must breathe. A light, porous soil admits the air, and thus it is fed and greatly invigorated by the atmosphere.

5. The sun's rays heat a hard soil much quicker than a loose one, and the hotter the soil is, so much greater will be evaporation from it. So that the hard soil is deprived of its moisture much sooner than one of a loose texture.

6. The roots of plants can find their way through a moist, loose soil, in search of food, much better than they can through a hard, dry soil.

7. The soil that has been ploughed well, and then kept loose near the surface by the action of the hoe, will receive and hold the rain water that falls, while a hard soil will allow most of it to run off into the valleys and streams as it falls.

Let us hoe thoroughly all the season until the crops are perfected, and while engaged in work, observe and discuss the benefits we may derive from it.—*New England Farmer*.

## TRANSPLANTING IRISH POTATOES.

It is a fact, but not perhaps generally known, that Irish potatoes do well transplanted. I have tried it repeatedly, and every time with satisfactory results. I find it to be an improvement in point of quality, quantity and earliness. Try it and report your success through the *Homestead*.—*Cor. Iowa Homestead*.

## COMPOST HEAPS.

It is reported as said by Dr. Voelcker, chemist of the Royal Agricultural Society of England, that the escape of ammonia from fermenting heaps of manure goes on but slightly; that while the escape is great from the heated centre part of the heap, the ammonia is absorbed by acids formed by the decomposition, and by the water present in the heap. All this goes to show that the manure heap should be kept well covered with absorbents, and that an occasional sprinkling with water is beneficial. Besides, good will result from copious sprinklings of ground gypsum or plaster.

## FEED THE SOIL.

This is a maxim that no farmer can afford to forget, unless he can afford to work for little or nothing and remain poor. Every crop extracts from your fields a portion of the natural wealth which has been accumulating there for ages. When the soil is first turned over, the "new ground," rich with every element of plant food, produces immensely, and from the way it is usually treated in this country, it never produces as well thereafter. The reason is plain. We commence removing the elements which go to make up the crop, and we scarcely ever return anything back in the shape of manure, and the consequence is that in all ordinary clay or soils, the land grows poorer with each successive crop, and the crop grows less, and the farm grows poorer and worth less money, and the owner of it grows poorer and has to work harder every year to make a living.

The great majority of our lands have not more than ten inches of soil, while the fir land has very much less. Now this land will require manure, or it will be poor land. The manure is but returning to the soil, in another shape, what the crop took from it.—The manure is wealth, it is money, it is labor, it is time, and no farmer can afford to waste it.

As on individual farms, so in whole countries; they can be worn out and reduced to desert, and the people to want and starvation, as recently in Persia, where hundreds of thousands have perished for want of food. Persia was once one of the richest agricultural regions in the world. Now it is a desert, made so by ignorant farming, and its people reduced to ruin and starvation.

## CULTURE OF ROOTS IN ENGLAND.

Mr. Wall, who recently returned from England, says:—

"It is certainly true that the culture of root crops has been the salvation of English agriculture. The cultivation of these crops may as truly be the means of improving the soil in our Eastern States. We had once hoped that the manufacture of beet sugar would enable Western farmers to avail themselves of this root as a fallow crop, but we fear that this will not prove to be the case just yet; perhaps time may give us cheaper labor by which it may be done. Fortunately we have Indian corn, which enables our farmers to clean their land in an admirable manner, if properly attended to. Still, it can never take the place of tap-rooted plants.—The turnip crop will probably never be available in the West, even if we could afford to make it take the place of corn as a feeding crop, for the reason that our hot summers are not suitable to the plant.

## THE LEGUMINOUS PLANTS.

The pea vine has ever been held in as high repute, wherever it has been properly cultivated, for turning under to make vegetable mould, and to provide manure for the grain crops, as the clover has been, in our sections. In fact the clovers, sainfoin, vetches, &c., belong to the bean family. The largest mineral constituent of all these crops is lime, and they flourish best on lime soils, and are most successfully cultivated in limestone districts—and where lime does not exist in the soil where they are grown, it should be artificially supplied.

Prof. Voelcker, in his work on agricultural chemistry, says that sulphur is also requisite or at least generally found beneficial to these crops, and this can be furnished by gypsum or plaster of Paris, which contains sulphuric acid and lime, and on this account may be regarded as a special manure for all the leguminous plants. We thus find how admirably Nature has provided for these crops, the most valuable that are grown next to the cereals, in the supply of lime and plaster, two of the

very cheapest minerals which are found useful as fertilizers to replenish the soil exhausted by the carelessness of man.—*Jefferson Farmer*.

## GRASSES.

Among the grasses said to be the most profitable for mowing, are timothy, red-top, white bent, orchard grass, perennial rye grass, June grass, meadow fescue, and tall fescue. The artificial grasses comprise red, white and other clovers, and some others not cultivated in this country. It is said that the grasses cultivated in England for the use of animals comprehend not less than two hundred varieties; but in America there are not more than twenty. A greater weight of grass and hay can be obtained from an acre by using several judiciously selected species, than if one or two are used; since different species require different kinds of nutriment and the number of one species which will grow to vigorous maturity on a square foot of soil, will not be diminished by the growth on the same soil of plants of other species requiring different substances for their nutriment. But in selecting the mixture for mowing or for pasturage, regard should be had to the modes of growth and other peculiarities of each kind. Some grasses are well adapted to cut for hay, but are not so suitable to form pasture-turf. Timothy is not so good to sow for pasturage, as it cannot bear the close cropping of cattle, though one of the best of our grasses for mowing.—*My Little Book*.

## THE IMPROVING AGRICULTURE OF THE SOUTHERN STATES.

Agriculture is making such rapid advances in this State, that while two years ago there was scarcely an agricultural society in the State, now there are some forty organized, and others in process of formation. In Georgia, the empire State of the South, there are more farmers who have studied the chemistry of manures and who understand the economical application of it to the soil, than there is in any one of the old free States at this time. The great revolution from slave to free labor so far from discouraging the Southern farmer, has only shaken him up from his lethargy and compelled him to be energetic, self-reliant, and willing to learn everything that can aid his farming under the new regime.—*Texas Farmer*.

SOW PLASTER as soon as the clover has made a slight growth in the spring, and apply as soon as it is fairly up. It will pay to haul ashes, especially for sandy land, five or ten miles, or even more if you get them for nothing. It is one of the best fertilizers known, on the soil you mention, and in connection with plaster and barnyard manure, we should want no better land.

## RAT-PROOF CORN CRIBS.

There are not many farmers who do not lose corn enough by rats every year, to pay the extra expense of making their crib or cribs rat-proof. Such is the general dampness of the ground that the floor on which corn rests should be at least three feet above the earth. Pillars of this height above ground for crib-sills should have plates of zinc or sheet iron extending six or eight inches on all sides before the sills are put upon them. Rats going up to the pillars (whether wood, stone or brick) cannot pass the sheet-iron or zinc, nor can they jump three feet from the ground and fasten themselves to the side of a crib. The steps, by which one enters the door of a crib, should be taken away at all times when not in use. In this way a farmer can easily keep rats from eating and polluting his bread corn.—Where rats have access to one's crib, they multiply rapidly, catch chickens, go to the dwelling house and become a perfect nuisance there also. All this evil is due, in a large degree, to feeding and breeding rats at a corn crib. This is the most unprofitable stock a farmer raises. The next are the curculios that destroy his peaches and plums.

THOUGH Manitoba is some hundreds of miles north of Minnesota, yet the storms are never so powerful as there, or the thermometer so low by ten degrees. There has been only one man frozen in Manitoba this winter, against the hundreds that have perished in Minnesota this winter. This is a fact that ought to be known in Europe, as large numbers of emigrants are gulled by the reports of unscrupulous American emigrant agents.



## ARDEN, ORCHARD AND FOREST.

## WHEN TO PRUNE GRAPES.

The following we clip from an exchange, who publishes it as from A. Kelley, the noted vintner of Kelley's Island, Ohio, and if from him, is good authority on grape culture:—

"At first I supposed that it was improper to trim in spring, when they bleed the worst, the Germans, whom I mostly employed, having a prejudice against it. But sometimes some parts of the vineyard were trimmed at this supposed improper time.

"The closest observation I was able to make discovered no bad result, and I have never seen that it made any difference when the vines were trimmed, from the time the leaves were ripe in the fall, to as late as the 20th of June. I seldom get all my vines trimmed before the first of June.

"Since we have had the rot, I have in some vineyards tried leaving the three canes the full length until August, when, if rot appeared, I cut off the surplus wood; but if the rot sets in, I have left the whole vine, and got a larger yield than from vines short pruned. But where there was little or no rot, the shortest pruned vines have uniformly borne the best crops. I am clearly of the opinion that the best time to trim is whenever it is most convenient after the leaf is dead in the fall to the first of June.

"I have always root-pruned pretty severely, plowing deeply close up to the vine, and cutting the roots in the first hoeing in the spring in most of my vineyards; but I have also tried the reverse, and must confess I have not been able to see much, if any difference, in the results. There are now some seven or eight hundred acres here in bearing. Some persons think that spring trimming is best, but do not claim that they have any facts to prove it. It is true that some parts of vineyards have been trimmed in the fall, and did not bear as well as the part trimmed in the spring, but the reverse is also sometimes true. It is quite common to have one part of a vineyard do better than another one year, and the case reversed another year."

## HOW MUCH MANURE FOR THE GARDEN?

I am often asked "How much manure shall I put upon my garden?"

In the first place neither all kinds of soil nor all kinds of crops require manuring alike. A heavy loam with a clay subsoil will bear a coat of course manure that would be an absolute injury to a light sandy soil; and if we had two as dry seasons as the last ones have been, it would probably receive little benefit from it; while a heavy coat of well rotted manure, well mixed with the light soil, will enable it to stand drouth wonderfully. Hence, if you have a heavy soil you may plow under course manure in large quantities, and it will pay you well for it, but if your soil is a light one, get well rotted manure, even if it costs twice as much as the coarse manure would.

As to quantity—it is possible to injure peas, beans, potatoes, tomatoes, and perhaps a few other crops, by too much manure, but for every time that I have seen this done, I have seen hundreds of these crops that were suffering for want of more manure. Even for these crops I would not hesitate to put on twelve or fifteen cords of well rotted manure to the acre, and should expect to get well paid for it in the first crop, provided that it did not cost more than five dollars a cord. It will bury on the crop, and if your early peas bring \$2 or \$3 per bushel in the pod, the potatoes \$1.50 or \$2 per bushel, it does not take long to get back the money for the manure. Cabbage, cauliflower, celery, corn, onions, asparagus, pieplant, beets, parsnips, and in fact the most of our garden crops will not only bear, but be much improved by an immense amount of manure. I would not hesitate to put on 20 cords of well rotted manure per acre, upon any of those crops, and with good cultivation and an ordinary season, I should expect the crops to pay for all the expense, and leave a profit beside.

In fact it may be set down as a rule that, other things being equal, he who uses the most and best of manures gets the largest crops, as well as the best in quality.

There may be a few exceptions to this rule, but they are very few. My stable manure

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will not cost me to exceed \$3.00 per cord. I am getting leached ashes very cheap, and yet for manure of various kinds, including plaster and phosphates, I shall spend at least \$500 for manuring not to exceed 14 acres of land, and if I do not get it all back, and something with it before next New Year's, it will be the first time in my life that such an expenditure has proved unprofitable.

Then let us manure our gardens heavily; let us cultivate them well, and we shall find as the season passes by, that large crops are the rule, not the exception.

## ASHES FOR FRUIT TREES.

*A Woman's Letter from Southern Iowa to the Iowa Homestead.*

MR. EDITOR,—Some time since this new year began, I noticed a letter of enquiry on the subject of ashes in the dear old *Homestead*, wanting to know if any of your many readers had ever tried leached or unleached ashes around fruit trees, and what was the result.

I will give its many readers my experience in leached and unleached ashes:—

In November, 1870, I had several apple trees that had not borne any apples and were large enough to bear. My orchard is on hill sides, facing south and east; the ground had been in cultivation every year, and the soil is yellow, very sandy, and was washing badly. I had several loads of stones hauled and laid all around the trees, and then I had three wheel-barrow loads of leached ashes put around each tree, so that the stone and ashes almost filled around the trees up to the limbs. The result was, that the next spring the trees were full of bloom, and the next fall were loaded full of delicious apples.

In the spring of 1871 I ordered about \$21 worth of apple, pear and plum trees, and in December of 1871 I had about two gallons of unleached ash put around the most of each of my young apple, pear, and plum trees, resulting in killing nearly every young apple, pear and plum that I set out. The next spring the bark was perfectly black as far up on the tree as the ashes touched it, and was green above and below. It was a dear experience to me. It seems that leached ashes will not hurt old fruit trees, but kills young ones. I will give your readers other experiments that I have tried. A SUBSCRIBER.

## TREE PLANTING.

Now is the time to get trees for transplanting. In doing this, the small fruits, such as the currant, gooseberry, raspberry and strawberry should not be overlooked. In planting trees we are inclined to plant them too close together, and in many cases put too many in our gardens. The kitchen garden should contain but few trees; these should consist of those whose fruit ripens early in the season. Those which ripen after mid-summer should be planted in the orchard.

The planter should look forward and calculate the amount of space that the tree will require in ten or fifteen years from the time of planting. In planting shade and evergreen trees, this is particularly desirable. Evergreens are almost invariably set in rows, and too close together, and too often in front of the windows, so that in a few years the pleasantest views will be entirely cut off.—They should be set in groups of three or more, so that they will at least appear more sociable. Do not by any means plant them within four or five feet of the walk, unless you intend to transplant them again. Avoid planting them in rows, except for hedges or screens. Evergreen trees, contrary to the general impression, can, if carefully handled, be removed from one position in the yard or lawn to another, without perceptibly retarding their growth.

## THE BEARING YEAR OF FRUIT TREES.

Every fruit grower knows that there is a tendency in many apple trees, and to some extent in other fruit trees, to bear only every other year, or, at least, to make a heavy crop one year, and the next year to produce little, if any fruit. This comes, in the first instance, simply from the exhaustion induced by overbearing, which leaves the tree too weak in the fruit-producing elements to bear again till it has had one year in which to recuperate; but, finally, this becomes, so to speak, a fixed constitutional habit, and is perpetuated by grafting or budding. To correct this, pick off the larger part of the fruit, the first bearing year, and thin out well whenever too much fruit sets, and such trees will acquire the habit of bearing every year.

## FORESTS.

I notice in your weekly issue of March 19, an article from Mr. Bowles of Harrison, in reply to a short article of mine on forests, in the weekly issue of February 19. Mr. Bowles assures the public that he is "a practical farmer," and of course we are to infer that he is thoroughly acquainted with the theory and practice of farming. He starts out with a denial of almost everything I have said with regard to the benefits of forests and wind-breaks to the farmer and the fruit grower. I claim that the fruit crop—with the exception of berries—of Southern Ohio, and of many of the older sections of the country, have deteriorated both in quantity and quality. The deterioration in quantity has reference to the average yield per acre. Thirty years ago finer apples, as to size and quality, were produced in the Miami bottoms than can now be produced under the most favorable circumstances, in the most favorable localities, with all the extra care that can be given the orchard.

A low bottom near Camp Dennison, that frequently overflows, was planted in apple trees about sixty years ago and bore large crops of fruit for many years in succession, superior in size and quality, to any grown in the neighborhood at present. Why can not apples be produced in the same and similar localities at present? Fruits in the low lands are more frequently killed now than formerly by the late spring frosts. Why are such frosts more frequent and destructive to fruit and early vegetables than forty or fifty years ago? Fruit-raisers have abandoned the low lands and valleys for the high lands and ridges, but not the "ridges most exposed to the wind, the highest, bleakest points or knobs."

When the orchards were in bearing that were planted by the first settlers of Southern Ohio, the hills and great portions of the valleys were covered with a dense forest that protected the orchards from the cold winds that now sweep unresisted along the valleys. The presence of large forests increases the humidity of the atmosphere and prevents the rapid evaporation by the drying winds. Professor Tyndall says, in speaking of the intense radiation of mountain top and desert plains, "that these extreme reductions of temperature are due to absence of humidity. The presence of a large proportion of vapor acts as a dam to flowing water, restraining the escape of heat by greedily absorbing it." It is now a settled fact that when the air is filled with moisture radiation from the earth is prevented and the temperature of the night remains almost as high as that of the day. When there is little moisture in the air the sun's rays pass without absorption to the earth and impart little of their heat to the air. Professor Tyndall says: "The removal for a single summer night of the aqueous vapor from the atmosphere of England would be attended by the destruction of every plant which a freezing temperature would kill." The humidity of the atmosphere is much greater in a country with large forests than in a prairie country exposed to drying winds. The loamy soil of the forest will absorb and retain 170 parts of water, while field soil contains from forty to seventy parts.

In order to retain a uniform temperature the country must be protected against the influence causing excessive dryness. The protection afforded by the dense forests to the orchards of the early settlers of the country accounts for the large crops of superior fruit raised by them, and the removal of the forests for the uncertainty that attends fruit-raising at present.—There has been a great falling off in the fruit crops of late, both in quantity and quality.—Even the best orchards in Southern Ohio, the proportion of perfect specimens of fruit is exceedingly small. Thousands of bushels of apples, pears and peaches are taken to the Cincinnati market that would have paid the producers better if they had fed them to their stock. Many strangers visiting the Exposition at Cincinnati last year were greatly surprised at the inferiority of the greater portion of the apples on exhibition. Dr. Pettiglas—now deceased—of Mount Carmel, Ohio, stated a few years ago at a meeting of the State Pomological Society, that "out of 120 or 130 varieties of apple trees in bearing, it is difficult to select six kinds of good, merchantable winter apples. Although some seasons are not quite as bad as others, still one-half or more, as a general rule, are unfit for market."

The Fruit Committee of the Ohio Horticultural Society for 1869, after stating the amount and value of the fruit crop of the State, say:— "Large as this sum appears, we are convinced by observation and enquiry, that the amount and value of the orchard products of the State have diminished very greatly during the past ten or fifteen years." The committee say "the average yield is only 36 bushels per acre—not as much as single trees often produced in former times." Two or three hundred bushels to the acre was regarded as only an ordinary crop by the first settlers of this country. It was no uncommon thing for single trees to produce 40 or 50 bushels. The committee further say:—"The average product is so far below that of healthy orchards that we are forced to regard the statistics as confirmatory of the opinion held by a majority of the members of this So-

ciety that the apple crop has been gradually, deteriorating in most parts of the State for the past ten years or more. The deterioration in quality is, in many sections, even greater than in quantity. So in our opinion, the commercial value of the fruit is not on an average more than one-half as great as in former years. In many orchards that we have seen not one-quarter of the crop was of fair marketable quality. "This, too, is the general tenor of the reports we have received from all parts of the State."—S. R. B. in *Cincinnati Enquirer*.

## CULTIVATING GRAPE ON THE GROUND.

A method of cultivating the grape as pursued in Cabul, Central Asia, might be tried here, at least. Cabul and the country just northward of it has a climate, as it appears, not a little like our own here in Minnesota, being a high plateau where, whilst the thermometer sometimes marks twenty degrees below zero, grapes and other fruits grow in perfection, although requiring a great deal of care. As the snow does not usually disappear until the first of April or thereabouts, it appears useful to push the vine all that is possible, the frost once out of the way for the season. Accordingly this is the method:—

"Trenches are dug about one foot in depth the earth being thrown up in the form of a terrace one foot high and six or eight feet broad. The vine being set in these trenches about three feet apart, is allowed to run over the terrace to the next trench, at the edge of which it is cut off, and the lateral branches are allowed to spread, being trimmed into three or four buds. In this way the vine and the fruit rest upon the ground. The effect of this plan will be to force the fruit by the heat or refraction from the soil."

Now as heat in this latitude, and with our summers (apt to be too short at both ends for grapes) appears to be the great desideratum, why should not some of our grape growers try the process above described, even if on a small scale? We know how much to do with early production the strawberry has raised flat on the ground. Why not apply the same method with the grape, putting some light brush or limbs along the terrace described, to lift the vines a little above the soil, in order to have a little more neatness?

And could this method be successful there is advantage to be considered. In laying down the vines for the winter the slant already given to them would prevent their suffering that twisting, that wrenching and violence certainly not beneficial to them when restored to light and growth in the spring. The experiment appears worth trying. —*Farmers' Union*.

## SHORTENING IN EVERGREENS.

As a general rule evergreens please best when they are close and densely clothed with foliage. If one has thin open trees they can be made into the most enviable specimens by a judicious use of the knife. As soon as the frost has probably departed is an excellent time to do this. Cut back the growth of last year to within a few inches of where it started from.

It is very essential, however, to remember that the whole plant, leading shoot included, must be done at one time. It is particularly essential that the leader be shortened. A new one will push, and generally will grow straight. If not, a little art will help it. Several leaders will come out sometimes, but of course all must be sprouted off but one. By this simple treatment any dilapidated old scrub may be brought to the perfection of beauty if it has not lost its lower branches, when of course it is beyond grace to restore. Pruning of all kinds should be got through with as soon as possible—the earlier this is done the stronger will plants push in the spring. Nothing weakens trees or shrubs more than to be cut severely just as the new growth is pushing. —*Gardener's Monthly*.

## PROTECTION FROM THE CABBAGE WORM.

A correspondent of the *New England Farmer* says he last year raised four hundred head of cabbage. He started them in hot beds about the 1st of April, and transplanted them on a cloudy day as soon as the weather and soil was warm enough. The next day he put about a teaspoonful of salt around each plant, not minding at all if it fell on the plant. This served to kill all worms that might be in the soil. After the plants began to grow he stirred the soil as far as possible, keeping it loose and friable. As soon as those pests, the butterfly that lays the egg which forms the green worm appeared, he got half a pound of salt-petre, one fourth of a pound of copperas, and dissolved in a half hoghead of water. With this solution he watered the plants after each raid of the butterflies, which occurred three times during the summer, and by this means saved his cabbage from the worms, not losing a plant. This method would not be very difficult or expensive, and perhaps some of our readers may be disposed to try it the coming season.

## HORTICULTURAL MATTERS IN MINNESOTA.

As the ground begins to thaw and the atmosphere becomes warmer, tree men begin to look about them to see what amount of damage has been done by the extreme cold of the past winter. We have been in hot water all winter about our trees. Have been out in the country to-day to see how the Flemish Beauty pear stood. It is sad to look at them.

Beautiful trees that have borne for two or three years—the bodies completely dead and black. The large orchard trees of Golden Russets, American and English; Duchess, Haas, Sweet Pear, Perry Russet, and Red Astrachan, look comparatively well, although the wood of some is injured, and in some instances the bark is badly injured on limbs in crotches or at the union of limbs to the body of the tree.

I think it most too early to determine the exact condition of trees. Nursery trees are badly damaged except (with me) the Duchess, Tetofski, Vendome and some grafted from Minnesota seedlings. The Vendome is a Fond du Lac Co., Wis., seedling. The crab varieties are all right, although the wood of some of them is slightly colored.

I have been wanting a test winter some time, and am perfectly satisfied with the results so far as determined. Our apple list in Minnesota was getting quite lengthy. It will now be visibly shortened, I think. Nursery trees on sandy land are badly root killed. One nurseryman says his entire stock except crabs is killed.

Will some one tell us why it is that trees root kill on sandy loam more than on clay?

## GARDEN PEAS.

At this season of the year there are a great deal of trimmings and prunings which come in well for pea sticks if only thought of in time. Of late years it has been thought too much trouble to look after these things, and to foster this lazy feeling the seedsmen have introduced dwarfs and other varieties which need no staking they say, but which never bear half as much as those which are provided with these aids to the young pea in its efforts to get on in the world. The idea also that peas need no staking prevails because those who grow them for market let them trail on the ground as they will. But this is only because it suits their particular style of culture best, and not because it will yield the most peas. Besides, if this were not the case, it would be hardly possible to get sticks or labor enough to cover acres of ground.

It may be as well to remark that in pea culture it is an important element of success to get them in the ground early. They are tolerable hardy. A little frost will not hurt them and the like to get on well before the warm weather comes. Indeed, the pea does not like hot weather. It is a native of cool climates, and as soon as hot weather comes it gets mildewed or otherwise diseased. The best pea ground is therefore a cool, strong soil, and if the pea stakes can be provided, so that the luxuriant growth will not close in and suffocate all together, good well decomposed manure helps the crop wonderfully.—The best writers on vegetables claim that for peas it is best to have the ground well manured the year before the crop is sown, so as to have it well decayed, as rank manure makes more foliage and less peas, while well decomposed manure seems to help the seed more.

## MANURE FOR ORCHARDS.

Wood ashes are doubtless excellent for orchards, but instead of being put round the trees, they should be spread over the whole land. But where are the ashes to come from in this region? We have little or no wood, and of course little or no ashes. In our limited experience we have learned one thing in regard to orchards as well as fruit trees of every kind that we have cultivated, and we believe the principle can be applied pretty much to everything that grows upon the earth, which is, that the application of manure benefits them all. Ground occupied with fruit trees should be manured as are other portions of the land used for the raising of wheat and corn. It is the neglect to do so, in connection with the general negligence with which orchards are treated in many sections, that makes them unprofitable and worn out prematurely. And as to the kind of manure with which orchards ought to be treated, while any kind, almost without exception, will prove of advantage, there is none in the world to be compared to stable or barnyard manure. A liberal application of this only every third year, with careful pruning and scraping of the trees, and ferretting out the borers, will make a prodigious change in an orchard. Autumn, even in December, if the ground is not frozen, is perhaps the best time to apply it. —*Germanstown Telegraph*.



PRUNING AT MIDSUMMER.

It is many years since, from our own experience, we recommended people to prune at mid-summer, although we knew it was opposed to the views of many eminent horticulturists. At that time it was regarded as a bold innovation on established rules, and we have often since seen articles to show that summer pruning must be wrong. The reasoning by which this is supported is no doubt very good. It does seem by the reasoning we have referred to that it ought to be wrong to prune at that season, but, on the other hand, we have the evidence of our own senses not only that no harm but absolute good resulted from the summer pruning of trees.

But it seems to be forgotten by many good people that there are two sides to every story—two sides to winter pruning and two sides to summer pruning. Few of these horticultural operations are unmixed good or unmixed evil. In any case that we have to accomplish is to be gained, sometimes at a little expense of good points. So in this summer pruning. It is said by persons whom the whole horticultural community respect, that "winter pruning strengthens, while summer pruning weakens trees," and if one were to deprive a tree of the whole of its foliage, this would probably be true enough to work serious injury. It is on the principle on which noxious weeds are destroyed. Denuded of every leaf as fast as one appears, a plant is often killed in one season. But may this not be different when only a few branches are taken off? The remaining leaves and branches have more food at their disposal. What was intended for a thousand branches is now to be divided among nine hundred. But we are not disposed to enter into these minute points of physiological science. It is enough for practical men to know that the cutting away of a few branches has never been known to work any serious injury; while the ease with which the wound heals over is in striking contrast with the long time it takes a winter wound to get a new coat of bark over it. We have seen in a vigorous, healthy tree a stout branch of two inches in diameter taken off, in which the new bark nearly covered the stump in two years. In winter the same spot would have been several years in closing over, and perhaps the parts would decay first, and thus lay the foundation of future disease in the tree. So well is this known that in many places where winter pruning is practised to any great extent, it is not unusual to have shellac or some other composition ready to paint over the wounds to keep out the weather until it shall have closed over by the new bark.

Of course a heavy loss of foliage would be a serious loss to a tree; but it is very rare that any tree has been so much neglected as to need the half or even the fourth of its branches taken off in summer time. But there are in many cases branches here and there along the trunk of trees which it is an advantage to the tree to lose; and thinning, which may be done in various ways to advantage, and in such cases summer pruning will tell a good tale.—German-town Telegraph.

THE BEARING YEAR IN APPLES.

- 1. Take scions from a tree in 1873, and put them into a good and thrifty tree, and do the same in 1874, and you will get fruit in alternate years.
2. If you cut off of thrifty trees the growth of 1873 in the last of July, leaving three or four buds that would come out in 1874, you would force out the next year's buds and gain one year.
3. If you remove all the blossoms on one-half of your tree in the bearing year, you will have fruit on that half the odd year. These things I have done successfully.
4. I have now in bearing the Victory apple of the odd year produced in this way; next year the scions of the last year will bear on the regular year.—S. A. S. in N. Y. Weekly Times.

BEAUTIFY YOUR HOMES.

The question of how farms and homes are to be improved should naturally lead the farmer to think first of the surroundings of the home. The need of giving attention to this department is apparent to persons who go about the country and see the door yards and the slovenly manner in which farming is carried on by some.

The suggestion for improvement frequently receives the reply: "It costs too much money." But this is not true. Farmers who have the most money and are possessors of bank stock, sadly neglect their premises, while others, with an eye to neatness and a taste for improvements, have everything in good shape, with but little means to do it with. The example of England and France is an illustration, and shows how the humble peasant who cultivates but a small piece of land makes it not only pay largely, but also an attractive home-like residence by the culture and taste displayed in its surroundings. A large sum of money is not required, but simply a little taste in arranging things to make them look pleasant and inviting to the eye.

What a change would be wrought in the aspect of our farming districts, if the gardens and dooryards, which are too frequently filled with wood piles, heaps of rubbish, a mixture of shade trees, weeds, and grass, were converted into a smooth lawn with tastefully arranged fruit trees and shrubbery. Tree culture, from the seed or transplanting, costs but little effort and no money, and how much they add to the ornamental as well as useful! Let some farmer take the course of improvement suggested, and it would do much to educate the taste of the whole neighborhood. We have in mind an illustration of this in one of the hill towns in this vicinity. The church without a

pastor, looking seedy, the houses and fences were unpainted, and the enterprise of the town had run at a low ebb. A new minister took up his home there, bringing with him a wife who, like himself, possessed culture, taste and refinement. The parsonage was first painted, new fences and a new barn were built, the surroundings of the church yard were improved, trees set out, etc., which was a suggestion to others, and the neighborhood was soon improved in the same manner.

How much more attractive are dwelling-houses and farms surrounded with trees, and it really costs so little to do it!—Springfield Homestead.

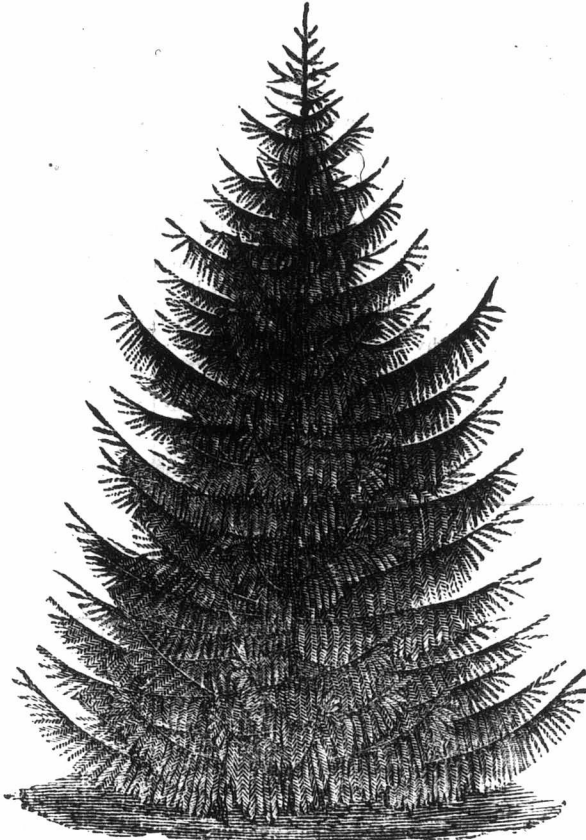
European Larch.

This will most probably become the most general tree for planting for fencing, building and fuel purposes. It is a rapid grower and a durable timber. Of course when planted for timber the lower branches die, and it runs to a great height in a short time.

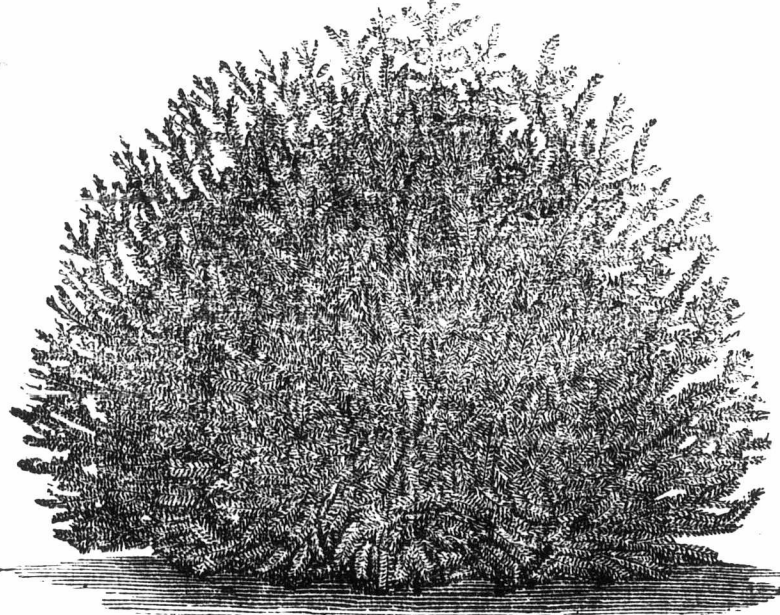
Arbor Vita.

Hints for the month.

We do not wish to remind you of too many things, or we may fail in our present attempt—that is to cause a greater number of trees to be planted. Many of you no doubt have attempted planting evergreens in the fall and early in the spring; some may have lived, many have died. The best time to plant evergreens is during the month of June, say from the 1st to the 25th. At this season the roots are sending out little white fibrous feeders, which will imbed themselves in the earth and grow as soon as they are replanted. There is one particular thing to be observed in transplanting evergreens, do not let the roots become dry. As soon as they are dug up, if they have not a ball of earth



THE EUROPEAN LARCH.



ARBOR VITA.

attached to the roots, keep them from the dry, scorching sun or drying wind, either by packing wet hops or damp straw around the roots, if they have to be carried any distance. If you choose a wet or damp day, and can get them removed in one day, by all means do so. Never leave the roots of an evergreen exposed to the sun or drying wind. Some of you may desire to plant an evergreen hedge, a row, a clump, or a single tree—if possible, spare a day or a half day this month. You can drive to some pinery or cedar swamp, or to some hemlock knoll, and get a load and beautify your grounds, or plant wind brakes to protect your cattle in winter. You may save the price of many an animal by making your barnyards, your stables and sheds warmer by having a good belt of trees at a convenient distance from your buildings. Just give it a trial this month. Do not put it off till next month. As soon as you have read this, make up your mind to hitch up the first

damp day, and plant some evergreens. The nursery trees are the surest to grow, but they cost money, and many of the varieties growing wild are good enough, but if you want a fancy variety you must go to the nurseries. If you get the cedars from the swamp, be sure and get a lot of the fibrous roots and muck with them; those growing on dry land are much more likely to live. This is also the right season to prune your evergreens. Many of you have them growing, but you let them destroy themselves by running too wild. Cut off the tops, and cut back all branches—they will grow thick and ornamental by so doing. Many there are that let their evergreens, close to their houses or gardens, grow to unsightly objects. Take the axe, the saw and the knife, and cut your evergreens back, and make them thick and bushy. Do not be afraid of killing them. Now is the time. If you will not attend to this hint for the month, we need give you no more.

WEeping TREES.

With a fine well kept and velvety, green lawn, tastefully planted with ornamental trees and shrubs, the grounds around the dwelling may be rendered very charming, but the effect can be increased by a judicious selection of weeping trees. We name some of the most beautiful:

European Weeping Ash, Weeping Beech, Cut-Leaved Weeping Birch, Camperdown Weeping Elm, White Leaved Weeping Linden, Weeping Mountain Ash, Weeping Poplar, American Weeping Willow and Kilmarnock Weeping Willow.—Rural Home.

PROSPECTS FOR FRUIT.

Apples are not generally very much injured by our severe winter, owing no doubt to the fact that last fall was quite dry and unfavorable to late growth, and trees went into winter well ripened up and in splendid condition. I find, however, that Early Pennock, Rambo and a few others have had their fruit buds materially injured. Dyer, Lowell, Fameuse, Jonathon, Janeting, White Winter Pearmain and many others do not seem to have a fruit bud injured. Thus you see the prospect for an apple crop is good, but the danger is not yet over. We may have weather so warm as to start the fruit buds, and then cold enough to kill them.

Cherries are not much hurt. The Early Richmond has many fruit buds killed, but still quite enough good ones left to make a large crop. On the English Morello I cannot find a fruit bud that is injured. The Late Kentish has not escaped quite so well. I have, however, observed that cherry buds may show but slight injury from severe winter and come out in the spring, blossom free, but yet bear little or no fruit.

Plums do not look so promising. Lombard, Imperial Gage, Green Gage and a few others do not seem injured, but Cox's Golden Drop, Washington, Blue Gage, Jeffers' n and Miner are badly damaged. The Wild Goose has buds so extremely small that it is difficult to estimate the amount of injury in its buds, but the last year's growth in limbs have suffered considerably.

Pears seem to me to be the most damaged of all other fruits. I have not been able to find a single fruit bud but what has suffered from the winter, and my prediction is that the pear crop will be quite light the coming season.

Peaches are about all killed. Currants and gooseberries are all right, and promise a full crop.

Fruit trees have seemed to suffer but little from the severe cold, though some apple and plum trees have split open, to some extent.

Grape vines that were unprotected are considerably damaged, and a crop of fruit is extremely uncertain. I find the Concord the least injured of any other varieties.

It is not always that a severely cold winter is certainly going to damage the fruit crop for the following season, but much more depends upon the condition of the trees in the late fall. If the fall is dry and trees have ripened up their wood, and with an ordinary winter a crop of fruit is almost certain the following season.—Cor. Iowa Homestead.

SMALL FRUITS FOR THE FARM.

The berries, or what are usually determined the small fruits, are really of as much importance to a family as the larger kinds. The plants cost but a trifling sum, and they commence bearing almost as soon as planted, consequently are extremely valuable to those who desire fruit of some kind as soon as possible.—For the purpose of showing how simple a matter it is for a person to supply himself with a succession of fruit during the summer, we will give a list of varieties and the number of plants and their cost, sufficient to supply a family of ordinary size.

Of course we expect that the plants will be given good care, and the weeds and grass not be allowed to grow up and smother them from the very beginning. As a rule, farmers have little time to care for such plants; therefore it is always best to plant in rows, and where they can be cultivated with a horse and plow. A plot 50 by 100 feet will answer our plan of a small fruit garden, the soil being well prepared and enriched, if necessary, before anything is planted.

We will begin with currants, planting one row of Dutch, and the same of the Red Dutch. These two sorts are good in quality as any, and equally productive, although not quite so large as some of the new sorts. The plants should be set four feet apart in the row, and the rows five feet, requiring twenty-five plants for each row 100 feet long.

All the following named fruits may be planted at the same distance, and the same number of each will be required:

One row of gooseberries will answer and may be placed next to the currants. The Houghton is an excellent variety and succeeds well in all the Northern States, although the berries are very small.

One row of red raspberries will yield an abundant supply during the fruiting season.



Two rows of black raspberries may follow—one of Doolittle for early, and one of McCormick for late. If the black raspberries are not favorites, then plant only one row and two of red.

One row of blackberries will answer. The Kittatinny, probably, for all locations, is the very best, being large and of excellent quality, and the plants are hardy as any.

Entomology.

THE BIRDS.

We are debtors to the birds even in winter. The Blackcapped Titmouse, Blue Jay, and several woodpeckers are busy searching for the eggs and larvae of insects, and the sparrows are eating up the seeds. With each returning spring come the flights of migratory workers. The plowed fields are flushed with the breasts of the robins, and shining with the brown backs and scarlet crested wings of the blackbirds. Every plant-eating insect, in the form of eggs, larvæ, chrysalis, or perfect insect, destroyed in spring, saves the crop which it is liable to attack, whether grain or fruit, from the ravages of hundreds and perhaps thousands of destroyers later in the season.

Go out, if you will, and watch them awhile each day. Certainly nothing could be more advantageous to the reputation of the birds, and nothing more likely to bring large money returns to mankind in the end. For, if you look at the matter thoroughly, you must become convinced that birds are indispensable to successful agriculture or horticulture.

Dr. Jenks, of Massachusetts, demonstrated by actual dissection, to ascertain the contents of the crop, that the food of the robin during March, April, May and part of June, consists entirely of insects and their larvæ—mostly of very destructive species. During the latter part of June, and the months of July, August and September, there is a mixed diet of fruit and insects, the insects being in large preponderance. After July the fruit is almost entirely wild, and even in June and July the bird does not go to a distance to obtain the tame fruits. Late in the season their food is grasshoppers or similar insects. Dr. Brewer noted a pair of robins which fed their young until they left the nest entirely on cut worms. The same fact has been observed by other eminent authorities. The domestic pigeon feeds its young very largely on canker worms, and no doubt the turtle dove and wild pigeon have been doing the same great service, and have been blindly considered by most people as only good food for shot.

The blue bird eats all kinds of insects, and has a preference for some of the most destructive kinds, as the codling moth and its larva, canker worms and caterpillars. In the crop of an Oriole were found three hundred grains of weevils.

Last June I observed the rose-breasted Grosbeak engaged in destroying potato bugs. Skimming lightly over the plants he caught the insect, then alighted on the ground to finish it. Several gentlemen of my acquaintance, whose farms are frequented by this bird, have noted that he is diligent in the work of destroying this insect.

A pair of Golden Orioles, which I watched a year ago last summer, visited their nest with insect food twenty times an hour, and they worked from the earliest morning light until dark in the evening.

The robin visits his nest about as often, and generally with a beak full of insects. A pair of king birds came over twenty times an hour, and usually with several insects at a time.

The woodpeckers visit their nests much oftener; indeed there seems to be a continuous stream of provisions passing in at the door of the dark nest in the trees.

This direct testimony is not the only evidence in favor of birds. In Europe, where the whole subject has been more deeply studied than here, it has been observed that in certain districts where there was a marked decrease in the number of birds, there was a marked and dangerous increase of destructive insects. Vast sums of money have been expended to arrest, by hand-picking the insects, the work of destruction in valuable forests, but without avail. And it is well known that a reasonable number of certain birds, native to the country and feeding largely on the destroyer, but sadly thin in numbers, would have prevented loss.

There has lately been a plague of insects in Paris and the adjoining country. This has been attributed by French observers to the

destruction of birds during the siege. Facts bearing on the same point, and equally conclusive, have been observed in our own country. Wherein, then, lies our remedy against these insect foes which threaten the forests, fruit and grain crops of some parts of our country?

A thousand and one plans of extermination are proposed and tried, and still the enemy gains upon us. Our real remedy plainly lies in an increase of birds. To accomplish this there is but one way; better protection, a more tender care for the life of the bird. It is an idle fear that even with the best protection that can be given, they will increase beyond the real demand for their services.

There are so many dangers that beset, so many accidents that may befall the young bird, that is not often that a pair of birds are able to rear a whole brood. There are snakes and wild quadrupeds ready to devour. There are a few kinds of birds, very useful themselves at other times, which do not object to eggs or young birds.

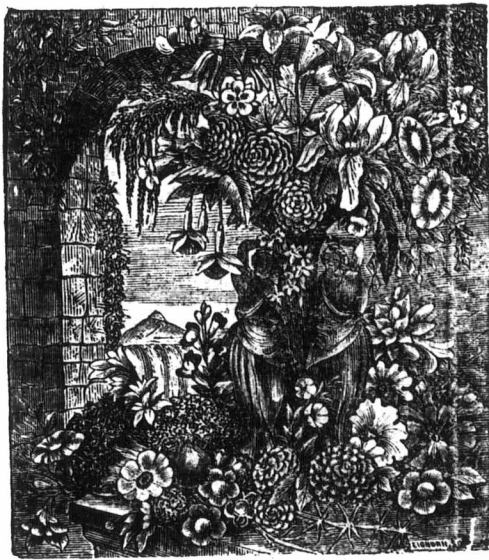
A great many, especially in nests upon the ground, are lost during fierce storms. But perhaps there is no other enemy which so seriously threatens the bird race as the cat; it is searching night and day, and eggs, young birds or old ones are equally acceptable. One often sees half a dozen or more lean, half starved creatures at a single house. It certainly looks as if birds would not thrive well about such a place.

The horticulturist, whether he will or not, is one of the natural protectors of the birds. The deciduous forest trees and evergreens, the fruit trees, shrubs and vines are retreats and homes for the birds.

It is feared that by an increase of birds a few more cherries and berries will be lost.—We can raise more and easier than ever before, for we shall not have to contest every plum and apple with the enemy. It must be plain to every one that the injury which birds have done to fruit, during the last twenty years, would not equal the loss by the codling moth in a single year.—*Ex.*

Flora's Jewels.

We here give a small representation of Mr. Vick's latest charms. The beauties of the picture are but dimly displayed by this little cut, but you will no doubt be able from it to form some idea of the original. We have great pleasure in informing you that we can supply the chromes to any of our subscribers who will take the trouble to get us five new subscribers. If you wish to ornament your parlor with something really artistic and beautiful, spend a few hours getting us five subscribers; send us on the five dollars, and you will receive your magnificent picture, and the subscribers will thank you for inducing them to take such a valuable paper. The picture is known as "Flora's Jewels."



FLORA'S JEWELS.



ANNUAL FLOWERS.

Annual Flowers.

We would call the attention of those wishing to procure choice flower or vegetable plants to Mr. Brydges' advertisement in this paper. Mr. Brydges packs the plants in small boxes, using moss to keep them damp; in this state he is enabled to send them to any part of the Dominion, as when thus packed they will safely keep for many days. He has sent some even to New Brunswick packed in this manner.

PROFIT OF CHERRY CULTURE.

A California paper says: Some of the cherry trees of Mr. Bidwell's orchard, in Butte Co., yielded 8200 to the tree this season, the fruit selling as high as sixty cents per pound in San Francisco.

TREE AND NICE.

In reply to an enquiry about saving fruit trees after having been gnawed by mice, &c., I will give my experience:—My father had a young orchard of 100 trees, nearly all of which were girdled by mice and rabbits one winter. As soon as the ground was thawed sufficiently, we banked them up with earth and nearly all lived and did well, a nice healthy bark forming over the wound.—*W. H., in Iowa Homestead.*

AMMONIA FOR VERBENAS.

The sulphate of ammonia is an excellent manurial liquid to apply to verbenas or any other flower, giving to the foliage a dark green, luxuriant and healthy appearance. It is economical, clean and easily applied. Prepare it in the evening before using, by dissolving one ounce of ammonia in two gallons of water. It may be applied once a week with safety.—*Southern Farmer.*

The Horse.

LARGE OR SMALL TEAMS FOR THE FARM.

A small team, where but one is used, will not do. Deep plowing or sod plowing is too heavy for it. We have known instances not a few where a pair of light horses were exchanged for heavier from a matter of sheer necessity.

But shall heavy horses then be secured?—We have known them to be exchanged for a lighter, not a light team. Strength, activity, endurance, these are qualities in a horse that are wanted, and a good frame to hold them and give them full play.

It is the medium sized team, sufficiently heavy to carry a good load, to plow sod without flinching or succumbing, that is the most profitable—horses of mettle and strength, yet tractable, sure and quick of foot—that will do much light work in a day, and yet answer for heavy.

Each one knows, or should know what his work is, and secure his team accordingly. If there is a large proportion of heavy work, he wants a heavier team; when there is much light work, a lighter. But in all cases, he must see to the treatment of his team—that it is not abused or over-strained. Hard work, and hard, that is, strong food, will soon wear out a horse. If to this is added neglect or abuse, there will be but about half the service gotten out of the team. They will die at 16 or 18 years, and fail sooner; whereas we have known horses to live to the age of 30 years and more, and do a fair day's work.

A heavy horse is generally a slow and unwieldy horse, good enough for heavy drafts; but there it ends. The most of the farm work is not of the heaviest kind, and a spry, rather light horse, will do it cheaper than the heavy Percheron or cart horse; beside, he is easier to handle. But for a single pair, as we have said, a light horse will not do.—Avoiding extremes is the best doctrine. Secure a good sized team, spry and mettlesome, yet easily managed and safe, good constitution, a good keeper, good temper and well trained.

Such a team is worth something; it will cost something—time, trouble and expense in securing it, but it will be a most effective engine in the operations of the farm. Tested well, it will do the work fully and effectively, and last a long time. There is a great improvement to be made in securing our teams as we want them. A farmer cannot afford, especially in a crowded time, as in harvest or seed time, to be annoyed with baulky or unreliable horses. They must be up to the work always and as wanted. And so on the road. We get our horses too much at hap-hazard, and fear to lay out a little extra means for superior teams. It requires but a little more to get a good satisfactory team, costing less to keep doing more work, and doing it the better—a team that with good treatment will last twenty-five years, and save you a world of aggravation with much needless expense, beside endangering limbs, and perhaps life.—*Ex.*

HORSES.

This summer my horses got badly run down. We fed them liberally, but they did not eat well. They had no appetite, no digestion, and no strength and spirit. They came home at noon and night fagged out, and their night's rest did not refresh them. I sawed a barrel in two, and placed the ends on the platform of the pump. These are for watering the horses. Into one of them we put a pailful of corn-meal and mixed it with the water. The horses at first did not like it, and would only drink a little when very thirsty. After they had drunk what they would they were allowed pure water. In a very few days, however, they drank this corn-meal soup with a relish, and in less than a week there was a decided change for the better in the appearance of all the horses.—We do not let them eat the meal, but merely let them drink the milky water. I have no doubt it is as good for them as a plate of good soup is for a tired and hungry man before dinner. It seems to stimulate the appetite and aid digestion.

It is a capital thing for cows as well as horses, but it is not so easy a matter to give it to the cows, as they soon learn to stick their heads in the water almost up to their horns, to get the meal that settles at the bottom. It is necessary to have a large trough with a false bottom.





POULTRY YARD

A FARMER'S POULTRY HOUSE.

The building is 14 by 22 feet posts; roof one-third pitch; lighted by two windows in front, one in ground storey and one in loft, and one in loft back; cellar under the whole 4 feet in depth, with cross wall for ice room in back end. The cellars are 11 by 14 feet, and above the stone wall ceiling up to the first floor, 5 feet above wall, leaving a space of 8 inches, and filling the space with sawdust, thus excluding frost, so the water seldom freezes, or eggs crack, though the thermometer with us has been as low as 34° below zero the present winter. From the top of the cross wall is a tight board partition, slanting back at top 4 feet, where it comes to the loft door. This is for the roosts, which commence near the cellar bottom and incline with the same pitch, so that one hen does not sit directly over another, and also gives more room for the henry proper, and at the same time does not lessen the room for ice, besides securing the hen litter in a compact pile as it slides down the incline behind the roosts.

The entrance of the house is by a door near the corner, at the end of the building, where you step upon a floor 4 by 6 feet. From this floor are stairs leading both to the cellar and the upper room. Across the front end 6 by 14 feet of the upper floor is 20 inches higher than the floor back, and directly over the stairway, leading up, the floor is 20 inches higher still, for convenience in passing up. On this floor is a small room, for confining hens that wish to sit, or fowls that are taken from the roost, and to be dressed at the convenience of the women.

Across the first elevated floor is a tier of nests, made in this manner: First put two boards, 1 foot wide and 1 foot apart, set on edge on the floor; put in partitions 18 inches apart; then cut holes directly opposite to each other in these side boards and close to one partition, sufficiently large for the ingress and egress of the hens. Then on the top of this put another board for the bottom of the other row of nests; put up side boards as before, put in partitions and cut holes opposite to each other as before. Thus continue for six or ten rows.

Then slat up to the roof with lath, so as to give light to the room back, which will be a feed room while the hens are sitting. These openings made to the nests each have a side door made of siding, and running in a groove or champered slot, keeping the front ones open when the hens are laying; and when wishing to have them sit, close the front and open the back one, thus preventing the sitting hen from being disturbed, and saving a great loss in eggs that otherwise would be laid in the nest while sitting. Fronting these nests is a shelf for hens to get into the nests. In the upper part may be a roost if required. In the upper storey I have a room partitioned off, 7 by 14, for corn, lime, buckwheat, wheat screenings, &c., and a door on the outside for shovelling in corn, and also one on the inside for convenience in feeding in winter. This house will accommodate 150 hens, with nests, chicken accommodations, &c. I may close by saying that I am a farmer, not making a speciality of poultry, but think what is worth doing at all is worth doing well. —Cor. Country Gentleman.

POULTRY NOTES.

Camphor for Fowls.—It is health giving to place in the water dishes in the henry a small piece of camphor gum the size of a large pea every morning. It acts as a tonic or stimulant at all times.

A Good Word for Hamburgs.—A writer in the London Field says:—I kept eight pullets and a cock of the Spangled Hamburg breed of fowls. They commenced lay in November, and I had an average of thirty-five eggs per week up to the first week in October, and they were very healthy. I fed them with equal quantities of barley, wheat and Indian corn once a day, and once with barley meal, with a few potatoes and scraps from the house; they were under cover, and had fresh water daily and a deep sand bath.

Food for Chickens.—Chicks under two weeks old should be fed as often as every two hours; be careful and feed no more than they will eat up clean at each time. The first feed should be given as soon after daylight as possible, the last just at dark. See that your chicks have green food; if they are not where they can reach it, mix it with their feed; grass chopped fine, lettuce, field peas, &c. This food has a tendency to keep them in health and hardiness. Cracked wheat and corn makes a good change.

Canker Among Fowls.—This, in some instances, proves a very stubborn disease to manage, but if taken in season a cure can be effected.—The first thing to be done is to remove the canker from the mouth with a sharp stick or quill;

then sponge out the mouth with a mixture one-half vinegar and half water daily, until a cure is effected.

Dropsy in Fowls.—This disease is the result of old age or of forced laying, caused by unnatural and stimulative food, or of disease of the laying organs. There can be no natural cause for the prevalence of dropsy in a yard.—Fowls having a tendency to dropsy should be fed on barley or barley meal as their only food until an abatement of the disease is noted.

Hens Laying Soft Shell Eggs.—The laying of soft or shellless eggs arises, as a general thing, from the undue excitement of the egg organs.—Give the fowls less fat making food; a warm mash of wheat bran is the best food we know of to induce shell making; alternate this with barley or wheat as a feed and shellless eggs will be few and far between.

Chicken Cholera.—Benjamin Sheppard, of Cumberland county, N. J., says he has had very great success in checking chicken cholera, by administering a strong decoction of black oak bark. It was given to fowls by moistening their feed with it, and restraining them from other diet. Undoubtedly it acted as an astringent. We have treated this disease successfully by giving alum water and cooked food mixed with the same.

Chalk in Eggs.—Dr. Nichols says that a hen while laying 10 eggs produces about 22 ounces of carbonate of lime. Hence, if a farmer has a flock of 100 hens, they produce in egg shells about 137 pounds of chalk annually; and yet not a pound of the substance, or perhaps even an ounce, exists around the farm house within the circuit of the feeding ground. This is a source of lime production not generally recognized by farmers or hen-fanciers, and it is by no means insignificant. The materials of the manufacture are found in the food consumed, and in the sand, pebbles, stones, mortar, bits of bone, &c., which hens and other birds are in the habit of picking up from the earth.

Bran for Fowls.—A correspondent writes us that it is an erroneous notion that money can be saved by feeding bran to fowls, as there is so little of the farina of the grain remaining in it that the nourishment derived from its use is hardly worth mentioning. When boiled, as it always must be, its bulk is but slightly increased. Two measures of dry bran mixed with water are about equal to three-fifths of a measure of dry barley.

CURE FOR ROUP.

A correspondent of the Canada Poultry Chronicle gives that journal his method of managing successfully this worst of all diseases, which effects poultry so disastrously. If this recipe proves efficacious, the author thereof is a public benefactor indeed. He says:

When a bird is attacked with the characteristic cough of this malady, or has tenacious mucus about the beak with difficulty of breathing, I place it in a wicker coop in a quiet shed, and put before it a drinking fountain containing about a gill of water, with which I have mixed one drop of tincture of acetate. In every instance during three years this treatment has had an effect almost marvellous, for upon visiting the patient an hour or two afterwards, I have found that the symptoms have vanished. The attack for a day or two is liable to return, yet each time in a lighter form, but continuing the application has in no instance with us failed completely to remove the ailment in about 48 hours.

In case the disease should have made so much progress before it is observed that the sufferer is unable to drink, it will be necessary to give the dose. This is easily accomplished by pouring into the throat about a teaspoonful of the medicine as described. Such an instance occurred here during excessive wet weather, when I was absent from one of the houses two days. Upon going to see that all kept in condition, I found a fine old fellow under one of the perches almost dead from very acute roup. I separated and dosed him immediately. He soon lost all the roup symptoms, but continued extremely weak, and appeared to be fast sinking from atrophy. A medical friend suggested trying the homoeopathic administration of arsenic with the best result.

DURABILITY OF DIFFERENT WOODS.

Experiments have been lately made by driving sticks, made of different woods, each two feet long and one and a half inch square, into the ground, only one half projecting outward. It was found that in five years, all those made of oak, elm, ash, fir, soft mahogany, and nearly every variety of pine, were totally rotten. Larch, hard pine and teak wood were decayed on the outside only, while algeria, with the exception of being also slightly attacked on the exterior, was otherwise sound. Hard mahogany and cedar of Lebanon were in tolerably good condition.—But only Virginia cedar was found as good as when put in the ground. This is of some importance to builders, showing what woods should be avoided, and what others used by preference in underground work.—Country Gentleman.

STOCK & DAIRY

THE FOOT AND MOUTH DISEASE.

The following remarks upon this subject were embodied in a paper read by Colonel Kingscote, M. P., before the Kingscote Farmers' Club:—

The disease diminished the stock of the country, and thereby enhanced the price of meat. To prove this, they must inquire as to the nature of the disease. What was it? A fever of the most infectious kind, in existence in England since 1839. Sometimes, if not often, it was bred by over-crowding on board vessels and railway trucks, by over-driving and by keeping animals too long without food and water. It was certainly spread by men's clothes, dogs and animals, and he believed that infected animals drinking at running streams would cause infection to be carried a very great distance. The disease was brought chiefly from Ireland and foreign ports.

He believed facilities for the transmission of cattle, and the increase in the size and numbers of the markets, were the chief means of spreading the disease. He did not believe in "spontaneous generation" of the disease, but he did believe that if it was allowed to continue unchecked, it would become inherent and indigenous to the soil, like sheep rot in this country, and the rinder-pest in Russia. Animals attacked while fattening were generally put back two or three months, so that they could not be sold out, and others brought on during the time. This was a heavy loss to the farmer, and just as heavy to the consumer. As to the treatment of the disease, he did not believe in the "no treatment" system, which he had heard of as proving most efficacious, and he advocated the feeding of the infected animals on soft food, and the administering of slight cooling medicines, and the keeping of the animals in dry yards. This latter he especially advocated, as a means of preventing lameness, as they often remained lame for several months after. One heard of animals being quite free from disease. The recipe he would give them was one from that old breeder of cattle, Mr. Bowly. This was:—Mix one ounce of chlorate of potash in a quart of warm water, add to it one table-spoonful of camphorated spirits, and give this dose three successive mornings.

He believed a great deal might be done to prevent infection, and he had several instances on his own estate that proved the efficacy of the use of disinfectants, such as lime, tar, and carbolic acid. To the question that might be asked—Were our Acts of Parliament and the rules and regulations issued by the Privy Council sufficient for that purpose?—he emphatically answered, No! Neither was there sufficient inspection of the animals at the ports of embarkation and disembarkation, and at markets and fairs; nor was sufficient precaution taken as to the cleansing of railway trucks and other modes of conveyance. That the disease could be effectually checked by the stoppage of fairs and markets for a time was seen by the fact, that when that was done during the prevalence of the cattle plague, the disease entirely disappeared; and he asked if it would not be well for the country to again undergo the slight inconvenience which that caused, so as to once more put a stop to the disease? The price of meat would not be increased during that time, and in the end would be much cheaper. Cattle must be more thoroughly inspected before being put on board at foreign and Irish ports; more stringent measures must be taken to prevent over-crowding on board vessels; the Passengers Act, limiting so many people to so many cubic feet of space, should be extended to cattle; and there must, if possible, be more efficient inspection of animals before going into markets and fairs. Many vexatious regulations as to the removal of cattle on farms and along highways must be abolished, and notice of disease on a farm should be given to neighbors as well as to police and inspectors. Veterinary surgeons should not be allowed to ram rampant through the country. Cattle dealers should be licensed, and whatever rules were made should be strictly carried out, and not, as now, casually put into execution.

In conclusion, he recommended the producers of meat, viz.—the tenant-farmers and all interested in the raising and fattening of live stock, to petition for full enquiry and legislative action. Let them not laugh at

the disease, and contentedly bear the losses which it had imposed; but let each one determine to take all the precautions he could to prevent his animals catching the disease—let him use his best endeavors to carry out the regulations of the Privy Council, and, without prying into his neighbor's affairs, see that he too acted up to the law.

This he believed would be most certain, most efficacious, and the very best method of checking the disease and of answering the question which had been propounded.—Country Gentleman's Magazine.

SHEEP RAISING IN CANADA.

Some time ago we tried to show farmers the folly of parting with lambs, and the loss they sustained by doing so, yet notwithstanding the warnings of this and other journals, a very large number of lambs have been disposed of in this county as well as in other parts of Canada. Few farmers calculate as much as they should do, and if they have any stock or produce which they can spare, and can get as much for it as their neighbor, they think it is all right. But will nothing induce them to look into the matter of sheep raising. The sale of lambs last year caused a loss to the agriculturists of this country of hundreds of thousands of dollars. This year fewer lambs have been sold, but still the loss will be severely felt next summer. The fleece of a lamb will more than pay for wintering. The feed in summer costs nothing, and in the fall the sheep will be worth five dollars, twice as much as can be had for it now. What would be thought of a farmer's wife who would sell her chickens for a cent a piece as soon as they were hatched, with the understanding that the old hen should take care of them as long as Grasshoppers are in season and stubble fields are rich. Yet such a person is just as wise as the man who sells his sheep before they come to maturity, often keeping them until it suits the buyer to remove them, and until the animals have increased in value. Again and again the attention of our readers has been called to the fact that this country is exceedingly well adapted for the raising of long woolled sheep, and farmers have been urged to increase their flocks, securing the best breeds, and preparing their wool properly for market.

Mr. Hewitson, of Arran, is known to have one of the finest flocks in this country, numbering nearly three hundred. This spring he had 250 fleeces, which averaged \$4 each, bringing in cash \$1,000. From the increase of his flock he realized \$500 for what he sold, holding the remainder of the increase worth \$150. Thus from his sheep alone he has had the handsome income of \$1,650. Mr. Hewitson sells no lambs, but keeps the best breed of sheep. He has three hundred and thirty acres of land cleared, one hundred of which was in grain, the remainder in hay and pasture, and it will be easily understood in what excellent condition his farm will continue when so much of it is set aside for grazing. Why will our farmers not read more, think more and cultivate more carefully than they do? Where is the sense of a man telling you that he cannot afford to pay for an agricultural paper, when he has lost in a single bargain, for want of information that papers would have given him, more than would have kept him in papers all the days of his life. Let every man who owns or occupies a lot of land get an agricultural paper and read it carefully, and if he does not grow rich and wiser in consequence, he must have a most uncommon skull.—American Ec.

MAKING BUTTER.

It is the scrupulous neatness in washing milk-pails and pans, in the management of the cream, in churning and packing butter, that secures an article that will pass for prime yellow, which always commands a remunerative price.

I wish to impress on those butter producers who always complain of low prices, the eminent importance of observing only a few things which will enable them to make an article which may be forwarded to any of our fashionable hotels, where every pound will command the highest price.

1st. See that every milk-pail, pan, churn and butter-bowl is cleansed with boiling hot water every time it is used.

2nd. See that the udders of the cow and the hands of the milkers are as clean as pure water will make them, before an atom of milk is drawn from the cow.

3rd. Provide a neat and clean place for the pans while the cream is raising, where the pure breeze from the green fields may blow into one window over the cream and out at an opening



at an opposite opening. Good butter can never be made in a filthy apartment, where there is offensive effluvia arising from anything, no matter what.

4th. Cream ought to be churned every day; yet, if one can provide a clean corner in a cellar or milk-room, clean and cool, and keep the pail on a clean piece of flagstone, he can make superior butter by churning twice a week, providing the temperature of the cream is maintained from day to day from 60 degrees of Fahrenheit.

5th. Always skim the milk soon after the cream has risen. Thousands of barrels of cream are ruined for making yellow butter, by not skimming the milk soon after the cream has risen. The sooner the cream is removed after it has risen, the better the butter will be. Milk which should be skimmed at evening is frequently left till the morning, when the cream will be injured to such an extent that yellow butter cannot be made from it at all, neither will it make as many pounds as if it had been skimmed at the proper time.

6th. Let the churning be done by a person whose hands and clothes are as clean and sweet as a blossom of red clover; and let the churning be continued until the butter has come. It is ruinous to butter to put cream in the churn, as is sometimes done, and churn rapidly for a minute or two every hour of the day, then in the evening all take hold in turn, and keep the cream dashing and splashing until midnight. If the cream is properly managed, butter will always come beautifully in less than half an hour.

7th. The butter should be worked and thoroughly salted soon after it is churned. There is but little danger of salting too much. One ounce per pound is not enough for butter that is to be shipped any considerable distance. It is ruinous to the grain of the butter to throw it into a dish pan and knead with the hands. The best instrument for working out the butter-milk is anything that will cut deep gashes in the butter, into which butter-milk will flow. The next day after churning the butter should be worked again and packed. A great many persons continue to work and knead their butter to its great injury after the butter-milk is removed, thinking that all the "crystal tear drops," which are not butter-milk, must be worked out.

8th. Thousands of tubs and firkins arrive at the great marts containing what was once prime yellow butter, but which was spoiled by being packed before the tubs had been prepared by being soaked in brine. For the sake of saving a pennyworth of salt for preparing a strong brine in which to soak a firkin two or three days, many a frugal housewife has been obliged to accept half the price of prime butter, simply because the staves were not saturated with brine before the butter was packed.—X. in *Scottish Farmer*.

INFLUENCE OF FOOD.

All manner of food can be chemically resolved into oxygen, nitrogen, hydrogen, and chlorine gases, carbon and certain mineral and metallic matters, and it is the proportions in which the substances are combined which determine the value and characteristics of the different foods. Thus a substance containing a large amount of oxygen and silica, which is silicic acid, it is evident would not be a very valuable food for man or beast, because that substance enters so slightly into the human system, yet the same material might be of great value as a food for plants, because the silicic acid is necessary to their stalk growth. On the other hand, we may have two substances both containing large quantities of nitrogen; the one will be an excellent and delicious food for man, while the other would be disgustingly offensive to taste and smell, yet would be invaluable as a plant food. Hence we see that it is not alone the chemicals of which a material is composed, but specially the manner of their combination which gives their value, and we cannot determine their effect upon the animal economy by their chemical constituents. The influence of food effects upon the creature to which it is given, and it is evident that in such feeding we should take into consideration the nature of the animal fed. In the German experiments which have been so often alluded to of late, we think that the sole study has been the chemical constituents of the food, and no attention paid to the animal.

Every farmer of any thought or observation knows that different breeds of cows have characteristics and qualities entirely different, and there is often a difference among those of the same breed. No one would think of choosing the little, lank Jerseys for beef cattle, yet for rich, creamy milk, they would be the first choice. The food which in another breed, is secreted into fat, is in them turned into cream, and no matter what that food may be, the constituents in it are thus converted. That wonderful human laboratory, the stomach, performs its functions as designed by nature, extracts the available matters from the food, and converts them into just whatever nature has designed should be a prominent feature of the animal. If the food be of such character as to suit the peculiar feature of the animal, then

the process is easy; but if it is not, then by some process or effort nature supplies the deficiency—if long continued, like all other strains upon vital force, at the expense of yield and good health. Had that period of the German experiments embracing mere dry hay been long continued, there would certainly have been a giving way of the strength of the animal and a decrease of the milk, or, at any rate, of its richness. The change from flesh-forming to fat-forming foods could not have any effect, as whatever the nature of the cow she would assimilate the one as quick as the other in that particular line which was her prominent characteristic. We look upon the German experiments, as we have them, as very imperfect, yet at the same time very forcibly illustrating the statement we have made.

Certain foods contain subtle essences and flavors which have been formed in the chemistry of their growth. Some of these are so intensely pungent that they go through all the stomach without change, and come out into milk or other secretions. Hence, care should be exercised in feeding every character of stock that these strongly flavored foods are avoided, if it is desired that the products of the dairy or the poultry yard be of first class quality. The flavor of wild onions has been known to go through even into butter and cheese, and the feeding of chickens upon pork scraps may be carried to such an excess that the eggs will be decidedly flavored. Thus, too, the cause of milk sickness is distilled through the animal economy into that concentrated essence, the milk, and also permeates the flesh, so that he who drinks the first or eats the last will be poisoned, while the animal itself is not at all affected. Thus food, injudiciously chosen, may be the vehicle of hurt instead of good, of disgust rather than pleasure, and hence the necessity of carefully selecting proper food, wholesome, nourishing, but devoid of offensive odors; and of carefully observing the effects resulting from causes known to exist or matters known to have been used.

We have further the influence of foods upon animal growth and health, and upon the increase of quantity of the secretions, whether or not the quality be affected. It requires but little thought for any one to know that green foods, containing large amounts of water, must increase the flow of the secretions, and whether they increase or decrease, the amount of cream in milk must increase the amount of milk itself. At the same time these green foods have not the tendency to give that permanent and solid fat desirable in the beef market; it must be remembered, though, that green foods differ in their characteristics and properties, exactly as do the dry matters, and that in relative proportion they will accomplish the same ends, but the cattle which have gathered size on the green food are benefitted with soidity by a period of grain before being led to the butcher. For the proper understanding of the influence of food we must first study the constituents of that food, and then the physical peculiarities of the animal to whom we wish to feed it; by this double adaptation the end we wish to accomplish will be made perfect.—N. Y. *Weekly Times*.

NEW CHEESE FACTORY.

The farmers of Mariposa appear to appreciate the advantages derived from cheese factories; and it is desirable that their example should be followed by other townships. We learn that Mr. John Rogers is making preparations for establishing a factory on the 7th line of Mariposa, where he has a splendid neighborhood for carrying on cheese-making on a pretty large scale. Messrs. Bertram Bros. are now making for him two large vats, each having a capacity of about 450 gallons, and the necessary supply of milk cans. The same firm are also making a vat of about 400 gallons for Mr. Cruse's cheese factory.

These home industries afford gratifying evidence of the progress of this section in this particular line, and show how different branches afford mutual assistance. The vats are superior specimens of workmanship, and are admirably adapted for the purposes intended.—*Lindsay Post*.

PACKING BUTTER FOR WINTER USE.

At a meeting of the Bucks Co., Pa., Agricultural Society recently, an essay was read by Miss Kate Craven, of Newton, in response to the question, "Can butter be packed to advantage in June or July for winter use?" The essayist was decidedly in favor of packing butter in early summer, when the price is usually so low as to be unprofitable. If properly put up then it cannot be surpassed. It must be fresh and good or it will not keep well. Her recipe is:—

For twenty pounds of butter take one and a quarter pounds of salt, one ounce pulverized saltpetre, and a small quantity of white sugar, which should be worked into the butter and left over night. Next day work again, make into lumps, put into a stone vessel, and cover with brine strong enough to bear an egg. Lay a bag filled with salt in the vessel and replenish when empty. Do not remove the butter long before it is needed.

Correspondence.

The Editor gets Hauled over the Coals on the College Question.

MR. EDITOR,—

I thought I would write a few lines regarding the Model Farm, since you have kindly offered to publish an article even contrary to your views. I am extremely sorry to differ with you, and that conscientiously. I had hoped that persons wishing for the same end would agree in the general means of attaining that end. I have no interest in the Model Farm more than any other man. Your arguments I consider wholly insufficient to establish your views. There has been only one argument, worth anything, brought forward, and that is "Rideau's" statement that he never read of Agricultural Colleges in England or Scotland, where agriculture is carried on next to perfection.

You do not consider that the Model Farm would do any good to the farmers. To the present farmers who have one foot in the grave, I admit its benefits would be but slight; but take the rising generation of farmers, who are to fill their fathers' places, and I see it in a different light. Boys are growing up on the farms with nothing but a common school education, and a great deal commoner farm education.

Their fathers having exhausted their farms, die and will the farm to one of the boys. What is that boy to do with a poor (once good) farm? His father, one of those who always opposed the education of the farmer and thought to know how to plow and sow, reap and mow, was all that was required for a farmer, barely lived with all his experience and whimsical moon knowledge. He takes an agricultural paper. Some writer says do this, another says do that, without giving any reason.

Now, Mr. Editor, if that boy had an education such as an Agricultural College could bestow, he could weigh the advice of those writers as regards his case, if he could not suggest a remedy himself. We have had enough of this doing so because father did. Let the farmer understand the principles upon which his business is based, and then advancement will appear in far more glorious colors than ever. I can give you two instances in which, if more knowledge had existed among the farmers concerned, thousands of dollars would have been saved. Both cases happened near Brantford, and the results of ignorance are there as a monument to this day. One was the introduction of the trench plow into soils containing an excess of iron compounds; the other was the introduction of a new grass, highly recommended, the common name of which had been hidden by some enterprising man, which proved to be Couch grass.

Now, Mr. Editor, had the knowledge of Chemistry in the one case, and Botany in the other (sciences which you nor any other private enterprise firm could teach), been universal or only exceptional among those farmers, would not the evil results have been averted?

You talk about aiding Farmers' Clubs. What aid do they want? They are self-sustaining where men of right principles exist to manage them. About one-tenth of the farmers of Canada would join Clubs. The remainder see no use in such institutions, and if they can see no use in Clubs, how can they be expected to see any good in an Agricultural College, an institution which is a thousand times higher than the Club, than the Club is above those who will not join it. This is where the majority of farmers comes from who oppose such an institution.

You say that thousands of experiments are made every year. I can say yes to that with all my heart (every farmer is experimental), but nine hundred and ninety nine out of the thousand are not worth the printing. They may be worth something to those who make them, but to farmers living ten miles away they are

good for nothing, because nothing is known of the conditions nor of the exactness with which the experiment was performed.

Look at the meaning farmers put upon the word loam. Loam with them includes every soil. "What sort of soil is your farm?" you ask. "Oh, its a nice, loamy soil," or a 'light loam,' or a 'heavy loam,' or a 'black loam,' as the farmer may think! That word loam is of no use to common farmers.

Now, I shall consider the articles written by correspondents. As far as "An Old Farmer's" article is concerned, there is no argument in it. He simply feels sore because a Government is in power in Ontario of different political principles to himself. Hence he tries to harrow up little personal slanders as low as the late candidates tell on each other when on an electioneering campaign.

Mr. Kernigan is a little more reasonable. But how could you teach Chemistry to children in common schools, without chemical experiments? Let him study a little chemistry himself. Take the element, oxygen. The book tells him it is a gas, supports life and combustion, &c., &c., but before he gets learned what nitrogen is he forgets all about oxygen. But let him see the experiments performed proving these statements, and he will become interested and love the science and crave for more knowledge.

"Rideau's" illustration of the cow just condemns his own views. Of course every fool knows that if you "milk" a farm and return nothing, the farm will soon run dry. However, a good many fools have tried the experiment. Every fool, though, don't know what is wanted on the exhausted farm to restore fertility. The Agricultural College will be able to teach the renewal of exhausted lands. The trouble, however, will be, farmers will expect to restore in two or three years what it took them twenty years to exhaust. How unreasonable, therefore, for present old farmers to expect to see their money back in the few days they have to live. If it took twenty years to exhaust, surely it will take twice twenty years to restore fertility and make the farm pay its way at the same time.

If there are no Agricultural Colleges in England that is no argument that there should be none here. A few years ago there were no cheese factories in England, while there were hundreds here. Did that prove the factory system a useless scheme? No. But what do we see? Why England is working into the factory system, and even sends for Americans to manage their factories.

The best farmers in England, those who have done most to advance farming, are men of good education. I would cite Mr. Mechi as an example. The same is the case with Americans. Prof. Mapes, John Johnston, George Geddes, Harris Lewis and others are men of learning. Agricultural papers are a great aid to farmers, but alone they are but a mite to the farming community. They profess to advance the interests of farmers only, but do they not also advance the interests of manufacturers and sometimes swindlers? They will not barely expose every swindle, neither will they show the demerits of every machine they advertise. They will not even publish an article written by a farmer (who has been swindled) against a swindler for fear of spoiling the business of the swindler.

Chemistry the only science useful to farmers. How preposterous! All I would say is, name a natural science that does not bear upon agriculture. Finally, if young men will not attend the Agricultural College, that is not the fault of the College, neither does it prove the College to be injurious.

I hope, Mr. Editor, that I have not been too long. Having four writers to answer, considerable space was required. Those whose views I oppose have written sharp and, I trust, conscientiously. I also have written pointedly and truly conscientiously,



therefore I hope my being in the opposition, will not bar my article from the press.

Yours truly,  
B. J. P.  
New Durham, Ont., May, 1873.

THE EDITOR REPLIES :

Having asked those who believed in the Agricultural College Bill to come forward and show the grounds for their faith, we are very glad that such an able and prominent man as "B. J. P." has taken up the cudgels. We give his letter in full because we wish to do everything in the fairest possible manner, but we beg of those who send us correspondence to condense their remarks, as our space is limited.

We will take up his arguments *seriatim* and answer as briefly as possible. He says we have advanced no arguments against the College institution. Now, it is his duty to prove its advantages first, before we need to attack. The College gets a large sum of money from the Government of Ontario, or rather from our pockets. We, therefore, have a right to know what benefits we are to derive from the expenditure.

It is a scheme which has been forced upon our farmers by the politicians and place-hunters. We were prospering. No farmers ever desired that the Government should attempt such a project. It was the wise men in council who determined that we farmers were ignorant and needed to be taught, and they were the men to have us taught, and spend our money in so doing. Now, understand that our opposition is not to the college itself, but to turning it into a government political machine. Such an institution to be carried on by private individuals has long been in agitation, and attempts have been made, and are still being made by private enterprise, to establish a similar institution. (See notice given in the *Canada Farmer* over seven years ago). Such an institution under the control of private individuals would be of more benefit to the country. If one was properly established others would soon follow, but private capital can not compete against the public exchequer and the Government influences and powers.

This institution was undertaken by the Government on purpose to check private enterprise and build up party friends.—This we assert, knowing it to be a positive fact. When we know this, can we be wrong in stating that it has, must and will throw a great check on private enterprise. In this ground we say the benefits will never be equal to the costs.

We have never asserted that such an institution would not do good to farmers. In the midst of so much chaff there ought to be a little wheat. The question with us, will the benefits be equal to the cost? or is there no way in which we could spend the money to better advantage for the farmer?

The only way to judge of the benefits of such institutions is to examine into the work and effects of similar ones already established. The governments of the several States over the border have dealt very liberally in agricultural colleges. It was at one time a perfect mania with them, and money and land were lavished upon them with an unsparing hand. How are these colleges now? Just read the agricultural press of the United States.—Failure! failure! failure! No man so mean as to praise these institutions. A universal cry of "Do away with them!—waste no more of the people's money on such political, agricultural, educational, experimental, collegiate humbugs!"

Our correspondent wants to know what the poor boy will do who has been left a worn out farm by his father? and his evident answer must be—go to college. Does our friend find that the college bred men who live in his immediate neighborhood are those who succeed in making good farms out of bad ones? Let this be our answer:—If the boy reads the agricultural press, and does not learn from his

own actual practice how to care for his farm, his chances of becoming a model agriculturist by means of the college are slim indeed.

Our friend cites two instances which he says prove the necessity of agricultural colleges. Does he expect the college will teach enough of Botany to enable its students to know and name every seed on sight; or enough Chemistry to analyze all his farm soil? If so, then how much time does he mean the boy shall spend at the college, and if so, how much will it cost the country to educate the majority of our farmers to the same standard?

Then as to agricultural clubs being already self-sustaining, and therefore requiring no help, he might have said the same thing regarding agricultural colleges a few years ago, when every farmer's agricultural college was his farm, and his testing department was his granary. Our correspondent says that not over one in ten of our farmers will join the agricultural associations, and therefore the benefit will be small. How many will attend the college? Will one in one thousand? Then, according to his own arguments the benefit will be still less. We maintain that farmers' clubs, properly organized, are immensely superior to the college for the following reasons:—

1st.—They are spread over the country, and the members are so many that nothing of importance in agriculture can occur without being subjected to discussion, whereas the college can only take cognizance of what goes on in a few hundred acres.

2nd.—If an erroneous idea is advanced by the press, there are plenty of practical farmers in the clubs to expose its fallacy. With the college, if the professor is wrong, all must go wrong with him.

3rd.—The test farms of the associations cover the whole of Canada, and have the variations of temperature and soil, and the testers are dependent for their bread upon the tests being successful. The testers in the college will live all right any way, for we must all feed them.

What is required to make the agricultural associations useful is that their discussions should be made public and be revised by one another.

Our correspondent cites as college bred men such names as Mechi, Mapee, Geddes, Harris, Lewis and other well-known agriculturists of England and the States as proofs of the value of agricultural college education. This argument would be very good only for the fact that none of them ever attended an agricultural college!—They attended first such colleges as we have already established in Canada in abundance.

"B. J. P." winds up with a miscellaneous attack on agricultural papers because they advertise swindlers and manufacturers, and says that they don't tell the defects of machines or expose the trickery of schemers. If he will examine our back numbers he will find out that on the contrary, we have devoted much of our space to the exposing of swindlers and strictures on machinery, and we now give publicity to his ideas which are diametrically opposed to our own.

DEAR SIR.—There is a hint in the Advocate for April which is worth to me more than a year's subscription to it, and I thank you and Mr. McCollum for making it public. I mean the plan of saving turnip tops. I have tried for years to save them but could only do it in small quantities, spread on the mows or on poles, but by Mr. McCollum's plan any quantity can be kept good, and I know that the cattle, if they could speak, would say "Thank you" to any one who will give them such feed.

I am surprised at the quantity of turnip seed, both you and your correspondents consider necessary for an acre—but then I write as a backwoods farmer only. It is a common opinion amongst us that four ounces is enough, if you can make it cover the land. I can manage half a pound very well, and the plan I take is this: I wet the seed, then pour off all the water that will pour, then rub the seed in dry soil till it will nearly all separate,

then put as many dry ashes—mixing thoroughly, so that no two seeds will stick together—as will with the thumb and two fingers cover an acre. It appears that the seed, wet and mixed with the soil, insures the growth of nearly every one, and the ashes, besides helping the thin sowing, is, I think, a protection against insects. At all events it does well on new, stumpy land where drills are out of question. Allow me to give a hint which may be of service:—I laid out 1½ acres for turnips last year; it was July before I could sow; I had but half a pound of seed, except a little parcel, I did not know what it was; I sowed it on the part of the land the other would not cover; it came up Early York Cabbage and grew very well. Query—Wouldn't it pay to sow cabbage broadcast early, as I sow turnip seed? I mean to try it this year. What was the matter with the ox? Will you be kind enough to give me information on the following:—I have just lost an ox. He ate his hay well on Saturday morning, but when I hitched him up to work a few hours later he refused his hay. I took him out with his mate and drew a good load of fodder all right. He ate well at night, and the next day I gave him a bran mash, which he evidently liked, but was a long time eating, apparently could not swallow, and picked at his hay, taking very little bits, though hungry enough. On Monday morning he was frothing at the mouth, and his manger was a slop with froth and there was a thick discharge from the nostrils. Two neighbors came to look at him but could not say what was wrong. On Tuesday he continued the same but was clearly getting weak. On that day I had to leave home and got a neighbor well acquainted with cattle to look at him. He came on Wednesday and examined him thoroughly, but could not name the disease, unless it was paralysis of the tongue, as when he pulled it out to examine the mouth and throat it hung out and only gradually slipped back into the mouth. On Thursday he died, apparently from hunger and suffocation. He had not for two days been able to put out his tongue to get food, and when we drenched him, as soon as his head was let down, it ran out of his mouth. We gave him bran as freely as he would take it, boiled oats, raw potatoes, bread, &c. I got a neighbor to examine his throat after death, but we could not learn anything satisfactory. All that appeared irregular to me was, the passage from the windpipe to the nostrils was full of chewed food. There was also a lot of it in the gullet, but not enough, as I thought, to cause choking—but then I know nothing of anatomy. Until he died his nose was as moist and healthy looking as could be, and so were his mouth and tongue; his eyes were rather sunken and his jaws quite stiff. If you can explain the cause of death, and suggest a remedy, it may be of service in future cases.

Yours truly,  
P. HARDING.  
Cardiff, April 21, 1873.

REPLY.  
The cause of death was choking from obstruction of the gullet by lodgment of food in the passage. It is not an infrequent occurrence for coarse food to become so impacted. Sometimes a twig of a thorn bush, a stalk of a thistle, or over-ripe fibrous hay, hurriedly swallowed, remains in the throat and produces all the symptoms so plainly described by our correspondent. The treatment of course suggests itself. "Remove the cause and the effects cease." This will be done by opening the mouth with a balling iron and passing the hand into the throat and removing the foreign body. Then feed for a few days on thin, sloppy food. Sometimes an intelligent boy, owing to the smallness of his hand, will be more successful in these cases than a man.

D. W. E.

GRASS PEA, AGRICULTURAL COLLEGE, ETC.

MR. EDITOR, SIR.—I see in your last issue an account of the German or Grass Pea, and soliciting any information your subscribers could give on that pea. I suppose I know all about them. The name grass is very appropriate, but you can leave off the German. I have raised hundred of bushels of them in the States, for the very reason that they are bug proof. They are the shape of a wedge, or an Indian tomahawk. They are a rich pea, fine vine, make good feed, and will blow and increase until harvested. Therefore, if you have bought and sold them, you are not far astray, but if you have, not be cautious, unless it is in localities where bugs are troublesome. I showed some a few years ago at our County Show, and if I had any

left I would send you a sample. I would like you to send me a few, if they are, as I think I would know them as well as I would my old hat. As for the oats you speak of, I wish you had given a more minute description of them. There was a new oat introduced here a few years ago at a high figure. I can exchange any oats I have ever handled. I think but little of the *Country Gentleman's* idea of raising potatoes. Your idea of the Agricultural College is sound. If you can stamp it out of existence, do so. If you can give you my experience in planting the potato, I having raised thirty different kinds and in different ways, but I think I have trespassed enough this time.

Yours, with respect,  
B. F. MORRISON.  
Newmarket, May 1, 1873.

PLANTING TREE.

DEAR SIR.—As soon as I read your offer of Flower Seeds to any girl that would plant trees, I set right to work and planted since the 16th of April, 54 trees, and am going to plant 46 more if I can, as I would like to have a hundred. One very nice spruce tree I call Mr. Weld's tree, and three beautiful balsams in a row I call Weld's favorites. I planted a row around the garden fence, two rows down the lane, and four by the gate at the road; I intend to plant a row around the barn yard yet, and at other places, but I may not get them this year. Now, I send for some seeds, as I love to work in the garden, it gives me such good health.

I remain, yours truly,  
MARY A. MORRIS.

Well done Mary, you richly deserve the prize; I know the seeds will please you. I expect you will have the handsomest grounds in the neighborhood. When the ladies begin young, and are attached to the beauties of nature, how much happier, healthier, and more useful lives are they apt to lead, than when their brains are filled with operas and dress and frivolities of the city. Ladies, plant your trees, and attend your flowers in the pure air of the country.

HOW TO MAKE A CHEAP CELLAR BOTTOM.

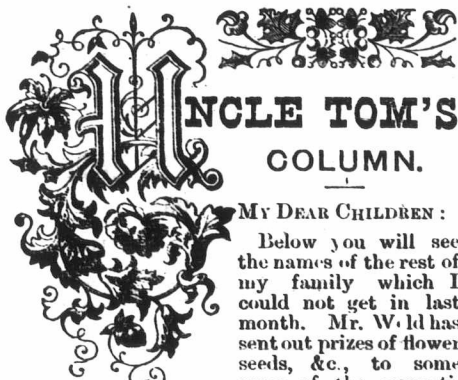
In sections of the country where there is an abundance of cobble stone, collect a few loads of them about four or five inches in diameter, grade the bottom of the cellar, lay the cobbles in rows, and ram them down one-third their thickness into the ground, so that they will not rock or be sunk below the line of the rows by any superincumbent pressure, such as the weight of a hoghead of molasses or a tierce of vinegar. The bottom of the cellar should be graded so that the centre will be at least two inches lower than the outside. When this is the case, should water enter from the outside, it will flow directly towards the middle. A straightened board should be placed frequently on each row of stones as they are being rammed, so that the upper sides may be in a line with each other. After the stones are laid and well rammed down, place a few boards on the pavement to walk on; then make a grouting of clear sand and water lime, or Rosendale cement, and pour it on the stones until all the interstices are filled. As soon as the grouting has set, spread a layer of good cement mortar, one inch thick, over the top of the pavement, and trowel the surface off smoothly. In order to spread the mortar true and even on the surface, lay an inch board one foot from the wall on the surface of the pavement, stand on the board and fill the space with mortar even to the top of the board; after which move the board one foot, fill the space with mortar and trowel it off smoothly. Such a floor will cost less than a board floor and will endure as long as the superstructure is kept in repair. A floor made in the foregoing manner on the ground in the basement of a barn, a piggery, or a stable, would be rat-proof, and would be found cheaper and more serviceable than a plank floor. The work should be done in the former part of the growing season, so that the cement may have sufficient time to become dry and hard before cold weather.

HOW EASILY BUTTER IS SPOILED.

A farmer's wife writing to the *Ohio Farmer*, says: "Of all the products of the farm, butter is most liable to be tainted by noxious odors floating in the atmosphere. Our people laid some veal in the cellar, from which a little blood flowed out, and was neglected until it commenced to smell. The result was that a jar of butter which I was then packing smelled and tasted like spoiled beef."

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UNCLE TOM'S COLUMN.

MY DEAR CHILDREN:

Below you will see the names of the rest of my family which I could not get in last month. Mr. W. H. has sent out prizes of flower seeds, &c., to some more of the competi-

tors. Here are their names:— Maggie Stewart, Bruss ls.; Nellie V. McGannon, Prescott; Thomas R. Horner, Princeton; Willie A. Rutherford Millbank; J. Sinclair, Nottawasaga; John Hummett, Hespeler; Cassie Ney, Newton Robinson; Maggie Ingram, Craighurst; Kathleen H. Ross, Belleville; Mary Davidson, Nelson; Annie Hogge Guelph; Andrew Boydene Milverton; Lavinia Heacock, Kettleby; Aggie Benson, Mountain View; Harriet A. Davis, Wolfe Island; Alfred J. Wright, Apsley; Clara Tucker, Stratford. I hope the seeds will be all well cared for, and grow up into beautiful plants of flowers and vegetables. And now for last month's puzzles.

ANSWERS TO MAY PUZZLES.

Melissa Ostrom, Moira, 3; Francis E. Lawson Nile-town, 5; James Bowers, Perrytown, 5; Diana Lovegrove, Cayuga, 3; Mollie Good, Brantford 3; John H. Haun, Beamsville, 4; James Hughson, Dawn Mills, 4; George Davis, Galt, 6; C. H. Wartman, Glenvale, 4; Harriet A. Brand, Gosfield, 4; Isaac W. McDougall, Hornby. —; Chauncey G. Jarvis, Nilestown, 4; F. R. Chittenden, Cainsville.

ANSWERS.

76.—The Season is Backward (The C's on its backward).

77.—You sigh for a cipher, but I sigh for thee. Oh sigh for no cipher, but Oh, sigh for me; Then let not my sigh for a cipher go, But give sigh for sigh, for I sigh for thee so.

78.—Sewing Machine. 79.—Place the pigs 3 each in 3 pens, and put the other pen all around them. 80.—For Divers reasons. 81.—For any dry causes. 82.—Because they are all roosters then. 83.—31 miles, 4 furlongs, 39 perches, 1 yard, 1 foot, 9 1/8 inches.

Rushdale Farm, Rockton, April 18, 1873.

Dear Uncle Tom, — I thought you would like to hear an account of some trees I planted. At the head of our avenue I have planted maples, ironwoods, hickories and elms, amounting to fifteen in number, interspersed with flowering shrubs, and which I have called "Weld's Grove." I have called the biggest maple "Uncle Tom," and I hope it will not die, but if it does I will wear mourning. My brother helped me to dig the holes, as I could not dig them very well myself, it being so very stoney.

With much love I remain Your affectionate niece, MARY KERRIGAN.

From many letters expressing thanks for the flower seed prizes, I print this one:— Maple Grove, May 11th, 1873.

My Dear Uncle, — I have just received your beautiful package of flower seeds, for which please accept my sincere thanks. My Ma has just planted them, and I suppose I will soon have some beautiful flowers, and every time I will think of dear old Uncle Tom. From your affectionate and loving niece, ROSE WIDDIFIELD.

NEW PUZZLES.

84.—A young man asked an old gentleman for his daughter in marriage. The answer was:—"Go into the orchard and bring me a number of apples and give me one-half of them, to my wife one-half of the remainder and half an apple over, to my daughter one-half of the remainder and half an apple over, and have one for yourself, without cutting an apple. If she is then willing you can have her." He solved the question; how many apples did he bring?

My first in June but not in May, My second in rain but not in hay, My third in ache but not in pain, My fourth in hail but not in rain, My fifth in eagle but not in hawk, My sixth in stand but not in walk, My seventh in love but not in hate, My eighth in pump but not in state, My whole is a person as extensively connected as any other in the Province.

My first in rum but not in fun, My second in pistol but not in gun, My third in Jane but not in Kate, My fourth in pain but not in ache, My fifth in bird but not in fowl, My sixth you'll always find in towel, My seventh in melody you'll find, My eighth is always out of time, My ninth you'll always find in rhyme. My whole is a good friend to Canadian housewives. CLARA TUCKER, Stratford.

87.—A woman going to the well to bring 4 quarts of water, had only a 3-quart measure and a 5 quart measure. How did she measure exactly 4 quarts?

88. Part of a foot with judgment transpose, and the answer you'll find just under your nose. MOLLIE GOOD.

89.—If kisses were a penny apiece, And words a penny a score, Twenty words in every minute And a kiss to every four, How long would it take to spend a hundred pounds?

90.—How does a sailor know there is a man in the moon? BELLA FINCH.

91. GEOGRAPHICAL PUZZLE.

During the month of (a river that empties into the Danube), dressed in a full suit of (a city in China) which was lined with (a town in the north of Hindostan), and wearing shoes made of (a country in the north of Africa), having (a city in the south of Ireland) in the soles, trimmed with large brass (islands in the North Pacific Ocean), and attended by (a river that flows into the Greenland) to my friends (the southern cape of Greenland) to my friends (the two capes at the mouth of Chesapeake Bay), and started to form an (town in Stark County, Ohio), with a girl who had refused an offer of marriage with a rude fellow, who, being angry with his father, had threatened to (a town on the river Tigris, in Asia). When I arrived, her mamma being filled with (a cape in the north of Scotland), was (the capital of Mecklenburg, in Prussia) at two noisy (countries separated by the Niger River, in Africa), hens. When I met her I called her (island west of Morocco) and gave her an (cape in north of Brazil). Then she set before us (a country in Europe), which was very full of (a country south of it), and then retired to milk the (town in the Isle of Wight). When I spoke to her about being her (island in the Irish Sea), she said I was (a group of islands near Land's End) which was not (a cape near Vancouver's Island), so I told her to go to (a town in Nova Scotia), and put on my (bay at the isthmus of Darien) and went home, feeling worse than I had ever felt before, since the day I was (a lake in Louisiana). LAVILLA HEACOCK.

John Sinclair, Nottawasaga, 25, P. C.; G. Walker, Naticoke, 27, P. C.; Frank E. Lawson, Willistown, 14, P. C.; Philip Slatery, Eastwood, 5, P.; Frank Dawson, Ernestown Station, 13, P.; Endora Acker, Ingersoll, 10; Louisa Haviland, Ingersoll, P.; Sarah Ann Ferrell, Wo-ler, 27; E. McCollum, Duart, 20; Ezra Eby, Waterloo, P. C.; Maggie Stewart, Brussels, 29, P. C.; Cara E. Bussell, Trafalgar, 12, P. C.; Robert Armstrong, Hornby, 16, P. C.; M. R. Bell, 2, P.; J. C. Gardiner, Milbrook, 16; John Hammett, Hespeler, 27, P. C.; Cassie Taylor, Glencoe, 16; Annie Hill, St. Thomas, 23; James Hill, St. Thomas, P. C.; Elizabeth A. Bailey, 22, C.; M. Harper, Shanty Bay, 27, P. C.; Annie Conthard, Strathburn, 14, P.; Robert Rennie, Toronto, 12; Maggie C. Miller, Spencerville, 26; Cassie Ney, Newtown Robinson, 26, P.; Amy Coulter, Almonte, 24; Levi Barkey, Altona, 27; Frank Barkey, Altona, 27; Louisa Bobier, Tyrconnel, 23, P.; Anella Bobier, Tyrconnel, 23, C.; Maggie Manning, Bondhead, 20, P.; M. Teeple, Jerseyville, 19, P. C.; Maggie McNulty, Atherly, 15; William H. Bunn, Lancaster, 15, P. C.; Colin Fraser, Hills Green, 17, P. C.; Willie Mason, Morpeth, 20; Sarah E. Forfar, Agincourt, 28; Maggie Ingram, Craighurst, 26; Geo. Sutherland, Embro, 25; Annie Carneth, Leskard, 12, P. C.; Margaret Jane Crezo, Kinmount, 12, P. C.; Thomas Freethy, Rob Roy, 8, P.; Carrie Floyd, Prescott, 14, P. C.; Wallace Crotty, Ingersoll, C.; Mary Jane McGowan, Collinsby, 13; Kathleen H. Ross, Belleville, 19, P. C.; William E. Anderson, Beddersville, 11, P. C.; Annie Conthard, Strathburn, 14, P. C.; Nellie V. McGannon, Prescott, 20, P. C.; Wm. Dickie, Nissouri West, 25, P.; Thomas McCormick, Brantford, 4; "L. L. B." Brucfield, 28; Francis J. S. Brady, Port Stanley, 24, P. C.; Mary Davidson, Nelson, 13, P. C.; Rebecca Hoskins, Sarnia, 23, P. C.; E. P. Roe, Clarence, 25; D. C. Sutherland, Bond Head, 28, P. C.; F. Barky, Altona, 7; Lucy Cordelia Terhune, Brantford, 26, P. C.; T. Wesley Housser, Beamsville, 28; John Parsons, Hills Green, 25, P. C.; Annie Hogge, Guelph, 28, P. C.; Lucy Condon, Fallowfield, 28; George Deadman, Lambeth, 27; R. Shriner, Thorold, 12, P. C.; James Steele, Bennie's Corners, P. C.; Moses Pierce, jr., Brinsley, 27; Thomas W. Gibson, Wrocteter, 18; Lorenzo D. Bessey, Port Robinson,

12; Thomas R. Horner, Princeton, 29, P. C.; Emma Leslie Hanes, Morrisburg, 27, P. C.; Melissa Sexmith, Dawn Mills, 25, P. C.; Milly Lonsborough, Seaford, 21; Samuel C. Greer, Gorrie, 17, P. C.; Rebecca Sifton, Tyrconnel, 21, P.; John Wallis, Thistletown; John Clapton, Mount Elgin, 18, P. C.; John Elliott, Hagersville, 23; J. Wallis, Thistletown, 22, P. C.; Mosena A. Hemingway, 28; Andrew Brydone, Milverton, P. C.; Ellen J. Carruthers, Glendale, 20; Thomas Gibson, Richmond Hill, 8; Arthur Steinburg, Stockdale, C.; Wm. Hollingshead, Desboro, 19, P. C.; E. B. Howard, 19; Martha Johnson, L'Amareux, 25; James Wood, Delaware, 10, P.; Lavilla Heacock, Kettleby, 10, P. C.; Aggie Benson, Mountain View, 20, P. C.; Wm. H. Foster, Port Hope, P. C.; Iola Miller, Markham, 3, P. C.; Phoebe A. Mayer, Fromfield, 11, C.; R. Cunningham, Buttonville, 23, C.; Bella Finch, Kilsyth, 28, P. C.; Almada Davis, Kettleby, 13; Ella Brooks, Hastings, P. C.; Theo. Thieroff, Lambeth, 23; Wm. L. Dixon, Dromore, 23, P. C.; Anassa B. Miller, Mohawk, 22, P. C.; May Bogart, Newmarket, 25; Jos. Ray, Lindsay, 24, P. C.; Geo. P. Wragg, 19; Emily J. Webster, Warburton, 19; Louisa Salter, Holland Landing, 18, P. C.; Sidney Potter, Hastings, 23, P. C.; Willie E. Flewelling, Barnett, 13, P. C.; Wm. E. Black, Castleton, 23, P. C.; Patience Warren, Harper, 23; Edward Albert Eyer, 10, P. C.; Elsie Craig, Milliken, 28, C.; Harriet A. Davis, Wolfe Island, 28, P.; John Blair, Pakenham, 14, P. C.; A. R. E. Perceval, Wolfe Island, 27, P. C.; Martha Metcalf, Elginfield, 19; Alpheus R. Pike, Markham, 9, P.; A. J. Wright, Apsley, 24, C.; R. T. Carter, Park Hill, 20, C.; Edgar Weaver, Tilsonburg, 7, C.; Christina Warren, Harper, P. C.; Clara Tucker, Stratford, 26; John Crookshanks, Millbank, P. C.; Wm. J. Robertson, Stayner, 20, P.; Francis Nelson, Ottawa, 28, P. C.; Ha tie Haviland, Ingersoll, 25, P. C.; Feary Malcolm, Box Grove, 16, P. C.; Elizabeth Ann Bowman, London, 15, P. C.; Elizabeth Jane Koch, Milnesville, P. C.; Wm. McDonald, Lucknow, 15, P. C.; Anna M. Moore, Moore's Station, P. Q. 28; Flavius H. Crittenden, Cainsville, C.; Susan Jane Fennell, Bradford, P. C.; Joseph Fennell, jr., Bradford, 28; Margaret M. Coleman, Jackson, P.; Wm. A. Furlong, Nottawa, 28, C.; J. T. Handley, Reading, 26, P. C.; Geo. Wrightman, Belgrave, 17; Robbie Carson, Clarke, 21; Mary Kerrighan, Rockton, 19; Willie A. Rutherford, Millbank, 29, P. C.; Clara Beake, Newmarket, 28; Emily Ann Allen, Ingersoll, P. C.; Geo. Davis, Galt, 28.

Good Health.

SPOTTED FEVER.

There have been many fatal cases of the "spinal disease" cerebro-spinal meningitis in various sections of the country. We clip from our esteemed cotemporary, the Farmers' Journal, Lexington, Ky., the following reasonable medical advice relative to it. It is sometimes impossible to have the immediate cure of a physician in country places, all important as it may be at the earliest moment possible. Its character and nature appear to be almost unknown. A friend has sent us from the University of Louisville (Medical Department) a diagnosis of the peculiar symptoms, giving well-known remedies for the control of the disease as used in the Institution with success. The writer of the prescription is well known as one of the most eminent physicians in the United States, and his is the receipt:—

Louisville, Feb. 28, 1873.

"Spotted fever is cerebro-spinal meningitis, or inflammation of the membranes of the brain and spinal cord. Its symptoms are various in different cases. These you mention are usually prominent. Ice to the head and along the spine while the fever lasts; pounded ice eaten or swallowed so as to melt in the stomach; opium in the beginning of the disease; and bromide of potash after the fever abates; concentrated nutritious liquid diet, a well ventilated room, comfortably warm, are the principal elements of treatment. You have little reason to fear it. It is connected with badly drained habitations and uncleanliness of the dwellings and surrounding grounds, damp, badly-ventilated lodgings. These are the homes and sources of the disease. They were made abundantly evident as such in the terrible outbreak of the disease in the city of New York, in 1872.

TRICHINIASIS SPIRALIS.

Reports from various parts of the country state that several deaths have occurred from the effects of eating, in an uncooked or only partially cooked state, the flesh of swine infested with trichinae. At Oakland City, Ind., five persons, and at Commerce, Mo., three persons have died from it; and at Cleveland, Ohio, several cases are reported.

Comparatively little was known on this subject here until the war, when it was thoroughly investigated, but the disease has long been known in Germany, where, a few years ago, a small town was almost depopulated by it.

Trichinae only arrive at their full development after passing through the bodies of several animals. In countries where hogs are allowed to run loose, and pick up the droppings of other animals, trichiniasis is common. On the other hand, in countries where hogs are kept up, and where the inhabitants are careful to thoroughly cook their food, that disease is comparatively unknown.

Parasites and ent-zoa of some kind are found in all the domestic animals, and the fact of persons having recently died from this horrible disease, should render people very careful to thoroughly cook all their food; when this is done, there is no danger in eating swine's flesh, as a temperature of 180 degrees is fatal to trichinae and all other parasites; but it should be borne in mind, in cooking a large piece of meat, that although the outside may have been subjected to a greater degree of heat than that named, yet the inside may not have been so, and may still contain the living germs of trichinae.

CHILBLAINS.

Chilblains are inflammatory swellings produced by the action of cold, followed by heat. A very common cause of chilblains is holding the feet near the fire, after exposure to the cold. This sudden change of temperature partially destroys the vitality, and prevents the proper flow of blood through the parts. The best preventatives of chilblains are scrupulous cleanliness of the feet, frequent change of socks, avoidance of exposure to cold, and the use of friction to promote circulation. Moderate friction is also of advantage as a cure. The following remedies to be applied externally and accompanied by friction, are recommended by different authorities: Dilute alcohol, with and without camphor; spirits of turpentine; solution of the sulphate of zinc, in the proportion of one ounce of the former to one pint of the latter; a mixture of equal parts of petroleum and lime water; chloride of ammonium, one ounce, dissolved in a pint of vinegar; tincture of arnica, same proportion; hydrochloric acid and water, same proportion. A common remedy for chilblains in Russia, where the disease is common, is the rind of perfectly ripe cucumbers, dried with the soft parts attached, and placed with the inner side previously soaked in warm water, over the sore parts. In obstinate cases, as when the chilblains break, a physician should be consulted.

DANGEROUS DIETS.

The failure of the potato crop in England is likely, from what we read, to bring about an epidemic of scurvy unless the public can be better informed of the requirements of an antiscorbutic diet. The fact, therefore, cannot be too widely made known to the public that pudding, haricot beans, and boiled rice, which have been suggested as substitutes for potatoes, will not prevent the occurrence of scurvy. In the absence of the potato, an excellent antiscorbutic, fresh green vegetables or fruits will be requisite, or the health will fail, even though fresh meat be taken. Amongst the vegetable material which may be used, the Lancet states, are the various forms of cabbage, lettuce, oranges, lemons, onions, mustard, cress, dandelion, and sorrel. The experience of the crews of vessels on long voyages has shown, over and over again, the uselessness of the pea and bean tribe in preventing scurvy.

Messrs. Walcott & Campbell, of New York Mills, are to have an Auction Sale. It is contemplated that this sale will be the largest that has ever taken place in America; also, it is expected the prices will rule higher than ever before known. We hear that the female Short Horns are expected to realize an average of nearly \$2000 each.

BREAKFAST.—EPPE'S COCOA.—GRATEFUL AND COMFORTING.—By a thorough knowledge of the natural laws, which govern the operations of digestion and nutrition, and by a careful application of the fine properties of well selected cocoa, Mr. Eppe has provided our breakfast tables with a delicately flavored beverage which may save us many heavy doctor's bills.—Civil Service Gazette. Made simply with Boiling Water or Milk. Each packet is labelled—James Eppe & Co., Homoeopathic Chemists, London. Also, makers of Eppe's Milky Cocoa (Cocoa and Condensed Milk). 72-1-y

London Markets.

London, May 26.

The receipts of grain have been limited, and the market for wheat feels slightly firmer. Oats maintain their price 40c to 41c. Keg butter 10c to 12c, and fresh butter from 13 to 15c. White wheat \$1.20 to \$1.30. Red Winter \$1.22 to \$1.23.

The FARMER'S ADVOCATE, edited in London Ont., D. C. Terms, 1 per annum, in advance \$1.25, if in arrears; postage prepaid. Advertisements 10c. per line, agate space. Communications and advertisements should be in the office by the 15th of the month to ensure insertion in the following number. Postage and all other expenses charged on collection of accounts, if in arrears.



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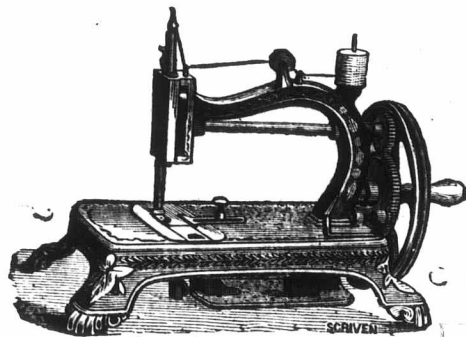
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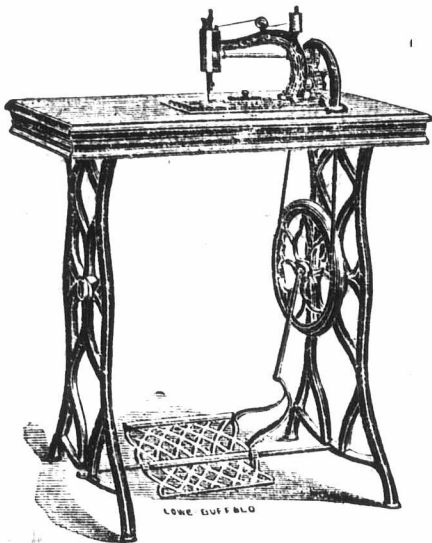
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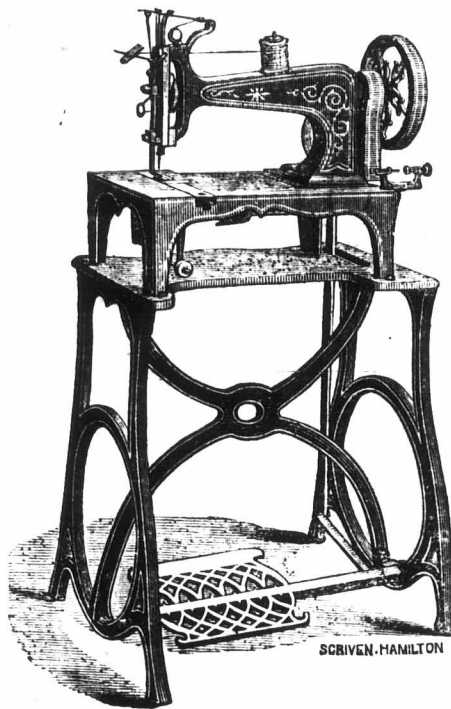
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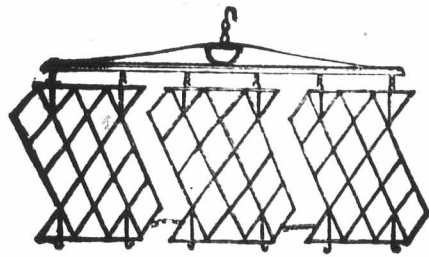
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AT THE  
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LONDON CONSERVATORIES - C. E. BRYDGES, PROP'R

FLOWERS, PLANTS, BULBS, ETC.

HAVING NOW ESTABLISHED LARGE CONSERVATORIES, I AM PREPARED TO Supply in any quantities, wholesale or retail, some of the choicest Plants and Flowers procurable; having imported my principal stock from the most reliable European dealers, also having received from the American some of the rarest specimens to be found in their collections, I now solicit a share of the public patronage. I am prepared to send plants to all parts of the Dominion.

The \$1 Collections are packed in boxes and mailed, for an additional charge of Twenty-five Cts.—The other Collections are packed in boxes and delivered to the Express Office.

\$1 Collection.

Five dozen strong plants, in five varieties, one dozen each, selected from any of the following, which are grown from the choicest imported European Continental seed:—

- Phlox Drummondii.
- Asters.
- Double Zinnias.
- Balsams.
- Dianthus.
- Cockscombs.
- Pansies.
- Ten Week Stock.
- Everlasting Flowers.
- Marigold.
- Petunia.
- Sweet William.
- Wallflower.

\$3 Collection.

- 1 Ageratum.
- 3 Coleus.
- 2 Zonale Geranium.
- 1 Silver-Leaved Geranium.
- 2 Heliotrope.
- 1 Achyranthos.
- 1 Lobelia.
- 1 Geranium (fancy).
- 2 Petunia.
- 8 Verbena.
- 1 Sweet Variegated Alyssum.
- 2 Fuschias.
- 1 New Lobelia (Miss Murphy), white.
- 2 Hanging Basket Plants.
- 12 Asters.
- 12 Phlox Drummondii.



\$5 Collection.

- 1 Ageratum.
- 1 Abutilon Thompsonii.
- 1 Gnaphalium Lanatum.
- 1 Dahlia.
- 3 Golden Golden.
- 3 Zonale Geranium.
- 2 Silver-Leaved Geranium.
- 2 Heliotrope.
- 1 Alternan-hera.
- 1 Achyranthos.
- 1 Geranium (fancy).
- 1 Lobelia.
- 2 Petunia.
- 12 Verbena.
- 1 Cuphea.
- 2 Sweet Variegated Alyssum.
- 2 Fuschias.
- 1 Bronze Geranium (new).
- 1 Double Geranium.
- 12 Asters.
- 12 Phlox Drummondii.
- 12 Double Zinnia.

\$2 Collection.

- 1 Ageratum.
- 2 Coleus' Golden.
- 1 Zonale Geranium.
- 1 Silver-Leaved Geranium.
- 1 Heliotrope.
- 1 Achyranthos.
- 1 Lobelia.
- 1 Geranium (fancy).
- 1 Petunia.
- 6 Verbena.
- 1 Sweet Variegated Alyssum.
- 1 Fuschia.
- 1 New Lobelia (Miss Murphy).
- 1 Tradescantia Zebrina.

Plant List.

- Phlox Drummondii, 25c. per doz.
- Asters, 25c. per doz.
- Double Zinnias, 25c. per doz.
- Balsam, 25c. per doz.
- Dianthus, 25c. per doz.
- Common Cockscomb, 25c. per doz.
- Early Pansies, 50c. per doz.
- Ten Week Stock, 25c. per doz.
- Everlasting, 25c. per doz.
- Marigold, 25c. per doz.
- Sweet William, 25c. per doz.
- Wallflower, 25c. per doz.
- Petunias, choicest, 25c. per doz.
- Double Portulaca, 25c. per doz.

Vegetables.

- Cauliflower—Early Paris Erfurt, Walcheren—\$1 per 100.
- Cabbage—Early York, Pixie, Late Winingstadt, Drumhead Savoy, Red Pickling, 50c. per hundred.
- Tomatoes drawn from bed, \$1 per hundred.
- Hubbard's Curled Leaf, Gen. Grant—Early, smooth and large, smooth red and Trophy, 25c. per doz. in box.
- Peppers—Long Red and large Bell—25c. per doz.
- Egg Plants, 25c. per doz., improved New York.
- Broccoli—Same as Cauliflower

Miscellaneous and Bedding Plants.

	Each in Pots.	Doz. out of Pots.
Amaranthus		
Ruber.....	15	\$1.00
Artemesia Stel.		
Paris.....	20	2.00
Alternanthera.		
4 var.....	20	2.00
Ageratum, 2 var	15	1.00
Achyranthos.		
3 var.....	20	2.00
Antirrhinum.....	15	1.50
Asters—a splendid assortment	25 a	50
Bouvardias, 25 a	50	3.00
Boeket Plants		
—great var.....	20	2.00
Centranthus		
Ruber.....	20	2.00
Carnations, monthly.....	50	2.00
Calceolaria.....	25	3.00
Coleus, golden & velvet, 20 a	25	2.00
Cuphea Platy-centra.....	15	1.00
Chrysanthemum varieties	20	2.00
Dahlia var.....	20	2.00
Fuschias, best kind.....	25 a	35

Daisies, white and pink.....	1.00
Feverfew.....	1.00
Gazania.....	1.00
Gnaphalium lanatum.....	1.00
Geranium Zonale.....	\$1.50 a 3.50
Do Scented.....	2.50
Do Variegated.....	25 a 50
Do Ivy-leaved.....	25 a 50
Lantana.....	15 a 20
Lobelia, Dwarf.....	2.00
2 varieties.....	1.00
Madera Vine.....	2.00
Pansies, Belgian.....	10 a 15
Pelargonium, great var.....	25 a 50 3 00 a 5.00
Phlox's Perennial, gt. var.....	20
Petunias.....	15
Stocks.....	25 a 50
Salvia Splendens.....	20
Sedum.....	20
Tigrida or Shell Flower.....	20
Verbena.....	10 75 a 1.00
Zinnia, double.....	25 a 50

Bulbs and Plants carefully packed and delivered at the Express Office in this city free of charge. 25 cts. additional is charged for mailing and paying postage on plants. 5 dozen small plants can be mailed for 25 cts.; 5 cts. for each additional dozen sent per mail. Plants may be seen and secured at my Conservatories, or at the Agricultural Emporium, London. All orders should be addressed to C. E. BRYDGES, or to W. M. WELD, London, which will be promptly attended to.

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