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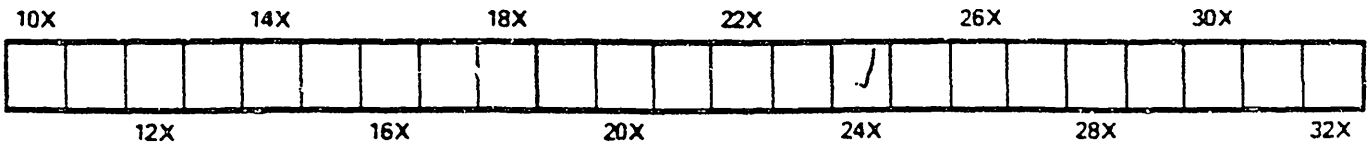

THE ONTARIO FARMER,

A MONTHLY JOURNAL OF

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

VOL. II. HAMILTON, APRIL, 1870. No. 4.

THE BOARD OF AGRICULTURE.

In the Toronto daily papers of Feb. 24th and 25th there appeared very full accounts of the proceedings of the Board of Agriculture at its last meeting. These reports were too close upon the publication of our March number for us to make use of them for its columns, and therefore though somewhat after date, we take up the subject now.

The Hon. David Christie has regained his position as President of the Board, a very significant circumstance, indicating as it does, a return to the old rut of procedure and management. The other official appointments were, Hon. Jas. Skead, Vice-President; Hugh C. Thomsen, Secretary; and Geo. Graham, Treasurer.

ANNUAL REPORT.

The following report, for the year 1869, was then presented and read:—

To Hon. John Carling, Commissioner of Agriculture, &c:

The Council of the Agricultural and Arts Association of Ontario beg leave to present the following brief report of their proceedings during the past year:—

The late Board of Agriculture, constituted under the Act 22 Vic., Chap. 32, held two meetings since the commencement of the year 1869, viz: on January 6th and January 27th. These meetings were principally occupied in consideration of the state of the accounts of the late Treasurer, Mr. Denison, and in interviews and negotiations with him in reference to the balance due by him, which appeared from his accounts, as subsequently proved by the Auditors, to be $13,283 85. Against this sum Mr. Denison charged $5,138 commission, which the Board did not allow. The Board obtained satisfactory mortgage security for the sum of $8,000, leaving the balance to be settled by litigation.

The existing Council, organized under the Act 31 Vic., Chap. 23, of the Ontario Legislature, met for the first time at Toronto, on the 24th Feb. last, consisting of the following members, viz: Geo. McDonell, Cornwall; Hon. J. Skead, Ottawa; Andrew Wilson, Maitland; Edwin Mallory, Napanee; John Walton, Peterboro'. Geo Graham, Brampton; Jas. Cowan, Waterloo; J C. Rykert, St. Catharines; Hon. David Christie, Paris; Robt. Gibbons, Goderich; Lionel E. Shipley, Falkirk; Stephen White, Charing Cross. *Ex-Officio* members - Hon. John Carling, Commissioner of Agriculture; Dr. Beatty, President Mechanic's Institute Association; W. H. Mills, President Fruit Grower's Association; George Buckland, Professor or Agriculture, Toronto University; Rev. Dr. Ryerson, Chief Superintendent of Education.

At this first meeting the Council was duly organized Mr. Mallory was appointed President, Mr. Shipley, Vice-President, and Mr. Graham, Treasurer. A resolution was passed requiring satisfactory security to be given by the Treasurer. A By-law was passed appointing an Executive Committee; and another By-law to regulate the duties of the Treasurer.

The Council held five subsequent meetings during the year 1869 and the commencement of the present year, viz: at London, on March 31st; at Toronto, June 30th; at London, Sept. 18th to 25th; at Toronto, on Dec. 1st, and again on Jan. 11th; and the Executive Committee held their meetings, viz: at Toronto, on March 17th; at Toronto, Aug 11th; and at London, Sept. 8th. The following is a brief resume of some of the more important items of business transacted at the several meetings. The Treasurer furnished ample and satisfactory security —$20,000—for the due discharge of his duties, which was accepted by the Council. A correspondence has taken place with the University authorities in reference to the house on the late experimental farm, and arbitrators have been appointed to determine the value thereof to be paid to the Council by the University. The prize list of the Exhibition was carefully revised, the amount of the prizes being increased in some of the more important classes, and the rules amended where necessary, to make the working of the Exhibition more satisfactory. The large upper hall in the Agricultural Hall Building has been utilized by leasing it to Mr. James Fleming for purposes of public meetings, &c, at a rent of $200 for five years, but terminable at any time at the option of the Council. Interviews were held with the Local Committee at London in reference to the accommodation required for the Exhibition; which, although serious difficulties at one time appeared to intervene, were at length completed satisfactorily. A memorial was adopted, in view of serious dangers threatened by contagious cattle diseases, petitioning the Dominion Government for some legislative provision to regulate the transport of live stock. Standing Committees of the Council were appointed to supervise the various departments of the Exhibition, thus ensuring the more satisfactory working of each department. A committee was appointed to superintend the printing of the Association, and the printing was let by public tender, by which means an economical and satisfactory execution of that work has been obtained. An Insurance was

effected on the Library and furniture in the Agricultural Hall for the sum of $2000 in the London Insurance Co. A committee was appointed to enquire into the security given for the investment of the amount known as the Prince of Wales' Fund, and a mortgage on real estate has been obtained as collateral security to the bond previously given. Rules were passed regulating the duties of the Chief Superintendent and his associates at the Exhibition. A Committee was appointed to examine and report upon the experiments of M. Chas. Arnold, of Paris, in hybridizing different varieties of fall wheat, which experiments so far appear to promise results of a very satisfactory kind. A grant of $150 per annum was made to Mr. Smith, V. S., Veterinary School, to assist him in providing lecture and dissecting rooms for the use of Students, and for heating and lighting the same without further expense to the Council on that account. The judges for the various departments of the Exhibition were appointed by the Council, and communicated with Invitations were issued to the Governor General, His Royal Highness Prince Arthur, and the Lieut. Governors of the Provinces, to visit the Exhibition at London, which invitations were accepted by the Prince, the Governor-General and the Lieut.-Governor of Ontario. The Treasurer attended at London for the purpose of letting the refreshment booths by public auction, as on a former occasion—the booths letting at very satisfactory rates. During the Exhibition, the Council met every day in the office on the grounds, to decide the numerous questions of detail which arose in regard to the reception of distinguished visitors, the working of the Exhibition, &c. At the Annual meeting of the Directors of the Association, it was decided to hold the Exhibition of 1870 at Toronto, the Mayor and Deputation of that city offering a guarantee that all the accommodation required should be provided. After the Exhibition, a list of all the prizes awarded was published, in accordance with statute, in November, and sent to all the parties, in consequence of which they were fully apprised of the same; and all the prizes were paid before the close of the year, a result which had not been obtained on any occasion heretofore. Convinced of the importance of the study of the science of Entomology, in its relation to the interests of Agriculture and Horticulture, the Council has voted an annual grant of $400 for the current expenses to the Entomological Society of Canada, to aid the Society in its objects, on the condition that they furnish an annual Report, from a Cabinet to be at the disposal of the Council, and continue to publish their journal.

The subject of planting shade trees in the rural districts as a protection to vegetation and fruit trees, and for preventing diminution in the annual rain fall, has engaged the attention of the Council This is undoubtedly a question of much importance. If any general system of planting shade trees along the most exposed sides of the farms in the older settled townships, could be designed and carried into effect, there is every reason to believe that very beneficial results would follow, both in the protection of farm crops and fruits, and in the distribution of the rains of the summer. The Secretary has been instructed to ascertain if possible, what system, if any, has been adopted in any of the neighbouring States for this purpose.

Besides the subjects above briefly referred to, numerous other matters connected with the work of the Association, occupied the Council at the various meetings.

THE VETERINARY SCHOOL.

The Veterinary School continues in successful operation under the able superintendence of the Principal, Professor Smith, V. S., and is now known as the Ontario Veterinary College. 22 students attended the course of lectures 1868 '69, of whom 18 did so with the object of studying the Veterinary Science as a profession. The session closed in April, when 5 students came up for the final examination. The examiners were :—

M. VARLEY, V. S., 13th Hussars.
M. WILSON, V. S., London.
J. ROWELL, M. D., Toronto.
J. THORNBURN, M. D., Toronto.
J. BOVELL, M. D., Toronto.

Four out of the five students passed the examinations successfully, and received the diploma, viz:—Early, St. Thomas; Sweetapple, Brooklin; Stubbs, Orangeville; Baker, Galt; McIntosh, Kingston; Sutherland, Stayner; Hope, Ayr.

As stated above, the Council has voted Mr. Smith an annual grant af $150, to assist him in providing Lecture and Dissecting Rooms for the use of the schools In accordance with this arrangement, Mr. Smith has erected a commodious building adjoining his Infirmary, where the lectures are now given, and improved facilities are afforded to young men for acquiring the profession. 28 students are at present attending the lectures, of whom the greater number design studying the Art as a Profession. Subjoined is the programme for the current session.

PROFESSORS.

Andrew Smith, V. S., Edin., Principal—Anatomy and Diseases of Farm Animals.

J. Thorburn, M. D., Edin.,—Veterinary *Materia Medica.*

James Bovell, M. D, Eng.,—Animal Physiology.

A. Smith, V, S., and Assistant,—Clinical Instruction.

H. H. Croft, D. C. L., University College,—Chemistry.

Geo. Buckland, University College—The History, Breeding and Management of the Domesticated Animals.

Students intending to prepare themselves for the practice of the Veterinary Art, as a Profession, are required to attend two sessions, at least, and pass the examinations. The Diploma will be granted on passing the final examination, certifying that the holder thereof is competent to practise his profession.

Students are strictly required to devote the interval between the sessions to the practice of the profession, under some approved and duly qualified practitioner.

In addition to the above, provision is made to meet the wants of young men intended for, or already engaged in Canadian farming, by a course of familiar instructions in the science and practice of Agriculture. In this department Professor Buckland is assisted by several of of his colleagues,—the Professors of Chemistry, Geology, Natural History, and Meteorology, in University College. This course is free only to strictly Agricultural students, and will continue about six weeks.

The session for second and third years' students

commenced in October. The class for first years' Veterinary Students and Agricultural Students commenced January 5th, 1870. The session for Veterinary Students will close on the 1st of April.

Students attending two sessions of this Institution, can obtain the Diploma of the Royal College of Veterinary Surgeons, or that of Edinburgh, after attending one session and passing the examination at either of the Colleges of London or Edinburgh.

THE EXHIBITION.

The Provincial Exhibition of 1869, held at London in September 21 to 24, was in every respect a great success. Every department of the Agricultural and Manufacturing industry of the country being well represented. The actual number of animals and articles exhibited in the various classes, was probably on the whole, greater and the number of visitors larger than on any former occasion. This fortunate result was no doubt attributable to the productive harvest of 1869, and to a considerable extent to the presence of His Royal Highness Prince Arthur, the Governor General and other distinguished visitors, as well as to the very favorable weather which occurred in the time of the exhibition. A statement is subjoined showing the number of entries and the amount of prizes awarded in each class.

(A comparative table was here submitted, showing the advance which had taken place in the exhibitions from their first institution to the present time.)

FINANCES.

The total amount received by the Treasurer during the year was $34,527.76, and the total amount disbursed $32,877.80, leaving a balance on hand at the end of the year of $1,649.97, to the present date, including those ending on January first.

A suit has been instituted in the Court of Chancery to recover the amount due by the late Treasurer. Some evidence has been taken, and the day appointed for the hearing.

A claim of Mr. Glackmeyer of $1,000, for expenses incurred by him in entertaining Prince Arthur during the Exhibition at London, has been paid since the first of January, 1870.

All the liabilities of the Association have been discharged, except the several amounts due of premiums in the year 1862, &c, which remain unclaimed.

No settlement has yet been concluded with the University authorities in reference to the value of the brick house on the late Experimental Farm, but arbitrators have been duly appointed to determine the value, and it is confidently anticipated that their award will be made, and the amount paid over to the Council at an early day.

The report was adopted, and it was decided to have fifteen hundred copies printed in pamphlet form.

A number of printing and other accounts were then presented and certified.

Moved by Mr. RYKERT, M.P.P., that the following be the Executive Committee for the year 1870: The President, Dr. Beatty, Rev. Mr. Burnett, Messrs. White, Gibbons, Graham and the mover.

After some discussion the motion was carried.

The Printing and other standing Committees for the current year were appointed. The reports of standing Committees were also read and adopted.

After a short discussion, on the motion of Mr. Wilson, the salary of the Treasurer for the current year was increased to five hundred dollars.

After the transaction of some minor details of business, the Board rose for the purpose of attending the opening of the Veterinary College.

The members of the Board returned to the Agricultural Hall, and business was resumed.

On motion of Mr. RYKERT, seconded by Mr. WHITE, it was decided to hold the Fall Show on the 3rd October next.

Mr. WALTON moved, seconded by Mr. COWAN, "That the Hon. Commissioner of Agriculture at Washington, be respectfully requested to place the Council of the Agricultural Association of Ontario on his exchange lists for grain, seeds, &c., with the assurance that the Council of the Agricultural Association will have great pleasure in sending, from time to time, exchanges of all the varieties of grain, seed, &c., which may come into their possession."

After some discussion the resolution was carried.

The following letter from Hon. Mr. Carling was read :—

"OTTAWA, Feb. 22, 1870.

"SIR,—I beg to submit for your consideration whether a plan might not be adopted which would render the working of the affairs of the Agriculture and Arts Association more economical than at present, without in any degree lessening its efficiency. A valuable library of books relating to Agriculture and Arts is in possession of my department, and the Association also has a very good collection. These might be amalgamated and made more available and of greater use to the public than in the places which they occupy. The working expenses of the Association also seems to be very large, the "miscellaneous" items so much so as to create a general feeling of surprise. The room formerly used for the Legislative library is now unoccupied. It connects with the present Legislative library. The large portion of it might be fitted up for the united libraries, and the other portion as a meeting room for the Council and Committees of the Association. The joint libraries would be available for use by the members of the Legislative Assembly, during the sittings of the House, and would also be open at all times to the public for reading and reference. The person who would act as Secretary of the Association could also take charge of the library, whilst an officer of my department might act as Treasurer at a small addition to his present salary This arrangement would be a great convenience, as both officers would then be accessable to the public at all times. The duties of messenger could no doubt be performed by the staff at present employed in the Parliament Buildings without any additional expense, so that the services of the messenger at present employed by the Association could be dispensed with. I have no doubt that, under the proposed arrangement the working expenses would be reduced at least one half. Besides

this the present Association's building, which I believe is valued at about $20,000, could be either sold or rented, and the annual interest on the proceeds of the sale, or the annual rent, could be appropriated for special prizes in the agricultural or the industrial arts. Will you have the goodness to give to the forgoing your careful consideration, and to bring it before the notice of the Council at its next meeting, which will commence to-morrow —and let me know if any action is taken in regard to it.

"Your obedient servant,

"JOHN CARLING,

"Commissioner.

"To the President of the Council of the Association of Agriculture and Arts for Ontario. Toronto, Ontario."

The foregoing official communication elicited from Hon. D. Christie, some very angry and undignified remarks which it were waste of space to insert here. Quite naturally some discussion followed, in the course of which personalities were freely indulged in. Others beside the President thought they saw in Mr. Carling's letter, a disposition to take the affairs of the Association under government management. We shall not just now discuss this point, but take occasion to drop the remark in passing, that it is idle to expect retrenchment or improvement in the affairs of the Board while under the present auspices; and if the government wish to make any alteration in the existing management, they had better do it by Legislation. Some reforms have already been effected in that way, and it is the only method likely to work.

The discussion closed with a resolution to lay the subject over until next meeting of the Board.

POULTRY ASSOCIATION.

A communication from this Society, asking for a grant of $100 per annum from the Agricultural Association, was, at the suggestion of Mr. Rykert, allowed to stand over for consideration at the next meeting.

IMPORTATION OF CATTLE.

The Secretary submitted the following memorial to the Senate for the approval of the Board:

To the Honourable, the Senate of the Dominion of Canada, in Parliament Assembled:

The Petition of the Council at the Agricultural and Arts Association of the Province of Ontario,

HUMBLY SHEWETH:

That great benefit has heretofore resulted to the Agricultural interests of Canada, from the importation from Great Britain and foreign countries, of animals of superior breeds, for the purpose of improving the existing breeds of the country, and that the general prosperity of the country has been thereby promoted.

That there is much risk and expense involved in the importing of such superior animals, and that therefore it is highly desirable that such importation should not be burdened with any additional cost which can be avoided; but that on the contrary, it should be encouraged by a liberal policy on the part of the Government.

That the existing Customs duty of $15 per head on horses, and $10 per head on horned cattle, $1 per head on sheep, and $2 per head on swine, tends to discourage the importation of superior animals for breeding purposes, and thereby retards the progress of one of the most important interests of Agriculture, without being of any corresponding advantage to the public revenue.

Your petitioners therefore pray, that such duties may be remitted in so far as they relate to animals of superior breeds imported for breeding purposes.

And your petitioners, &c., &c.

The memoriol was adopted without discussion.

Some further business of an unimportant nature was then disposed off, and the meeting adjourned till the 1st of June next.

THE MONTREAL HERALD ON FREE GRANTS AND HOMESTEADS.

The Montreal *Herald* in not pleased with the appointment of the Ontario Government of a Commissioner whose duty it is to point out to the people of England the advantages offered by Canada to intending emigrants, and in its anxiety to say ill-natured things of Mr. White, has made a most remarkable discovery. Its issue of the 2nd April contains the following:

"OUR EMIGRATION AGENTS IN EUROPE.—According to the proverb, there was an island of the ancient world whose inhabitants, without exception, had a remarkably poor character in respect to veracity. We hope that the character of Canadians in this respect will not be judged by the representative which the Province of Ontario has sent to England; but certainly it is a little astounding to read that Mr. White would make such a statement as the following even at Kendal, when there are so many hundreds of persons in England who must know that what he said was wholly false.

Mr. White was right enough to show the advantages of Canada as a place for settlement; but we fear that at all events society will not be among the blessings expected, if a man who will publicly affirm that the American government does not give free grants to settlers, when it is notorious that our free grant system is copied from theirs, is the best man who can be picked out for an important mission, Mr. John Sandfield Macdonald had better look after either his agent or the reputation of his province. Mr. White is reported to have said:

"And this reminded him of a very popular error which he found prevailing in England on the subject of the American homestead laws. He (Mr. White) had met many gentlemen who had rather confused notions of the nature of the American homestead laws; who imagined that these laws meant the grant of a homestead to actual settlers, when, in reality, they simply meant the protection of the homestead after it had been acquired and paid for up to a certain valuation. The distinction ought not to be overlooked; and it was important to know that there was not in the United States, from one

end to the other of it, a free grant of land to settlers from the Government. The distinction, therefore, between Ontario and the United States, in this respect, was that, whereas the former gave land without any charge, and upon the condition of settlement, and having given it, protected it from seizure for twenty years, in the United States, they sold the land for 5s an acre, and then gave it, not as to its entire area, but only up to a certain value, the benefit of a homestead exemption." [Cheers.]

It is a great pity that the *Herald* did not take the trouble to inform itself with more accuracy as to the law of the land it so much loves and admires. We have before us the latest circular issued by the Department of the Interior at Washington, under date 10th March, 1869. The purport of the circular as stated in the opening sentences, is as follows:

"The following is communicated in reference to the manner of acquiring title to the public lands under different laws of Congress:

There are two classes of public lands, the one class at $1 25 per acre, which is designated as *minimum*, and the other at $2 50 per acre, or *double* minimum.

And that there may be no mistake as to the absolute correctness of Mr. White's statement which it appears is as much required in Canada as in England, we quote form the circular further:

13. LAWS EXTENDING THE HOMESTEAD PRIVILEGE.—The original Homestead Act of May 20, 1862, gives to every citizen, and to those who had declared their intentions to become such, the right to a homestead on *surveyed* lands. This is conceded to the extent of one quarter section, or 160 acres, at $1 25 per acre, or 80 acres of double minimum in any *organized district* embracing *surveyed* public lands.

The above, we take it, requires no further comment, and we ask our Montreal contemporary as a simple matter of justice to a gentlemen whom it has grossly and offensively maligned to make the *amende honorable*.

EMIGRATION OF BOYS FOR FARM SERVICE.

Among other projects in the Emigration line which are engaging the attention of benevolent people in England, we learn that a movement is on foot to send out a lot of boys from 14 to 18 years of age, with a view to their being employed as farm hands, or in the service of gentlemen who may need some one to take charge of a horse, and make himself generally useful. A maiden lady of leisure and means who paid a visit to this country last summer, and thought she saw an opening here for this class of emigrants, is taking a warm interest in this enterprise. A letter of hers, not meant for publication, but requesting us to bring the matter before the Canadian public, in the ONTARIO FARMER, states the object in view so clearly that we take the liberty of quoting a few sentences from it. She says:—"There seems to be a great willingness on the part of the boys to go, and no lack of funds to help them, if we feel sure they are wanted, and places are open for them, when we shall have brought them to your district, at various stations in numbers exactly according to the wants of the gentlemen or farmers who can employ them. In this country there are a very large number of boys from 14 to 18 years old, who would love to emigrate to Canada, if they can be employed, and find good food and fair play. We have the means of landing them at your doors, and only want to know how many doors in the new Dominion of Canada will open to them, that every lad may find a master, and every master a useful lad from our groups of boys ready for their stout service."

It is proposed to send out at least a hundred lads to begin with. Mr. Norman Hamilton, of Paris, has the matter in hand, and at our last advices had secured places for fifty six of the expected youngsters. Any parties desirous of being in this way supplied with needed help, will do well to address Mr. Hamilton.

We regret that our information regarding this movement came to hand just too late for insertion in our last issue. It is, however, still time enough for parties who may feel an interest in this undertaking to lend it co-operation. We have much pleasure in expressing our approbation of the matter, and wishing our fair friend and her co-adjutors all the success their benevolent endeavors deserve. If in any way we can aid in promoting this or kindred schemes, our columns will be ever open, and our pen always ready to do what we can to help people our land with useful emigrants of all ages.

REPORT OF THE COMMISSIONER OF AGRICULTURE AND ARTS FOR 1869.

We have received but have not yet had time thoroughly to examine this important public document, consisting, as it does, of 322 large octavo pages, its perusal will require more than a few moments of leisure. The report proper occupies no great amount of space; there are, however, voluminous appendices of great value, particularly those containing analyses of reports from Agricultural Societies, returns from Mechanics' Institutes, and the doings of the Ontario Fruit Growers' Association. We shall endeavor in an early issue to give our readers a full account of the reported operations of that department of our Provincial Government which presides over the agricultural interest, and is, as we believe, doing its best to be useful to that interest.

WENTWORTH AND HAMILTON AGRICULTURAL SOCIETIES.—A special meeting of these Societies was held on Saturday at Cook's Hotel. The chair was occu-

pied by Levi Lewis, Esq., Mr. W. A. Cooley, Secretary. Mr. Wm. Henderson, President of the North Wentworth Society, was elected President of the Joint Board for the current year, and Mr. Cooley Sec'y.-Treas. The Auditors' report of the receipts and expenditure for the past year was received and adopted. It has already been published. A vote of thanks was passed to Mr. Cooley for his efficient services in connection with the Association. It was resolved to hold the annual Exhibition at Hamilton on the 13th and 14th days of October. A committee was appointed to revise and prepare a prize list for the Exhibition, to be submitted to the next meeting. The committee consists of Messrs. Wm. Henderson, Peter Grant, Jas. Harvey, John Weir, jr., F. C. Bruce, John Renton, and the Secretary.

ITALIAN FARM HOUSE.—In reply to a Whitby correspondent, who writes requesting more information about the Italian House design which appeared in our last issue, we regret to say that we can furnish no further particulars. The same party wishes "a really good treatise on farm houses and outbuildings." We do not know of any "really good treatise" on the subject. There are several small works which might suggest hints and be more or less useful. "Woodword's Country Homes," published by Messrs. Woodword, 37 Park Row, New York, is perhaps as likely to answer the purpose as any we could mention.

EDITOR'S BOOK TABLE.

SIMMERS' CULTIVATOR'S GUIDE FOR 1870.—We have received a copy of this publication, which, besides being a catalogue of field, vegetable, and flower seeds, is valuable for the brief but comprehensive directions it gives for the cultivation of what it advertises. Mr. Simmers is now well and widely known as a most careful and trustworthy seedsman, and we doubt not that each year will bring an accession to his already large circle of customers. From personal acquaintance with him, and knowledge of his method of doing business, we can unhesitatingly recommend him to all parties who desire anything in his line. A copy of the "Cultivator's Guide," well worth a quarter of a dollar, will be sent to any party who remits, in a prepaid letter, a three-cent postage stamp.

THE AMERICAN AGRICULTURAL ANNUAL.

THE AMERICAN HORTICULTURAL ANNUAL.

These two publications are issued annually by Orange Judd & Co., 245 Broadway, N.Y., publishers of the *American Agriculturist*. They contain a large amount of useful information, and it is impossible to over-praise them. We urge all farmers and gardeners to obtain them. Price, 50 cts. each.

THE CANADA BOOKSELLER.—We have received the first number of this publication, which is designed to keep the trade and book-worms generally, informed of the issues from the Press in England and America. We have experienced very severe temptation and trial in reading it; temptation to buy a host of books, and trial in feeling too poor to do it. The *Canada Bookseller* is issued by Adam, Stevenson & Co., Toronto, at 50 cts. per annum.

PRIZE ESSAY ON TURNIP CULTURE.—By Hugh Love, sen., Secretary of the South Huron Agricultural Society. Twenty-five cents worth of good, sound, practical information, all the more valuable for being written by a farmer for the benefit of his brother toilers in the vocation of Agriculture.

THE MILLENIUM.—Somebody, to whom we are not so thankful for the favor as perhaps we ought to be, has sent us a pamphlet of 72 pages bearing this title, which it is very doubtful if we shall ever read, and still more doubtful if we should get any good from it if we did. There is too much written and published on this subject, in our opinion.

INAUGURAL ADDRESS TO THE UNIVERSITY COLLEGE LITERARY AND SCIENTIFIC SOCIETY; by the President, W. H. Ellis, M. A. A very sensible, beautifully composed, and interesting *brochure*, from the pen of one of the most promising young men in Toronto University.

THE CANADIAN ETOMOLOGIST for March.—We are incompetent to criticize this periodical, but are quite sure it is every way valuable and useful—for this, if for no other reason, that its Editor is Rev. C. J. S. Bethune, M. A., one of the most accomplished Etomologists our Dominion can boast. It is published by Copp, Clark & Co., Toronto, at $1 a year.

GEORGE LESLIE & SON'S DESCRIPTIVE CATALOGUE of Fruit Trees, Ornamental Trees and Shrubs, Roses, Grape Vines, Small Fruits, Bedding Plants, &c., &c., cultivated and for sale at the Toronto Nurseries. This publication speaks for itself as to object and contents, and we need only say that G. Leslie & Son are thoroughly trustworthy nurserymen, whom it is a pleasure to recommend. P.O. address, Leslie, Ont.

MUSIC FOR THE MILLION.—We have received from Mr. B. W. Hitchcock, No. 24 Beekman street, New York, some specimen sheets of his half-dime series of musical pieces,—also the March and April numbers of "Hitchcock's New Monthly Magazine," which, besides general fancy reading, contains two or three choice pieces of music, each of which would cost more obtained in the usual way, than the price of the magazine. Among the half-dime music sent us are "Five O'Clock in the Morning;" "Only a Lock of Hair;" "John Anderson my Jo John;" "Jerusalem the Golden;" "When the

Swallows Homeward Fly;" "Larboard Watch;" "Charity." Each of these costs only *five cents*, and we cannot see why they are not as legibly and nicely printed as the sheets that cost from twenty-five to fifty cents each. Mr. Hitchcock deserves much praise and wide patronage for thus cheapening down and popularizing choice music, thus bringing within the reach of th. many what has heretofore been accessible, from its costliness, only to the few.

Mr. T. J. Day, of Guelph, has laid on our table :

THE HANDY HORSE BOOK.—This is an English publication, consisting of practical instructions in driving, riding, and the general care and management of horses, by a cavalry officer. It is a very useful compound. Sent by mail, post-paid, for one dollar.

LONDON SOCIETY.—$3.50 per annum, post-paid.
THE SUNDAY AT HOME.—$2.00 a year.
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The Farm.

THE USE OF SALT IN AGRICULTURE.

It is still a much-debated question whether common salt is of any value as a fertilizer. Great names have lent their authority to the opinion that it is useful, but as yet no proof derived from actual experiment, has given absolute demonstration of its utility except in the garden as a dressing for asparagus-bed. The luxuriant growth of marsh meadow grass has often been quoted as proof positive that salt water is beneficial in its effects, but no signal results have ever been achieved so far as we know by applying salt to upland meadows. There have been cases in which grass has been killed outright, instead of being benefitted by this kind of treatment; and altogether it would seem probable that grass marshes yield large crops of hay more in spite of the sea water inundations, than as the direct result of them. Analysis of salt marsh hay shows the presence of potash in full quantity, but very little soda. It is likely, therefore, that other conditions and deposits account for the fertility of these marshes, and that salt has nothing to do with it, or if it has, there is a combined action along with some other element or agent not yet detected. Actual experiment has shown that salt is injurious to some plants—the sugar beet for example. Of course this does not prove that it is injurious to all plants, by any means, but it heightens the necessity for proof of utility before expense and trouble are gone to in supplying the soil with a supposed fertilizer, which may after all be of little or no real value. The principle on which manures are applied to land, is that of restoring the constituents removed by crops. Inasmuch as plants consume little or no soda, and the trifling proportion they require is probably supplied in indirect ways, there would seem to be little use in the direct application of salt. We perceive by some of our exchanges that Professor Gossman, of the Massachusetts Agricultural College, has recently published a lecture on this subject. The lecture itself we have not seen, but quite concur in the concluding remark which we find quoted by a contemporary :—"The safest and cheapest way of supplying salt to your farm lands, if at all desirable, is to feed it to your live stock, for natural channels of distribution are always the best."

ON THE BENEFIT OF PLASTER TO THE SOIL.

To the Editor of the ONTARIO FARMER.

SIR,—As the time is now fast approaching for the Farmers to secure a supply of plaster (gypsum) for his land, I have taken up my pen with a view of setting forth, to some extent, its real merits and value, not only as I have found it, but as others have also found it, as well as the crude opinion of some few who have never used it at all, yet who are bold enough to pass sentence upon it as being next to useless and worthless—for such, however, I can of course entertain no other feelings than those of pity and sorrow; and when you have heard what some of them have advanced on the subject, you will not wonder at those feelings. It is not, however, my purpose here to condemn, but to encourage those unbelievers by statements that may be relied on as to its efficacy, which I shall now relate as having come under my own immediate supervision, and after having pointed out the enormous annual loss the farming community, collectively and individually, have sustained, it will be for them to choose and try that which I shall here advance, or for them to persevere in their own prejudiced and profitless course, confirmed as it has been by years of non-experience and ignorance combined.

I will now treat your reader, Mr. Editor, to an interview I once had with a farmer (and no mean one either in his own estimation) who resided in my neighbourhood many years before I arrived here, showing you his idea of the value of plaster to his crops. In the first place, however, I will say that I found all his crops very deficient indeed, his Herds and Flocks poor in the extreme, his land, if possible poorer still, and himself poorer than all, and his fences and buildings on a par with every thing else around him, and when I found him, on that visit, carrying his hay far from half a crop, and asked him why he did not use plaster, his answer was *to me*, at least a vrey novel one, "because it renders

the soil poor, and the next crop will be poorer still, or in other words, it takes so much out of the soil." The crops I suppose you mean, said I, "yes, says he, that's it"! Why, my good Sir, I replied, is not that what we put the plaster in the soil for? He could not, or would not see it, so with a *very little* more talk on farm matters, I left him just about as ignorant as I found him, but with the crumbs of comfort to himself, that he was a pretty good farmer. A few years after, I learned that he had died, I am sorry to say, just as poor as he had lived. Another instance which I will relate, occurred to me when discussing the merits of plaster with a neighbour some time since, whose crops had been declining for years previously, and his hay crops more particularly so, and on my suggesting a liberal supply of plaster, and asking him why he did not use it, as I was sure it would be very beneficial to his crops, his reply was that, "he could never see any benefit from it on his land, and that he did not believe in it." I had some suspicion that he had not tried it of late years, and when I asked him how long it was since he last used it, it came out with some reluctance, that it was *about seventeen years!* And yet, this person thought himself quite authorized and well qualified to pronounce on the merits of plaster as applied to his crops. It is such people who very frequently influence their more ignorant and less experienced neighbours in such matters, and from which influence they often suffer. One would scarcely imagine that such prejudice and ignorance could exist in these days, particularly with one, who generally speaking on other subjects has his wits pretty well about him. I, however, saw plainly, on reflection, the reason *why* he had perceived no increase of his crop at the time he applied the plaster to his clover. His soil was then, comparatively speaking, in its virgin state, as he was at that time clearing so many acres yearly, and his land consequently needed no plaster, this in all probability had never occurred to him, hence his prejudice against plaster. But it needs it now, and as the prejudice with him still exists, there is little chance of its getting any; yet I am sure by the liberal use of that article at the present time, he would increase his grain crops one third at least, and his hay would be double what he now cuts.

A third person a short time ago, told me he thought plaster was a useless expense, and only helped to run out the soil, I told him unless he used it or something else more liberally than he was doing, he would soon be run of his farm! However, time will tell, and I may or may not live to see it.

I will now proceed to give the views of others as to the *utility of plaster*, and you will thereby perceive that we are *not all* prejudiced dolts in our profession, and in all sincerity I thank Heaven for it.

In the course of conversation on farming with a friend the other day, he said "I think you are a great advocate of the use of plaster," I said I am, as well as of the use of any thing else that will enrich the soil, and if you had received as much benefit from plaster as I have, you would think as highly of it as I do. "Well," he said, I wish that I had believed in it years ago, as I do now, I should have been much better off than I am at the present time, but I should never have believed sufficiently in its efficacy had I not tried it on some oats and clover this summer, for by leaving a land of each crop unplastered, I was enabled to arrive at its true value, and it thoroughly convinces me what I should have gained had I used it for years past on my crops, which I'll take care to do for the future." *That* now, I am sure Mr. Editor you will agree with me is sensible.

There is nothing like repenting of one's error in time, with a good resolve to mind the future! I replied that plaster was just suitable to your soil (gravel and sandy loam), which is the nature of many other farms in this neighbourhood, and which are in a measure exhausted by perpetual over-cropping. "Yes," he replied, "that is the true state of the case." But I told him that he needed other fertilizers besides plaster, as his land had been over-cropped—such as lime, salt, bone dust, or superphosphate of lime, which when well incorporated with the soil at the time of his root or wheat fallow, or at the time of cultivating and harrowing in his spring crops, would, with his barn-yard manure, soon restore the soil, and thereby his crops would speedily be doubled in value. He thanked me, and said "that he should take advantage of my suggestions," and so we parted—I, in the hope that I had been of some service to him; he, with the determination that he would better the condition of his soil, and reap the benefits therefrom. What a contrast in the two individuals I have here alluded to: the first enjoying the fallacious imagination that his management was all right, the other candidly admitting that he was all wrong! Such, however, is human nature; perhaps all will come right some day. I would here, Mr. Editor, willingly leave my subject, but I cannot forbear relating a circumstance which ocular demonstration warrants me asserting as fact, independently of the statement coming as it did from the parties themselves, in the presence of myself and others.

I am here about to allude to two brothers (Welshmen) who rented a large farm in the neighborhood of St. Catharines, Ontario, who had great faith in the use of plaster, and the farm having been very indifferently managed for years by its owner, they consequently found their crops for the first few years far from remunerative, which decided them to set to work and dress their Wheat, Oats, Barley and Clover liberally with plaster. In the space of three years their produce was nearly doubled, and for years after they continued so to increase that they were compelled to add almost yearly to their barn and shed accommodation, for with the extraordinary increase of crops came also an annual increase of stock, and with this and other skilful management, there soon accumulated wealth enough to enable

them to purchase a large farm in the Western part of the Province, where I have little fear that deserved success would attend their industry and energy. I will now add a little experience of my own in the use of plaster, and then draw this already too long a letter to a conclusion.

My first essay with plaster was upon a five-acre piece of Indian Corn, and being short of mowing ground that year, (being the first on my farm,) I decided on saving an acre of it for fodder, and left the plants proportionately thick in the rows, and gave them when about two feet high a second heavy dressing of plaster, being encouraged to do so by the extraordinarily rapid growth from the effects of the first dressing. I was further induced to do this from the reflection that there was not sufficient manure under the crop to produce the weight I wanted and wished to harvest. I was not disappointed in the result, for every one in the field admitted there was at least seven tons to the acre, and I judged that to be the case from the number of loads drawn to the barn. I cut it early that I might have the chance of getting it well cured, and the weather fortunately coming hot enabled me to house it in excellent order with all the sap in it. When it came to be fed, every animal on the farm preferred it to the best hay offered them—and that was not all, for during the three following years, the acre twice plastered produced fully one-third more each crop than did each of the four acres only once plastered. That experiment, fairly carried out as it was, convinced me that we do not dress our clover and hay crops with sufficient plaster. A bushel and a half per acre is not more than enough I am sure, from other experiments I have tried since, but for grain I should say that a bushel is sufficient, as the former named quantity would be apt to run the crop too much to straw. So much then for plaster and its merits and my experience of it, and that of others. Let those try it who please, and I would advise those to try it who don't please, for if any farmer wishes to cut from three to three tons and a half of hay to the acre, which I have frequently done, and others also, let him use a bushel and a half of plaster, and from fifteen to eighteen pounds of clover seed to the acre, and he'll do it. Moreover, if he'll cut it early, when just going into flowers, with all the nutritious quality in it, its value will be enhanced thirty per cent, and his *aftermath* will be of double value for the hay being cut early. This has been fairly tested over and over again, and is indisputable. Apologizing again, Mr. Editor, for this lengthy epistle,

I am respectfully and truly yours,

LEICESTERENSIS.

GUELPH TOWNSHIP, 31st March, 1870.

P. S.—I fully intended adding sooner, that the contents of this letter, are not intended for the thousands that already appreciate the efficency of plaster, but to waken up the "*d ones*," for *you well know* there are drones, perhaps too many, in every community.

BEET SUGAR MOVEMENT.

(*To the Editor of the Ontario Farmer.*)

SIR,—The people of this place have quite a *sweet* agitation for manufacturing sugar from beet roots.

At a public meeting called, we decided to send an agent to Fond du Lac, Wisconsin, where the most successful manufactory of beet root sugar in America is situated, in order to investigate the subject in all its bearings. He took some sugar beets with him, which had been raised in the township, and had them analized at that factory. They proved to be equal to the American or German grown beet.

Upon his return a meeting was called, and a large number of our most intelligent and well-to-do farmers attended, and evinced a deep interest in the enterprise. After the meeting was organized, D. S. Butterfield, the gentleman sent to Fond du Lac, gave a description of the mode of cultivation pursued in raising the sugar beet, and a description of the machinery necessary to make about eight hundred pounds of sugar per day.

Mr. Wm. Pelschlager, a gentleman from Berlin, was present. He is taking a great interest in this subject, having visited Germany a few years since to investigate the manner of manufacture, &c., practised in that country. He gave the meeting a minute description of the method which should be followed in order to raise the best quality of sugar beet, and exhibited drawings of the necessary machinery for its manufacture.

Every one in the room was, I think, convinced of the benefits to be derived from starting such a factory, and of its certainty to pay large dividends, provided sufficient capital could be raised to start a factory that would run off one thousand pounds of sugar per day.

A committee was appointed to open stock books for organising a joint stock company under an Act passed in 1869; but we now find that certain parties in Toronto are applying to the Dominion Parliament now in session for a special Act to charter "The United Dominion Sugar Beet Root Growers and Manufacturers Company." If an Act is passed granting special privileges to one company, why not let there be a general clause to apply to all factories started in a given time?

The State of California has offered a bonus of $30,000 in gold for the first thirty thousand pounds of beet sugar made in that State, and Messrs. Bousteel and Otto, who established the factory at Fond du Lac, are off to that State to secure the prize.

Let our Government do something similar, and foster a very desirable Canadian enterprise, and keep at home four or five million dollars, which is now sent abroad annually to purchase sugar.

I am, thy friend,

GILBERT MOORE.

Norwich, March 8, 1870.

CULTIVATION OF THE CRANBERRY.

A long series of experiments and close observations have established some points which it is absolutely necessary should not be overlooked by any one entering into the business of raising cranberries.

This vine might also be called a marine plant, so great is its love for water, and so soon does it perish when deprived of a full supply of this its necessary aliment.

The first and most important point, is to select a piece of ground which is *always* moist, even in the severest summer droughts; and if it has a stream running through it which could be damned, and in which you could place a small draw gate in order to flood or drain at pleasure, so much the better. Stagnant water will soon kill the vines, consequently ponds or puddles having no outlets or current, should be avoided.

Second. Having selected a spot as described, unless the soil be nearly a pure *sand peat*, it will be necessary to remove the entire surface to the depth of several inches; or, if preferred, to cover the existing soil to the depth of three inches with either sand or peat. Any attempts to raise cranberries upon a clay soil must prove futile: they may be raised upon a sandy loam, but the poorer the better, for the presence of either animal or vegetable matter in the soil produces a redundancy of *vine*, but an almost entire failure of *berries*.

Third. It is very necessary, after having set out the vines, that they should be kept clean from weeds and grass for the first two years; after which they will so completely cover the ground as to require no farther attention on that score.

Fourth. Be very careful in your selection of vines for planting, otherwise you may have a flourishing growth, but no fruit. None but one experienced in the cultivation of the cranberry, can select the *healthy* or bearing from the *unhealthy* or barren vines; especially as the latter have much the most attractive appearance, being stronger and greener than the fruitful vines. To accomplish this, it will be necessary either to select from a yard which you have seen in good bearing, or to buy of a dealer in whom you can place implicit confidence.

The cranberry vine is very hardy, and when once fairly rooted, needs but little farther attention. Its manner of growth, starting from the root, is to throw out a runner of from two to five feet; from this springs upright stems or shoots from four to six inches in length, on which are borne the berries. With each succeeding season these runners extend in length, producing new uprights—the stems of the previous year increasing in length and continuing in bearing, until the ground is entirely covered or *matted*, as it is technically termed.

Like all other plants, the cranberry is liable to the attacks of certain insects, which either injure the vine or destroy the berry. The *worm* attacks the new growth at or about the time of blossoming; it does not attack the old growth, but commences at the base of the new and works upwards. Its presence is at once known by the appearance of a fine web which encircles the upper portion of the plant. The FRUIT WORM is the most destructive, making its attack on the berry about the last of July, or beginning of August. The only remedy known to save the vines from these two insects is *flooding*, and without facilities for this, the grower will suffer severely.

The crop is gathered about the first of October, when the berry is fully ripe, and before it has been touched by severe frosts. Hand-picking is generally done by women and children, but it is both tedious and expensive; and where a large yard is to be gone over, out of the question. Raking or scooping the berries is decidedly the most expeditious manner, although it is objected to by some as being destructive to the vines. This may be obviated by raking always in one direction, and will also be of some advantage by thinning out the vines when they become too densely matted.

Any estimate as to the cost of putting in an acre of cranberries, must of course depend upon the locality of the place, and the facilities which the neighborhood affords for procuring vines, labor, seed, &c.; consequently it would be almost useless to give the expenses attendant on reclaiming swamp lands, or irritating dry localities; each farmer it is presumed being as well posted up as the writer.

In the locality from which I write, in Burlington county, N. J., which seems to have been intended by nature for the cultivation of this berry, and where the wild vines are found growing on all the low grounds, producing berries as fine in appearance and superior in flavor to the best cultivated berries grown in Massachusetts—the cost of bringing an acre into cranberries may be reckoned as follows:

Land per acre	$20
Clearing and turfing	25
Vines	7
Cultivation	10
Total	$62

After the first year the vines will produce enough to pay all expenses of cultivation, and the interest on the investment. This increase will be progressive until the sixth year. There seems to be no limit to the time of productiveness of a cranberry yard, and no necessity for the renewal of either vines or soil.

A farmer with ten acres of well-matted cranberries, may safely count upon two thousand bushels a year, which at the lowest market price will bring him three dollars per bushel, making a gross product of six thousand dollars. From this amount deduct six hundred dollars for expenses of picking and transportation, and you have $5,400 clear profit which in these times may be considered a very fair return for the capital and labor invested.

There seems to be but little danger of much fall prices from over-production, for with every year the demand increases; and owing to the failure of the peach and the apple, there is a *growing* necessity for something to supply their places. This I think will be found in the cranberry.—*Germantown Telegraph.*

WINTER PROTECTION.

The time has come when it will pay the farmer and the fruit grower to give attention to the subject of winter protection. Five and twenty years ago it was not necessary to give the subject a thought. Then there was sufficient protection afforded by the uncut trees of the forest, and then those that had fruit trees rarely failed to gather abundant crops, and the wheat was not killed out by intense freezing. Now it is all changed. The frost-laden winds sweep along the ground for many miles, sometimes blowing the snow from the fields and piling it up in the roads or along the fences. The orchards are fully exposed to the fiercest blasts, the sheep and cattle that are not housed find no better shelter than the lee side of a rail fence, and the houses of the farmer and the barns and sheds of the stock are shaken by every blast, and searched at every crevice.

Now, the stomach can contain and digest only a given quantity of food. Some of that food is changed into charcoal, and burned in the furnace

of the lungs, to keep up the heat of the body. The colder the weather the more charcoal must be burned in the system to keep up the requisite heat, and if the animal, quadruped or biped, human or brute, be exposed to currents of air, even though the thermometer does not indicate any lower degree of temperature, these currents carry off the animal heat more rapidly, and a larger amount of charcoal must be consumed to keep up the warmth necessary to life. If all the food the animal can assimilate must be expended in keeping itself warm, how much milk or how much fat, or how much muscle, can be expected. And just in proportion as the quantity of food used up in producing warmth is greater, in the same proportion will the amount that can be used in the production of muscle, milk or fat, be less.

If any one will take the trouble to make a wooden tube, say that it is two feet square and one hundred feet long, place one end of it in his barn and let the other extend along the ground towards the west, and hang a thermometer at each end in such a position that it will feel the current of air that sweeps through it on a windy day, he will not find much difference in the degree of cold indicated by the two thermometers. But let him now insert some wire screens, fastened on a frame that will fit into the tube, and he will find that the thermometer at the end in the barn will rise, and indicate a warmer temperature as the number of wire screens placed in the tube is increased, or the mesh of the screens is made finer.

This, then, demonstrates that the cold of the wind is lessened by being made to pass through the screen of a forest, and the finer the screen the better will it ameliorate the temperature.

But this is not all; the trees present such a barrier to the winds that the strong currents of air are forced to rise and fall over the tops. The winds can no longer creep along the ground, sweeping off from the fields every vestige of snow, and often the dry frozen earth itself, but must bluster and rage far overhead.

Cannot every farmer see in this the comfort of himself, his family and his stock; a certain amount of food saved, or laid up in muscle or fat, or returned in milk, being no longer used to keep up a fire of such intensity, in order to enable the animal to withstand the cold blasts? Can he not see that it is fuel saved in his own house; that his orchard is kept in a more even temperature, that his wheat is covered evenly with snow, the best and most natural winter covering; or if that have not fallen, the roots are not laid bare by the sweeping away of the earth.

By this it is not meant that it is necessary to restore the forests. Far from it. But it is of the greatest importance that every farmer should plant a few rows of trees on those sides of his farm most exposed to high cold winds. If every farmer would do this, and particularly so as to shelter his orchard, there would be much less complaint of failure of the fruit crop, of sunscald, of borers of various kinds, and trees dying from unknown causes. The increased return from his orchard alone would soon repay all the cost of planting.

But will the farmers do it? In some places (not in Ontario) the township councils have been authorized and have passed by-laws, whereby every hundred trees planted for shelter, and maintained in good growing condition for one, two and three years, vouched for in a prescribed way, are credited on the assessment roll to the farmer so planting and maintaining them at a prescribed amount, and allowed to him in reduction of his taxes.

Would our farmers avail themselves of such an opportunity, and take pains to send to the township councils men pledged to enact and carry out such a by-law? There is a lamentable indifference among us to every improvement that will not yield immediate returns. The present generation can see no reason for doing anything for posterity, simply because posterity has done nothing for it. Upon such narrow selfishness is its action too often based. But we believe a more just and enlightened view is beginning to take possession of the public mind. Have parents any higher worldly aim than the comfort and happiness of their children? And if what they plant to-day shall be an advantage to some or all of their children, will they grudge them the outlay?

Ten years soon pass away. In that time trees judiciously planted and cared for, mingled evergreen and deciduous trees, will begin to exert their beneficial influence. Most of the active men of the day may hope to live long enough to enjoy the benefits of their planting; and if they do not live to enjoy it long, is there no satisfaction in leaving, in the trees they have planted, that which shall be a memorial of their wisdom and forethought? A monument more lasting than brass; loftier than the royal pyramids of Egypt.—*Globe.*

WHAT I KNOW OF FARMING.

DRAINING—MY BLUNDER.

Not only had I had no real experience in draining when I began, but I could hire no foreman who knew much more of it than I did. I ought to have begun by securing an ample and sure fall where the water left my land, and next cut down the brooklet or open ditch into which I intended to drain to the lowest practicable point—so low, at least, that no drain running into it should ever be troubled with back water. Nothing can be more useless than a drain in which water stagnates, choking it with mud. Then I should have bought hundreds of hemlock or other cheap boards, slit them to a width of four or five inches, and, having opened the needed drains, laid these in the bottom and the tile thereupon, taking care to break joint by covering the meeting ends of two boards with the middle of a tile. Laying tile in the soft mud of a bog, with nothing beneath to prevent their sinking, is simply throwing away labor and money. I cannot wonder that tile-draining seems to many a humbug, seeing that so many tiles are laid so that they can never do any good.

Having by successive purchases become owner of fully half of this swamp, and by repeated blunders discovered that making stone drains in a bog, while it is a capital mode of getting rid of the stone, is no way at all to make drains, I closed my series of experiments two years since by carefully relaying my generally useless tile on good strips of board, sinking them just as deep as I could persuade the water to run off freely, and, instead of allowing them to discharge into a brooklet or open ditch, connecting each with a covered main of four to six-inch tile; these mains discharging into the running

brook which drains all my farm and three or four of those above it just where it runs swiftly off from my land. If a thaw or heavy rain swells the brook (as it sometimes will) so that it rises above my outlet aforesaid, the strong current formed by the concentration of the clear contents of so many drains will not allow the muddy water of the brook to back into it so many as three feet at most; and any mud or sediment that may be deposited there will be swept out clean whenever the brook shall have fallen to the drainage level.

MY SUCCESS.

I judge that there are not many tracts more difficult to drain than mine was, but I had seven acres of Indian Corn, one of Corn fodder, two of Oats, and seven or eight acres of Grass on my low land in 1869; and though the Spring months were quite rainy, and the latter part of summer rather dry, my crops were all good. I did not do better in Westchester County, and I shall be quite content with as good hereafter. Of my seven hundred bushels of Corn (ears), I judge that two-thirds would be accounted fit for seed anywhere; my Grass was cut twice, and yielded one large crop and another heavier than the average first crop throughout our State. My drainage will require some care henceforth; but the fifteen acres I have reclaimed from utter uselessness and obstruction, are decidedly the best part of my farm.—*Greeley.*

FUNDAMENTAL ELEMENTS OF AGRICULTURE.

1st. All land on which clover or the grasses are grown must either have lime in it naturally, or it must be artificially supplied. It matters but little whether it be supplied in the form of stone lime, oyster-shell lime, or marl.

2nd. All permanent improvement of lands must look to lime as its basis.

3rd. Lands which have long been in culture will be benefitted by application in the form of bone dust, guano, native phosphate of lime, composts of fish, ashes, or in oyster-shell lime or marl, if the land needs liming also.

4th. No lands can be preserved in a high state of fertility, unless clover and the grasses are cultivated in the course of rotation.

5th. Mould is indispensable in every soil, and a healthy supply can alone be preserved through the cultivation of clover and the grasses, the turning in of green crops, or by the application of composts rich in the elements of mould.

6th. All highly concentrated animal manures are increased in value, and their benefit prolonged, by the admixture of plaster or pulverized charcoal.

7th. Deep ploughing and subsoiling greatly improve the productive powers of a variety of soil that is not wet.

8th. All wet land should be drained.

9th. All grain crops should be harvested several days before the grain is thoroughly ripe.

10th. Clover, as well as other grasses intended for hay, should be mown when in bloom.

11th. Sandy lands can be most effectually improved by clay. If such lands require liming, it is best done by a compost of lime and clay. In slacking lime salt brine is better than water.

12th. The chopping or grinding of grain to be fed to stock effects a saving of at least twenty-five per cent.

13th. The draining of wet lands adds to their value by making them produce more and better crops, by producing them earlier, and by improving the health of the neighborhood.

14th. To manure or lime wet lands is to throw manure, lime and labor away.

15th. Shallow ploughing operates to impoverish the soil, while decreasing production.

16th. By stabling and shedding stock during the winter a saving of one-fourth of the food is effected. That is, one-fourth less food is required than if they were exposed to the inclemency of the weather.

17th. A bushel of plaster per acre, sown broadcast over clover, will add from 50 to 100 per cent. to its produce.

18th. The periodical application of ashes unleached, tends to keep up the integrity of the soils, by supplying most if not all of the organic substances.

19th. Thorough preparation of land is absolutely necessary to the successful and luxuriant growth of crops.

20th. Abundant crops cannot be grown on the same land in succession, unless fertilizing matter is returned to it in equivalent proportions to those substances taken away.

FARM GLEANINGS.

Of the lands granted to the Kanzas State Agricultural College, 42,000 acres have been sold at an average price of $4.10.

THE *Massachusetts Ploughman* recommends for pasture grasses, Italian rye grass, meadow fescue, oat grass and red-top.

A CORRESPONDENT of the *Country Gentleman* writes that he killed a full-blooded Jersey heifer two years and four months old, just from pasture. The quarters weighed 423 pounds, and the beef was excellent.

DR. VOELECKER, in his experiments with different soils, arrived at the conclusion that potash is non-essential in many clay soils, because these contain an abundance of the article; but is most essential on poor, sandy ones. These are generally quite deficient in potash, so necessary to the perfection of clover and root crops.

MR QUIMBY, of Irondequiot, said, at the Rochester Farmers' Club recently, that during the past three years he has drawn 10,000 bushels of leached ashes on his farm and spread them at the rate of 200 or 300 bushels per acre, and has threshed 40 acres. He thinks the application has doubled his wheat crop. His land is light; had seen ashes applied to heavy clay land with little benefit.

ACCORDING to the last returns there are now in France 470 beet-root sugar factories; in Belgium 116, and in Prussia 225. In the Zollverien 2,500,000 tons of beets are annually converted into sugar. In Austria, Hungary, Russia and other parts of Europe, the process is also successfully carried on to a very large extent. Mr. Howard says that "to France, that which was commenced as a military expedient has proved to be not only an important

department of national industry, but the most powerful stimulant to her agriculture."

A NEW-JERSEY farmer has experimented as to the depth of sowing wheat, with the following results :

DEPTH SOWN.	Appeared in days.	No. plants came up.
One-half inch	11	¾
One inch	12	all.
Two inches	18	¾
Three inches	20	¾
Four inches	21	½
Five inches	22	½
Six inches	23	¼

MR. J. E. PORTER of Central Illinois has for several years mixed one-thsrd oats with his seed wheat, and according to the *Western Rural* gets much better crops than when wheat alone. Last year wheat alone was nearly a failure, while that with oats produced fair crops. Mr. P. raised fifteen bushels of wheat and thirty of oats per acre. The two grains are harvested together, and are readily separated by any the new fanning mills.

TO PREVENT A GATE SAGGING.—Henry Stewart, Stroudsburg, Pa., prevents his gates sagging, and the posts heaving out in winter in this way. "I frame the posts above the sill frame a second sill int the posts, and pin the tenons with stout pins. I dig a trench sufficiently deep to sink the upper sill a few inches beneath the ground, and hang my gates. Such posts will not move while timber lasts."

"RUBERTA," THE PROPERTY OF JOHN MILLER, ESQ., BROUGHAM, PICKERING.

THE IMPORTED FIRST PRIZE HEIFER, AT THE PROVINCIAL EXHIBITION OF 1869;

The Live Stock.

THE IMPORTED PRIZE HEIFER, 'RUBERTA.'

Herewith we have pleasure in producing an engraved portrait of "Ruberta," a beautiful Short Horn heifer, imported from England last summer by Mr. John Miller, of Brougham, Pickering, and winner of the highest honors in her class at the last Provincial Exhibition; also a conspicuous member of the herd that took the Prince of Wal es

Prize at the same Exhibition. "Ruberta" was an object of considerable admiration at the Provincial Fair, and will, we think, be at once recognized, by all who observed her attentively, in the excellent engraving executed by our artists.

The following is her

PEDIGREE.

RUBERTA.—Bred by Messrs. Garne & Son, Broadmoor, Northleach, Gloucestershire; imported by and the property of John Miller, Brougham P. O., Ont. Roan heifer, calved November 2, 1868. Got by Masterpiece, (24568); dam Rose of Clitheroe, by Cynric, (19542); gr dam Rosebud, by General Pelissier, (14605); gr gr dam Moss Rose, by Marchmont, (9367); gr gr gr dam—, Moss Rose, by Fitzhardinge, (8073); gr gr gr gr dam—, Rose by Augustus, (6759); gr gr gr gr gr dam—, by Son of Anthony, (1640); gr gr gr gr gr gr dam—, by a bull of Mr. Champion's.

This heifer was highly commended at the Southampton Meeting of the Bath and West of England Society, 1869. Her sire and dam were both bred by Messrs. Garne, from stock that has been in the county nearly forty years.

We are glad to learn from Mr. Miller that his herd of Short Horns is doing well. The other four cows and heifers exhibited with "Ruberta" for the Prince of Wales' Prize, have all calved. "Gold" has a red bull calf; "Lorena" a red heifer calf; "Nelly Bly" a red and white heifer calf; "Isabella" a red heifer calf; all of which are doing well. Beside the above, Mr. Miller has five other choice calves, making in all four heifers and four bulls. Mr. Miller has effected some sales and made some purchases since the Fair. Among the latter may be mentioned as especially valuable additions to his herd, "Countess of Atha," a two-year-old heifer, sister to Mr. Cochrane's beautiful Short Horn Cow, "Maid of Atha," and "Koscuisco," a bull calf, bought of G. M. Bedford, Paris, Kentucky. As this is rather an extra good animal in regard to his ancestry, we append his pedigree:

KOSCUISCO—Roan, calved March 6th, 1869.

Sired by Kirklevington, (5860); dam Florentia 15th by Clifton Duke, (3760); Florentia 5th by Bell Duke of Airdrie, (2532); Florentia 3rd by imported Duke of Airdrie, (12730); Florentia by Graves' Comet, (550); Eliza Dillard by Young Comet, (1132); Caledonia by imported Neptune, (743); Britannia, bred by Chas. Ellerton, Smeaton, England, and imported by the late Henry Clay, Jr.

MANAGEMENT OF DAIRY COWS.

Every dairyman should study well the natural habits and wants of the cow, and administering to her to the best of his ability, in order to draw from her the largest amount of profit. It is an unsettled question, whether it would be better to give the cows the range of all the pasture fields on the farm at one time, or all the time by removing or opening the division fences between them, and let the cattle select their own grazing ground every hour in the day and every day, or keep up the division fences and remove the cattle at stated periods of time from one field to another, ensuring fresh pasture at every removal. Each party advances its own arguments in support of its pet theory. We shall not state them here, either *pro* or *con*, but take the case as we find it generally practised, though this generality of practice may be more the result of habit than sound judgment and the evidence of facts.

The best evidence of the proper time to change cattle from one field to another is when they become restless and uneasy, showing very plainly that they have become tired of their present range and desire a change. This may occur in two or three days, or it may not for ten or twelve; but it is the best indication of the time when the change should take place, except a want of pasture in the field they occupy, which demands a change at once.

Milking should be done at the stated periods at least twice a day—some cows require to have their milk drawn three times when they are fresh. Each cow should be milked at all times by the same person, and there should be no stopping to rest or talk until the milking of that cow is finished. The milker and the cow should be on the best terms of friendship; there should be no scolding or whipping, but coaxing and petting may be very liberally applied to advantage. Kind treatment will secure a steady position of the cow during the operation, and full flow of milk until the supply is exhausted. A little caressing, both before and after milking, will not be lost on the animal. Let the law of kindness predominate in all your actions with dumb brutes; they will never fail to appreciate it.

Great care should be exercised in driving cows from the pasture field to the milking stand; they should be driven leisurely and slow, not crowded together in passing through bars or gates; should be met by milkers with a genial greeting, and relieved of their valuable treasure as expeditiously and easily as possible. Watering cows is a very important part of their treatment. With this element they should be liberally supplied; they require a large quantity of water in warm weather, and prefer that it be not too cold. They prefer water from a brook to that from a well or spring; but should not be permitted to drink from stagnant ponds if it can be avoided; their health is endangered thereby. Cows that are properly cared for seldom become sick, unless by some contagious disease; if that occurs, the one affected should be at once removed from the herd and put under treatment of a skilful veterinary surgeon.

Shade from the mid-day sun should in some way be supplied. Trees afford the best, and every pasture field should have a small grove in some part of it. Where nothing better can be supplied, they should be permitted to occupy a small range on the shady side of the barn or other out-buildings.

Salt frequently, or give them free access to rock salt.—*Am. Stock Journal.*

THE DUCK.

THE domesticity of the duck is lost in the night of time. On the tables of luxurious Romans the wings and the brain were alone held in estimation; now our cooks throw away the head, not, we trust, from a horror of brains, but from the tediousness of divesting it of its tenacious little feathers.

Pythagoras, when composing his multiplication tables, decapitated those in his yard because of their

constant cries. We may observe it is the duck that quacks, not the drake. Some chroniclers of the fifteenth century, held that ducks were the produce of decomposed plants; as we find it occasionally asserted now that barnacles are produced from the shell of that name adhering to the sides of ships. As the child when asked what it was made of, replied, "beef," so the duck, feeding in marshes, may be said to be made of its weeds.

Spread over every country on the globe, and nourished alike on animal and vegetable productions, they are omivorous. Reared with great facility, and maturing quickly, the attention for the poultry keeper is naturally directed to them.

The Aylesbury duck can be successfully reared where running water and gravel abound; the Rouen in any locality. In size and speedy growth, the former has a slight advantage; but the perfect white plumage and flesh-colored bill, now affected at exhibitions, cannot be perfected save in the neighbourhood of Aylesbury, where the soil and gravel are special.

The first eggs are usually unfertile; wild birds desert theirs.

Abundantly fed and the eggs removed, the duck lays upwards of one hundred eggs, but requires solitude to hatch, and is best supplanted by the hen, which can be had earlier and managed more easily. Nine eggs will suffice for a sitting. Some persons leave space for a few hen eggs in the clutch, putting them down eight days later. They affirm that the little ones are taught better manners by their more astute faster brethren. As the eggs of the duck are more liable to a chill during incumbation than those of other fowl, they should be covered with a cloth while the bird is feeding. When the young issue forth, at the end of twenty-eight or thirty days, they can be fed for the first week on worms chopped, rough crumbled bread, steeped in water or milk, then barley or Indian meal; and when about three weeks old, nettles or chopped vegetables may be added at discretion. Greaves or chopped meat may be given before killing or fattening for exhibition. Next to goslings, the rat prefers ducklings, so that care must be taken that this Norweign invader does not skedadle with them in his frequent raids. The cat, a penny for the rat's head, and careful poisoning will drive off this pirate.

Very young ducklings must be kept from getting into water, and thereby contracting cramp; daily renewed litter is imperative in their rearing, and a flat board with a ledge to spread their food upon, as it should not be liquid enough to run.

Mules, much bread in the south of France, are the produce of the Muscovy drake, and either Aylesbury or Rouen duckes. Their eggs are abundant and their flesh is delicate. The mule does not reproduce except with one or other of the parent species. The first cross is best adapted for use. Little water suffices them.

The drake may be allowed from six to seven companions, with more the eggs would be unproductive.

The black East Indian ducks, shining with a green metallic lustre, are very pretty. They usually pair.

The Cayuga or lake duck of America, is said to be hardy and of a good size. It is a good layer, and its weight is equal to the Rouen, eight to nine pounds. The color, brown black, white collar, and white flakes on neck and breast, faint green on head, neck and wings.

Soft water is better than hard for ducks; clearness not a desideratum. When for immediate use, the duck is killed by strangulation; if for transport or long keeping, the throat is cut, care being taken not to soil the plumage, which is most useful to the careful housekeeper, as the feathers are considered nearly equal to those of the goose. They can be plucked like the latter bird, with moderation and are nearly as profitable. The time for molting is generally after incubation, which is the proper time to pluck.

Eider down constitutes a source of industry amongst many of the polar region inhabitants, who, at the peril of their lives, seek in rocky clefts nests made of sea herbs, where the Eider duck lays her eggs on a bed of down torn from her breast, and again and again renewed the male aiding if required.

On the canals and rivers of China, the raising of ducks is carried on in boats, from which they are sent to feed on the brink of the rivers, and recalled by the sound of a trumpet and a trained dog. As in bee-keeping, the boats change their locality at will, for a fresh field of nourishment. A boat is capable of lodging 2,000 ducks.

The mean term of the duck's life is from twelve to fifteen years, and it is of all birds of the poultry yard the most robust. It's eggs excel those of the hen for omelettes or pastries, but are not as easily whipped for creams, &c. by the cook, and are therefore not such favourites with that artist.

There are many varieties of duck which my space will not allow me to specify. Among them are the Bahama, a very graceful bird; the Carolina and Mandarin, both very beautiful, and the Canvas-back, which is computed by American consumers to have a most delicate flavour, and weighs about four pounds.

I condense from the *Standard of Excellence*, published by the Poultry Club, the following:—

Aylesbury.—*Bill*, long and broad; side view as straight as possible from top of head to tip of bill; flesh coloured, and free from black marks; *neck*, long and graceful; *body*, long and deep; *back*, long and broad; *wings*, well up and strong; *tail*, stiff, curled in the drake; *thigh*, short; *legs*, short and strong, light orange; *plumage*, pure white.

Rouen.—Drake's *bill* same in shape as Aylesbury; *colour*, greenish yellow, with black bean at tip.

Duck's *bill*, broad, long, flat, brownish orange, with dark blotch on upper end; *plumage* of both like the wild mallard and his mate. White in the flight feathers of either; clear yellow, dark green, blue, or lead coloured bills; and birds down behind from excessive fat, are disqualifications.

JAMES C. COOPER.

Cooper Hill, Limerick.

LIVE STOCK GLEANINGS.

The *Marshall* (Iowa) *Times*, says a cow in that vicinity recently dropped three living calves at one birth; and the trio are doing well, and likely to live.

Milton Merrifield, of Providence, caught fifty-

two rats in one night, by exchanging a barrel of oats that had been often visited by rats for one of water, covering the surface with chaff. The "varmints" unsuspectingly pitched in, and met a watery grave. This is an old but excellent trap where these animals are plenty.

M. L. DUNLAP, of Champaign, Ill., advises farmers to feed their surplus potatoes, boiled with bran and shelled corn, to their hogs and such stock as they are fattening. He expects to realize from 30 to 40 cents a bushel from his used in this way, and thinks the prospect is that those who send potatoes to market this spring will not net much more.

A DAIRY TO BOAST OF.—The St. Alban's Messenger says:—Mr. Nahum Brigham, of Bakersfield, from fifteen cows, made during the dairy season just closed, 60 tubs, or 3,000 lbs of butter. He sold it for forty-five cents a pound, realizing $1350. He also raised ten calves, now worth $100, and 1000 pounds of pork, which he sold for $130—making as the proper income of the dairy, $1,580, besides supplying his family. He is now making butter at at the rate of one tub a week.

The *Irish Farmers' Gazette*, in an elaborate article on the annoyances experienced by breeders of choice stocks, in consequence of occasional infertility in the best animals, recommends sending the animals to another section of the country—a transition to a hilly and less rich pasture—and in some cases severe treatment, even yoking heifers and attaching them to the plough, and especially food rich in phosphorus, together with abundant and frequent salting.

Mr. Brigham is a correct farmer. He selects the best stock he can find and then keeps it in the best condition. He does not believe in pasturing all the cows the fence will hold, and in the winter, besides first quality of hay, he is a liberal feeder of grain. It pays, as the above account shows, besides he is a neat farmer. Everything is kept in its place, and his work is done in time. This is the great secret of happiness in farming, if not of success, and every farmer who drives his work, and is not driven by it, will find it true.

A CORRESPONDENT of the *New England Farmer* thinks that it is folly to talk about protecting crows. He says that they destroy but few insects, but large amount of the eggs of small birds. He says further "that one small bird will destroy more noxious insects in one season than 50 crows. And this is not all. They often spoil large fields of corn when too late in the season to re-plant. If every crow, jay, hawk, and owl could be fed to insects, I think it would be a blessing to the farmer and to the small birds, and I hope no law will be passed to protect crows or jays, for I see them daily hunting for the nests of small birds."

HAMMERING THE HOOFS CAUSES PAIN.—We have seen it asserted recently, that in consequence of the horse's hoof, a nail driven into its wall in in nailing on a shoe, causes the animal no pain; but a nail clinched on the top or side of the hoof with a hammer, induces pain, and in some instances where horses have been lame from no apparent cause, it has simply been the result of an inner irritation, caused by pounding the hoof. If this is true, it is important that there be some device by which the nails on a horse's hoof could be clinched without pounding it with a hammer.

FOOD FOR GROWING PIGS.—In reply to a correspondent, *Health & Home* says: Pigs less than eight weeks old should have all the milk they can drink, with the addition of a little Indean-meal, or something of the same sort equally nutritive. After eight weeks the quantity of milk may be lessened, and the meal increased. For two weeks after being taken from the mother, it should be fed at least five times a day; after that three are sufficient. Keep pigs healthy by some vegetable product—raw potatoes, green grass, or some kind of roots, occasionally given, if you would have the best return for the solid food given.

FROM experiments made, it appears that the different products obtained from oxen and sheep are as follows: An ox of the live weight of 1,322 pounds yields meat, 771.4 pounds; skin, 110.2; grease, 88; blood, 55.1; feet and hoofs, 22; head, 11; tongue, 6.60; lungs and heart, 15.33; liver and spleen, 20.05; intestines, 65.15; loss and evaporation, 154.322, making the total of 1,322 pounds. The products from a sheep weighing 110.2 pounds are as follows: Meat 55.1 pounds; skin, 7.714; grease, 5.51; blood, 4.408; feet and hoofs, 2 204; head, 4.408; tongue, lungs, heart, liver, and spleen, 4 408; intestines, 6 612; loss and evaporation, 19 836, making the total of 110.2 pounds.

SUNDAY CHEESE-MAKING.—The *Utica Herald* in an able article on this subject, after considering all that is currently urged in favor of running the cheese-making mills seven days in the week, for six months in the year, thus concludes: "The welfare of the cheese-makers is to us an important consideration. The convict in State prison has his Sunday; but the honest men and women who engage in the difficult, trying, and laborious occupation of cheese-making are not allowed a day's rest from the opening to the close of the season. This is a very hard strain on the physical, if not on the moral constitution, and most assuredly ought to be obviated, if possible. We know every cheese-maker be he religious or irreligious, would like to have now and then a day of rest. Nature demands it, religion demands it, and it ought to be granted. Let our factory-men reconsider this question, and see if they cannot manage to run their factories more in accordance with the requirements of the laws of health and morality, and more in harmony with the consciences of a large portion of the Christian world."

REMEDY FOR SPAVIN.—Professor Jas. Law Veterinary Surgeon to the New York State Ag. Soc., furnishes the *Tribune* the following: When spavin is recent, and attended with much lameness, and local heat and tenderness, soothing measures should be first adopted. Let the shoe have a level bearing, and rest the animal, giving a smooth floor to stand on. Keep a wet bandage around the hock for at least ten days, covering it with a dry one to prevent undue cooling. Give a dose of laxative medicine, and feed, partially at least, on bran mashes and roots. After ten days cut off the hair on the inner side of the hock, and apply the following: Biniodide of mercury, two drahms; lard, one ounce. Rub in for five minutes; tie up the horse's head twenty-four hours, and then, if it has well risen: and if the exudation begins to trickle down the leg, wash off with soap and water, and apply daily a little tincture of arnica. A second, and even a third blister moy be required after the effects of the previous one have passed off. Obstinate cases may require firing, or even surgical operation, for the removal of the lameness; but these can only be safely applied by a professional man. A rest of six weeks or two months is required to allow of the consolidation of the new deposit.

The Garden.

THE FIRST VEGETABLES OF THE SEASON.

As the Spring has returned, and our attention is once more directed to out-door gardening, perhaps we cannot do better than mention some of the first vegetables and flowers of the season, giving as we pass along a few directions as to their cultivation.

LETTUCE.—We will place Lettuce first on our list, as this vegetable can be easily produced anywhere, and is withal a general favorite. Lettuce should be grown in a rich soil, and kept rather moist. In preparing the bed, see that the ground is well pulverized and smoothed; then sow the seed, not covering it more than a quarter of an inch deep. The seed may either be sown in drills ten or fifteen inches apart, or broadcast; in both cases the young plants will require to be thinned out. Some prefer sowing in a small bed and transplanting; this is very little trouble and produces the finest heads. When the sun becomes very hot the plants should be shaded and kept moist, otherwise they are apt to grow tough and bitter. The more rapid the growth the better, and if a supply is required through the summer months, fresh sowings should be made every three or four weeks.

THE RADISH.—This is a hardy plant, and the seed may be sown as soon as the ground is in good working condition in early spring. It requires a rich, light, sandy loam. The seed may be sown either broadcast or in drills, about half an inch deep, and five or six inches apart. As soon as the plants show any sign of being crowded, they should be thinned out, so as to give sufficient growing room to those that remain. As the weather gets warmer, and the ground becomes dry, they should be watered frequently, and if possible partially shaded. As the radish is quite worthless when the least old, it is a good plan to have a succession by sowing about every two weeks. Varieties are so numerous that it is difficult to tell which is best, but we have found the Early Scarlet Turnip-rooted, Olive-shaped Scarlet, French Breakfast, (a new variety) and the Long Scarlet to be most excellent.

MUSTARD.—There are many varieties of this plant, and though it is extensively cultivated in fields, and the seeds are used to make the common table mustard, yet grown in the vegetable garden it will be found very useful as a salad. A rich soil is best, which should be well pulverized. The drills may be made about eight inches apart, and half an inch deep. The seed should be sown thickly, and the ground kept moist. The leaves are cut when quite young for salad, but may be used in a more advanced state for greens by those who like them.

CRESS.—This plant is used only as a salad and is very nice when eaten with mustard or lettuce. Its cultivation is much the same as that of mustard. It grows very rapidly and should be used when young and tender. Like most salads, frequent sowings should be made for a continual supply.

ASPARAGUS.—This is the choicest of all early vegetables, and its culture involves care and trouble proportionate to its excellence. The plants may be raised from seed, but it is a tedious process, requiring three years to bring them to maturity, so that it is better to obtain plants from a nurseryman or friend. Throughly to prepare an asparagus bed is no small task. A deep, rich, mellow soil is required and a sandy sub-soil, where it can be obtained, is preferable to a subsoil of clay or gravel. The soil must be trenched to the depth of two feet or more, and as it can hardly be made too rich, a liberal supply of well-rotted manure should be mixed with it during the process of trenching, likewise a free supply of common salt. The land may be laid out in beds five feet in width and any length desired; each bed to contain three rows of roots, the outer rows being one foot from the edge of the beds, and the roots one foot apart in the rows. In planting the roots it is a good plan to throw out a trench along the length of the bed ten inches or a foot wide, and deep enough to allow the crowns to be covered three or four inches beneath the surface. During the first season no attention will be necessary except to keep the beds clear of grass and weeds, in doing which the hand and not the hoe must be used, for fear of injuring the roots. In the fall, when the tops are withered, they should be cut down nearly level with the ground and burned. The beds should then be lightly dug over with a digging fork, and a liberal dressing of manure and salt added. Next spring the stalks will be fit to cut, and the future cultivation will be substantially the same as that already described.

THE DANDELION.—This is generally considered a most troublesome weed, and the less we see of it in our gardens and among the grass on the lawn, the better we are pleased. Still the blooms are really handsome, and if they were not so common, would be classed among our finest flowers. But the dandelion, like most other things, has its uses, as those who are fond of a good dish of "dandelion greens" can testify. It will thrive almost anywhere spontaneously, but may be greatly improved by cultivation. The soil in which it is grown should be rich, and the seed sown in drills half an inch deep and twelve inches apart. When the plants become too close, they must be thinned out and kept free from weeds. They will not be fit to cut for greens

until the following spring. When a very early supply is required, the bed must be covered in November with stable manure, which may be removed very early in spring, and straw or some light covering substituted for it, which must be taken off gradually as the weather grows warmer.

FIRST SPRING FLOWERS

THE SNOW DROP is the earliest of all spring flowers, not even waiting until the snow has disappeared before it shows its pure white blossoms. It is not so common in this country as it is in England and other parts of Europe, perhaps because our severe winters are rather trying to it. There are only two varieties of this flower, the single and the double. They make a very pretty appearance when planted together in groups. The bulbs should be set in good soil, about an inch and a half deep. There is a flower very similar to this called the Great Snow drop; it is much larger both in bulb and flower, and should be planted four or five inches deep. The roots should be taken up every third year, when the leaves are decayed, and kept in a dry place, the same as any other bulbs, until August, and then replanted.

THE VIOLET.—This beautiful little flower should have a place in every garden. It is said by some to be an emblem of faithfulness, though we often see it pictured as an emblem of modesty; in either case it is very charming. It is one of the first flowers in field and wood that greet us in the early spring, and on this account, we prize it all the more. Most of the wild varieties are very fragrant and well worth transplanting to the garden. Many persons have an idea that the double varieties are scentless. This is a great mistake, as some of the double ones both white and blue, yield the sweetest perfume. There is a large variety of the violet, termed by florists "Pedate Violet," which may be found in the woods early in the spring. They are sometimes very handsome, though generally of a very light colour.

Violets should be planted in a shady, sheltered place, and will bloom much earlier in spring if covered through the winter.

THE DAISY is a native of England and Scotland, and grows wild in great abundance in those countries, blooming nearly all the season, as Montgomery has beautifully described:—

> "It smiles upon the lap of May,
> To sultry August spreads its charms,
> Lights pale October on his way,
> And twines December's arms."

Even in our cold Canada, we have plucked the daisy ere the snow has taken its departure. It thrives best in some sheltered spot, and should be covered in the winter. There are several varieties of the cultivated sorts; some are pure white double, while others are beautifully variegated. They can be propagated by dividing the roots, or from seed. The seed may be sown in a sheltered border in the garden, but is safest in the green-house or hot-bed. Daisies may be planted in clumps, or as borders to other beds, with very pretty effect. Any trouble and pains that are taken in the cultivation of this flower, and very little are required, will be fully repaid, for, while

> "The rose has but a summer reign,
> The daisy never dies."

THE CROCUS is a hardy bulbous-rooted plant, and a native of Holland. There are many varieties, some of them very gay, and when planted together in a border, they make a magnificent display. The Crocus blooms in April, and the bulbs should be planted in the previous September or October, about an inch and a half deep. When the blossoms and leaves have decayed, the bulbs may either be taken up and placed in some cool and dry place until autumn, or may remain in the ground several seasons without being removed.

THE HYACINTH is one of the finest spring flowers. It is largly cultivated in Holland, and all parts of the world are supplied with bulbs from that country. There are said to be over one thousand varieties of this flower. They are of almost every shade both double and single. The single varieties are very beautiful, though the double ones are considered much more handsome. Hyacinths appear very well distributed in different places about the borders, but will show to better advantage if planted in a bed. The soil should be well prepared by mixing manure with the garden earth. If the soil is found to be of too heavy a nature, it may be improved by adding a little sand, and thoroughly mixing all together. The places for the bulbs should then be marked out about eight inches apart. In planting care should be taken to have the colours well arranged. The bulbs should be covered four inches deep with fine sandy soil. October is the best time to plant. The bed should be covered with some light substance through the winter. After the blooms are dead, and the leaves are withered, the bulbs should be taken up and laid on a bed of light earth with the leaves down, and the roots covered with earth. In about two weeks they will be ripened, and may be taken up and cleared from the earth and roots, and wrapped in papers and kept in a dry place for future use. When the flowers have attained their height, it will be necessary to tie them to sticks or some wire supports, as their own weight or the wind would otherwise break them. Grown in glasses or pots, the hyacinth is a beautiful indoor flower, and relieves the desolateness of winter with its cheerful bloom, while it fills the house with a delicious fragrance.

THE TULIP is a hardy flower, and is cultivated

much the same as the hyacinth. There is an almost endless variety of this flower, both single and double, but by many good judges the double ones are not esteemed so highly as the single. They make the finest display in beds, and should be set out in October, in the same manner as the hyacinth. When the flowers make their appearance, they should be shaded from the noonday sun. In a fine tulip, the flower should be large and like a cup, rather wider at the top than at the bottom. The top of each petal should be rounded and smooth, the colour whether plain or variegated, should be clear and well defined. Tulips like Hyacinths, may be grown in-doors for winter enlivenment and decoration.

"WHEN WILL MY PLANTS BEAR?"

This question is often asked by very impatient ones, in their eager desire for fruit. Strawberries, if set in the Fall, will bear the next season; but if in the Spring, they should not be allowed to bear the same year, as the light crop would not pay for the injury to the plant, which, in fact, in some instances, would be entirely destroyed. They will produce their best crop the year following. In raspberries, the sucker sorts which often have a strong cane, two to four feet high, will produce fruit on spurs thrown out from that cane or stock the first year. But this is not advisable, as it exhausts the roots and lessens the growth of the new cane that is to bear fruit the next year. If you are anxious to see the variety, leave one or two to bear, and cut off the others near the ground. The tip sorts having nothing but roots and germ, and nothing above ground, produce only canes the first year, and fruit well on those canes the second year.

Blackberries, same as sucker raspberries. Grapes, if two year-old vines are set, and bearing wood left on, will give fruit on that wood, but also to the injury of that plant. Whether the plant is large or small, it is better to cut to two or three eyes, and the new growth from these eyes, will bear well the following year.—*Small Fruit Recorder.*

HINTS ON RASPBERRY CULTURE.

The raspberry is among the choicest and best of small fruits, and it is also the first that requires attention in Spring; for if new plantations are to be made, the plants should be taken up and set out before the suckers have commenced to grow. The raspberry requires plenty of room to develop its canes, fruit spurs, foliage and flowers. The row should be at least four feet asunder, and the plant should be set out three feet apart from each other; it is not expected that the stools will keep this distance exactly. If permitted, the young canes will soon fill the intervening spaces in the rows. In various parts of France the fruit-growers are being successful in the culture of the raspberry. In preparing for the plants, the ground is trenched 18 or 20 inches deep, and enriched with well-rotted farm-yard manure. The plants are set out in trenches four feet apart, and these trenches are filled up from time to time by an additional supply of manure. The canes are trained on trellises, and being carefully pruned, and kept free from the encroachment of weeds, excellent crops of fruit are obtained.

The raspberry may be grown in all kinds of soil, but a rich, deep loam, is best suited to its culture, and yields the heaviest crops; wholesome moisture is favorable, but stagnant water is injurious. The rows should run north and south. The distance between them should be regulated by the size of the variety. The canes should be cut level with the ground after being transplanted, as bearing a crop the first year is injurious to the plants.—*Western Rural.*

SUCCESS WITH SMALL FRUIT.

BY CHARLES D. COPELAND.

Success is the reward of patient effort. Strawberries, raspberries, currants, blackberries, etc., can be enjoyed twelve months in the year. These home comforts add to domestic happiness, both as a luxury and by their influence in promoting affection and contentment. With those inexperienced the following hints may prove acceptable:—

1. Select for cultivation both an early and a late variety of each kind of these fruits. This will lengthen materially the season for using them in their green and ripe stage; allowing, also, more time for putting them up in cans, for the balance of the year. And, as it costs no more for sweetening, and but little more labor to preserve them, than it does to prepare them in summer for the table, the supply grown should be sufficient to last the year round.

2. To insure good crops, cover the ground around the plants, from April until the fruit ripens, with manure or some kind of mulching. This keeps the ground loose and moist; in which case, by a law of Nature, the roots will grow near the surface, where they drink in both the warming influence of the sun and the fertilizing quality of the manure that is carried down about the roots by genial showers.

3. Severe pruning in the fall or spring will greatly improve the fruit both in size and quality.

4. As plants become less vigorous and productive with age, young ones should be put out to take their places in due time.

5. When the growth is rapid in summer, the system of "pinching back," or clipping the ends of the branches, will make the plants more strong and hardy for the coming season.

Finally, where these comforts are wanting, it is no proof that the wife is a poor house-keeper. But it does look very much as though she has a husband who, to say the least, lacks a little in economy, or in tender regard for her happiness.

SUNFLOWERS.

A new interest appears to be awakened in Europe in reference to this plant, by reason of the evidence that has been gradually accumulating for some years past, of its possessing medicinal properties. If we are to credit the tales that are told, it is a sure specific against intermittent fevers. M. Martin, in a paper read before the *Societe Therapeutique de France*, says that the experiment of planting sunflowers on a large scale has heretofore been successful in the fenny districts by Rochefort, and has been proved by the Dutch to be beneficial in neutralizing the

deleterious effects of marshy exhalations. M. Martin states that it is a proved fact, that the sunflower possesses the power of freeing the atmosphere from those germs, animal and vegetable, which are supposed to constitute the miasms that are productive of fever and ague.

If this be the case, is it not well for our fever and ague afflicted sections to be made aware of it? Much suffering might thus be avoided, and a new impetus given to immigration to those long neglected and fertile spots in the West and South, that have been pregnant with miasma.

Hitherto the culture of the sunflower has been quite limited in this country. Experiments serve to show that it is a valuable feed for poultry. It also yields a large return in oil. An Ohio farmer, several years since, averred that it would give more bushels of seed year by year, than corn on the same surface. Admitting his statement to be true, we may, from tables I find in an old encyclopædia, estimate the returns in oil that an acre will produce, planted after the manner the work indicates. One hundred plants are allowed to produce one bushel of seed, from which three quarts of oil are obtained. This would give us about forty gallons to the acre, and leave us the refuse for feed, the value of which is not given. May not this refuse be as valuable as cotton seed meal?

My impression is, that the plants might, without detriment, be increased one hundred per cent. on an acre over and above the number stated, and the profits increased in the same ratio. The present facilities for extracting the oil over those in use fifty years ago, will also give us a much larger return than three quarts to the bushel.

But to return to the medicinal question, which is after all one of the greatest moment to us. The plant is easily propagated, and its seed can be mingled with the seed corn and planted at the same time, all over our extended country, resulting, it may be, in untold good to present and coming generations.—*Cor. New England Farmer.*

CRACKING OF THE PEAR.

It may be a long time before we know all the influences affecting this disease. The past season which has been so wet in Western New York, and as commonly supposed, favorable to the increase of the fungus which causes cracking, has given some remarkable results. The Seckels have been badly affected, and on some trees nearly all the specimens are small, black and scabby. The Flemish Beauty, which has so often been spoiled of late years by cracking, was large, uninjured, and covered with that rich russet which accompanies a high flavor. The White Doyenne appears to be hopelessly diseased, as no indications are seen of any improvement of late years, a few fair specimens only to be found on the best trees. The Gray Doyenne, on the contrary, is mostly fine and fair.—*Country Gentleman.*

THE BLACKBERRY.

In an essay on "The Culture of Small Fruits" read by Capt. John Moore at a recent meeting of the Concord, Mass., Farmer's Club, the writer stated that "the high bush blackberry when grown in perfection, and well ripened, is one of our finest small fruits. This fruit was not cultivated until about the year 1840. The Dorchester was the first variety cultivated to any extent, and was brought into notice by the late Capt. Lovett, of Beverly This variety was soon followed by the Lawton, or New Rochellee, Newman's Thornless, and some others, and still later by the Kittatinny, Wilson's Early, and other kinds. Both of the last named varieties are thought to be more hardy, and to produce larger fruit than the Dorchester, but probably of no better quality."

"The high blackberry is liable to have its canes killed in our severe Winters, unless covered. The canes are stiff and brittle, some varieties more brittle than others, and are difficult to lay down and cover with earth without breaking them more or less. The riper the wood of any plant in the Autumn, the more successfully it can withstand the cold of winter; therefore, it would be better to select a soil that is high, dry, and warm, where the canes will ripen thoroughly, and not allow them to be stimulated with high manuring to make a large and late growth.

"Many persons fail to produce satisfactory crops of fruit from planting varieties not naturally productive, or not adapted to their particular soil; for that reason it becomes very important to select the right kinds.

"We want a variety that will grow well, be productive, of large size and regular form; of a bright handsome color, of good quality, and firm enough to bear transportation without injury. It will be impossible to get all these qualities in one fruit, therefore, get as near to it as you can; but at any rate, if you are growing for market, see that you have a variety that is productive and marketable."

THE CURCULIO.

We take the following from the latest article we have seen on the curculio, the subject of such frequent consideration of late. It is from Vineland, N. J.:—

The great pest of the fruit-grower, the curculio, is much more manageable than is generally supposed. Few things are necessary for his subjugation. First, an utter abandonment of the idea that any quack nostrums applied to the trees, or to the earth under them, will avail anything; and second, that regular, continued effort from the time the fruit attains the size of a hazelnut until the insects disappear in July, is the one thing needful.

Little need be said as to the mode of procedure. It is simply the jarring process so often explained. A sheet of coarse, strong muslin, large enough to cover all the ground under the tree is first prepared One end of this sheet is fastened to a stick, so as to be carried readily; while at the other end are two sticks with a slit running from where these ends meet for the first half of the length of the sheet, so that it can be passed about the trunk of the tree. Two persons are required for profitably working the apparatus, and in some cases three are better. The chief operator, who is to do the jarring, should be one who can be trusted not to injure the trees; but the others may be quite small children; as a few minutes' instruction will enable them to detect curculio as readily as a cat will a mouse. It is a jar, not a shake, which brings down the insect nuisance; and this can be applied in any way which will not injure the tree. The palm of the hand will

do for a few small trees; but for an orchard a padded mallet is necessary. A common nail hammer applied to the stump of a limb is excellent, where such stumps can be found, or can be made as well as not.

The writer is convinced that the insect can be mastered in this way. Eternal vigilance is the price of plums.

The time required for this work is much less than a novice would suppose; an average of one minute to a tree will, in most cases be ample. There is a spice of excitement about the work, akin to hunting and fishing, which helps it amazingly, particularly with small boys Pinching the insect is generally recommended; but our practice is to bottle them. I use a homœpathic pill-bottle, carried in the vest pocket. As they "play possum" when they fall, they can be picked up and dropped into the bottle about as easily as a grain of wheat. My daily round during the season was among sixty-eight peach trees and two plum trees, and the largest haul of the pests was on May 13th, when we captured 94. The lowest was 10, on May 29th; but the next day we found 75. They grew scarce in June, and, the strawberry crop then coming on, we soon fell into irregular habits, and gradually gave up the work. But the result was excellent. The peach trees (all young, and bearing their first crop) matured about forty bushels, and the two plum trees nearly all they set. One was so heavily loaded that it had to be propped up—a result that should be avoided by thinning out when the fruit is small. The curculio will do a splendid work at thinning out, if let alone; but the trouble is that he exercises no discrimination, and takes the whole.

POPULAR PEARS.

BEURRE D' ANJOU.

We know of no new variety of pear better worthy of an unqualified commendation than this. It is of foreign origin, but first introduced and fruited in this country by Marshall P. Wilder, of Dorchester, Mass. Since that time it has gradually been making its way into the orchards and nurseries of the country, uniformly growing well, and wherever fruiting, held in the highest esteem. As an orchard fruit it is exceedingly profitable; as a family fruit far more enjoyable than the Duchesse d' Angouleme. Uniformly successful on standard stocks, it can also be grown as a dwarf upon quince roots, but is not so productive, and not so strong a grower.

Mr. Quin refers to it as follows: "Beurre d' Anjou, may be termed an early Winter variety, that is rapidly becoming a favorite among fruit growers. It requires some time for the tree to come into bearing; but when it does, it bears regular crops of fine large pears, of good quality, that bring high prices in the market. In our orchard the tree is a moderate grower. It has borne only a few specimens until the trees were twelve years old; since then they have become more fruitful each succeeding year."

Mr. Elliot also gives it his endorsement as follows:

"The tree is a rapid but healthy grower, with strong shoots forming a fine pyramidical shape, until loaded with fruit from the ends of its branches, it becomes somewhat diverging. So much is it valued by those who have grown it, that one man has one-fifth of his entire orchard of this sort. The wood of young shoots, is short-jointed yellowish olive color, with grey specks, large oblong leaves, rounded at the base."

The following description is by Downing:

"Fruit large, obtuse pyriform; stem short, thick and fleshy, inserted in a cavity surrounded by russet; skin, greenish yellow, sprinkled with russet, sometimes shaded with dull crimson, and sprinkled thickly with brown and crimson dots; flesh, whitish, not very fine, melting, juicy, with a brisk vinous flavor; pleasantly perfumed; very good to best; season, October and November."

We hardly think the description equal to the reality. The specimens we obtained for illustration, were of a fine yellow color, very handsomely shaded with crimson, while the flavor is simply delicious. The tree is quite productive, and wherever the fruit is known in the markets, very remunerative prices have been realized—this season $10 to $20 per barrel. The tree is an excellent grower in the nursery; but when full-grown, the peculiar appearance of its hanging leaves on hundreds of branches, impart a unique and beautiful look to the entire orchard. We advise all pear culturists to grow it largely.—*Horticulturist.*

MISTLETOE.

In a late number of *Nature* we find the following, which brings to mind many of the old superstitions connected with this wonderful plant:

"The entire existence of this parasite is full of interest, even though the mystery of its birth has been removed. Modern research confirms the accuracy of the old distich, which expresses thus its origin:

"'The thrush, when he pollutes the bough,
Sows for himself the seeds of woe;'

and perhaps the increase of mistletoe may be partly attributable to the disuse of its product (bird lime), and the greater immunity which thrushes in consequence enjoy. But those who desire to do so may easily propagate mistletoe without their intervention. All that is necessary for success is to introduce very carefully a few seeds into a shallow notch made in the bark of an apple-tree, and bind it round delicately with bass or damp moss. The apple-tree is the surest stock, for, though it is found elsewhere, yet there is a certain constancy in the apparent caprice shown by the mistletoe in the selection of its victims. It occurs frequently on the poplar, hawthorne, willow, and lime; never on the beech, holly, cherry, and walnut; rarely on the chestnut and pear, and only on some few instances upon the oak. Probably the rarity of its occurrence on the oak contributed to the reverence with which, under those circumstances, it was regarded by our British ancestors. To them a mistletoe-oak was a tree beloved of heaven - a symbol of life and death—a promise of renewal of strength to the leafless monarch of the glade. When the New-Year's festival came round, the Arch-Druid, clothed in white, mounted the tree, and cut the mistletoe with a golden sickle. As it fell into the white cloth held to receive it, two white bulls also fell to the ground as sacrificial victims; and the prayer went forth from the Druid's lips that God would prosper his gift, and make it a charm potent against poison, and a certain cure for sterility.

"Before turnips were extensively cultivated, old Tusser's precept was regularly followed:

"'If snowe doo continue, sheepe hardly that fare
Crave mistle and ivie for them for to spare.'

"And even now, faith in the virtues of the plant (which is, in fact, a gentle tonic) may here and there be found. 'What is the mistletoe good for?' asked Dr. Bull of a Herefordshire rustic. 'That do depend on what tree it comes from,' was the reply. 'It be a very fine thing for fits. My father had the 'leptic fits for many years, but nothing never did him no good like mistletoe from the haw, mixed with wood-laurel, and he took nothing else. They do tell me that mistleto from the maiden ash be a fine thing for convulsives. I know when you get it from the mawpell it's good for animals. It's capital for sheep as don't go on well at lambing-time, and for cows too. That as comes from the apple tree and poplins is the best to hang up in the house on New-Year's Day for good luck through the year; but a many people use any that comes first. A piece of mistletoe from the haw—*from the haw*, sir—chopped in pieces and given to a cow after calving, will do her more good nor any drench you can give her.' But in hall and cottage alike the mistletoe reigns supreme at this season, and in London and other great towns the artisan spends a small portion of his Christmas wages in the purchase of a few sprigs wherewith to decorate his house, and bring good luck to its inmates. From Herefordshire and Worcestershire, between two hundred and three hundred tons of mistletoe are annually exported, and during Christmas week nearly ev ry train from the West Midland district, bears with it a truck load of branches, fraught with we know not what romance, and bright with berries wherein is contained the destiny of the coming year."

We almost regret that no Druid or poet has immortalized our American Mistletoe. It possesses the same characteristics as the European species, growing upon similiar trees, and its pearly white berries are eaten by birds in autumn. If some American poet had been the first to sing, "The mistletoe hung upon the castle-wall," our girls and boys might also have enjoyed the penalty of walking under the mistletoe-bough. Perhaps it is best that we should be more practical in our natures than other people, but whenever we happen to pass those huge branches of mistletoe, so abundant along the banks of the lower Ohio and Mississippi rivers, we instinctively feel a reverence for this near relative of a plant long held in sacred remembrance by the holy men of the East.—*Hearth and Home.*

GARDEN GLEANINGS.

A correspondent of the New York Farmers' Club having asked how to clean cucumber and tomato seed, was told to spread on a piece of paper in the sun to dry. They will be clean enough for home use; for commercial purposes, it is necessary to wash out the pulp and dry them.

Skim milk applied with a syringe to infected vines, is recommended to destroy currant worms. Worms, they say, breathe through their skins; stop the breathing holes and they die. Milk does that; perhaps molasses and water, say equal parts, would accomplish the same result – so would, then, glue or gum water.

A variety of cabbage, new to us, called the Early Wyman Cabbage, is figured and described in some of our American exchanges, which is the popular early variety in the Boston market, and is said to be of large size, solid for an early variety, very crisp and tender, and brings a higher price in market than any other species. If all these things are true of it, the sooner we have it in our gardens and markets the better.

One of Mark Twain's farmer's bought some Bartlett pear trees, and the next season he took some of the fruit to the tree dealer. "What kind of pears do you call these?" "Well, I don't know; Button pears, perhaps." "But they grew on one of the trees you sold me for a Bartlett!" "Are you such a fool," was the dealer's convincing rejoinder, "as to suppose that a tree is going to bear Bartlet pears the first year?"

KEEPING SQUASHES.—A correspondent of the *American Agriculturist* writes that he, by accident, discovered that squashes picked and stored in September will keep much better than those harvested later. He keeps Hubbards and Turbans until June, by gathering early and placing them on the shelves of his store, leaving them there until spring. He sums up his account by saying: "Gather the squashes for late keeping between September 1st and 10th, taking only those that grow near the root, put them on the shelves where they are to be kept and keep them dry and cool. Let the remainder of the crop be the first to be used or marketed."

The *Journal of Chemistry* gives the following instructions for the parlor treatment of hyacinthe bulbs:—In choosing bulbs, look for weight as well as size, and be sure that the base of the bulb is sound. Use single kinds only; they are earlier and hardier. Set the bulb in the glass, so that the lower end is almost, but not quite, in contact with the water. Use rain or pond water. Do not change the water, but keep a small lump of charcoal at the bottom of the glass. Fill the glass up from time to time. When the bulb is placed, put the glass in a cool, dark cupboard, or other place where the light is excluded When the roots are fully developed, and the flower-spike is pushing into life (which will be in about six weeks,) remove by degrees to full light and air. The more light given from the time the flowers show color, the shorter will be the leaves and spike, and the brighter the color.

SEED WHEAT.—An anecdote is told of a farmer Emperor of China, to the effect that, walking by the side of a wheat-field, he saw a stock of wheat much larger and riper than the rest of the field, and that he plucked it and saved the seed to be sowed, and from it derived a variety of wheat much earlier and more prolific than the wheat in common use, and thus conferred a great benefit upon his people. When wheat is sown in drills, we can pass through the field and cut into a basket the heads that are the plumpest and first ripe, and beat out the grains for seed. In a day's time a careful man might thus collect several pecks of seed wheat, that would be as much better than the average of the field as the ears of corn that we select for seed are better than the average corn of the corn crop. When we come to sow with the drill only about a peck to the acre, this would not be so great a job as it would now seem when we sow two bushels to the acre.

Our Country.

THE WILD TURKEY—A GAME BIRD OF NORTH AMERICA.

Naturalists now, generally concede that the old world is indebted to America for this magnificent bird. It was first introduced by the Spaniards from Mexico into Spain, and thence into England. In the reign of Francis the First they were imported into France, and the first one eaten in that country was served up at the banquet given at the wedding of Charles the IXth, in 1570. Bred with much care they rapidly increased and soon were taken into Asia and Africa. It would be difficult to ascer-

tain why its popular name was given to the bird, and is to be somewhat regretted that such an appellation should ever have fallen to its lot, since it is apt to give rise to the supposition that it originated in Asia instead of America, the eastern instead of the western hemisphere. At one time the turkey was pretty generally distributed throughout the United States, but, like the Indian it has gradually disappeared before the onward march of civilization, until now one must look for it amid the unsettled portions of our Western States, and the vast regions through which the Mississippi, Missouri and their tributaries flow. It is still quite plentiful in the Southern States, many parts of which are yet covered with the virgin forest, while in the Northern States it has almost disappeared.

The average weight of the turkey is about 15 to 18 pounds, (I speak of the male) and of the female from 9 to 10. Some gobblers have been known to weigh much more than this estimate, and instances are not wanting where individuals have been obtained weighing 30 and 40 pounds each, but this is rare. When full grown the male will measure 4 feet in length and nearly 5 feet in the stretch of its wings. The naked skin of the head and neck are blue, with the wattles red, as are also the legs. The feathers of the neck and body are generally of a coppery bronze, changing in some lights to a greenish or purplish shade, and margined with an opaque line of velvet black. The back and rump are also black, with little reflection, while the sides, together with the upper and under tail coverts, are dark chesnut, barred with black near the end, and having metallic reflections of a rich purplish hue, while the extreme tips are opaque purplish chestnut. The tail feathers are dark chestnut barred with black, and tipped with a light chestnut. Near the end is a band of black, broadest on the outer feathers, and narrowing as it approaches the central ones. Between the bars on the feathers is a confused sprinkling of black. Neither upon the tail nor its coverts is there any white, and this is one of the ways by which the wild turkey can always be distinguished from the domesticated. From the centre of the breast hangs a coarse hairy tuft, not usually found in the other sex. The female differs principally in being smaller in size, less brilliant in color, absence of the spur, and the small fleshy process at the base of the bill.—*Dep't of Agr.*

HINTS AS TO THRIVING.

Work.—Hard work is the grand secret of success. Nothing but rags and poverty can come of idleness. Elbow grease is the only stuff to make gold with. No sweat, no sweet. He who would have the crow's eggs must climb the tree. Every man must build up his own fortune now-a-days. Shirt-sleeves rolled up lead on to best broad-cloth; and he who is not ashamed of the apron will soon be able to do without it.

Don't Hurry.—Believe in travelling on step by step; don't expect to be rich in a jump. Slow and sure is better than fast and flimsy. Perseverance, by its daily gains, enriches a man far more than fits and starts of fortunate speculation. Little fishes are sweet. Every day a thread, makes a skein in a year. Brick by brick houses are built. We should creep before we walk, walk before we run, and run before we ride. In getting rich, the more haste the worse speed. Haste trips up its own heels. Don't give up a small business till you see that a large one will pay you better. Even crumbs are bread. Better a little furniture than an empty house. In these hard times, he who can sit on a stone and feed himself had better not move. From bad to worse is poor improvement. A crust is hard fare, but none at all is harder. Don't jump out of the frying-pan into the fire. Remember, many men have done well in very small shops. A little trade with profit is better than a great concern at a loss; a small fire that warms you is better than a large fire that burns you. A great deal of water can be got from a small pipe, if the bucket is always there to catch it. Large hares may be caught in small woods. A sheep may get fat in a small meadow, and starve in a great desert. He who undertakes too much, succeeds but little. Two shops are like two stools, a man comes to the ground between them. You may burst a bag by trying to fill it too full, and ruin yourself by grasping at too much.

Be Sensible.—Do not be above your business He who turns up his nose at his work, quarrels with his bread and butter. He is a poor smith who is afraid of his own sparks; there's some discomfort in all trades except chimney-sweeping. If sailors gave up going to sea because of the wet; if bakers left off baking because it is hot work; if ploughmen would not plough because of the cold, and tailors would not make our clothes for fear of pricking their fingers, what a pass we should come to! Nonsense, my fine fellow, there's no shame about any honest calling; don't be afraid of soiling your hands, there's plenty of soap to be had. All trades are good to good traders. Lucifer matches pay well if you sell enough of them. You cannot get honey if you are frightened at bees, nor sow corn if you are afraid of getting mud on your boots. When bars of iron melt under a south wind, when you can dig the fields with toothpicks, blow ships along with fans, manure the crops with lavender water, and grow plum cakes in flower pots, then will be a fine time for dandies; but until the Milennium comes we shall all have a deal to put up with, and had better bear our present burdens than run helter-skelter where we shall find matters a deal worse. Plod is the word. Everyone must row with such oars as he has and as he can't choose the wind, he must sail by such as God sends him. Patience and attention will get on in the long run. If the cat sits long enough at the hole, she will catch the mouse. Always at it grows good cabbage and lettuce where others grow thistles. I know as a ploughman, that it is up and down, up and down the fields, that ploughs the acres; there's no getting over the ground by a mile at a time. He who plods on, the clods on, rods on rods, will turn oft the sods while laziness nods.

Be Squarley Honest.—Never try dirty dodges to

make money. It will never pay you to lick honey off thorns. An honest man will not make a dog of himself for the sake of getting a bone. He needs have a long spoon who would eat out of the same dish with Satan. Never ruin your soul for the sake of pelf; it is like drowning yourself in a well to get a drink of water. Take nothing in hand that may bring you repentence.

Spend Wisely.—Look most to your spending No matter what comes in, if more goes out you will always be poor. The art is not in making money, but in keeping it; little expenses, like mice in a barn, when they are many, make great waste. Hair by hair heads get bald. Straw by straw the thatch goes off the cottage, and drop by drop the rain comes into the chamber. A barrel is soon empty, if the tap leaks but a drop a minute. When you mean to save, begin with your mouth; there are many thieves down the red lane. The ale jug is a great waster. In all other things keep within compass. In clothes choose suitable and lasting stuff, and not tawdry fineries. To be warm is the main thing: never mind the looks. Never stretch your legs further than the blankets will reach, or you will soon be cold. A fool may make money, but it needs a wise man to spend it. Remember it is easier to build two chimneys then to keep one going. If you give all to back and board, there is nothing left for the savings bank. Fare hard and work hard while you are young, and you have a chance of rest when you are old.—*John Ploughman's Talk.*

WHAT AN ENGLISH IMMIGRANT THINKS OF CANADA.

In the London *Times* of the 12th ult., appeared a letter upon the subject of emigration to Canada. Mr. Thomas White, jr., Special Commissioner of Emigration for the Province of Ontario, in replying to it, gives the following extract from a letter written by an English immigrant, concerning the advantages which are offered to industrious settlers in Ontario. The writer of the letter has been settled in the neighbourhood of Guelph since September last, but let him speak for himself. He says:—

"I arrived here last September, and as you are aware, the season was too far advanced for brickwork for me to do much good before the winter set in. I was fairly besieged with men wanting to engage me for almost every kind of work. I went with a farmer for two days' harvest work, and am with him now. I never lost an hour since I have been in Canada. I am going to stay where I am until Easter; then I hope to go to work at my trade. My present "boss" has to-day offered me $150, with board, lodging and washing, if I will stay with him during this year. Were I not a mechanic I should accept his offer, but I hope to do better during the summer months, and work with a farmer in the winter until I can get a few dollars by me; then, if God spares my life and gives me health, I intend to take a bush farm, and my four boys, I hope will help me to clear it, and in a few years I hope to be the owner of a good farm. I am much pleased with the prospects of Canada, and I feel certain that any man, if he will only give his mind to hard work for a time, and not be particular what he does, and keeps outside the taverns, can in a very few years place himself above the frowns of the world. It is no use men coming out here if they are nice about what they do. It is these fickle-minded emigrants that get such a bad name in this country, and they get others a bad name who will work, and they write home to England and give Canada a bad name, and say they are starving, and all the rest of it, when it is entirely their own fault. There are three men wanted now on three farms near me. I saw two young men from the East end of London, in Guelph, the other day. They told me they had been out of work two weeks. I offered to take them out with me, but no, they won't leave the town for the country, and of course they can never expect to prosper. I think this is a good country for a man with a family. Provisions are plentiful and cheap.

IMMIGRATION—SWAMP DRAINAGE.

The Hon. J. Carling, as Minister of Agriculture and Immigration, has sent to the various municipalities of Ontario a set of very useful papers concerning Immigration and Drainage, which it is to be hoped will secure the attention of those concerned.

Mr. Carling expects a large influx of immigrants during the approaching season, and in view of the fact he is desirous of getting all the information he possibly can from municipal officers, in regard to the employment which can be given to them in the various localities of the Province. In his circular to the Reeve or Mayor of Municipal Councils, he says:

"I trust your Council will see the importance of rendering all reasonable assistance, by transmitting as reliable information as possible in regard to the numbers and kinds of laborers as you will probably require during the coming season. I would beg to suggest, also, that in municipalities requiring immigrant labor, an officer or committee of the Council of the municipality should be appointed to receive, advise with, and locate the immigrants and their families. Such action on the part of your Council would facilitate their settlement, and benefit both them and the municipality.

"I am also desirous of obtaining lists of *improved and unimproved lands for sale*, and to distribute such lists to the various local Immigration Agencies, for the information of newly arrived immigrants with capital, who may propose to settle in the older townships. I trust you will be able to furnish reliable information under this head."

Accompanying this circular is a printed schedule, which he asks should be filled up and returned to his office at as early a day as may be found convenient. The schedule will contain information, showing the number and kind of laborers required in the locality, and the average wages paid in summer and in winter, and any other information which the Reeve or Mayor may think it important to make known. We earnestly hope that Mr. Carling's praiseworthy efforts in this matter will meet with the hearty support of the municipal authorities generally. It is of the greatest importance that the first impressions of the immigrant, with regard to his new home, should be formed under the influence of kindly treatment, and a reasonable regard for his comfort; the mere novelty of his circumstances have a strong tendency to

produce a testimony which is both unfavorable and unjust to this country, and so far as this can be fairly and honestly counteracted, it ought to be done. Every immigrant who comes to our shores becomes a power to attract others to follow his example, or to repel them from doing so. The first few letters home are always anxiously waited for and eagerly perused by an expectant circle of friends; and if the power of the mail bag is arrayed against that of the Emigrant Agent, the work in hand will necessarily be very much hindered. Once the immigrant has been fairly settled, he soon becomes independent of official assistance or advice, and may safely be left to take care of himself, and to form such impressions as a careful consideration of his changed circumstances justify; but if we approve of the general policy of encouraging immigration, we are under a moral obligation to assist the immigrant to the extent, at least, of placing him in a position to earn a livelihood, with as little delay as possible after his arrival.

Mr. Carling's papers, relating to drainage, are accompanied by a copy of the Drainage Act, passed at the last session of the Provincial Legislature, and by extracts from the Act respecting Public Works, and also on the Report on Public Works for 1869. The blank forms are conveniently arranged, and will enable Reeves of townships, with the least possible inconvenience, to transmit the necessary information with regard to the swamp lands of their districts. It is well known that there are large tracts of such land in the Province, composed of rich alluvial deposits, which only require drainage in order to become the most valuable lands we have. Of the whole quantity of such swamp lands in the Province (some 500,000 acres), it is estimated by the Assistant Commissioner of Public Works that 370,000 acres may be drained by gravitation alone. They are situated as follows:

Counties of Kent and Essex	48,000
" Lambton (surveyed)	28,400
" Perth	14,800
" Bruce	13,200
" Simcoe and Victoria	2,600
" Carleton and Russell	113,000
" Wellington and Grey	100,000
" Middlesex	28,000
" Lambton (unsurveyed)	12,000
Total	370,000

By the Act already alluded to, the Provincial Government is empowered to co-operate with the municipalities in the drainage of these lands, each party bearing a share of the expense.

This method of linking together the Government and the municipalities in works of local improvement is a highly commendable course, and the steps taken by Mr. Carling to bring the drainage Act under the notice of the parties interested, ought to be encouraged by a general response to his request for information, which will enable him to give it effect.

Arts and Manufactures.

ART GLEANINGS.

SULPHUR is highly recommended as a deodorizer. The *Maine Farmer* gives an instance of its effects in removing the offensive odor from a dairy house where a skunk had been killed. He burnt some sulphur in the room. The effect was magical, as it completely neutralized all the foul smell in the room.

A WRITER in the *Massachusetts Plowman*, gives the following method of cleansing pork barrels:—"Chemistry furnishes an agent in the permanganate of potassa, which fully meets this want. A pint of the permanaganate turned into the most nasty, filthy cider, beer, or pork barrel, and rinsed about a few minutes, will entirely decompose all fungoid growths and fermenting matter, and render the cask as sweet as those that are new. The only way to remove immediately the odor of carbolic acid from the hands, is to immerse them in the liquid permanganate."

IN England, a huge steam-hammer, weighing 1000 tons, is being made for the Russian government. The hammer-head weighs 42 tons, the anvil-block 500 tons, and it is to be used in forging steel guns.

EVERY farmer, says an agricultural exchange, should have a can of linseed oil and a brush on hand; and whenever he buys a new tool, he should soak it well with the oil and dry it by the fire or in the sun before using. The wood by this treatment is toughened and strengthened, and rendered impervious to water. Wet a new hay-rake, and when it dries it will begin to be loose in the joints; but if well oiled, the wet will have but slight effect. Shovels and forks are preserved from checking and cracking in the top of the handle by oiling; the wood becomes smooth as glass by use, and is far less liable to blister the hand when long used.

A CURIOUS SUBSTITUTE FOR CEMETERIES.—The inventive genius of the old world seems to be at work to devise a substitute for cemetries, by employing some process for treating the dead bodies of departed friends so as to render them excellent specimens of petrifaction. A foreign contemporary announces a discovery by which graveyards will become superflous: "An odd discovery has just been made by a man of Grenoble, by which it is calculated that cemeteries will become superflous. At the decease of an individual, the body is plunged into a liquid invented by the man of Grenoble, and in about five years the individual is turned into stone! The secret of the petrifaction is known only to the discoverer. He says that in a thousand years' time, if persons will only preserve their relatives and friends, they will be able to build houses with them, and thus live in residences surrounded by their ancestors."

THE USE OF BOTH HANDS.—A writer suggests that it would be a good thing for men and women were they taught in childhood to use their left hand equally with their right. The use of the right hand only for certain actions, such as writing and working with mechanical tools, is entirely conventional; and there does not appear to be any reason why people should not be ambidexter in every kind of manual work. Persons who have lost their right hand by accident, frequently acquire great facility with the left, after some practice; but grown-up persons have not always the patience to betake themselves to the necessary practice. By children the thing would be acquired insensibly, if means were taken to lead them to the practice of it. Children living in houses where two languages are spoken, acquire both with great facility; and what is true of tongues would be equally so of hands.

MEMORANDA CONCERNING NAILS.—This table will show at a glance the length of the various sizes, and the number of nails in a pound. They are rated from "3-penny" up to "20-penny." The first column gives the name, the second the length in

inches, and the third the number per pound:

3-penny,	1 Inch long,	557 per pound.
4 "	1¼ "	353 "
5 "	1½ "	232 "
6 "	2 "	167 "
7 "	2¼ "	141 "
8 "	2½ "	101 "
10 "	2¾ "	98 "
12 "	3 "	54 "
20 "	3½ "	34 "
Spikes,	4 "	16 "
"	4½ "	12 "
"	5 "	10 "
"	6 "	7 "
"	7 "	5 "

From this table an estimate of quantity and suitable sizes for any job can be easily made.

KEEPING WATER IN ZINC RESERVOIRS.—In view of the fact that water-reservoirs are frequently made of zinc or have zinc linings, Ziurck, a German chemist, has made some experiments upon the influence of water on this metal, and discovered that water kept in zinc vessels dissolves zinc in proportion to the time it remains in contact with the metallic surface, and to the amount of chlorides (common salt, etc.) contained in the water. He shows also that boiling not only does not precipitate the zinc from such a solution, but that it even augments the solvent power of the latter. Water containing zinc, and and boiling in a zinc vessel to precipitate it, would actually absorb more zinc, and precipitate none. This chemist found the amount of the metal in one instance, the water having been kept for a considerable time in a zinc reservoir, to be as high as 1.0104 grammes to the litre, or nearly fifteen grains to the quart A much smaller quantity would be very injurious, if the water were used for drinking or cooking. It is therefore recommended to coat such reservoirs with good oil-paint, containing—not litharge, white-lead, or zinc-white, but iron-ochre or asphaltum.

THE IMPORTANCE OF LEARNING A TRADE.—Why is it that there is such a repugnance on the part of parents to putting their sons to a trade? A skilled mechanic is an independent man. Go where he will, his craft will bring him support. He need ask favors of none. He has, literally, his fortune in his own hands. Yet foolish parents, ambitious that their sons should "rise in the world," as they say, are more willing that they should study for a profession, with the chances of even moderate success heavily against them, or run the risk of spending their manhood in the ignoble task of retailing dry-goods, or of toiling laboriously at the accountant's desk, than learn a trade which would bring them manly strength, health and independence. In point of fact, the method they choose is the one least likely to achieve the advancement aimed at; for the supply of candidates for positions as "errand-boys," dry-goods clerks, and kindred occupations, is notoriously overstocked, while, on the other hand, the demand for really skilled mechanics, of every description, is as notoriously beyond the supply. The crying need of this country to-day is for skilled labor; and that father who neglects to provide his son with a useful trade, and to see that he thoroughly masters it, does him a grevious wrong, and runs the risk of helping, by so much, to increase the stock of idle and dependent, if not vicious, members of society.

It is stated in the report of the Prison Association, lately issued, that of fourteen thousand five hundred and ninety-six prisoners confined in the penitentiaries of thirty States, in 1867, seventy-seven per cent., or over ten thousand of the number, had never learned a trade. The fact conveys a lesson of profound interest to those who have in charge the training of boys, and girls too, for the active duties of life.—*Manufacturer and Builder.*

WHITEWASH.—Whitewash is one of the most valuable articles in the world when properly applied. It not only prevents the decay of wood, but conduces greatly to the healthfulness of all buildings, whether of wood or stone. Out-buildings and fences, when not painted, should be supplied once or twice a year with a good coat of whitewash, which should be prepared in the following way: Take a clean, water-tight barrel, or other suitable cask, and put into it a half bushel of lime. Slack it, by pouring water over it boiling hot, and in sufficient quantity to cover it five inches deep, and stir it briskly till thoroughly slackened. When the slacking has been thoroughly effected, dissolve it in water, and add two pounds of sulphite of zinc and one of common salt; these will cause the wash to harden and prevent its cracking, which gives an unseemly appearance to the work. If desirable, a beautiful cream color may be communicated to the above wash, by adding three pounds of yellow ochre, or a good pearl or lead color by the addition of lamp, vine or ivory black. For fawn color add four pounds of umber, Turkish or American—the latter is the cheapest—one pound of Indian red, one pound of common lamp black. For common stone color, add four pounds of raw umber and two pounds of lamp black. This wash may be applied with a common whitewash brush, and will be found much superior both in appearance and durability to the common whitewash.—*Journal of Chemistry.*

OILING AND BLACKING HARNESS.—In the first place I subject the harness to one or two coats (as the leather may need) of lamp-black and castor oil, warmed sufficiently to make it penetrate the stock readily. Then make about two quarts of soap-suds, and with a sponge wash the harness. When dry, rub it over with a mixture of oil and tallow, equal parts, with sufficient lamp-black to give it a color, or, what is better, Prussian blue, which gives it a new and fresh look. This compound should be applied sparingly, and well rubbed in, which can be quickly done, and will leave a smooth and clean surface. By saturating the stock in the first place with oil, the soap and water are prevented from penetrating it in the process of washing. When leather is permitted to absorb water or soap, it has an ultimate tendency to harden it. When the harness is washed first (as is generally the case), the water repels the oil; consequently in the one case you have the oil inside of the stock, and in the other you have the soap and water. By oiling first it softens the dirt, so that it can be washed off in at least one-half the time required when washed before oiling, and also saves the scraping process, which defaces the grain of the leather. It will remain soft much longer from the fact of its being penetrated with oil. The whole process can be accomplished without the delay of waiting for it to dry. Consequently the harness can be oiled and cleaned in much less time, will remain softer, wear longer, and look better than when cleaned by the old method; and I consider these reasons of sufficient importance for every one having a harness to give this method a fair trial. The English patent harness blacking, which is commended for keeping leather soft and giving it a good polish, is made by

dissolving together, over a slow fire, three ounces of turpentine, two ounces of white wax; then add one ounce of ivory black and one drachm of indigo, to be well pulverized and mixed together; when the wax and turpentine are dissolved, and the ivory black and indigo, stir till cold. Apply very thin, and brush afterwards.—*Scientific American.*

HOW TO MAKE GRAFTING WAX.—Take good, clean bees-wax, one-third; rosin, two-thirds; melt together; boil one hour, then pour it into cold water. When cold enough, work it with the hands until you think it well mixed. If not soft enough to spread easy, add a little more wax. N. B.—Bud your peaches into plum sprouts. In budding take the double buds. Graft your grapes into wild grape roots; you will have grapes the next year without fail. One is worth a dozen of those you get out of the nurseries. I have had them to grow ten and a half feet long the first year.—*Ex.*

Hearth and Home.

FARMING FOR BOYS.

CHAPTER VI.

BUILDING A PIG-PEN.—HOW TO KEEP PIGS.—A GREAT INCREASE.—TWO ACRES OF CORN.—LIQUID MANURE THE LIFE OF A PLANT.

This important part of the general future being thus successfully under way, the next thing was to fit up a pig-pen, for the new queen in the boys' affections would very soon be brought home. As there was a scarcity of materials on the farm for constructing a fashionable modern pen, with brick walls, shingle roof, plank floor, and costly iron feeding-trough, Uncle Benny directed them to use a large old molasses-hogshead, that happened to be lying idle. One of the boys got into it and removed all the projecting nails from the inside, then, placing it on its side, and blocking it so that it could not roll over, they put into it an abundant supply of straw for a bed. They then built a fence of old posts, broken rails, pieces of board, sticks from the wood-pile, and other waste stuff they could find. In fact, there was nothing else to be had. It was a tottering, decrepit sort of affair, although strong enough to keep the pig in, but it enclosed sufficient room to give her a fine range, while the great hogshead would be sure to afford a retreat always dry and warm,—in fact, just such a shelter as a pig must have, if one expects him to keep himself clean and in thriving condition.

Though Uncle Benny had himself superintended the erection of a structure which was destined to be the theatre for very important events, yet, when finished, he gazed upon it with a sort of architectural dismay. He had a nice eye for the beautiful; but here was a collection of all the crippled boards and half-rotten posts and rails that such a farm as Spangler's generally contains in wasteful abundance. "It must be whitewashed," he exclaimed. "I am ashamed of it. Your pig will be ashamed of it too, and the neighbors will laugh at it. The hogshead will do, but the fence must be whitewashed."

Mr. Spangler, coming up at that moment, and hearing the old man's remark, joined in by saying, "Yes! It beats me all hollow! There's no worm-fence on the farm like it."

The uneducated eyes of the boys being unable to appreciate the squalled features of the structure, they were surprised at these disparaging estimates of the results of their labor, but, on promising that they would supply the whitewash as soon as the weather became warmer, the subject was dropped.

In due time the expected and long-desired pig was brought to her future home, and she went cheerfully into it, giving no critical attention to the fence, but making directly for the feed-trough, which had been crammed, with boyish generosity, as evidence of a hearty welcome. She was a sleek, demure, and very motherly-looking pig, and her white skin was so much cleaner then any of the dirty razor-backed animals in Spangler's pen that everybody remarked it. Mrs Spangler herself, with all the girls, could not resist the temptation of coming over to see what they had heard described at every meal since Christmas. Even they observed the difference; but one of them, whose name was Nancy, rather spitefully remarked that it wouldn't last; she'd soon be as dirty-looking as the others. This so nettled Joe, that he said the pig should be called after her; and the boys falling in with the idea, they formally adopted the name. Even Uncle Benny always used it when speaking of her.

The advent of this animal created even more interest among the boys than that of the pigeons.—The latter were away up in the loft, out of reach, and not proper subjects for handling or talking to, besides being shy and unsociable, except among themselves. But Nancy was down upon the ground, always accessible, ever desirious of seeing company, and with so quick an ear that the lightest approaching footfall would bring her out of her warm hogshead to see what was coming. Whether it was company she wanted, or a bucket of swill, was of little apparent consequence. She turned out regularly when any one came near, and drew up to him with amusing familiarity.

The fact was that Bill Spangler had become as attentive to her as if she had been his sweetheart, and he seemed to live, and move, and have his being in hanging around the pen, or in getting over the fence to give her a grateful scratching with the curry-comb. After a very brief practice under this rough shampooing, Nancy took to lying down on her side the moment Bill put his foot over the fence, and

waited, with an impatient grunt, for Bill to begin. It was amusing to see how highly she relished these rough but acceptable attentions, shutting her eyes, as if oblivious of all outward things, even of the feeding-trough, dropping her ears in perfect repose, stretching out her legs, and abandoning herself entirely to the soothing influence. Every one was satisfied that Nancy's skin became cleaner and whiter under this treatment, even to the putting on of a silky brightness. Uncle Benny was sure that she was improving under it, that he gave Bill great credit for having undertaken the labor of two or three curryings daily.

Bill also kept the pen in order. Having been provided with a clean, dry bed, she kept that clean herself; for it is the instinct of a well-bred pig to keep his nest in good order, if a nice dry one be given him, with adjoining space for other purposes. In this useful duty Bill was not dismayed by the occurrence of a drizzling, muddy day. On the contrary, as the boys on such occasions generally had the most time to spare, so Bill spent his holidays in Nancy's pen, scraping and piling up the supernumery contents, and putting in fresh litter. Of course his boots got so muddy, that, when going in to meals, the girls regarded him as an object of suspicion; and when he happened to stand too close to a hot stove, especially when his clothes were damp, the exhalations became so pungent as very justly to expose him to the most damaging imputations. But he was proof against all the slurs thrown out at such times. If his boots had been in the pig-pen, his heart had been there also.

Uncle Benny required all that Nancy consumed to be charged against her in a separate account, so that the boys should know whether she really did eat her head off, as her namesake in the house had spitefully predicted she would. There was no getting for her even a mouthful of kitchen slop; Miss Nancy had been so stung by having her name undervalued, that she was careful to throw all to her father's long-legged hogs. But as a sort of equivalent for this manifestation of hostility, the boys picked up numerous odds and ends about the place for Nancy's benefit, such as they had never before thought of saving. When they saw a stray cabbage leaf or turnip lying about, or a nubbin of corn, they put it into their pockets until they had a chance of giving it to her. Though it was still cold weather with no green things about, yet they were often surprised at the variety of trifles they could find when thus on the lookout for them. Between these three caterers, Nancy had quite a luxurious time of it, even though spitefully cut off from the run of the kitchen.

Uncle Benny watched the behavior of the boys toward their new pets, as the winter wore away became more and more gratified at the beneficial influence which the care of them was exercising on their habits. He considered it a great gain for a very small outlay. Nor did he fail to remind Mr. Spangler of the important fact, going into particulars which compelled him to admit that these little concessions had done the boys much good. It was a hard thing for him to give up the convictions of a lifetime, but he did it nevertheless,—though sometimes winding up with a request that the old man would wait till the year's end, and see how the experiment would result.

As Bill was devoted to Nancy, he was up in advance of the other boys, and off to her pen to give her breakfast. One morning early in March, on reaching it in the performance of this pleasing duty, he was confounded by seeing ten young pigs in the hogshead. There was too much grunting and squealing around Nancy to permit her to hear Bill's step as he came up to the pen, nor did she happen to see him. So he stood for a moment, surprised beyond anything within his memory, gazing at the joyful sight, then turned back to the house, routed the other boys out of their beds, and ran shouting up to the girls with the glorious news that Nancy had ten pigs! No news-boy ever cried out the tidings of a great victory over the "Rebels" with such voluble glee, as when Bill ran stamping down stairs with the news. He thundered even at Uncle Benny's door, then opened it, and told him also what had taken place.

Of course it created a great sensation, and very soon the whole family was gathered around Nancy's pen. There was no denying the thing; Nancy had brought the boys ten pigs,—nine plump little fellows and a runt. Even Mr. Spangler came out before he got breakfast to see if it could be so, and if the pigs looked any better than a litter which had fallen to his lot the week before.

As to the boys, they were pleased beyond measure. Nancy came grunting and sniffing toward the spectators, as if the matter were a great relief to her also, and behaving as though a good warm breakfast, with plenty of it, would not come amiss. Altogether it was a noisy and lively scene, and appeared to give general satisfaction. But its real interest lay in the single fact that Nancy belonged to the boys. Had she been one of Spangler's drove, no one would have felt much concern about the matter but herself. It also went far toward establishing another point,—that when the boys of a farmer's family are permitted to interest themselves in any little independent operation of their own, the family itself is pretty certain to become interested also.

That very day the boys were to quit school for the winter; so they hurried off to the school-house

to spread the news among their fellow-pupils.—There was great interest as well as great envy among them, for only one or two of the whole number had been allowed by their parents any privilege of the kind. The good luck of the Spanglers created so much anxiety to imitate them that there sprang up a demand for pigs that seemed likely to exhaust the entire litter. It can hardly be doubted that, if Nancy herself had been trotted out into the school-room with her squeaking brood, the boys would have laid violent hands on all of them, and there would have been so general a scramble for pigs as to send her home bereft even of the little runt. Bill was quite carried away by his enthusiasm so far forgetting himself as to say that Nancy had eleven, instead of only ten. This, however, was an accidental slip, and occurred when the teacher called him up to know what was the meaning of the buzzing and excitement and inattention to their lessons which was shown by the scholars, as he discovered they had something in their heads that morning more interesting than reading or ciphering.

When the litter was three weeks old, Uncle Benny told Bill he must take out the runt pig and bring it up by hand, or it would surely die, and that would be a loss of at least ten dollars. The other pigs, which were fat and strong, fought it away from Nancy so that it got scarcely anything. He said that even the runt pig of a litter ought to have a chance, as well as the boys. He liked to see fair play all round. Bill accordingly took it away and kept it by itself. He fed it on the kitchen swill, which, having been cooked, was just what it needed, and nursed it up so faithfully, that in the end it turned out as fine as any in the litter, while he learned the useful fact that a poor dwindling pig could be saved and made a profitable animal by the exercise of a little care.

Before the middle of March the pigeons had laid and hatched. When it was ascertained that most of the nests contained young ones, Uncle Benny directed the boys to let the birds out by removing one of the slats, and adjusting it like a pendulum, so that it could be readily swung back again into its place, and the opening closed. They began by opening this swinging door-way an hour or two before sunset, as at that time of day the pigeons would be certain to fly only a short distance from home, even if without young ones. They according went out, took a short flight, as if merely to practice their wings, and all returned in good time. After a while the door was opened at noon, and, the pigeons being found to be thoroughly domesticated, the front lattice was removed altogether, so that they could go and come when they pleased. The fact of their having young ones to feed made their stay a permanent one.—This relieved the boys from much care, and, the birds having the range of the whole farm, they obtained in the fields so large a portion of their food as to make a perceptible diminution of expenses.

After May had come, the boys set about planting the two acres of corn which they were to have for themselves. Spangler did not exactly like this part of the arrangement, but there was no getting out of it now, as by this time the pigs and pigeons had consumed so much corn and meal that he had good reason to expect a loss unless he gave the boys a chance to replace them. Uncle Benny selected a field close to the barn-yard, that had been sadly neglected. But there was no manure for it, as Spangler had emptied the barn-yard for his own crops. But he generously gave them the privilege of taking from it such scrapings as they could find. They accordingly went a manure-hunting with a will. Taking hoe, and rake, and shovel, they cleaned out at least twenty holes and corners where considerable deposits had been carelessly left for several years,—all, therefore, nicely rotted. They poked their hoes under the barn and drew forth surprising quantities. They took up the loose planks under where the cows and horses had been standing, and turned out extensive deposits of the very best quality. Spangler was amazed at the extent of these collections, and now began to fear that he was likely to lose manure as well as corn. It seemed impossible for him to entertain any other idea than that whatever he gave to his boys, or allowed them to make for themselves, was so much loss to himself.

The supply being scanty, they were unable to give the land a good broad-cast dressing, yet they had enough to afford an extra quantity to each hill. This they applied faithfully and well, Uncle Benny constantly enjoining it on them to feed high,—that the corn required feeding as much as the pigs. He sometimes even thought that they could have done nearly as well by putting all the manure on one acre instead of two, as in that case they would have had only half as much ground to attend to, with a strong likelihood of harvesting quite as much corn. But this was the beginning only, and it was not to be expected that things would go on as bravely at the first attempt as they would afterwards. In reality, the boys had wanted more than two acres, thus adopting, as if by instinct, the common error of undertaking too much. Like many others, they supposed a man's crops were in proportion to the quantity of ground he cultivated, not in proportion to the thoroughness with which he enriched it. But Uncle Benny knew otherwise, and that two acres would be quite as much as they could manage. As it turned out, there were more than they had the means of manuring properly.

"I don't see why you want this ground made so rich, Uncle Benny," said Joe Spangler, when they had finished planting. "Father never puts as much on his corn as we have put on this, and yet you say it ought to have more. It is very tedious having to handle so much."

The old man drew a newspaper from his pocket, and read to his audience the following paragraph:—

"Thirty years ago the farmers of the Genesee and Mohawk valleys assisted each other, in the winter, to cart their manures on the ice, so that when the rivers broke up they should get rid of them, and not be compelled to move their stables; now in those very valleys, barn-yard manure is worth two dollars or more per cord, and is so much needed, that, without its use, a crop of wheat cannot be raised which would compensate the grower. The average crop of those valleys has sunk within thirty years from thirty bushels to the acre to less than fifteen, while the whole average of the State of New York is less than eleven; that of Pennsylvania has sunk to eleven and a quarter, and that of Ohio from thirty-five to eleven and a half. Massachusetts can no longer raise grain enough to support her manufacturing population, without import from elsewhere; and with all these facts prominently before them, many farmers in these rich valleys have actually cut gutters from their barn-yards across the public road, to let the liquid manure run away. This may be considered cleanliness, but it certainly is not economy."

"There," said the old man, "you see what the majority of the New York farmers did thirty years ago, and what has been the result. No manure, no crop."

"But," replied Tony, "when you were telling us about the election, I thought you said the majority were always right."

"Ah," rejoined the old man, "that's a great mistake. Majorities are sometimes actually blind to the truth. When Noah told the people there was a terrible flood coming, there was a great majority who would n't believe a word of it. It was the minority that were in luck that time. So will you be in your future practice, if you turn over a new leaf on the manure question."

"Blame the thing!" cried Bill, with sudden impatience, kicking away from him the dead body of a huge cat, "it's been in my way all day!"

"Now, Bill," said Uncle Benny, "bring the cat here again; I'll put it out of your way. That cat is manure, and must not be wasted."

They were then standing at the end of a corn-row, on the outside of the field. Bill went after the cat, and, lifting up the animal with his hoe, brought it up to the old man.

"Now," said he, "plant that cat."

As directed, Bill took up the grains of corn from the last hill, dug a hole some ten inches deep, in which he placed the animal, then covered it with earth, on which the grains were replaced and again covered, as before. There was a good deal of laughing and shouting among the boys while this was going on; but when the thing was done, Joe looked up to the old man, and inquired, "What's the use of that, Uncle Benny?"

"Why," said he, "you put a small shovelful of manure in each hill, but that cat is equal to four shovelfuls. Besides, Joé, it is a clear saving. If the cat had been allowed to dry up on top of the ground, its richness would have gone to waste; and you must learn never to waste anything, for it is by the saving of small things, no matter what they may be, that men grow rich. Now watch this corn-hill, and see how the roots will draw up strength and vigor from that decaying carcass. It will be the best hill on the whole field. I wish we had a cat for every one of them."

"But does anybody else plant cats?" inquired Bill.

The old man again produced a newspaper, and read to them an interesting statement by Mr. Edgar A. Clifton, of Staten Island, showing how richly some such experiments made by him had resulted.

When selecting his particular piece of ground for a corn-field, Uncle Benny had had an eye to the adjoining barn-yard. As already mentioned, Mr. Spangler had caused its fluid contents to be discharged into the public road, nor was there any liklihood of his going to the slight trouble necessary to prevent such wholesale waste. Uncle Benny quietly undertook it for him, by opening a new outlet directly into the cornfield. As Spangler had tried his hand at wasting, the old man would try his at saving. The ground was so situated as to make this the work of only an hour or two. It was done so effectually, that not a drop ran to waste as formerly. On the contrary, whenever a heavy summer thunder-shower fell, there could be seen a torrent of dark liquor rushing through the barn-yard, and pouring away into the cornfield, diffusing itself over at least half an acre. There were no means of causing it to irrigate a greater surface. The rain diluted the concentrated liquor down to the exact strength for the corn roots to drink in and stimulate the plants.

This ingenious bit of engineering gave rise to no remark from Spangler beyond his saying that he was glad to see the barn-yard so much drier than formerly. The old man had in fact drained it effectually. There could be no denying that it produced

remarkable results. Into whatever part of the cornfield this wash of the barn-yard was carried by the the spring rains, it bore with it so stimulating a vigor that there the corn came popping up out of the ground in advance of all other places. In addition to coming up earlier, the corn was evidently stronger and healthier, presenting a deeper tinge of green throughout the season. It refused to turn yellow under a succession of cold days and colder nights, though all the other plants became pale and spindling. Many of the hills showed double the number of ears, than the others produced.

The boys could not fail to notice these things from the start. The weeds came in to share in this general feast of fat things. As this had been a neglected spot, so there the weeds had been allowed for many years, to grow and ripen their seeds. These seeds, now fed by ten times their usual supply of nourishment, sprang up rapidly and thickly in proportion. Every dormant germ seemed to put on vitality under the quickening influence. Varieties now vegetated which had not been seen on that place for many years. These numerous pests had evidently started with a determination to dispute with the corn for undisturbed possession of the ground. Had they encountered no opposition, they would have quickly smothered the whole crop.

But as they multiplied, so did the labors of the boys increase in subduing them. Uncle Benny was compelled to spend much of his time in keeping this crop clean. He had set out to raise corn, not weeds. Moreover, he had a stake in it as well as the boys. But while working with his hoe around the corn-hills, he was never tired of admiring the suprising difference between the half-acre upon which the barn-yard had been emptied and that of the remainder of the field. The latter was good, but the former was magnificent. It maintained its superiority throughout the season, the roots striking into the earth so widely and deeply as to hold up the stalks in a heavy August storm which prostrated half of the others.

It afforded, moreover, too striking an illustration of the theory and practice of applying manure, to be overlooked. The boys, frequently working in the cornfield, came to understand clearly how it was that a plant grew almost wholly by virtue of the liquids that were supplied to its roots, and not by merely undecomposed manure. They knew well that rain-water was a good thing, but here they saw that, when the barn-yard extracts were mingled with the rain, the mixture was the true food for plants. So clearly were they made to comprehend this formula, that they regretted a hundred times their inability to bring a larger portion of the cornfield within convenient distance of the barn-yard.

Poetry.

THE RATS.

When I'm sitting
At my knitting
After tea—
Deary me!
Such commotion,
Land o' Goshen!
And it's all
In the wall.

Rumble, tumble,
Flurry, scurry,
Now a rushing,
And a crushing,
Now a rattle,
And a battle,
Now a squeak
And a fall.

So I sit
And I knit;
And I ponder
And wonder,
And scarcely know how,
In the racket and row,
My wits to recall.

But the clatter,
For that matter,
And the rumble
And tumble
And scratching
And catching
Keep on
Through it all.

Rats in dozens,
With their cousins,
Or in droves,
With their loves,
Now it's raps,
Now it's taps,
Or it's crunching,
Or munching.

Or a creak,
Or a shriek,
If I knew
What to do,
Or you'd show
Where to go,
I'd be off
Like a streak.

But no, I must stay
While they clamor away.
Traps, cats,
Sticks or rats,
Bane or gun,
It's all one.
No, it's fudge,
They won't budge!

Rats are rats,
Spite of cats
And the rest.
But—my star!—
Beginning or end,
Or middle, depend
The things are a pest.
And they're all
In the wall,
So they are!—*Hearth and Home.*

Music.

We must still ask the indulgence of our readers in the matter of Music, as we have not yet succeeded in making the necessary arrangements for this department. It is our hope that they will be completed by next issue.