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AGRICULTURAL REVIEW.

MARCH.

Agricultural Review:—Contents.—Election of members to the Board of Agriculture for Lower Canada.—Report of meeting of Argenteuil Agricultural Society.—Our Rambles.—The Farm of the Beauport Lunatic Asylum.—The cultivation of Flax, by Mr. E. McCudden, from Cavan, Ireland.—Lecture at Sherbrooke.—Formation of a Flax Association in the Eastern Townships.—**Seasonable Suggestions.**—Sugar-making Farm Gates.—Stove pipes.—Supply of wood.—Wintering cattle.—Manure.—Tools.—Homecomforts.—Poor farming.—Management of green houses.—Is farming profitable?—**Implements.**—A new cart body.—Stone boats on wheels.—Mill stone dressing diamond.—Testimonials.—*Explanation of diagrams.*—Instructions which must be strictly followed.—Straw cutter.—How to get a farm.—**Cattle.**—On feeding stock, by Dr. Anderson before the Highland Agricultural Society.—In-door vs. out-door.—The shoulder of the horse.—Pedigree of Ayrshires.—To avoid running out of hay.—Steaming food for cattle.

Official Rep't.

BOARD OF AGRICULTURE FOR LOWER CANADA.

The following gentlemen have been re-tured as members to the Board of Agricultural Society for Lower Canada, at the late election in the third week of January.

- MM. Hon. J. U. Archambault, M. L. C.,
President of the County L'Assomption Agricultural Society.
“ O. E. Casgrain, from L'Islet.
“ B. Pomeroy, Compton.
“ J. C. Taché, Quebec.

COUNTY OF ARGENTEUIL AGRICULTURAL SOCIETY.

The annual re-organisation of this Society took place at the village of St. Andrews, on Saturday the 19th January, instant.

Edward Jones, jr., Esq., President of the Society, in the chair; H. Howard, Esq., Secretary. Notwithstanding the unpropitious state of the weather, the meeting room, though not full, showed a respectable attendance of the leading farmers of the county, each section furnishing its representatives.

The usual unanimity prevailed, especially in the election of office-bearers,—the President and Vice-president having entered upon the fifth year of their administration.

The Director's report of the past year's proceedings, which bore testimony to the satisfactory state of the finances, on being submitted to the meeting, received a vote of approval.

The President then drew the attention of the meeting to the communication of the Board of Agriculture, respecting the furnishing of agricultural products for the coming great Exhibition in London, and also to the resolution of the Board suggesting the appropriation of a portion of the Society's funds for the importation (through the agency of the Board,) of improved stock of cattle.

The Secretary was instructed to com-

municate respecting the forwarding of such samples of products as might be furnished.

The question of importation of cattle elicited much interesting discussion. The President being desirous to take the sense of the meeting upon the matter, as a guide to the future action of the Society, the resolution received an affirmative, though not unanimous vote.

The members present forthwith subscribed to the “Lower Canada Agriculturist,” so as to enable the Society to avail itself of the advantage of gratuitous insertion of its proceedings in that interesting periodical. The unanimity displayed on this occasion testified to their appreciation of the truth of the axiom, “that knowledge (in agriculture at least) is power.” We trust therefore that the “Lower Canada Agriculturist” which furnishes not only much instructive matter to the general agricultural reader, but also an official record of the proceedings of the several societies, and of the Board in Montreal, will not fail to receive at the hands of the farming community of Lower Canada, that ample measure of support to which Canadian agricultural publications are pre-eminently entitled.

The following is an official statement of returns:

Edward Jones, jr., Esq., President.
Thos. Jefferson, Esq., Vice-President.
H. Howard, Secretary.

DIRECTORS.

Charles Wales, Esq., St. Andrews.
William Albright, Esq., do.
Richard Byers, Esq., Lachute.
James Wilson, Esq., do.
John Hay, Esq., Chatham.
Thomas Owens, Esq., Chatham.
Alex. Gordon, Esq., St. Andrews.

The four retiring members of the Board of Agriculture, namely: O. E. Casgrain, J. C. Taché, B. Pomeroy, J. O. A. Turgeon, Esquires, were again nominated.

OUR RAMBLES.



OW that our visits to the various parts of the country have been well understood, we receive from many persons, very flattering appreciation of our labours in this department.

In several places, persons have manifested a great desire that we should extend our visits to their locality, which we intend to do as soon as time permits. Until then we shall feel grateful to any one who will furnish to us an account of any improvement they may have effected, with all

the details and circumstances connected with it; such communication will serve as a guide in our future "rambles," and will also prevent a great loss of time on our part.

In France whenever any farmer wishes to compete for a medal, he is obliged to send to the Secretary an account of his work, so as to guide the judges in their decision, and in these reports are condensed a great amount of useful information for the guidance and utility of others.

We believe a similar custom in this our own country, would lead to great practical advantage. If the Board of Agriculture would distribute medals or prizes for such purposes as before stated, the value of such national recompense would we are sure be fully appreciated, and the results we feel confident would also be very great in a practical point of view.

The want of an elementary treatise on agriculture for the use of schools, is also much required; such a treatise might be submitted to a court of competent judges for their approval, and it would thus stamp it with authority. It should also be illustrated with plates of the different sorts of agricultural implements, and also plates of the different breeds and races of cattle, and also plans for the construction of farm houses, barns, &c. In the neighboring States, in passing through parts of Vermont we find a very comfortable style of cottage

architecture, quite applicable to our own neighbourhood.

We have to thank many of the Agricultural Societies for the ready help they have extended to us; but what is much wanting is a system of agencies throughout the Province, with ramifications in every parish.

The aid of these societies is essentially necessary for our progress and future usefulness, and if such was the case, the circulation of the Journal would be such, as to guarantee an edition twice a month.

We shall now proceed to give a description of the farm attached to the Lunatic Asylum at Beauport, near Quebec. This Institution was founded in 1845, by Drs. Douglas, Frémont and Morin, and ought to receive both from the public and the Government its just meed of praise. The vast number of visitors admitted to the Asylum, unite in admiration of the extreme cleanliness, the good order, and the increasing care afforded to the poor lunatic deprived of reason.

In visiting the wards of the incurables, one is struck with the different and varied sources of mental alienation, from the poor inoffensive idiot, and the raging and furious maniac.

In France all these diseases of a moral character are treated on the same principle as at Beauport, and we have been witness ourselves of the great and good results: also in the reformatory prisons for young delinquents, the same good has resulted. In these places alone we have seen 500 to 700 young persons; some learn trades, but the greater portion are destined to cultivate the soil. They are also drilled in the usual military manner, with a band of music, and these youthful criminals are soon brought by such treatment to be again useful members of society, and with but little expense to the Government, for these asylums are nearly self-supporting, on the one hand as cultivating the farm attached to the institution, and on the other, by the acquisition of some useful trade. A similar institution existed at Isle aux Noix, which has been recently removed to St. Vincent de Paul, in the County of Laval, and knowing the philanthropy and zeal of Mr. J. C. Taché, one of the inspectors of prisons, and also member of the Board of Agriculture, we hope to see a similar system adopted, with a farm of 100 acres attached thereto. We believe the purchase of such a farm is possible at the new site so wisely

chosen by our Government at St. Vincent de Paul.

At Beauport, the full extent of the farm there is 180 acres, of which 40 are in pasture, and 20 in natural meadow. A part of this is destined for the garden, and another part is taken up with the building. The remaining is cultivated with a system of rotation sufficiently regular, having for a base 10 acres of green crops, manured with 50 loads to the acre.

1st year.—Green crops.

Beets, &c., 5 acres.

Turnips, 2 acres.

Swede turnips, 2 acres.

Cabbage, 1 acre.

2nd year.—Barley, with timothyseed and clover.

3rd, 4th, 5th, 6th and 7th years.—Meadow.

8th, 9th and 10th.—Grain crops.

The green crops are of the utmost importance, and prepare the soil for the future crops. Deep soil ploughing is done in the fall, so as to expose the soil to the frost in winter. In the spring it is fully prepared to receive a cross ploughing with the necessary harrowing and rolling; 50 loads of manure to the acre is used and the drills are opened with a double plough. Quebec furnishes sufficient manure both for the green crops, and also for the meadows, which are spread over with it, when found necessary. We may remark that at Beauport, 2 minots of oats the acre, or 1½ minots of barley, are the quantities sown per acre. 4 horses and 2 oxen perform all the work of the farm, and we are perfectly satisfied with the state of agriculture here adopted, and we are doubly satisfied when we reflect that all the farm work is executed by the lunatics, and furnishes another proof of the order and economy displayed in their direction.

The farm buildings are all united into one large building, under one roof, and it certainly has nothing like it in the Province, in point of solidity, economy, and distribution of the details, it consists in placing the barn over the stables and cow-houses, thus taking up less room. It is placed on the side of a hill; the 1st story comprehends the stables and cow houses, level with the soil in front, while the second story consists of the barn which opens behind on a level also with the soil. The economy of this arrangement may be well conceived, also the easy distribution of the straw and fodder by trap-doors in the barn-

floor over the stables and cow houses. The barn is also furnished with two large doors, and a large middle passage for the entrance and exit of loaded carts.

The lower story is divided through its whole length into two parts. The root house open at each end for the passage of "*tombreaux*," and occupies a third of the depth. The stables, cow houses, sheds and boiling house for the preparation of roots for the cattle, occupies the other division. The manure and urine is received also under cover, and the whole presents the most complete order and arrangement; with ventilators so as to ensure a perfect circulation of the atmosphere without admitting the cold air. In fact we would strongly advise any of our readers who intend building, to pay a visit to Beauport, and we are confident that they will return satisfied that the greatest convenience with the least amount of labour is there obtained, giving at the same time the greatest possible comfort to the farm animals.

Such is the problem that the Lunatic Asylum at Beauport has resolved, and we sincerely congratulate the directors on the amount of intelligence displayed, both in the employment of capital and in the advancement of agriculture.

During the month of February we have been ordered a visit in the Counties of Laprairie, Beauharnois, Huntingdon, Chateauguay, Napierville, St. Johns, Chambly and Verchères, to secure, through the Agricultural Societies, a fair representation of our agricultural productions at the coming International Exhibition in London. We feel indebted towards the many officials of the Agricultural Boards, as well as to the many farmers we have been able to visit, for the very kind assistance given us on this occasion in procuring either the best samples of grain, or such valuable information on the system of farming as will benefit our readers generally. These visits will afford us a great deal of matter for the next numbers of the "*Agriculturist*;" and we hope that our subscribers will be satisfied with our utmost desire to bring before them all the information best calculated to promote our agricultural progress and welfare.

On several occasions we were called upon to explain all which was meant in the circular addressed by the Board, in January last, to the Agricultural Societies, respecting the importation of stock. It appears that this circular was not altogether understood so far as the advance of money,

offered by the Board to the Societies for the three coming years was concerned. Thus in the case of a Society wishing to import cattle for the total value of \$300, the Board at once advances the money and purchases the animals, which are delivered in July next to the Society, with the condition that \$100 shall be retained on the government grant due in 1862, \$100 on the grant for 1863, and \$100 on the grant for 1864.

But it is well known, that the Society after paying one-third of the price of the animals, will make up the two other thirds by their use, even at a very low rate in favour of the members of the society. Besides the selection of stock, chosen on the fair grounds, will always be paid for much less than purchased in the breeder's yard, on account of the competition among the sellers, and the economy of travelling expenses, always attending the selection of a choice animal in any country. Moreover a large importation across the Atlantic on our ocean steamers will be done at a lower price per head, for fitting up and passage, as well as attendance. By all these reasons we are induced to believe that the Agricultural Societies generally will avail themselves of the opportunity afforded them of procuring at the lowest prices the best imported stock, which as yet come to this country.

Next month we shall again resume our travels through the different counties of Lower Canada, when we will be happy to give all such information respecting this importation as may be deemed useful.

As soon as the full returns of the Boards of Directors of the County Agricultural Societies will be furnished us by the Secretary of the Board of Agriculture, we will publish them in a tabular form, but we cannot afford to publish reports of election separately, unless they contain such general remarks as will benefit the readers generally.

CULTIVATION OF FLAX.

On Wednesday, 29th January, the following Lecture was delivered on the above subject in the Town Hall, Sherbrooke, before a numerous audience, by Mr. Patrick McCudden, from Cavan, Ireland, specially brought by Mr. Heneker, from Cobourg, C. W., where he is at present residing.

On the conclusion of the lecture, the meeting was organized, by Joseph G. Robertson, Esq., being called to the chair.

A Committee of three persons, viz., R. W. Heneker, Esq., Commissioner of the B. A. L. Coy., Joseph Walton, Esq., and J. G. Robertson, Esq., was then appointed, with the view of obtaining further practical information on the subject, and especially with reference to the newly-invented Scutching Mills about to be imported by the Government, it being in doubt whether these Mills are able to separate the fibres without the steeping process incidental to the ordinary system.

The meeting adjourned until the Committee so named shall obtain the necessary information.

The apparent object of the Meeting was to form a Flax Association for the encouragement of the growth of flax in the Eastern Townships, so that the experiment may be tried on an extended scale.

We heartily wish the project success and commend it to the consideration of our practical farmers, as a likely means of adding to their resources, and consequent independence.

GENTLEMEN,—The subject of this evening's lecture is one of vast importance to this youthful and rising country; it is the introduction of a proper system of cultivating flax for its fibre. Flax has long been known to thrive well on the soil of these Provinces, but hitherto it has been neglected or at least only grown for the purpose of obtaining the seed. By far the most valuable portion of it has been thrown away, and allowed to rot on the manure heaps, possibly for want of knowing its usefulness or a want of help at the proper season to prepare it, or perhaps both those causes together; both these causes I hope are soon to disappear. Canada presents a vast field for agricultural industry and manufacturing skill; the soil and climate are admirably adapted for the growth of flax and other fibrous substances, while the abundant water privileges for driving machinery are everywhere available for scutching and spinning purposes. In a few years when the clearing of these extensive pine tracts which are so fast yielding to the white-man's prowess and perseverance are completed, it would then afford employment to the increasing population during the pleasant long winter months—manufacturing flax into every texture for the wants of man. I know of no other project so easily taken hold of, that would build up the greatness of this fine country than the extensive production of this inestimable

plant. Whether we consider it in a commercial or social point of view, its immense advantages are of the first magnitude, bringing with it innumerable blessings to our people. In a commercial point of view it cannot be overrated. In the old country, it has enabled the industrious man, scarcely deserving the name of farmer, to live in comparative comfort on a mere patch of land, and pay an exorbitant rent. In a social point of view it will increase the cultivation of manufactures, arts, and sciences.

Of all the periods in the history of this country, the present is the most auspicious for the farmers of Canada giving the cultivation of flax a trial on a large scale, while the present produce of your farms are a mere drug in the market. Flax fibre commands a high price and is sought after with much avidity, the scarcity of which is sending capital and skill to the remotest part of the earth to raise a supply, and at home it is supplying food to the scientific mind to produce a substitute. Up to this, both of these aids have not succeeded; the results are, that the linen manufacturing trade is much crippled, and its extension an impossibility. In consequence, thousands of poor families who would be otherwise engaged in creating capital for the state, are almost a burden to her now.—If this had been the case previous to the suicidal war between the North and South of the hitherto United States, causing a dearth of cotton, that commodity so essential to the comforts of the human family, and on the manufacturing of which so many artisans depend for their support, what must it be now? Grow flax that you may assist in removing this state of things! Grow flax and attract the involuntary idler's of the large towns and cities of the mother country, whose superabundant population are fast becoming a drag on the nation! Invite them here, there is liberty for millions of them. This vast and important colony will then start into a new existence. The time has come for this country to take a step in advance. The divisions of our neighbors over the lines, through their pride and cupidity, are driving away thousands of emigrants from looking to that country for a home, whose eye will be directed here, if we can offer inducements similar to those lately held out there.

The government (whatever their other sins may be) have with a paternal eye to the welfare of the colony, taken every ad-

vantage to direct the stream of emigration here, and with a laudable anxiety are stimulating the culture of flax as an auxiliary to that end, for which they deserve well of the country, and I trust its good effect will be felt. I hope to see that, when they come, we can offer them remunerative employment and enable them to remain with us and not disappoint any reasonable expectations they may have formed. I repeat, encourage the growth of flax and you will open a field for enterprise whose importance we are not at present prepared to calculate upon.

Lastly, grow flax and become manufacturers; cast aside the swaddling clothes that bind your infant limbs and walk stately into manhood; you have abundant materials on which to erect an extensive and prosperous colony. Though you have succeeded in reducing the howling wilderness of centuries to the condition of a smiling garden, your efforts are still young and vigorous. There are through Canada large sections of rich alluvial soils, well suited for the cultivation of fibrous plants for years to come, a perfect mine in itself, and only requiring the skilful hands to turn it up, to yield a handsome return for the trouble. Up to this you have been content to be the mere producers of a few common articles of food with very few manufactures, depending for all your other necessities and luxuries on other countries: hence the commerce of the colony remains at a low ebb. While we continue to send out more money every year for those commodities we require and which are attainable here by a little enterprize, than we receive in return for what we have to sell, we are evidently wasting the resources of the country, and it is no wonder that our progress to advancement is retarded, for without manufactures we cannot rise to commercial eminence. Make the cultivation of flax an institution with the farmers, and I will venture to predict a prosperous career for Canada as the result. Let it enter into a proper system of rotation of cropping: the present semi-barbarous one is becoming effete and ought to be replaced by one more complex and scientific.

By an improper process of cultivation for a few years we remove the natural manure that has been accumulating for centuries from the decomposed leaves that have fallen on the surface, furnishing large quantities of organic and inorganic matter, readily assimilable by cereals; nature will

protect herself; and, should this constant cropping for cereals be persevered in, a short return will be the result, which is in some places already exhibiting itself. Would it not then be of paramount importance to the Canadian Farmer if by an alteration in the present system he could raise another crop that would remunerate him treble better than his best paying one, namely, wheat, and at the same time preserve to the soil all the cereal plant-food. Every one must admit this to be a clear gain; it is a well understood fact that the food that goes to support the growth of fibrous plants is different to, and does not deprive the soil of that which matures cereals, receiving their chief support from ammoniaical and carbonic gases attracted from the atmosphere. Be not deterred from giving the matter a trial; these are days of progress, and you have a right to participate in any improvements that can be effected. With this subject in view I would wish every farmer in Canada would at least devote the one twentieth of his holding to the cultivation of this plant, where he can do it without inconvenience. If flax will be thus raised in large quantities, be assured manufacturing speculators will soon seize on the opportunity of turning it to advantage. It will not be to buy up the raw material to transport it beyond the sea thousands of miles, to have it spun and manipulated into linen and cambric to be sent back again thus manufactured, when we have already as good facilities and a heavy protective duty to foster home enterprise. To the timid or sceptic who may consider these views too distant to operate on, I would say you have no need to wait its fulfilment, as I have already remarked many hands and hundreds of looms are idle at the other side of the Atlantic, for want of a sufficient supply of fibre to keep them going, and at this instant there is demand enough for double the quantity Canada could bring to the market, after all the exertion she could make for a long time. The following extract taken from the prospectus of a company formed in Belfast to encourage the growth of flax in East India, will show the great scarcity of that article, and the length they have gone to look for a very equivocal supply, at the very Antipodes:—

“The Linen Trade at its seats of action in Leeds, Dundee and Belfast, and their manufacturing dependencies has for some time past been suffering severely from the

extreme scarcity of flax, and the enquiries instituted with the view of opening up extended sources of supply have forced on the minds of manufacturers that it is vain to expect from the present sources, the quantity of fibre necessary to meet the growing requirements of the trade.”

From the above facts it is clear that Canada has a ready market open for all the flax she can produce for a long time. Canada with her present steam and other communications appears peculiarly adapted to supply the want, if her farmers only take the initiative and spiritedly grow a sufficient breadth of it. It is scarcely necessary for me to prove that Canadian Farmers ought to produce flax cheaper than Ireland, at least be able to compete with her; to my mind's eye it is quite manifest. Having said so much on the advantage of this crop, I will proceed to give a detail of the manner in which it is raised in Ireland, it being more simple than the Courtrai or Belgian system and on that account more fitting this young country, as I consider it more prudent not to attempt too much in the beginning.

Independent of this crop being the most remunerative it enters into the best regulated system of rotation, a thing much to be desired by every practical farmer. Flax loves to luxuriate on a well drained clay subsoil with rich surface soil properly pulverized. It yields the largest and best quality of fibre when it follows a crop of wheat or oats immediately out of lea, but may be sown with success on more worn ground if in good condition. I would not recommend a repetition of it on the same ground under a five years course as a general rule; though when its treatment is more understood local circumstances may vary this. It has been found from experience, the proper time for sowing is from the first to the twelfth of May, a period very suitable for the sowing of clover and grass seeds, when those delicate seeds will have no difficulty in quickly germinating, or their growing progress retarded by frost, when earlier sown; it is therefore considered the safest and best crop for laying down land with those essentially useful seeds. Clover has been properly styled the farmers' sheet anchor, and from the preparation that is needed for the due development of flax a heavy crop of clover is the general result. Those intending to grow flax will at once see that much depends on the condition of the land, and it

is highly necessary to ensure a good crop to have it perfectly free from any foulness. No crop is more generous in its return for care bestowed on it than flax; we should be particular in doing everything connected with it well. When not intended for laying down, but to be followed by fall wheat, it will be off the ground in time for that purpose, as it occupies the least time of any crop in coming to maturity. As flax requires but a very slight covering, all unevenness in the ground should be removed by the harrow, and if the weather has been previously dry, rolling before sowing will consolidate the small lumps and tend much to having an even and productive crop. Presuming now that we have made up our minds to give the matter a trial every care should be taken to select none but the healthiest and best seed. I would advise that preference be given to Holland seed for clayey soils; Riga will suit more friable and loose ones. I am not qualified to speak as to American growth on American soil, but it has ceased to be sown in Europe. The quantity of seed generally used to an Irish acre is three bushels, at which proportion it leaves about seven pecks to the statute acre; this has been considered the proper complement by the most intelligent farmers of the North of Ireland; it is needless to add that it must in every case be sown broadcast. Having by this time committed the seed to the ground, three or four days of genial weather will suffice to bring the young plant to the surface, and when it has attained to the height of six inches it is quite strong enough and is the proper time to have any weeds removed that may then present themselves. This must be done carefully by the hand, but no fears may be apprehended in the way of injury from the plant being tossed or trodden on during the process, as heavy dews or a shower of rain soon after will put it again in an erect position. At this stage its appearance is ever delicate looking, but the weeding over, it will rapidly advance into bloom, requiring no further care until it is fit for pulling; but the time intervening must be taken advantage of to put the pits in order for the steeping or rotting process. Everything now depends on how this portion of the work is performed; to have a good oily productive article it must not be done carelessly; and for that purpose pits, when practicable, should be dug of convenient size to suit the quantity, say four feet deep and eight

feet wide, of an indefinite length; a yellow clay bottom if possible, should be selected, as it retains more of the oil to the fibre and gives a nice clay color to the flax which enhances it much in the market. The pits should be filled from some neighboring stream or creek to within six or eight inches of the top, and on no account water impregnated with minerals nor even spring water be used.

When pits can not be conveniently got ready, as above described, wooden vats may answer. This done, we await the plant's approach to maturity. If a fine quality of fibre be the object of the grower, the proper time to pull flax is when the stalk becomes yellow for four or five inches from the root, and the other leaves shrink on haulm. The bolls or seed pods should by no means be allowed to ripen, as much valuable oil will be lost to the fibre. If permitted to ripen it will be at the expense of the destruction of the fibre, a portion of the oil it ought to retain having to go to the support of maturing the seed, while the balance becomes incorporated in the structure of the woody matter, leaving the fibre sapless and unfit for fine spinning purposes. This is true in fibrous plants as well as cereals, which every intelligent farmer understands, hence the necessity of attending to this point. When the foregoing indications exhibit themselves, the pulling should forthwith be commenced, and completed with as little delay as circumstances will admit of. It should be tied in small sheaves or beets, to be transferred to the pits to undergo the rotting process, where it should be evenly placed row after row. It is of no consequence whether the top or root end is downwards, and a slanting position is best for it. I may here remark that the same water should not be used twice the same season, and a great economy is effected by the pits or vats being so constructed that the water from them could be made to flow over the same or other fields, thus restoring to the soil almost all the constituents it took from it. It requires to be covered securely with sods and other material, to keep it under the water, and to exclude the air during the fermentation. The rotting process will usually occupy from six to nine days, or perhaps longer. The rule for testing it is quite simple; remove a portion of the covering, take up a beet of it, and if found, on examination, the fibre or skin separates easily from the extraneous vegetable matter

or pith, it is then fit to be taken up and spread to dry. The flax should be evenly laid on a clean grass field in equal layers, and care should be taken to keep the roots all evenly together through all its operations, and prevent it from mixing, which injures it both to the farmer and spinner. The drying will occupy but a few days on the grass in good weather, if the rotting has been properly done. It should then be lifted off and stacked in a very dry condition for at least a fortnight, when it will be ready for scutching, which may be done either by the hand or by machinery.

The scutching operation is very simple if the foregoing instructions are attended to, and can be done at the convenience of the grower; it is merely to separate the woody particles from the fibre; the pith from the previous article of the action of the sleeping and drying, becomes decomposed, breaks easily by being passed through rollers having a fluted surface, working on each other like cogs; this machine may be either cast metal or hard wood; if of the latter, it can be driven by a man, and attended by the boys or women. The cost of this machine would not exceed 5 dollars, and is very useful when the scutching is done by hand. In this state, a woman in Ireland can readily scutch by the hand, and prepare for market 30 lbs. weight of it per day. If the flax is not perfectly sound, this is the best mode of treatment. The machinery of a scutch mill is of a very simple description; a saw-mill can be easily converted into one. The Government has purchased a few improved portable machines for Scutching, from a highly respectable firm in Belfast, for the purpose of having them exhibited through the Province, where needed.

I have no fears that the want of machinery will be long felt. The American mechanic is proverbial for inventing labor-saving machines, and I fancy he will not neglect us in this respect.

It now becomes my duty to state the probable cost of raising an acre of this valuable crop, and for that purpose I will assume the highest figures for labor, and take the medium value that may be expected with the average price, namely, 560 lbs. at 8d. per lb., £18 19s. 4d., from which we deduct cost of seed, weeding, pulling, steeping and scutching, &c., £6 6s. 6d., leaving £12 11s. 10d. clear profit; this is the lowest calculation I could make, except it is altogether a failure, while the profits on

it could very easily be doubled. I have known a neighbor of mine in the County of Monaghan, Ireland, to clear over £25 last year in one acre, after deducting all expenses, and paying £9 sterling rent for the land, and this is by no means a solitary instance.

Gentlemen, though these are reliable figures, do not imagine that your farms will become a perfect Eldorado, or that the famous river of Pactolus will immediately flow through your flax fields; but this much you may rely on, it will handsomely reward all the care you can bestow on its cultivation. I hope to see before I am many more summers older, that the flax question will take deep root in your soil, and that its beneficial results will be everywhere felt.

SEASONABLE SUGGESTIONS.



GREAT requisite in sugar-making is to have all the vessels perfectly clean. Strict cleanliness should be observed during the whole process. Tin vessels are better than wood for this reason. Properly washed, they can never impart sourness to the sap. If made large enough to hold nine-quarts ea., they would cost about \$35 per 100, and six

quart-pails cost \$30 per 100. They may be made square or round, but the latter are better to clean and to keep their shape.

They should be large at top, so as to pack away in nests when not in use. The top should be strongly wired, like a tin pan, and a hole made under the wire enables it to hang on a nail driven into a tree, securing it thus from swine and other animals, and preventing the sap from being blown away by the wind. Old horse-shoe nails straightened and sharpened are the best.

The best spouts are made of thick tinned iron. When the vessels are hung as above described on nails, the spouts need not be more than three inches long. They should be widest where they enter the tree. After the sheet tin is cut up to the proper size, the concave shape is given to them by placing them between a convex and a concave piece of wood.

and giving them a brisk blow with a mallet. Ground sharp at the wide end, they are easily driven into a tree.

Never allow the sap to stand in pails twenty-four hours—the fresher it is when boiled the purer will be the sugar. While boiling, large quantities should not be poured in at a time, as that will stop it, and make irregular work; but a reservoir should be placed above the boiler, from which the sap may be drawn in a stream through a faucet, just fast enough to supply the evaporation. A little practice will enable the operator to judge how large this stream should be. Two boilers are better than one if the fire is made to pass from under one to the other—the first or hottest being chiefly for boiling down to syrup, and the second or coldest for heating the sap and doing the first evaporating. The faucet of fresh sap runs into the first, and a pipe of syphon, with faucet, conveys it to the second. Cook's patent sugar evaporator is very valuable for boiling the juice of sorghum, as it reduces the juice to molasses in less than half an hour by a continued process, and would be very useful for maple sugar, but less indispensable. It is on a principle similar to that of the two boilers above described, but more complete and perfect; the sap enters one end and flows from one side to the other many times by means of intercepting partitions, till it reaches the other end, by which time it is reduced to syrup, the proper current being given by raising or depressing the end, as the case may require.

Kettles are poor boilers—they waste fuel and make poor sugar. Shallow sheet-iron pans are much better. They may be kept cleaner, they evaporate more rapidly, make finer sugar, and effect a great saving of heat. In all cases, the boilers should be so set that a thin sheet of flame may pass under them. For example,—a sheet of flame, two inches thick under a boiler, is as good as if a foot thick—the same amount may therefore be spread over six times the surface, and consequently be about six times more economical.

We have some good home-made pans, used for boiling sorghum successfully, made by nailing good thick sheet-iron to plank, so that the sheet-iron formed the bottom and ends, and the plank the sides—the sheet-iron was secured to the plank by two rows of closely driven nails. The pans were about 8 feet long, and 4 wide, and 6 inches deep. These would be cheap and very good for making maple sugar. The fire place should of course be a little narrower than these pans. The chimney should be high enough to cause a good draught.

To make good syrup, the sap must be reduced to one-twentieth or one-thirtieth of its bulk, or be boiled twice as much as sorghum juice. The syrup is then to be strained through flannel, and placed aside to cool and settle 12 to 24 hours. Then return it to the pan, and to every gallon add and stir a beaten egg and a gill of milk to clarify it, keeping it carefully from boiling till the scum has risen and has been skimmed off. Then boil it carefully until it will harden, which may be known by dropping some from a spoon into cold water. When this takes place, the liquid sugar may be then

poured into proper vessels, and then the cakes placed in a box to drain. To make the sugar perfectly white, lay a few thicknesses of flannel on the top of the cakes while it is draining, these flannels to be wet and washed daily with cold water—they will thus absorb and wash out the colouring matter.

A hundred good sugar maple trees will usually make in a season from two to three hundred pounds of sugar, if well managed; and if every precaution is observed to ensure cleanliness, prevent souring, boil speedily and without burning, and to clarify properly, a larger quantity of sugar will be made, it will be more saleable, and command a higher price; or if intended for home use, the smiles of the farmer's kind wife, when she sees such a beautiful article make its appearance, will more than repay him for all the pain he has taken to secure such excellent success.

There are many small things that require attention in winter. A gate not kept fastened by a good self-fastening latch, and swinging in the wind, will be more injured in a short time, than by months of legitimate use. An equal injury is sustained if the gate has sagged and the latch strikes some other part of the post. Take a mild day and attend to all of them. It is important to keep latches and hinges greased; and in order to have grease always at hand when wanted, bore an inch hole in some part of the gate-post, put in a lump of tallow and plug it up. It is then always ready.

Every farmer knows that a gate is rapidly twisted to pieces when it has settled and has to be dragged over the ground every time it is opened and shut. The same injurious result is produced when snow drifts form an obstruction to its motion. All farm gates should therefore be so constructed as to be capable of being raised a foot or two, to avoid the snow. The raising of the gate is accomplished in various ways. One, which answers well where the amount of snow is small, is to make a screw and nut for the lower hinge, so that by turning the nut the hinge is lengthened, and the latch end of the gate raised several inches. Another way is to have two sets of holes through the hinge post, so that the hinges may be changed for summer and winter. A third is to have the gate so made as not to come within a foot and a half of the ground, sliding in a wide board into a groove in the posts whenever small animals are to be shut off.

Examine stove-pipes, and see that they are all firm and safe. Do not allow the soot to accumulate in them, so that when it gets on fire some windy night it may set the house in flames. Never allow a stove-pipe to pass near wood. Burn the soot out of chimneys at some time when the roof has been wet with rain or melting snow, by lowering a bundle of straw or two from the top, and dropping a blazing wisp upon it. Probably nine-tenths of the houses that are burned in the country are ignited by the soot taking fire when the shingles are dry, and portions of it dropping on the roof. Keeping the soot well burned out of the chimney, and all that part of the roof near it, or the whole, whitewashed with a mixture of

salt and lime, would be worth more and cost less than the best insurance.

What is the reason that so many living and bedrooms are badly ventilated in winter? One reason is, it is so hard to slide the sash up and down. See to it now, that all are made to slide comfortably and easily, and if they are not hung on pulleys by weights, provide the best and most easily working catches. A few hours' time, and a few dimes of expense, may save twenty dollars in doctors' bills, to say nothing of suffering and lost time. Never allow a broken pane to remain a day.

Never allow a squeaking door—pass around once a week, if necessary, and give every hinge and latch a touch with an oiled feather.

Lay in a good supply of wood for next summer. Do not let it lie long in large sticks, but saw and split it up without delay, that it may be drying. Fresh wood quickly dried, is far more valuable than half decayed from a long retention of sap. If it can be exposed to the wind for a few weeks before housing, it will dry rapidly.

To winter animals profitably, remember that comfort is the great saver of flesh, and consequently of food. Feed regularly, that they may not fret off flesh in waiting for a delayed meal, for their stomachs are good chronometers; keep them clean, that they may not be subjected to the constant discomfort of dirt sticking in their hair and on their skins; let their quarters be warm, and especially avoid the annoyance of cold currents sweeping through cracks in boards or undersills on the windward side of barns; let the air they breathe be well ventilated, for no animal can do as well that is taking foul or dirty air into the delicate tissues of its lungs fifty thousand times every twenty-four hours, or at every inspiration. Good wholesome food is cheaper than such as is poor or mouldy. It is more economical to feed in well constructed racks and boxes, than for animals to tread their food under foot, lie upon it, or mix it with mud. Feed often, regularly, and small quantities, that the food may not become unpalatable by lying long in the animal's breath. Always have a good supply of pure water at hand in the yard. And remember the old saying that "one foot of boards (for shelter) is equal to one pound of beef."

Avoid the common error of trying to winter many animals on little food. By this error much food is consumed with no increase of growth. *A few well-fed animals will manufacture a far greater amount of flesh with the same feed, and they will command a much readier market.* We recently visited a small farmer, whose whole herd of cattle was only eight; yet we are confident that they would sell for more money than any sixteen of the herds of most of his neighbours. He never tried to see how near he could come to starving them to death without doing it, and did not attempt to feed them on moonshine and sawdust.

Save manure. As wind is to the sailor, water to the miller, steam to the manufacturer, and money to the banker, so is manure to the farmer. Draw it out and spread it in winter, and early rains will soak it into the soil, and

mix it with the particles of earth better than the finest harrow, and the clay of the soil will hold all the enriching portions, as the water charged with the liquid parts flows over it.

House and arrange all tools.

A place for everything, and everything in its place, will save many hours of searching, many weary steps, and much vexation every year. The tools should not only be in the room, but every one in its place, where the hand may be always laid on it in a moment. For this purpose they should always be hung up against the wall, and be neatly arranged. Nearly every tool can be hung on a spike or pin, or between two large nails. If hung perpendicularly, they will occupy less room, and may be quickly taken down and replaced. In order that each tool may be always in its place, the plan devised by Townsend Sharpless of Philadelphia, is the best. Hang each tool in its position; then draw its outline accurately on the board wall with pencil or chalk; then with a brush dipped in some dark colored paint, make a distinct representation of the shape of the tool. These outlines will not only show where the tool should be put, but show at a moment if any has been left out of place. The consciousness that there is such a tell-tale in the tool-room, will stimulate any careless labourer to return everything which he takes out.

Let all broken or injured tools be repaired by the farmer if he can do it, and by the mechanic if the farmer cannot—paint such as need painting—and let all be ready for the active season on the opening of spring.

HOME COMFORTS.—Wealth is not essential to neatness. We have visited a large showy house, in disorder from cellar to garret—nothing neat, nothing homelike, nothing inviting; and on the other hand we have seen a low log cottage, white-washed outside, and embowered with roses, a model of neatness and comfort inside, with its white window curtains, and every article of furniture handsomely arranged. This was owing to the presence of the excellent house-wife. But while skill and labor within are so important in this great element of high civilization, namely, HOME COMFORT, the surroundings of the house under the care of the owner should never for a day be forgotten.

The fences should be neat, if not costly.

Boards, hoops, barrels, and boxes, should never be scattered over the yard.

The back-yard as well as the front, should be in good order.

There should be dry paths, so that neither man nor woman need step in the mud to soil shoes and defile clean floors.

If gravel nor flagging cannot be had, let a carpenter make walks of planks.

Provide a wood-house for neatness, comfort and economy.

Provide a good frame for drying clothes, so that the line need not be stretched every washing day from peach tree to hitching post, from hitching post to smoke-house, from smoke-house to gate-frame, and from gate frame to the place of beginning—with a forked stick, board and pitchfork

here and there to hold up the sagging line.

Fill the wood-house with dry fuel and a supply of kindling wood—and the owner will never have to pass through a cold, smoky kitchen, nor eat sour and half baked bread.

Keep everything neat and clean about the barn-yard, stables, piggery, &c., so that the "fame thereof," in the form of various odors, may not be wafted on the breeze to the house.

Remember the refining influence on a young family, of a neat garden, neat door-yard, handsome blooming shrubbery, and the healthfulness to the female members, of providing an occasional seat or arbor, where they may spend a summer afternoon in sewing or study.

It is true that these comforts cannot all be enjoyed now, in the depth of winter; but much may be done in the way of procuring them, or making preparation for them. Materials for fences may be provided; gravel or flagging drawn on sleds for walks; wood-houses comfortably filled; rubbish either removed or avoided; barns and barnyards put in order, and kept neat and exemplary; garden seats constructed, and many other preparations made, which the farmer cannot think of stopping his summer-work to attend to.

Remember—the highest mark of civilization, is attention to domestic comforts, domestic happiness, and to elevating the condition and character of the female members of the family.

POOR FARMING.—As the road to *poor farming* is not generally understood, though it is crowded with travellers, we throw up the following landmarks, from the *Springfield Republican*, for the common benefit.

1. Invest all your capital in land, and run in debt for more.

2. Hire money to stock your farm.

3. Have no faith in your own business, and be always ready to sell out.

4. Buy mean cows, spavined horses, poor oxen, and cheap tools.

5. Feed bog hay, and moldy corn stalks exclusively, in order to keep your stock tame; fiery cattle are terrible hard on old, rickety wagons and plows.

6. Use the oil of hickory freely, whenever your oxen need strength; it is cheaper than hay or meal, keeps the hair lively and pounds out all the grubs.

7. Select such calves for stock as the butchers shun; beauties of runts, thin in the hams, and pot-bellied; but be sure and keep their blood thin by scanty herbage; animals are safest to breed from that haven't strength to herd.

8. Be cautious in the manufacture of manure; it makes the fields look black and mournful about planting time; besides it is a deal of work to haul it.

9. Never waste time in setting out fruit and shade trees; fruit and leaves rotting around a place make it unhealthy.

MANAGEMENT OF GREEN-HOUSES.—Any light that can be thrown on the management of a simple lean to greenhouses, we should be glad to

receive through the columns of the **COUNTRY GENTLEMAN**—particularly as regards the proper degree of heat at which its temperature should be kept, the due admission of air, and the care or arrangement of the plants in other respects? The house is to be heated by a coal stove, the pipe from which passes along the end of the house into the chimney upon the corner diagonally opposite to that at which the stove is placed.

The question asked by your correspondent, will be found substantially answered in the following article, although for the benefit of others who may be considering the subject of erecting green-houses, or those who may be ignorant of the proper management of them, I have thought it best somewhat to extend the range of inquiry.

The green-house is a structure for the winter protection of plants too tender for the open air. To effect this object it is not necessary to keep the temperature much above the freezing point. Where more than this is desired, where the temperature is kept so high as to induce rapid growth and face bloom, this structure becomes a forcing house. The proper temperature of a green-house is 45°. It may occasionally fall somewhat below this at night without injury, but it is better never to allow the temperature in the coldest part of the house to fall below 40° at any time. In bright sunshine, even in the depth of winter, where the exposure to the sun is good, the temperature will rise very rapidly, and the difficulty will be to reduce it without subjecting the plants to danger from chills by opening the sashes. If possible the thermometer should not show more than 60° at any time, as great vicissitudes between day and night temperatures are to be deprecated and avoided as far as practicable. Muslin curtains sliding between the rafters and near the glass will be found excellent for excluding a portion of the sun's rays when too hot. At any time when the thermometer cut-of-door is above the freezing point the sashes may be opened for the admission of air and the reduction of the temperature of the house, avoiding, as far as possible, any strong draft of cold air upon the plants.

The requisites for success with plants in green-houses are light, a proper degree of heat and moisture, freedom from the attacks of insects, light soils, and care in watering. To obtain enough of the first requisite, light, an eastern or southern exposure is necessary. A western exposure is not good, and a northern one will not answer at all. A span roof is preferable to a lean to, as the plant receives lights on all sides, and will in consequence grow more symmetrically than in the other. Plants reach to the light; in a room the branches always turn to the window, and in a lean-to the plants will be found growing sideways, requiring frequent changes of position to counteract this tendency. The shelves or staging of a green-house should always be so constructed as to bring the plants as near the glass as possible, as they will grow spindling and tall, or drawn, as it is technically called, when at a distance from the sash. Plants on the front shelf of the house will generally be found

the most compact and bushy in growth, and more healthy in appearance than the rest. Where there are no tall plants to be kept, the staging in the centre of the house, if it be a span roof, or the back part of a lean-to, should always be brought as near the glass as is compatible with convenience in attending to the wants of the plants.

The manner of heating the green-house is a subject of the greatest consequence. The heat should be equable and moist, and distributed to all parts as equally as possible. The best mode of heating is by means of hot water; the worst is by a stove. The most usual manner of heating is by means of brick furnace at one end of the house, with a brick flue extending the entire length of the house on the lowest side, and then crossing the end and entering the chimney, or returning along the other side before it enters the chimney. This is a far better method than by means of a cast iron stove and ordinary pipe, for the bricks cannot be heated so highly, and retain the heat longer, thus producing a much more equable and moister heat. Where a stove and pipe of iron must be used, provision must be made in some manner for supplying moisture to the air, which can be most conveniently done by means of a large vessel filled with water to be placed on the stove.

With reference to the attacks of insects, the means to be used to destroy them are the use of the syringe and fumigation with tobacco. In the case of some kinds of insects these are not effectual, and picking off by hand must be resorted to.

One of the principal errors committed by inexperienced persons in the management of plants in the winter, is in giving too much water. Allowing the plants to become so dry as to droop is not nearly as serious a mistake as the other. The soil in pots is not always dry when the surface would seem to indicate it. By digging down a little way it can easily be known whether water is required or not. No definite directions can be given as to the quantity or frequency of watering. In sunny weather many plants will probably require daily watering, while in dull and cloudy weather they may not need it once a week.

G. B. H.

IS FARMING PROFITABLE?—GARGET—BLIND STAGGERS.—I have often noticed the following questions in your valuable paper:

1. Is farming profitable?
2. What will cure the disease in cows, called "garget."
3. What will cure a swelled or tumefied bag, or udder?

The affirmative on the first question depends on three things; the price paid for the land—quality of soil tilled—and thirdly, brains, a very necessary accompaniment to secure success in any business.

I would call your attention to the following results, from the cultivation of 3½ acres—a field no better than fifty other acres of my farm, the whole of which had previously been pastured for forty years.

In the spring of 1857, plowed and planted to potatoes (without manuring) 3½ acres, and harvested a good, fair crop. In 1858, put on forty

cart-loads barn-yard manure, planted to corn, and harvested good, fair crops. In 1859, same quantity manure, sowed broad-cast three bushels of salt, planted corn, putting on a handful of ashes on each hill, and raised a large crop of corn. In 1860 sowed seven bushels of wheat, started to clover and berdsgrass, and took off the same fall seventy bushels of wheat, and three tons of good hay. I sold the wheat at \$1 75 per bushel for seed. In 1861 I have taken off thirteen tons, by weight, of good hay. Has it not been profitable? Beat this who can. I cannot speak for any other farmer, but my farm, farmed at the halves, pays me eight per cent.

The disease called "garget" commences in the horns and head. Besmear the top and back part of the head and around the roots of the horns, with warm tar and rub thoroughly; if it fails to effect a cure, report the failure, and it will be the first to my knowledge.

To cure swollen, or tumefied udders or bag, wash clean with warm soap-suds, then rub thoroughly with pure bee honey, and a cure will be effected in twenty-fours generally; sometimes it may be necessary to repeat the operation. The above is the very best application for women suffering as above.

To cure the "blind staggers" in swine make an incision about three inches long through the skin on the forehead; pull up the skin on each side, fill with fine salt, and the cure is effected immediately.

IMPLEMENTS.

A NEW CART BODY.—I asked a mechanic why he made horse cart bodies so narrow—why he did not bring out the sides quite to the wheel-hubs? Well, sir, what do you think was his answer? It was, that "it is the fashion."

A few years ago I was using one of these fashionable cart bodies. The longer I used it the more dissatisfied I became. I saw no reason why all of the space between the wheels should not be occupied by the cart body. It was plain that a load of dirt would not require to be piled so high if the body were wider. I want a cart body, too, that would carry half a cord of cut wood with side boards; and a good number of barrels of potatoes or apples. I accordingly had a body made which nearly touched the hubs, with lower sides than the narrow one, and considerably longer. My fashionable body was a short one, and when "tipped," stood erect. This made it hard to get down again.

I found my new cart body a great convenience. I wouldn't be without it one year for its cost. Let me tell you why I find it better than the old one.

As I have said, the sides are lower, and it is filled easier with gravel. I have two sets of side boards and can put on a big load of light manure, shavings from the pail factory, or four to six feet of dry cut wood, of which I cart a good deal from a circular saw driven by water-power. Then I have made two ladders and cross-pieces, and raves outside the wheels, which are quickly adjusted, and supply one more cart to get hay on, of which one is not likely to have too many in the busy season.

The cart body is fastened forward by the handiest "sword" you ever saw. When I go to load a lot of potatoes or apples, I tilt the cart so that the first lift is reduced about one-half. The body will hold nine barrels.

STONE BOATS ON WHEELS.

In many localities, where there are many rocks and stones to be hauled on stone boats which slide on the ground, two, and sometimes three teams are employed to haul what one team would do with ease, were the load placed on wheels. A stone which will weigh ten or twelve hundred pounds, will make a good load for a team, and it is very fatiguing for them to haul even that amount any considerable distance. But, if a stone is on wheels, a team will often haul with ease a load more than twice as heavy as their combined weight.

On one of the shores of Long Island Sound, I saw workmen hauling stone and boulders a distance of about one hundred and fifty rods for building a pier; and I observed that a man with one span of horses, would haul nearly twice as heavy a load on his wheel stoneboat, as another man did with two yoke of oxen on a common stone boat.

To make a good stone boat on wheels, procure two good plank about twelve feet long, and from two and a half to three inches in thickness, and about eighteen inches wide. Now bolt a piece of timber about eight inches wide, on the under side of an axletree supported by two wheels, and then bolt one end of these two planks on the *under* side of the timber, letting the bolts pass through plank, timber and axletree. The other end of the plank should be fastened together similar to a common stone boat, by bolting a narrow piece of plank across the ends with carriage bolts. This will be the forward end, and the other end will be beneath the hindmost axletree. A knuckle hinge bolt is fastened to the forward end of the stone boat, rigidly, and a part of it is put through the forward axletree and secured with a key on the top.

When loading very heavy boulders, the forward end of the boat may be lowered clear on the ground and after the stone has been rolled on, the end is then prised up with a lever and secured to the axletree.

The forward end of the stone boat should be narrower than at the middle and hind end, in order to give room for the fore wheels in turning round. If the road is not very uneven, the boat may be bolted so low beneath the axletrees as to be within six or eight inches of the ground.

A man of very little mechanical skill could make such an apparatus during some stormy day, by using the wheels of a cart for a part of it, or all the wheels of a lumber waggon, on axletrees with or without skeins on the axle arms.

Such a stone boat would be far more convenient and easier for a team, when hauling stone for ditches, than a stone boat that slides on the ground.

No hounds will be needed on the hindmost nor forward axletree. The tongue can be attached to the forward axletree as they often are to light waggons—with hooks and eyes.

MILL STONE DRESSING DIAMOND.

TESTIMONIALS.

EVERTON MILLS, ERAMOSA, COUNTY, WELLINGTON, JANUARY 7, 1862.

A. Ramsay, Esq.,

Dear Sir,—We beg to tender you our best thanks for the promptness with which you have sent the Mill-stone dressing Diamond; and we are happy to state, that it answers every purpose to *entire satisfaction*: in particular in flinty burrs it is just the dress wanted. It gives the desired sharpness without the roughness the pick is so apt to give in the most skilled hands.

It greatly lessens the quantity of middlings, and as a matter of course increases the quantity of flour; we are in every respect well pleased with it.

We remain, Dear Sir,

Yours truly,

RUFUS EVERTS, Owner.

J. MCGILVRAY, Miller.

St. GABRIEL MILLS, FEBRUARY 12, 1862.

A. Ramsay, Esq.,

We beg to inform you that we have been using *John Dickinson's patent Mill-Stone Dressing Diamond*, purchased from you, in our Mill for over three months, and have given it a thorough trial. We have great pleasure in informing you that it has given great satisfaction; it is a great saving of time and labour; the yield is much increased, and the quality of the flour much superior to any ever manufactured in our Mill. We have the utmost confidence in your dressing Diamond, and recommend it to all millers.

A. W. OGILVIE & Co.

ONEMEE, JANUARY 20, 1862.

My Dear Sir,—I beg to acknowledge receipt of yours, dated 9th January.

In relation to the patent Mill-Stone dressing Diamond, I have great pleasure in taking this opportunity of bearing testimony to its merits. I consider I have received *good value*; the Diamond answers every purpose for which it was designed, and far exceeds my expectations. I would not be without it for one month, for the thirty dollars which it cost. In my Mill I have three run of Stones; formerly my millers had one run constantly in hands dressing with the pick, now they can have the three run always going, with the exception of about $\frac{1}{2}$ an hour to clean out and dress with the Diamond; in addition to this they get over two lb. more flour to the bushel of wheat than they could possibly have had before with the old fashioned dress by the pick.

Excuse haste,

Yours truly,

WM. COTTINGHAM.

A. RAMSAY, Esq.

EXPLANATIONS OF DIAGRAMS.—No. 1. represents the Protector on the outer side, with the handle, and the position in which it is held in its backward motion.

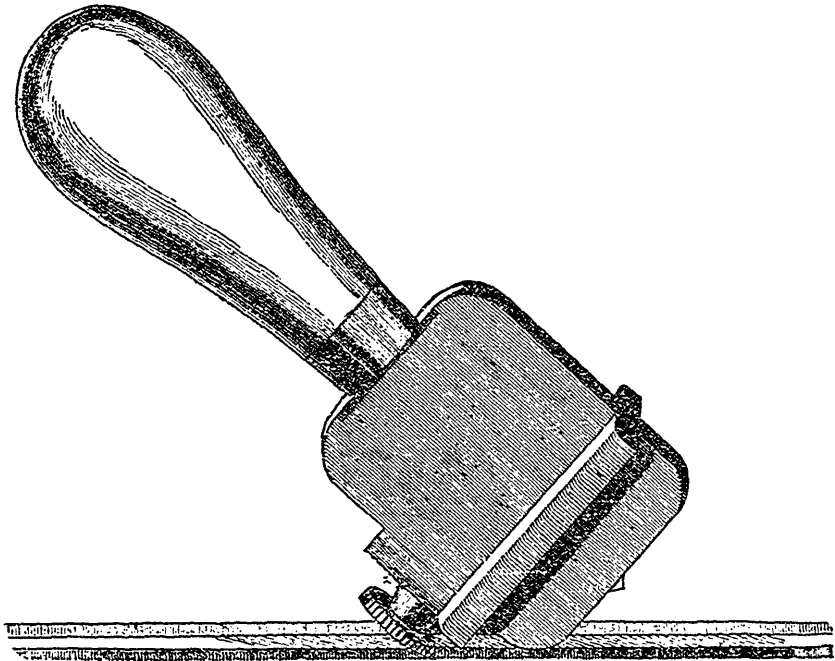
No. 2 is the Protector on the reverse side, devoid of the inner rule, and exposes to view its construction. Letter A represents the shifting guard, made so as to accommodate the Protector to any thickness

of rule or guide, and secured in its position by the thumb-screw H. B is the piece of steel in which the Diamond D is set, and is supported by the lower ledge and acted upon by the spring E, which is pressed by the washer C. F is a rod or screw, passing through handle G, and acting on washer C, which when screwed from you, gives the spring E more weight, as may be required.

No. 3 represents the Guide and mode of handling the Protector in marking while using the Guide and Protector in dressing. G is an inner rule and ledging, on which the inner guard of the Protector is made to slide. B is the outer rule on which the outer guard of the Protector works. D is

a bar which secures the Guide to the board E, connected by the parallel arms C.

INSTRUCTIONS WHICH MUST BE STRICTLY FOLLOWED.—In adjusting the Protector to the Guide, allow only the extreme point of the Diamond to project beyond the bottom of the rule, and secure the guard firmly in its position by the thumb-screw H. It is very necessary to be particular not to allow too much of the Diamond, or any part of its setting, to be exposed, as it allows it to go too much into the cavities, and wears away the setting that secures the Diamond in its position and causes it to come loose. The above cautions are necessary, as some may think that the more



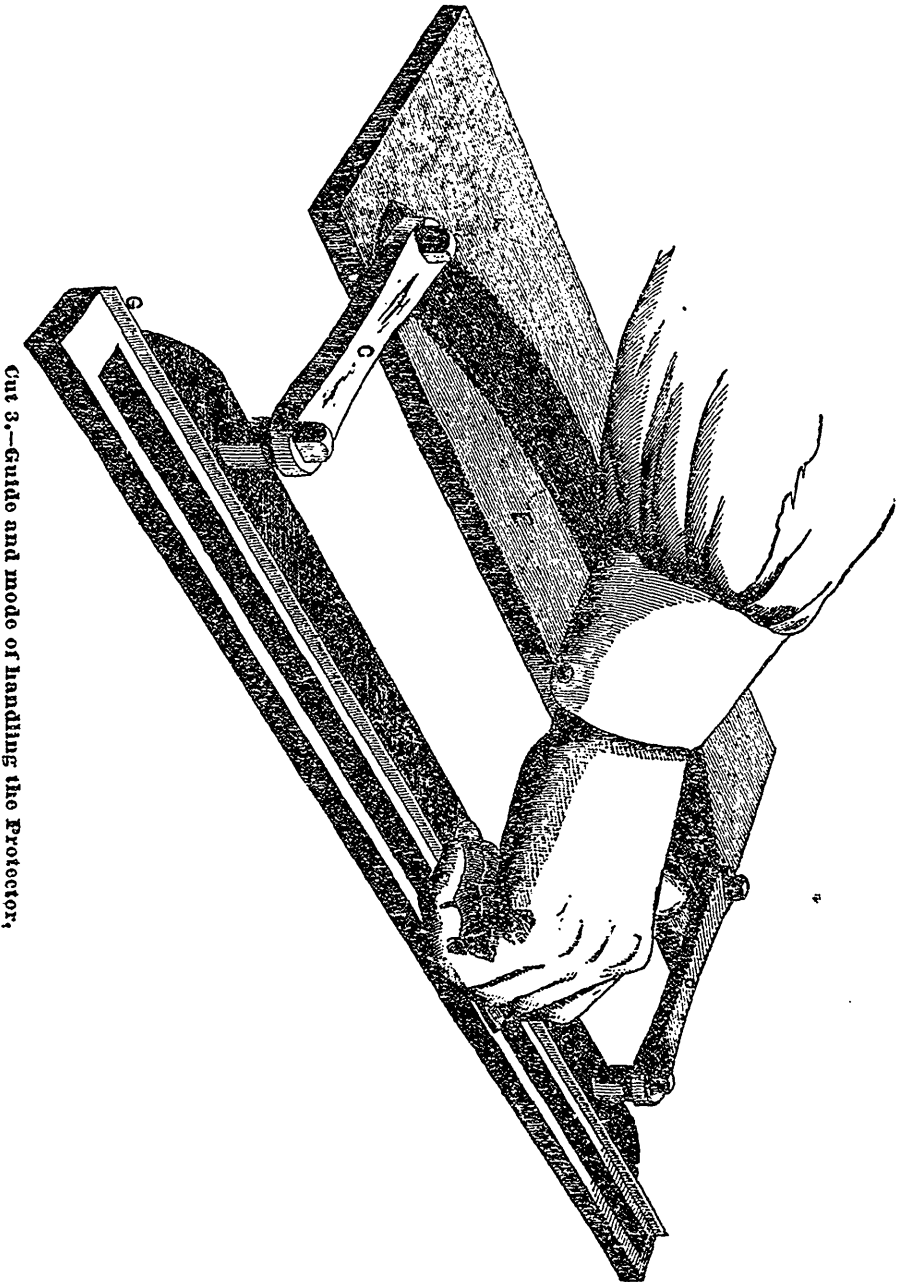
Cut 1.—Protector on the outer side.

the Diamond is exposed the better it will work, when quite the contrary is the result, as only the extreme cutting edge of the Diamond marks the stone, and any more exposure of the Diamond is not only superfluous, but positively injurious. After strictly observing the above instructions, you will proceed to operate with the Protector by placing it between the rules of the Guide, with the thumb-screw H always towards you, pressing firmly on the board E of the Guide with the left hand or knee, as may be most convenient, and hold the upper arm C with the fingers of the left hand, and draw towards you as you make

the mark with the Diamond. In marking commence at the upper end of the Guide, pressing the Protector lightly with the fingers of the right hand, drawing it towards you, keeping the guard close to the ledging G, and in pushing it back again cant the Protector downwards, as you see in illustration No. 1, which prevents the Diamond from touching the stone, which you must be particular in not doing in its backward motion, as it is apt to injure the Diamond. The Diamond, being a valuable tool to the Miller, should be kept from being handled by curious or inexperienced persons. Millers once using Dickinson's Self-Adjustable

Diamond Protector with Guide will readily perceive the numerous advantages they have over any other mode of using the Diamond for dressing Mill Stones. By them you

can dress much quicker, the Diamond will last much longer, and do more than ten times the amount of work; also the inexperienced operator can dress with more



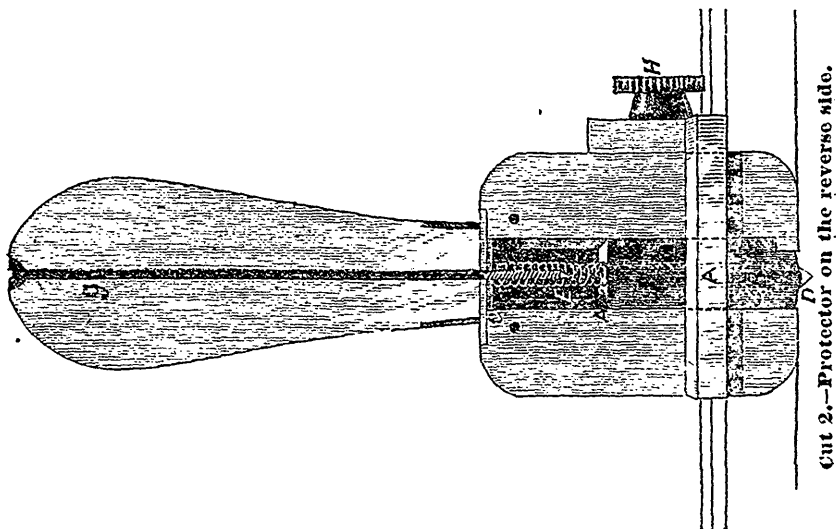
Cut 3.—Guide and mode of handling the Protector.

confidence and with less fear of injuring the Diamond. The construction of the Protector and double rule parallel Guide are free from complications, and are of the

most substantial character, there being but little friction, and not apt to get out of order. The only cautions and instruction necessary are those before mentioned, which

makes their simplicity of action easy of comprehension,—consequently requires but brief instruction to enable any Miller, however inexperienced, to dress with them efficiently. All who are now using the Protector and Guide are well convinced that they are indispensable tools to the Miller in dressing Mill Stones with the Diamond. Owing to the numerous objections made in regard to the inconvenience of handling the Protector made as represented in the original diagrams, the subscriber was induced to change the position and form of the handle, and the adaptation of the spiral in the place of the elliptic spring, the action being the same, and which has given more general satisfaction.

RELIEF FOR CHOKED CATTLE.—During several years past I have often seen in public prints directions for relieving *choked cattle*. I have also many times "*heard tell*" of various expedients for the same purpose; my heart also was sorrowful after a painful sort while my eyes have beheld the writhings and contortions of animals undergoing an experimental test of the efficacy of some of these expedients. One runs a broom-handle with a swab at the end down the animal's throat; another runs down a fork stick; another some patent forceps; another props the mouth open with a small hoop and runs his arm down; another takes a lapstone and hammer and smashes the obstruction internally; another ties up the head and pours down grease; another turns the animal loose and sets on the dog, &c., all undoubtedly efficacious *when they work well!* But as my doctrine always is that "prevention is



better than cure," I adopt and recommend a different treatment, and one that I have never known to fail of proving *satisfactory and perfectly effectual*.

Most intelligent farmers expend from a sixteenth to an eighth part of the value of their grain in toll and freight in getting it properly ground before feeding it to their stock, and undoubtedly are wise in so doing; they also have their stalks and straw, and many of them their hay, *cut* up finely, before placing before their stock. Some also *cook* their hay, stalks, straw and grain. They are also very careful in harvesting hay and grain, to keep it clean from dust and dirt, all of which I approve; but when the same men harvest their *roots* they carry from one to three quarts of dirt to the cellar with every bushel; and when they feed them out they just give them, if very large, a few hacks with a shovel or old axe, i. e., cut them up coarsely and let the cattle work at them! Although I am a farmer but in a small way, "I've got feller felins;" and when I see cattle thus treated I think if I was a good cow,

with my present native depravity, I would get choked on *purpose* with the first trapezium junk of turnip, dirt and all, that should cross my lips, *just out of spite*.

When potatoes are fed whole, or other roots are cut coarsely, the animal is obliged to hold its head so high to keep the root in contact with its teeth, that gravitation alone will pass it to the gullet, and ordinarily it will thence pass unmasticated, if not too large; but if cut properly and mixed with cut stalks, straw or hay, as they always should be, they will be eaten with the heads down, as in eating grass, and consequently be more thoroughly masticated and mixed with other food, and all danger from choking is wholly avoided; hence the *preventive* that I have used for five years, and recommended to others to use, is to cut up the vegetable as finely as possible with a good **ROOT CUTTER AND CLEANER**, that is, a machine that will *clean* and cut all sorts of "*vegetables*" into small or pliable bits or strips. Some of my neighbors, after losing as much by choked cattle as they could endure, con-

cluded to go to *whittleing* up their roots, (being Yankees of course) instead of whittling oats and nutmegs, and drinking cider long winter evenings. They could whittle up a bushel in pretty good shape in from thirty to forty minutes, and tell "a long yarn" at the same time. Then they could feed them out and go to bed and sleep soundly all night, without ever *dreaming* of a great "muss" among the neighbors about somebody's choked cow. This being a great improvement over former times, worked first rate, till one of them saw a root cutting machine at a "fair;" after that whittling roots wasn't what it was formerly "cracked up to be."

There are now some five or six different kinds owned in this town, and either one is much better than *none*, though there is considerable choice between them. The *three* best kinds cut the roots into semicircular bits or shavings, and the best kind of the three, cuts the *finest* and *thinnest*, and before cutting them rubs off all the loose dirt from them, which if mixed with the cut roots, and eaten with them, is very injurious to teeth, stomach and intestines. It is almost incredulous how much dirt may be thus taken off from ordinary roots as ordinarily put into the cellar—from one to two quarts per bushel being the average quantity taken from carrots and turnips. If those, who have running water in their cellars and neglect to *wash* their vegetables before feeding to their stock, were compelled to eat as much dirt in proportion to weight of other food as they oblige their stock to eat, just for *one* day, I fancy they would cry enough, *enough* louder than Moses did to the Israelites when their contributions were too great! At any rate I wish they were obliged to try it, for they are without excuse for their brutality. But very few are thus situated, and this "root cleaner and cutter" is the next best to water; it requires but a minute per bushel to clean them, and the same time to cut them, and a small lad has all the necessary strength. This kind has never been in the markets, nor seen out of this town, except it was at the Vermont State Fair this year, a part of the last day, (having been delayed en route) and received the first premium.

HOW TO GET A FARM.

G. B. S., in the *Country Gentleman*, wishes to know "how to get a farm," and says "there are no doubt many men in our country who commenced life under similar circumstances,"—that is, without money or capital to begin with,—and have risen to be successful and independent farmers. We would like their counsel and advice." Having commenced life under circumstances substantially the same as those described by your correspondent, and having thought much on this subject, and no answer having appeared as yet, I have concluded to try and see what I can do towards helping him, and others in similar circumstances, in their laudable efforts to get a farm.

Well do I remember the intense thought and study with which I first turned my attention to farming as a means of getting a living.

Having failed in other business, for want of the capital without which I had always supposed I could not succeed in farming, I was casting about and considering what to try next, when for the first time I came across some agricultural publications, which all the interest of an exciting romance, and which at once led to a determination to make farming the business of my life. But here I was met by the same difficulty as your correspondent. I had no land, nor nothing to buy with. I was in a strange country, with no friends to assist me in beginning, except such as by industry, economy, and fair dealing, I was able to make. Yet I have succeeded so far beyond my most sanguine expectations; while my farming prospects are not only improving every year, but they are better now than ever before.

But in answer to your correspondent, I do not propose to go into the details of my own experience, but rather as briefly as may be try to point out the best course for young men to pursue in order to succeed in getting farms. I am led to take this course, not only by the reluctance felt by most men of laying their private business affairs before the public, but because in giving the combined results of reading, observation, and experience, I believe I shall be able to more effectually assist G. B. S. and others in similar circumstances.

One of the greatest difficulties encountered by young men in trying to get a farm, is to get a start, or in other words to get the first \$500. Almost any young man that will go to work, and earn and lay up that amount of money, may, with good habits industry, and economy, be sure of sooner or later owning a good farm. It cannot be too strongly impressed on the minds of all young men, that the great starting point in their fortune is to earn and lay up the first \$500 or \$1000. Not only for the help that amount will be in gaining more money, but in firmly fixing in their minds the principles of industry, economy, and self-denial, which are to be the foundation of their future success.

The most usual course taken by farmers' sons to get this start, is by working out for the month for farmers; and perhaps it is the best course open to thousands of young men in our country. But a large portion of these young men are only able to get work for seven or eight months of the busy season, leaving them idle during the winter and a part of the spring and fall. The wages they will earn in this way will not enable them to lay up money very fast. Hence the enterprising young man that is determined to succeed will either be sure to hire out by the year, or teach school through the winter, or find some kind of job work by which he will be able to make good wages all of the time. He will also keep in mind that by continual faithfulness, care, and attention to the business of his employer, he will not only be earning and getting much higher wages than others, but he will be forming habits of care and attention that will be highly useful as long as he lives. By taking this course a young man ought to lay up \$100 a year, and many will lay up more. We will suppose he commences when he is 21, and when he is 25 has saved \$500.

Now, what is the best course for a young man who has earned or by some other means come in possession of \$500, who wishes to get a good farm? He desires and ought to have one worth \$4000 or \$5000, or more, and with him the very important question is, what is the best course for him to take to get it? Now without taking into consideration the question of going into a new country in pursuit of cheap land, I conceive he must choose one of the following courses: He will either continue to work out, or he will take or rent a farm, or he will buy or commence farming on a small farm. It being necessary in order for any one to pursue either one of the two last courses to have some capital; it is not considered that there is the same necessity for working out after a man has \$500 that there was before. Consequently he may now be considered as fairly in a condition to take his choice between the three courses here pointed out. And, as undoubtedly there are many in different parts of the country that may find it desirable to follow each of these different ways, and many more desiring all the information they can get in regard to the best course to pursue, perhaps it will be best to bestow some attention on each of these ways to get a farm.

First, in regard to working out. This is a very simple, plain, straight-forward way to get a farm. It is only a continuation of the course already pointed out for those who have to start with nothing for an indefinite period of time, which will be longer or shorter in proportion to the amount desired to commence with. The advantages of this course are presented in a very favourable light by the Hon. J. W. Colburn, in the *Country Gentleman*. He says:

"Now let us for a moment look at the matter, and see what the real obstacles are which are to be overcome by the resolute young man of 21 years of age, who says, 'I will own a good farm.' His father has had the benefit of his labour up to this time, and is unable or unwilling to give him anything to start in life. His whole capital consists in muscular strength, good health, good will, self-reliance and correct principles. He takes the best wages he can get of a responsible farmer in the neighbourhood—say \$15 per month for the year, board and washing included. He pursues this course for seven years; his economy has taught him that \$60 per year is sufficient for clothing and other expenses, leaving \$120 at the end of each year to put at interest. At the age of 28 years he has earned and put at interest \$840. What the several annual interests have been I will not stop to enumerate. It is sufficient to say that he has a sum sufficient to start him handsomely in a new country, with a half section, 320 acres, paid for, and means enough for an outfit to commence successful operations upon his new farm. In 22 years more, with ordinary good luck, how will he be likely to stand? He is now fifty years old, and a man of wealth, and probably of character and influence.

"Or take another view of it. Suppose at the age of 28 he should say—'I don't think much of this emigrating, there is some risk in the change of climate; I like my old associa-

tions; my friends are here, my home scenes are dear to me; the girl of my choice is unwilling to go to the far west, or into a new country; I will settle in my own neighbourhood.' He buys an improved farm with fences and comfortable buildings, say 100 acres, at \$20 per acre—pays one-half down, balance in ten years, interest annually. What will now be his condition at 50 years of age? Perhaps not as in the first case, with equally good luck in both, for the advance of his land in value above cost in the former case would have been a little fortune; but he has made a sure thing of it as it is, has lived healthily, and saved a competency for all future wants."

Mr. C. further states that "this is not an overdrawn picture. It is what has transpired within the observation of the writer, and at a time too when farm wages were lower than the prices here named, and much lower than at the present time."

Now it will be admitted on all sides that these extracts place this part of the subject in the most favourable light; that in fact it would seem that there can scarcely be any need of, if there is any room for, saying anything more on this side of the question; therefore it only remains to briefly allude to some of the objections that young men may find to pursuing the course so favourably presented.

The first objection will be in regard to wages. It will be said, and with a great deal of truth, that such wages are a good deal higher than young men that work on a farm are generally able to realize. And to this it will be added that in most of the older settled sections of the country \$800 or \$1000 goes but a little ways towards paying for a good farm. Consequently it will be said a young man will have to work out a great deal more than seven years, in most cases from twice to three times that length of time, before he can even pay half down for a good farm, to say nothing of the money that will be needed to begin farming with.

Perhaps there is nothing that a spirited, enterprising young man would view with greater reluctance than the proposition for him to make up his mind to work out for from ten to twenty years of the best of his life in order to get the requisite capital to commence the business of farming with. He will probably say that he has not so much objection to working out a few years in order to get a few hundred dollars to start with. But as to working out that length of time it is useless to talk about it; he is not going to do it. Point him to some one that has succeeded in this way; he will admit it, but say this is an exception, not the general rule, and will point to many men that have failed of ever getting farms by working out, and will say that no man with a growing family on his hands can lay up anything, to say nothing of saving enough to buy a farm; while there are few men that have not formed ties and made arrangements that are not to be put off for a very indefinite period. Hence put the case in as strong a light as we may, or argue it ever so strongly, it will be of little use. Consequently those that would persuade young men to stick to farming, and undertake

to point out a way whereby they may get a farm, will, in most cases, have to shew them some other way besides working out. Yet it cannot be denied that young men do not always sufficiently appreciate this way of getting a start in the world; that in many cases it is the best thing a single man can do as long as he remains single, and that many that have left it for other business would have done better if they had not made the change.

But we must pass on to consider the second course for a young man to take in order to get a farm. Renting a farm, or taking one on shares is, next to owning one, what seems to suit young men the best. G. B. S. seems to have had this course in mind; but says that "renting a farm, the way it is done in this part of the country, is not very desirable. It generally goes on the 'skinning process,' making it profitless to both parties." Now here is the main difficulty, not only as to those taking farms, in finding this a good "way to get a farm," but with those having farms to let. It is a fact well understood on all hands, that as poor business as taking or renting land may be, there are many in all parts of the older sections of the country that would be glad to get farms to work if they could. In this section, whenever there is a good farm to be let, there are sure to be from eight to ten, and sometimes a score or applications for it. While at the same time there are many that would like to let their farms were it not for this one difficulty—they are sure to be worked on the skinning system; which, while it gives them but little present profit, is injuring if not ruining their land. Hence, I would impress on the minds of all, young or old, in the strongest language, and in the most earnest manner, the great mistake they make in thinking that because they are working another man's farm they cannot afford to farm well; that they are taking a course that not only gives them but little present profit, but one that, more than perhaps anything else, tends to deprive them of the chance of getting what little they do have; and that not only will they realize a much greater present profit by as good farming as the circumstances will allow, but should it be the case that at first they are not able to get a good farm, but have to take up with rather inferior or badly worn land, they may be sure that if they are doing their best, it will be known and observed, and they will have no trouble in getting better land when they wish to make a change.

The advantages of this course may be made much plainer by taking a case, many of which may be found in all of the older sections of the country. The owner of a 100 acre farm, that has not only made the principal part of his property out of his farm, but has brought up, educated, and given his children more or less of a start in life; and who has found by experience that one-half of the produce of his land will support him satisfactorily, wishes to let his farm if he can get a tenant that will farm well. Though he well knows that he could make more by hiring his work done, yet he wishes to relieve himself and family from the trouble of taking care of the farm and hired

help. Now why can't a tenant, if a young man with a small family, take that farm and go on and make money, and at the same time keep the land in good condition? The owner made money, and kept the land improving; why may not the tenant make money, and at least keep the land in its present condition? I see no reason why he can't, nor do I believe there is any—except poor management.

Again, let those that think they can't afford to farm well on another man's land look to England. Much of the best farming in that or perhaps any other country is tenant farming. Not only does the tenant have to pay enough in rent and taxes to buy land in many sections in this country, but he spends thousands in manuring, and other improvements. Indeed, it is said that his rent, taxes, and other farm expenses are so large, that he is obliged to cultivate his land in the best manner; that he could not get along without doing so. Yet he lives well and makes money; and it is said that many tenant farmers do so well, and are so well satisfied, that they prefer remaining tenant farmers, even after having made money enough to buy and have land of their own.

Now, allow me to ask, why may not something like this be the case here? Why may not an American be a good tenant farmer as well as an Englishman? Have not our young men as much enterprise, intelligence, and ability, as the same class anywhere, and are they not as anxious to make money and go ahead? Then why not make the business of taking or renting land, one of the best courses a young man can take to get a start in the world; instead, as is too often the case, making it a losing business for all concerned?

But it will be said, taking for granted that tenant farming may be made to pay well, how are all that may wish to, going to get land to work? It has already been intimated that the demand for farms was much greater than the supply; hence it must be admitted that, though it may be a very good way to get a farm for those likely to get a good farm to work, yet many will fail, because there are not farms enough let to supply the demand.

This being the case, we will pass on to consider the third and last course proposed for a young man to pursue in order "to get a farm."

This course, as well as taking land, is more particularly calculated for a married man. Though the single man that is able to get good wages and steady employment, may do very well, yet when he gets married he wants a home, and generally the sooner he gets one of his own the better. Time and space forbid giving even a tithe of the reasons why every man should have a home of his own. All are more or less familiar with these reasons; and as undoubtedly one of the principal reasons why G. B. S. wishes to get a farm is to have a home, I need only state that I have found, both by experience and observation, that a small piece of good land, even though there may be but a few acres, is a great help to a labouring man that wishes to get along in the world. Here again, time will not admit of referring to the many instances of large amounts of pro-

duce grown on a few acres of land, than I have come across in reading and observation. But I must pass on, only stating that few young men are aware of how small a place may be made to give them more net profit for their labour than they can realize by working out.

Another advantage in having a small place, is that it will enable the owner to do something at both farming on his own land and working out. Whenever I have seen this "step in advance," (which it surely is,) taken by a man of industry and economy, I have always observed that he went a head much faster than he did when depending on his labour alone. So, too, a small farmer will often find chances to take land by the piece, of farmers having more than they can or wish to cultivate, thus enabling him to add to his farming operations sufficiently to give him all the business he can attend to, and giving him quite respectable profits.

But leaving working out, or taking land, out of the question, few that have not tried it, or investigated the subject, are aware of how few acres will keep a man profitably employed during the busy season. In a former article on farming on a small farm, I have given estimates of what can be raised on ten acres, and also on twenty acres. These estimates, though much less than is often realized, will give a good idea of what may be raised on a small piece; it being kept in mind, that by changing works for team work, the owner may do nearly all of the work himself, making his expenses out scarcely anything to speak of, and enabling him to realize the full benefit of all he raises.

Another great advantage in getting a piece of land as soon as possible is, it forms a beginning—something to add to. Young men when working out, or working land and having no particular present need or use for their money, are apt to spend it, or allow it to slip away for something that in their circumstances they might better do without. But if they have land that they wish to finish paying for, or to make improvements on, or, finding their little place insufficient for their wants, and aided by the stimulating effects of actual ownership, they are anxious for more land, they will be sure to save all they can to buy more with. When this course is once fairly entered on, they will be pretty sure to follow it up until they are each one the owner of a good farm.

Before concluding I wish to present one or two considerations that are very important for young men of limited means that wish to get farms. The first is that in taking any course that will be open to them they may not be able to make money as fast at the beginning as may be deemed desirable. It is very natural for young men to make large calculations at the start. They have a very laudable ambition to go a head and make something, and be somebody; hence they are apt to think that any course they may be able to take is too slow to ever accomplish anything. But this is a mistaken idea. Let any one that doubts this sit down and reckon up what a man earns that earns \$100 over a living every year from the time he is 21 until he is 50, and puts it at interest at 7 per cent, adding the interest to

principal each year, will have when he is 50 years old—or say in 30 years. I say let him do this, and he will be surprised to learn that he may be a comparatively rich man, by taking this course, when he is 50 years of age. As a further illustration of this fact I will mention a few instances that have come under my own observation. One of a man that died worth over \$10,000 in cash, that made it, all but a small legacy, by working out and the interest on his money. Another that is now some 35 or 36 years old that has between \$3000 and \$4000, all made by working out, and the accruing interest on his wages. And yet, another that saved \$900 in six years. All of this shows most conclusively that though either of the courses I have pointed out may seem rather a slow way on the start, yet if persevered in, and all of the money as fast as realized invested in some manner whereby the interest is sure to be realized, they are sure to lead to the desired success,—while hundreds, perhaps thousands, have done a great deal better than this by investing their labour and money in farming in such a manner as to realize much larger profits.

The other consideration, with which I shall conclude, is that every young man that wishes to succeed should make himself familiar with the agricultural literature of the day. He should not only read and keep for future reference some of the best agricultural journals of the day, but he should be familiar with some of the best practical works on farming in the country. He will find this a great advantage if he works out in enabling him not only to work to much greater profit and advantage to his employer, and thus getting the extra wages that will be his due for highly intelligent labour, but in showing him how the knowledge gained by his present experience may be turned to his future benefit when farming for himself. Or, if taking or renting a farm, in learning how to manage it to the best advantage, both as regards present and future profits. Or if farming on a small place, not only in learning what may be and has been done on a little farm like his own in different sections of the country, but in learning how he may manage his few acres to the best possible advantage. But above all else he will find it of the greatest advantage in enkindling in his mind an ardor for, and an enthusiasm in the business of farming that, enabling him to triumph over every obstacle, will be sure, sooner or later, to bring him to the desired haven of success.

CATTLE.

ON FEEDING STOCK.

The following lecture on Feeding Stock was delivered by Dr. Anderson, at the meeting of the Highland and Agricultural Society, on the 18th inst. :

In an address given at the Edinburgh show in the year 1859, I took up the subject of the feeding of stock as a branch of farm management, and discussed the general principles on which its successful prosecution depends, referring more especially to the nature of the food and its use in such a manner and in such quantities as are necessary to secure a proper

proportion of the great classes of nutritive compounds required to maintain the vital functions in a state of healthy action, and the particular conditions under which the constant waste of the tissues may be reduced within the narrowest possible limits, and the quantity of food required to supply the place of the offset matters thus diminished to the greatest extent. These matters, in fact, include the broad principles which must be kept in view in the feeding of all animals, and practice has arrived at conclusions in harmony with them, by studying, in the first instance, the natural instincts of the animals and observing the kinds of food they prefer, and then by mixing the different substances in different proportions, and otherwise trying the mode in which they are supplied to the animal. It has thus come to be known that certain foods and mixtures produce a better effect than others, some kinds fattening quickly and giving the animal those qualities which the butcher seeks, and others producing a much less favourable result. Looking at the subject in a practical point of view, it becomes, of course, most important to prosecute it into details, and to ascertain the most economical method of arriving at the required result, and by a systematic series of trials it is possible to obtain an accurate knowledge of the kinds and quantities of food capable of replacing those in common use, and to make mixtures which fulfil the same end with greater economy. A great part of this knowledge has been attained by experience—that is, by a succession of trials extending over a very long period of time, and many of which have, in one sense, proved failures, inasmuch that they showed that particular mixtures were uneconomical, and a source of loss to those who used them, although in another sense, they were not failures, because they showed what ought to be avoided. If it were possible to go back over the whole range of trials by which our practical knowledge of the best proportions and kinds of food has been acquired, it would, no doubt, be found that, as in most instances, experience has been bought at a very high price. It is only after often-repeated observations that it can arrive at incontestible conclusions, and herein it is that science differs from experience. The results in both are obtained by observation. But science has systematised observation, and has coupled with it the explanation of the facts observed. It starts from the knowledge acquired by experience, seeks to discover the *rationale* of every fact, and endeavours to generalize and classify them. Thus, if it has discovered, for example, that a particular food known to give unfavourable results is deficient in some particular element, it then proceeds to try whether the addition of that substance will increase its nutritive effects; and if this proves to be the case, it is justified in inferring that every other food in which that element is wanting will also prove disadvantageous in practice. The tendency of science, therefore, is to diminish the number of trials which end in loss, and thus to acquire practical knowledge with greater rapidity and economy. It is obvious however, that science cannot in all, or even in many instances, predicate with absolute cer-

tainty the exact extent to which particular foods are likely to be advantageous in practice; but this is owing in a great measure to our still imperfect knowledge of the complicated mechanism of the animal frame; and no one who knows either this or the disturbing causes which interfere with the results when vital process come into play would for a moment venture to indulge in dogmatic assertions, but would rather look upon science as fitted to direct experiment and supply a class of facts which may form the ground work of further practical observations. The position which science is capable of taking may be best illustrated by a particular example, and for this purpose we may select the facts connected with the use of rape cake as a feeding stuff. Chemistry has shown that so far as the proportion of nutritive matters contained in that substance is concerned, it is completely on a par with linseed cake, which sells at double the price, but it has also established the fact that it contains a small proportion of a peculiar bitter principle of a resinous character associated with its oil. Now, it is well known that some bitters are not unpalatable to cattle, while others are very offensive; but it is not possible by analysis alone to foretell whether any such substance belongs to one or the other category, that being a matter which can only be decided by observing the effect it produces on the animal itself. At this point, therefore, the function of science ends, and that of practical observation begins; and it has been found in practice that—owing, no doubt, to the presence of this substance—rape cake cannot be given with the same freedom as linseed cake, because, when consumed large quantity, its disagreeable taste affects the animal, although when used in smaller proportion and mixed with palatable substances it proves highly nutritious. These facts having been determined, a further progress may be made, and science may proceed to inquire whether it lies within its resources to devise a process by which the objectionable constituent may be removed and the substance thus placed on a level with the most favoured food, while practice may study the best method of concealing its taste or otherwise palliating its effects. When the study of the principles of feeding is prosecuted into details, many subjects of great interest and importance offer themselves for consideration, and of these not the least worthy of notice is the best method of making the food consumed fully available to the animal. It has been clearly established that only a very small proportion of the nutritive matters of the food is stored up within the body in the form of flesh and fat, and even under the most favourable circumstances by far the larger proportion is practically wasted, or at least reduced to the less valuable form of manure. It is known also that the quantity stored differs greatly in different animals; thus, the pig makes a much better use of its food than the ox, for it will increase in weight nearly twice as much with the same consumption of food. The same is true, though to a more limited extent, with regard to individuals of the same species, and every one knows that some cattle fatten more quickly and easily than others. These differ-

ences are, no doubt, often due to constitutional peculiarities which cannot be overcome in practice; but it cannot be questioned that it is a matter of the greatest possible moment to determine the circumstances under which the waste can be reduced to a minimum, and the animal be made to assimilate the largest possible proportion of the food which enters its stomach. It is very obvious that the complete solution of this problem involves many nice physiological questions? and in the present state of our knowledge is scarcely possible; but there are individual departments of the subject which may be considered, and to one of these I propose directing your attention on the present occasion. The particular question I intend to discuss is how far the nutritive value of a food may be increased by adding to it certain accessory substances which are not themselves *foods*, in the proper sense of the term, but which either by maintaining the general functions in a state of health, or by promoting digestion, facilitate the assimilation of the true food. My attention has recently been directed to the subject in the course of some experiments, to which reference will afterwards be made, but which I shall here discuss only in a general point of view. Substances added to the food in this way are commonly known by the name of "condiment," and are understood to operate by promoting the healthy exercise of the digestive organs. The mode in which they do this, however, is not well defined, and cannot in all cases be identical. We ourselves use a vast variety of those substances, but we do so without any definite object, and most of them have probably no other effect but that of pleasing the palate, and are, therefore, very far from acting favourably, but rather induce the ingestion of a large quantity of food than the stomach can properly dispose of, and, consequently, check instead of promote the progress of digestion. On the other hand, if we are to argue from our natural instincts and the universality of their use, there are substances which must be beneficial. Experience has led us to the use of certain mixtures of food, which are often considered to be mere manifestations of popular fancy, but which are really founded on natural laws. Thus, for example, we eat beans and bacon, and thus conjoin a very fat food with the most highly nitrogenous vegetable. In the same way, the Irish labourer who consumes a large quantity of the starchy potato uses along with it a great deal of milk, so as to supply the nitrogenous and fatty substance the system requires. It is reasonable, therefore, to assume that the use of condiments is dictated by the necessity for them. If, then, the subject is important in regard to human beings, it is still more so in relation to the feeding of cattle, which, in their artificial state, cannot select for themselves, but must take what the feeder supplies. The most important of all condiments to animals is unquestionably salt, and if we are to assume that their natural instincts lead them to take what is beneficial, we can have no doubt as to its utility. The desire for it is shown by the avidity with which cattle consume it when lumps of it are placed in their feeding troughs and that this is not the effect of the artifi-

cial state in which they are kept is proved by the fact that any spot where it exists is sure to become the resort of wild cattle. Such spots are not uncommon in the back woods of America, where they are known by the name of "salt licks," and the ground around them is constantly covered with the footprints of innumerable herds of wild cattle. So familiar is the desire of cattle for salt that in our colonies it is well known that the most effectual method of preventing them from straying is to place abundance of salt at their disposal in the neighbourhood of the stations at which they are kept. Beyond all question, then, salt must be in some way advantageous to animals. It appears that phosphate of lime, like salt, has no effect in increasing the live weight of the animals to which it is given, or in causing them to make a better use of their food; but it is quite possible that where there is a deficiency in the phosphoric acid, it may exert an important influence on the health of the animal during the early period of life, when the bone is chiefly formed, and hence its use may occasionally be advantageous. The general conclusion to be drawn from all the experiments and observations is that whatever benefits may accrue to the health of the animal by the use of condiments, of which common salt may be taken as the type, they are without effect on the quantity of nutritious matters assimilated; and salt, when used in considerable quantity, actually causes the expenditure of an extra quantity of food to produce the same increase in live weight. These facts are not unimportant in relation to a class of substances now commonly called "condimental foods," which are very actively pressed upon the attention of the farmer, and are alleged to produce so great an economy of the ordinary food as to justify the high price at which they are sold. It is worthy of notice that the grounds upon which these substances are offered have somewhat changed. They were originally called "concentrated foods," a term clearly borrowed from that used in describing manures, and intended to lead to the belief that the nutritive matters of food of animals had been concentrated in a manner similar to that in which the nutritive elements of the plant food are found in a guano or superphosphate. This view of the matter is exceedingly specious and attractive, but a very little consideration suffices to show that it is entirely fallacious. A manure can be concentrated, because it contains many substances of little or no use to the plants. Thus it would be possible, though not practically economical to take farm-yard manure containing about 75 per cent. of water, and by simply drying it, to concentrate four tons into one. It would be even possible to go still further and to extract from it the ammonia, phosphoric acid, and other substances required by the plant, and so to reduce it to a still smaller bulk; but no such concentration is practicable with the food of animals. The two great kingdoms of organised beings are, no doubt, made up of exactly the same chemical elements, but the plant is able to take its food in the form of simple compounds, such as ammonia, carbonic acid, &c., and from them to build up the most complex constituents of its frame. But

animals possess no such power; their food must be supplied to them in the form of those complex and bulky compounds which the plant alone can produce, and which the animal only modifies to a slight extent in the process of assimilation. Hence it follows that it is only theoretically possible to concentrate the food of animals to a very limited extent, because the quantity of innutritious matters each of them contains is small, and it is *practically* impossible to do it at all, because there are no processes known by which the innutritious matters can be removed in such a manner as to leave the nutritive substances in a state in which they can be used as food. In the grains of the cereals the only absolutely innutritious substances are water and a small quantity of woody fibre, of which the latter cannot be extracted without entirely destroying the grain; and, though the former may be expelled by heat it is rapidly reabsorbed from the air. The food of an animal cannot therefore be concentrated, and the introduction of the word "condimental" instead of "concentrated" food by the makers of some of these articles must be taken as a tacit admission that this view of the case cannot be defended. The fact is, that analysis at once shows that in these substances there has really been no concentration. A minute examination of a number of them recently made in the laboratory, which will appear in the forth coming number of the "Transactions," has shown that there has been no attempt to concentrate in the sense in which that word is usually understood, for they all contain just as much water and woody fibre as other vegetable substances, and are, in fact, mixtures of the most ordinary materials, consisting of Indian corn, rice, bean meal, ground carob beans, and other similar substances, along with small quantities of aromatic seeds, and in some instances a bitter substance, apparently gentian. It is absurd to suppose that the contents of a small tin measure holding about half a pint of these substances can be used to replace one half of the ordinary food of an ox or a horse, and their inventors, seeing that as soon as these facts became known to the farmer their position would become untenable, have taken refuge behind the aromatics and bitters they contain, and have asserted that their effect is condimental, and that they act by promoting digestion and causing the animal to extract and assimilate a larger quantity of the nutritive matters of its ordinary food. They have obviously gone upon the commonly received opinion, which attributes to salt and similar substances this effect—a view which the facts by no means countenance. There is, in fact, not the slightest reason to suppose that the substances contained in these foods have any such effect. They consist, in addition to the grains already mentioned, chiefly of fescue and caraway seeds, and one of those I have examined contain so large a quantity of turmeric that it might almost be described as a curry powder. Nothing definite is known regarding the action of these substances on the system, there being no experiments such as those by which the effects of salt have been determined; and there is no evidence to support the view

that they are capable of producing a more complete assimilation of the food, but every reason to believe the reverse. In fact, when a dispassionate view of the matter is taken, I think that it can scarcely be doubted that, if small quantities of caraway or other aromatic seeds were given to animals, and their weights carefully determined, it would be found that they are quite without effect. It must be noticed that there have been no attempts on the part of the "discoverers" to produce such accurate experiments in support of their views, although there have been plenty of general testimonials, such as every quack medicine can produce by the score, and abundance of vague declamation regarding their wonderful effects. The plain fact is that science does not give the slightest support to the idea that these substances have any effect whatever; and in saying so, I am only stating an opinion in which all chemists will concur, and which has, indeed, been often stated before. Its accuracy has just as often been denied by the makers of these articles, but it has never been disproved, nor will that be possible until they can produce the precise results of trustworthy experimenters in support of their substances. But even admitting the accuracy of all the statements put forth by the makers of their food, there is another question, which merits attention, and that is the price at which they are sold. I have already mentioned that they are composed chiefly of some of the more familiar foods mixed with a small quantity of aromatics. The exact proportion in which these latter substances exists in them cannot be accurately determined, but it is not large, and does not generally exceed 10 per cent. Indian corn, carob beans, &c., cost about £8 or £9 per ton, and fescue and caraway seeds about £20 to £25. A mixture of nine tons of the former and one of the latter, should therefore be sold at £10 or £11 per ton, in place of £20 or £30, the price actually charged; so that if these goods do produce the alleged effect the farmer is made to pay for them three times their intrinsic value. This fact is of itself a sufficient comment on what has been already stated, and the truth is that the "discoveries" of which the makers of these foods boast are confined to the art of extracting money from the pockets of the farmer. The general conclusion to be drawn from what has been now said may be summed up in a very few words:—

1st, Common salt, which is the most important condiment, has no effect in promoting the assimilation of the food, and, when used in large quantity, has rather a tendency to produce a waste of nutritive matter; 2nd, Both it and phosphate of lime, and probably other mineral substances, may exercise a beneficial effect on its health when the quantity existing in the food is less than the animal requires; 3rd, There is not the slightest reason to suppose that the so-called condimental foods produce any effect in the animal, as they consist only of ordinary grains mixed with small quantities of aromatic and bitter substances, which, so far as our present knowledge goes, do not in any way affect the nutrition of animals.

INDOOR vs. OUTDOOR.

I am a disbeliever in the entire mode of outdoor feeding, which Mr. Hanna sanctions by practice and publicity, but follow *every time* the Orthodox creed of *housing and tying* every "skin" of all animals, old and young in my care. In viewing and reviewing the subject in all its bearings,—whether as regards *rearing, fattening, &c.*, each and all kinds of stock—there is not a ghost of a doubt in my mind in the whole system of out-door feeding, &c., of calves, yearlings, stock steers and heifers, stock swine and store shoats, bull calves, colts and fillies, running promiscuously in *one yard* to be kicked and cuffed, starved and cheated, the weaker by the stronger, is radically wrong, inhuman and unprofitable.

Now, I can readily imagine many of your readers of the Mr. Hanna school, will, on reading this, contemptuously exclaim: "What! house and hind, feed and keep clean, every one of our animals, old and young—it won't pay in this country!" Right here let me premise, for the sake of argument, that I discard the *paying* consideration and view the matter in the sense of right and wrong abstractly.

Now is there a solitary farmer in the Universe that would refuse a free gift of money to build complete accommodations for his stock, produce, and implements.

It is upon the silver hinge the question turns some, from ignorance of their business, prefer lending money at ten per. cent, to investing it in comfortable buildings for stock. They allow their milch cows to stand in the lee side of the yard the year round, and are content to have their horses in a shiver from the openness of the stable. Others have the will but not the way, and this last class I sympathize with so far, but when lack of means wraps the judgment and conscience—when they have not the wherewith to do, will belie reason, and the "litt spark of celestial fire" within, by upholding and justifying malpractice, and assert that indoor and outdoor keep and care are in effect synonymous things—down with them.

I have for a moment disregarded the "won't paying" saying, to show, that in many cases the system and approval of the outdoor and wasteful feeding, so generally practiced is *begotten* of ignorance, shortsightedness, and comparative poverty. Allow me now to offer a few remarks to illustrate and prove (if it indeed be possible that sane men need such) that the superior keep and care above alluded to, *does pay*. I don't like to go over hackneyed, scientific ground to prove the greater degree of food it takes to make a given quantity of flesh milk, and growth, in cold than in warmer weather. Suffice it to say, that it is a fact known to all intelligent dairy men, that milch cows allowed to remain outdoors in cold and wet days and nights immediately give less milk; therefore from analogy, it is fair to infer that fattening cattle exposed to the open air will not gain flesh so fast, with the same food, as if they were in comfortable stables; nor will stock steers, calves, &c., be in as good a condition, nor grow as rapidly outdoors. This, however, is partly questioned by some, and they say, it depends a good deal upon the

usage and habits of the animal. There is *some truth* in this. But, while it is doubtless true that cattle or stock of any kind accustomed to good stabling will, on being turned out to open air lodging, suffer, till they become injured, and more than those which never knew anything of shelter except the lee side of a stack or fence; yet, on the other hand these latter will show decided improvement by the change of comfortable lodging from the cold air and ground.

I have heard it said that "Illinois cows will go dry at a certain time anyhow," but I am inclined to believe that the fault does not so much lie in the Illinois cows as in the Illinois *keep*. There is a quaint adage that says of cows "its by the mouth they milk." Tried by this rule may be seen the cause of the premature *drying up*, proverbial of Illinois cows.

What is the general keep of farmer's cows of this State? We will suppose the cows calve in March, or about three months before our common prairie pasture is fit to sustain the body and leave a surplus for milk. They meantime are fed dry and raw food—corn in the ear, dry straw or perhaps hay; certainly not the best food to increase or maintain even the quantity of milk of a new milk cow, till the flush of grass arrives.

Then when the prairie grass fails, which it does early in fall, after being pastured for years what's the fare of our milch cows again? As in early spring—dry raw feed, and so it is that Illinois cows have and do acquire the notoriety of drying up early. It's the keep, sirs?

Again, doubtless some reader, if he does agree that the cause of *short milk* lies in the *keep* may query "well, what kind of food would you give?" I answer *cooked food*; if not for hogs, steers, calves, colts, &c., emphatically for milch cows. And right here, a new popular item in this branch of business, I wish to make a suggestion upon. It is almost universal believed, if papers represent the agricultural world, that corn cobs are positively injurious—that they (cobs) are not better than wood chips. I am inclined to believe that their best use is as fuel; but that they are as utterly devoid of nutriment as a chip of wood I question. On the contrary, there is in cobs an inner heart or core possessing a saccharine taste and quality of some value, and I doubt not that the cobs of "cob in the ear ground feed" may be made to lose their injurious properties and be rendered valuable in some respects, by being cooked or softened, either by boiling or steaming. Raw and cooked food give very different results, and even different degrees or stages of cooking the same substance make differences in many respects. Has anybody steamed cobs simply, or ground with the corn and steamed feed, and noted or tested the feeding qualities, as regarding their injurious properties? In conclusion, I would advise *all that can afford* it, to house tie, and feed each class by itself.

LAXARK.

THE SHOULDER OF THE HORSE.—According to Professor Percival, no individual part of the animal frame, in the estimation of horse-people calls for greater demands on their judgment than the shoulder. A good or a bad shoulder

is held to be as paramount importance to the animal's riding or going in such a form as is pleasant to his rider. A horseman by simply carrying his eye over the horse's shoulder, and placing his hand upon his withers, determines at once his qualifications. We see horses with oblique shoulders, and with straight or upright shoulders; and we shall find that the blade bone varies in its degree of inclination very materially in these two cases, and that this variation constitutes an especial point on which depends the goodness or badness of the horse's shoulder.

The length, as well as the obliquity of the shoulder blades will have an influence on the action of the shoulder: it being manifest that a body revolving upon its own centre, must describe arcs or sweeps great in proportion to its length; hence the value of a deep shoulder; though as regards the back bone itself, the muscles attached to and moving it, will necessarily be short, in a case where the bone is disproportionately long, and vice versa.

When the shoulder blade is nearly upright, or is of disproportionate shortness, there cannot be that extent or freedom of action in the shoulders, neither can there be that projecture of the limb that there is in opposite conformations. A good shoulder not only possesses depth and obliquity, but to complete its perfection "be well into the body."

A shoulder then that possesses depth, obliquity and uniformity, is said to be good; and for the purpose of those springy actions and paces which are most agreeable to and admired by the rider; good, it most unquestionably is; it is good for action, good for speed, good for spring, and as a point of beauty is veritably indispensable. Still though this be confessedly the prototype, we are not to set all other kinds and description of shoulders as faulty and objectionable; for the carriage of heavy burden and for heavy draught, I believe a straight or upright shoulder, provided it possesses the necessary substance or muscularity, to be advantageous. Laborious draught does not admit either of a horse taking long steps, or of going at any but a slow pace; and on abstract mechanical principles, a horse whose shoulder is short and upright is capable of supporting more weight upon his fore limbs, than another in whom it is lengthy and oblique. A horse, therefore, with a short upright shoulder, is actually stronger in his fore parts than one possessing what we might call a good or handsome shoulder. Here in fact, as in many other instances that might be mentioned, we have on the one side, action—and with it spring; on the other strength, and as I said before, where draught is required, the short and upright shoulder is to be preferred to the lengthy and oblique structure.

We will now consider the thick and the thin shoulder. A notion very prevalent among horsemen is, that the shoulder cannot be too thin or fine, and that a thick or loaded shoulder is only fit for draught. We will investigate systematically, what constitutes this thickness and thinness—to what kind of conformation the terms are applicable, or what they are commonly used to denote.

You grasp the withers of the horse with your hand, and at once pronounce his shoulders thick or thin: should the withers stand high, and can be included between the finger and thumb, thin: should the withers appear bruised between the shoulders, or be so broad across that the span of the hand can scarcely grasp them, thick. In the former case, we grasp nothing but the spinous process, in the latter we appear to include the shoulder blade as well; hence the thinness in one instance, the thickness in the other.

The sway back, is the most remarkable instance of inordinately long spinous process, and this is commonly combined with obliquity, and consequent lowness of the base of the shoulder blade, presenting an example of a fine shoulder, though of one that often proves to be strangely deficient in substance. These sway backs and fine shoulders, are frequently seen in very old horses; the interpretation is that the shoulders participate in that general process of absorption which is known to pervade the animal frame during the decline of life. A colt may have thick, clumsy shoulders, in consequence of his back bone reaching as high as the top of the spinous process; we examine them when grown to a horse, and find him with finely formed shoulders, with blade bone no higher than it ought to be, and withers admirably raised. A fine shoulder is apt to be too often misapplied; because a horse happens to have very great depth and obliquity in his shoulders, with high tapering withers, he is often said to possess fine or perfect shoulders, when in reality, he probably lacks in them the very property of more consequence than others we have been considering and that is muscularity. Muscular, and consequently weak, as such shoulders are, horses having them often are endowed with brilliant action, but they never can turn out of any value, unless they happen to have—which is seldom the case, extraordinary powers in their arms, and hind quarters, and width in the chest.

But when the reverse of this accompanies the thin and fleshless shoulder, however deep it may be, however oblique, however fine upon the withers, for all purposes where stability, strength and endurance are required, it is absolutely inefficient. Many blood horses have what we should call anything but perfect shoulders; their good qualities are amply accounted for in their round, fleshy loins, and lengthy muscular hind quarters; on the contrary many possess as handsome and well formed shoulders as can be desired; and when this occurs along with the requisite strength and length in the hind parts, surely it must be regarded as a great advantage, providing the action be fitting and commensurate.

PEDIGREE OF ANIMALS—We have received through the hands of the Secretary of our Board of Agriculture, S. L. Goodale, the following circular from the Association of the Breeders of Thorough-bred neat stock.

The object of this association is to promote the breeding of thorough-bred neat stock of all kinds, and by the collecting and recording in appropriate herd-books the pedigrees of such cattle. These records or herd-books are vouch-

ers for the purity of the blood of the cattle so recorded. Thus for instance we have Durham herd-books, amounting to several volumes—Devon herd-books, &c. This circular refers particularly to Ayrshire stock.

There are now bred by the farmers of Europe and America several distinct *races* of neat cattle, and also several well established *breeds* of neat cattle, which we consider the results of long and judicious crossings from the several races, and herds have well marked distinctive characteristics. Each of them are valuable for certain specific purposes. It is an object for breeders to keep up the purity of the blood of whatever class they breed. In order, therefore, to aid them in this desire, a herd-book is a very excellent source to which they can refer in case of doubt whether any individual is of undoubted origin or not. Such records, while they give satisfactory proof to the honest inquirer, are also salutary checks to the knavish and dishonest who have no scruples in palming off upon the inexperienced or unwary a grade animal for a thorough-bred. Such instances are too common, but when there is a reliable herd-book of the race or of the breed they cannot work such mischief, at least to any great extent.

We call attention of those of our friends who breed Ayrshires to the circular, and take the liberty of advising them to aid the efforts of the association in their laudable and patriotic object.

KEENE, N. H., DEC. 1861.

DEAR SIR,—At a meeting of the association of the Breeders of Thorough-bred Neat Stock, held at Springfield, Mass., on the 6th of March, 1861, the undersigned were appointed a Committee to examine, approve and put in form for publication, Pedigrees of Ayrshire Cattle.

The members of the society who wish to have the pedigrees of their Cattle published, will forward them to HENRY A. DYER, Brooklyn, Conn., who is Chairman of the Committee of Publication, accompanied by a fee of fifty cents, for each pedigree, before January 15th, 1862. Each member of the Association will be furnished with one copy of the Register gratis, and such other copies at cost of publication as he may require.

Having heard that you are a breeder of Ayrshires, we send you this Circular with the form of pedigree to be made out for each animal, hoping that you may feel inclined to assist in getting out a work so much needed in this country, before the difficulties which are now great shall become insurmountable.

If you own imported animals, we would request you to name the herd in Scotland from which they were selected, and the time of importation, with the importer's name, and such other matters of interest as you may consider worthy of communicating.

To secure insertion, it will be necessary to trace the descent of animals from unquestionable Ayrshire stock on both sides.

Any person can become a member of this Association by forwarding two dollars and his name to the Secretary, H. A. DYER, Brooklyn, Conn.

FORM OF PEDIGREE.

Name,
Color and peculiar marking,
Calved,
Bred by _____ of _____
Owned by _____ of _____
Sire,
2d Sire,
3d Sire, &c., as far back as you can trace, or to an importation.
Dam,
2d Dam, &c., as above.
Give, if possible, the month and year of calving and of importation.

By following the above form you will aid the Committee in their labors very essentially.

Any information in regard to this subject will be cheerfully given upon addressing either of the Committee.

H. H. PETERS, Southboro', Mass.

THOS. E. HATCH, Keene, N. H.

LUKE SWEETSER, Amherst, Mass.

TO AVOID RUNNING OUT OF HAY.—Every farmer naturally has an aversion to running out of hay in spring before grass comes. No one desires to buy that which he ought to have raised, to keep his cattle from starving; and the only alternative, when short of fodder, namely, placing them on short allowance, is still worse. The farmer should know before he enters winter, whether he has enough feed for all his domestic animals.

To ascertain this, many resort to past experience, determining as nearly as they can, by guess—often a very vague kind of guessing. Those who have kept careful record of the number of tons consumed by a given head of cattle, or a certain number of horses, may determine more nearly. Where the cattle and horses have been weighed, and the aggregate weight of the herd thus determined, the estimate may be made with considerable accuracy. Some animals eat more than others for the same weight; a greater difference is occasioned by the severity or mildness of the weather, or the degree of shelter given from the cold; but as a general rule, a horse should have three per cent of his weight daily in food (hay or grain,) and cattle, which digest better, two and a half per cent. If the farmer has ascertained the number of tons of fodder he has deposited in his barn, he may now, if he understands arithmetic, determine pretty nearly, how his hay is likely to run, before grass time.

If he has no record of the amount of his hay, he may determine, very nearly, by measuring. First, by finding the length, breadth, and depth of the hay, he at once knows the number of cubic feet. Good solid timothy, the average of a bay 12 or 15 feet deep, will weigh a ton to about 500 cubic feet. If the hay is clover, it will require 600 or 650 for a ton; and if the hay is only 5 or 6 feet deep, add one-sixth more.

After determining the number of tons, and the whole weight of all his animals, he may at once know if he has enough. The result will, however, be considerably modified by causes which he has more or less at his control. Regularity in feeding will have its influence; good feeding-racks will prevent much

waste; and comfortable shelter will save many tons to every large herd. A skillful farmer informed us, that formerly when he had just erected a fine new barn, with ample shelter of the best kind, he had learned, as he thought, according to his usual estimate, that he would have to buy hay to complete the wintering of his animals; but on trying his new sheds and stables, so great was the saving actually effected, that he had several tons the next spring to spare.

STEAMING FOOD FOR CATTLE.

The subject of steaming food for stock seems to be engrossing the attention of farmers in many parts of the country, especially in those places where hay commands a high price; and the results of those experiments which have been tried in a thorough and systematic manner, would seem to prove that in point of profit, it was preferable to the ordinary modes of keeping; more especially is this the case in keeping milch cows. During the past fall I had the pleasure of forming the acquaintance of Mr. H. H. Peters of Southboro', Mass. This gentleman is largely engaged in producing milk for the Boston market, his herd of cattle consisting of about 60 thorough-bred Ayrshires, which is said to be the largest and finest herd of this breed of cattle in the United States. For two winters past, Mr. Peters has been experimenting in the different ways of keeping his stock through the winter, such as cutting, mixing and steaming the food for them. His apparatus for steaming food is thus described in the "Boston Cultivator":

"It consists of an upright boiler, such as is commonly used for working the ordinary elevating engines used on board ships and in stores. It is placed in one corner of the barn-cellar, and surrounded by fire-proof walls. The smoke-flue connects with a chimney on the outside, which is carried above the roofs of the nearest buildings. The fuel used is hard coal. There are two steam-vats, standing in two barns, which join at one corner, and form a right angle. The vats are on the floors where the cattle stand. Iron pipes carry the steam from the boiler to the vats. Besides these, gutta percha pipes are used to take the steam to the casks or tubs in which vegetables, oats, &c., are cooked. These pipes can also be put into the water, which is constantly running in and out reservoirs in the barns, and can be made to warm it to any degree that may be desired to make it agreeable or beneficial to the stock. The whole cost of the apparatus was \$300. About 400 pounds of fodder is usually steamed in each vat at one time, and the vats are filled once a day, the time of steaming being three hours. The two vats are filled with different substances. One, from which the working oxen and several steers, heifers, and dry cows are fed, is filled with cornstalks—the corn having been cut at the ground and shocked soon after it was *glazed*—and wheat chaff, barley chaff or beards, or oat straw, in about equal proportions, the cornstalks and straw having been passed through a horse-power cutter. The fodder is dampened in the vat, and wheat shorts mixed with it at the rate of 2 quarts to each animal to be fed. The cows

in milk are fed from the other vat, which is filled with good hay that has been run through a cutter, and the same quantity of shorts for a cow as mentioned for the other stock. When the vats are thus filled, the steam is let on. The steaming is done in the fore part of the day, and the cooked fodder is taken into large troughs which are placed on wheels, and are run along the floorway in front of the cows as they are fed. The fodder is left in the troughs several hours to cool, but it retains sufficient heat, even the coldest weather, to make it warm enough to be eaten by cattle. The cattle which have been fed wholly on corn fodder, straw and chaff, with the quantity of shorts mentioned, are in good order, although the oxen have been worked all the time. All the fodder is eaten; we could not see that the amount of a handful of cornstalks was left among the fifteen head in this way. The prepared food appears to be very palatable; it has an agreeable odour, nearly resembling newly baked Yankee brown bread, and the stock eat it readily. The milch cows are also in good order as could be expected, considering the length of time they have been in milk and the large quantity they give.

"The average cost of the food for all the cattle—about fifty head, exclusive of the calves of last season—is fifteen cents per head a day."

It is the opinion of Mr. Peters that there is considerable saving in rough fodder, such as corn-stalks, straw, chaff, &c., cooked in this way; at least cattle will eat much more of it, and do better in the meanwhile, than when fed in the ordinary way.

Mr. Peters estimates the cutting of the feed, cooking it, and serving it out to the cattle, to amount to about two cents a head per day, which, added to the cost of feed, would amount to seventeen cents a head per day for the fifty animals. From the consideration of the various experiments made and published on the subject of steaming food for cattle, it will be seen that the cost of keeping will depend in a measure on the cost of the apparatus used, the value of the materials used for feed, and the kind of cattle kept. The profits of this method of steaming over the ordinary way of feeding, must depend mainly on the cash value of the raw material fed.

C. T. ALFORD.

COLOURED WOOLLENS that incline to fade should be washed with beef's gall and warm water before they are put into soap suds. Coloured pantaloons look very well washed with beef's gall and fair warm water, and pressed on the wrong side while damp.

A MAMMOTH TURKEY.—There was a turkey cooked at Allerton's Hotel, at the cattle market in this city, on Christmas day, that weighed, several days after being killed, and when divested of all but tail and wing feathers, full 37 pounds. This is one pound heavier than the "Inauguration turkey," exhibited last Spring, at Barnum's Museum, and sent to President Lincoln by R. H. Avery, from his noted breed of bronzed black turkeys. A turkey that weighs 15 pounds is usually called "a big one."—*N. Y. Tribune.*

PRICES CURRENT.

GRAIN PER BUSHEL.

FOREIGN.	GRAIN PER BUSHEL.					
	Wheat. 60lbs	Barley. 48lbs	Oats. 34lbs	Corn. 56lbs	Rye. 56lbs	Peas. 60lbs
New-York	1.25	0.75	0.44	0.70	0.85	0.00
Chicago.....	0.75	0.00	0.18	0.23	0.26	0.00
Toronto.....	0.90	0.65	0.30	0.40	0.00	0.42
London.....	1.65	0.90	0.90	1.00	0.00	1.00
Paris.....	1.90	0.70	0.69	1.00	0.88	1.40
LOWER CANADA						
Montreal.....	1.00	0.48	0.27	0.46	0.60	0.61
Quebec.....	0.00	0.00	0.30	0.00	0.00	0.86
Three Rivers.....	1.10	0.45	0.26	0.90	0.75	0.75
Sorel.....	1.10	0.50	0.26	0.75	0.00	0.70
Ottawa.....	1.05	0.60	0.29	0.45	0.55	0.45
St. Hyacinthe.....	1.20	0.46	0.27	0.78	0.00	0.77
Sherbrooke.....	0.00	0.00	0.00	0.00	0.00	0.60
St. Jean.....	1.10	0.46	0.25	0.70	0.00	0.62

FLOUR.—Montreal Market.

Double extra.....	5.75	Superfine No. 2.....	4.45
Extra.....	5.40	Fine.....	3.75
Fancy.....	5.12	In bags.....112 lbs.	2.80
Superfine No. 1.....	4.75		

BRAN.—Different Markets.

	qtls.		qtls.
Montreal.....	0.70	Three Rivers.....	0.00
Quebec.....	0.80	Sorel.....	0.00
Ottawa.....	0.00	Sherbrooke.....	0.00
St. Hyacinthe.....	0.00	Iberville.....	0.00

BUCK WHEAT.—Different Markets.

	qtls.		qtls.
Montreal.....	0.55	Sorel.....	0.55
Quebec.....	0.00	St. Hyacinthe.....	0.55
Three Rivers.....	0.45	Sherbrooke.....	0.00
Ottawa.....	0.00	St. Jean.....	0.50

CANADIAN BEANS.—Different Markets.

Montreal.....	1.50	Sorel.....	1.10
Quebec.....	0.00	Ottawa.....	1.10
Three Rivers.....	0.00		

POTATOES.—Different Markets.

Montreal..... $\frac{1}{2}$ m'ot	0.70	Sorel..... $\frac{1}{2}$ m'ot	0.64
Quebec.....	0.34	St. Hyacinthe.....	0.40
Trois-Rivieres.....	0.61	Sherbrooke.....	0.00
Ottawa.....	0.60	St. Jean.....	0.40

GREEN CROPS SEEDS.—Different Markets.

Red Clover.....	per lb.	0.09
Vermont Clover.....	"	0.18
Dutch or White Clover.....	"	0.25
Timothy.....	45lbs. per bushel.	1.75
White Vetches.....	"	1.00
Black Vetches.....	"	1.00
Mangold's seed.....	"	0.25
Carrot's seed.....	"	0.45
Turnip seed.....	"	0.45

HAY AND STRAW.—Different Markets.

100 lbs. hay. straw.		100 lbs. hay. straw.			
Montreal.....	6.00	5.50	St. Hyacinthe.....	4.00	2.00
Quebec.....	7.00	6.00	Sorel.....	0.00	0.00
Three Rivers.....	5.00	3.00	Ottawa.....	6.00	4.00

MANURES.—Montreal Market.

Peruvian Guano.....	100 lbs.	3.80
American Guano.....	"	2.50
Animal black.....	"	1.50
Plaster.....	brl.	1.00

OIL-CAKES.—Montreal Market.

Linsced cake.....	cwt.	1.80
Linsced cake pulverised.....	"	2.00

MAPLE SUGAR.—Different Markets.

Quebec.....lb.	0.67	Montreal.....lb.	0.09
Three Rivers.....	0.07	Sorel.....	0.69

ANIMAL PRODUCTIONS.

MEATS.—Different Markets.

	Beef.		Veal.		Mutton.		Pork.
	lb.	gr.	gr.	gr.	lb.		
Montreal.....	0.09	1.00	0.75	0.10			
Quebec.....	0.09	0.00	0.00	0.09			
Three Rivers.....	0.06	0.00	0.55	0.11			
Sorel.....	0.09	0.45	0.45	0.10			
Ottawa.....	0.10	0.00	0.00	0.10			
St. Hyacinthe.....	0.06	0.43	0.00	0.11			
Sherbrooke.....	0.00	0.00	0.00	0.00			
St. Jean.....	0.00	0.00	0.00	0.10			

CATTLE.—Different Markets.

	Montreal.	Quebec.	Three Rivers.	Sorel.
Oxen per 100 lbs.....	6.00	0.00	5.50	7.40
Milch cows.....	30.00	0.00	18.00	18.00
Calves per head.....	5.00	0.00	0.00	0.00
Sheep.....	4.50	0.00	0.00	0.00
Lambs.....	2.75	0.00	0.00	0.00
Hogs per 100 lbs.....	4.00	1.00	7.00	8.00

BUTTER.—Montreal and Quebec Markets.

Fresh butter per lb.....	0.25	0.18
Salt butter.....	0.11	0.15

CHEESE.—Montreal and Quebec Markets.

Rafiné, per lb.....	0.15	0.00
American.....	0.07	9.00

HIDES.—Different Markets.

Montreal.....100 lbs.	5.50	Quebec.....100 lbs.	6.00
Three Riv's ".....	0.00	Sorel.....	0.00

HOUSES.—Montreal Market.

Saddle and hack horses.....	\$120.00
Farm horses.....	80.00
Old horses.....	25.00
Horses sold at auction.....	30.00

WOOLS.—Different Markets.

Montreal.....lb.	0.25	Quebec.....lb.	0.00
Three Rivers.....	0.00	Sorel.....	0.00

EGGS.—Different Markets.

Montreal.....	0.16	Ottawa.....	0.16
Quebec.....	0.14	Sherbrooke.....	0.15
Sorel.....	0.14	St. Hyacinthe.....	0.15
Three Rivers.....	0.15	St. Jean.....	0.12

FISH.—Montreal Market.

The string of 4 lbs.		The pair.	
Carps.....	0.12	Eels.....	0.25
Perch.....	0.20	White fish.....	0.25
Bass.....	0.20	Pike.....	0.25
Dores.....	0.33	Sturgeon.....	0.22

POULTRY.—Montreal and Quebec Markets.

Ducks.....	The pair.	0.55	0.50	Pigeons.....	The pair.	0.17	0.00
Geese.....		0.85	1.00	Fowls.....		0.50	0.35
Turkeys.....		1.80	1.75	Chickens.....		0.90	0.00

GAME.—Montreal and Quebec Markets.

Ducks.....	The pair.	0.30	0.00	Wild pigeons.....	The dozen.	0.75	0.00
Plover.....		0.29	0.00		The pair.		
Partridges.....		0.55	0.50	Hares.....		0.12	0.12

FRUIT.—Montreal Market.

The barrel.		The barrel.	
Apples fameuses.....	3.00	Pears common.....	2.00
Apples grises.....	6.00	Plums per bushel.....	4.00
Apples American.....	3.00	Grapes per lb.....	0.30
Pears bons cretiens.....	12.00	Melons the piece.....	0.00