

Technical and Bibliographic Notes / Notes techniques et bibliographiques

The Institute has attempted to obtain the best original copy available for filming. Features of this copy which may be bibliographically unique, which may alter any of the images in the reproduction, or which may significantly change the usual method of filming, are checked below.

L'Institut a microfilmé le meilleur exemplaire qu'il lui a été possible de se procurer. Les détails de cet exemplaire qui sont peut-être uniques du point de vue bibliographique, qui peuvent modifier une image reproduite, ou qui peuvent exiger une modification dans la méthode normale de filmage sont indiqués ci-dessous.

Coloured covers/  
Couverture de couleur

Coloured pages/  
Pages de couleur

Covers damaged/  
Couverture endommagée

Pages damaged/  
Pages endommagées

Covers restored and/or laminated/  
Couverture restaurée et/ou pelliculée

Pages restored and/or laminated/  
Pages restaurées et/ou pelliculées

Cover title missing/  
Le titre de couverture manque

Pages discoloured, stained or foxed/  
Pages décolorées, tachetées ou piquées

Coloured maps/  
Cartes géographiques en couleur

Pages detached/  
Pages détachées

Coloured ink (i.e. other than blue or black)/  
Encre de couleur (i.e. autre que bleue ou noire)

Showthrough/  
Transparence

Coloured plates and/or illustrations/  
Planches et/ou illustrations en couleur

Quality of print varies/  
Qualité inégale de l'impression

Bound with other material/  
Relié avec d'autres documents

Continuous pagination/  
Pagination continue

Tight binding may cause shadows or distortion along interior margin/  
La reliure serrée peut causer de l'ombre ou de la distorsion le long de la marge intérieure

Includes index(es)/  
Comprend un (des) index

Title on header taken from:/  
Le titre de l'en-tête provient:

Blank leaves added during restoration may appear within the text. Whenever possible, these have been omitted from filming/  
Il se peut que certaines pages blanches ajoutées lors d'une restauration apparaissent dans le texte, mais, lorsque cela était possible, ces pages n'ont pas été filmées.

Title page of issue/  
Page de titre de la livraison

Caption of issue/  
Titre de départ de la livraison

Masthead/  
Générique (périodiques) de la livraison

Additional comments:/  
Commentaires supplémentaires:

This item is filmed at the reduction ratio checked below/  
Ce document est filmé au taux de réduction indiqué ci-dessous.

10X	12X	14X	16X	18X	20X	22X	24X	26X	28X	30X	32X
								<input checked="" type="checkbox"/>			



Published under direction of the Board of Agriculture of Nova Scotia.

VOL. I.

HALIFAX, N. S., MAY, 1866.

No. 15.

CONTENTS:

	PAGE.		PAGE.
Agricultural Education, by the Count de Pouvins.....	129	Enquiry as to Fish offals.....	134
Operations for the present month.....	131	Importations of Sheep from P. E. Island.....	134
The Cattle Plague in England—New order in Council—Liability of Sheep to Rinderpest.....	131	AGRICULTURAL SOCIETIES—	
Nitro Superphosphate Manure.....	133	North Shore St. Ann's Agricultural Society.....	134
COMMUNICATIONS—		Bridgewater Agricultural Society.....	134
A new plan of making Superphosphate of Lime, by G. T. B.....	133	Baddeck Agricultural Society.....	134
Fruit Trees, by Bedford.....	133	Bridgetown Agricultural Society.....	135
Durham Bull for sale.....	134	Nine Mile River Agricultural Society.....	135
Wanted—Bulls, &c., for Baddeck.....	134	ARTS AND MANUFACTURES—	
		Crookes's Improvements in Gold Amalgamation.....	135

AGRICULTURAL EDUCATION.

BY THE COUNT DE POUVINS.

A report presented to the General Meeting of Agricultural Societies, held at Monbrison, on the 13th February, 1866. Translated from the "Journal d'Agriculture Pratique."

It seems to me unnecessary to point out the advantages of general education, and still less those of professional education. Instead of inquiring whether agricultural education is a good thing, it is more to the purpose to ascertain in what it consists, and by what means, in the existing state of things, it might be encouraged or hindered, and by what course of action we can supply what is deficient and correct what is defective.

In the first place, it should be recognised that agricultural education may have two distinct objects, affecting two classes. It may attract capital to farming by showing those engaged in commerce that the land offers a field of profitable investment; or it can lend its aid in the instruction of the class exclusively devoted to farming.

The first of these objects does not now engage our attention. It requires for its

accomplishment larger means than we have at our disposal; besides which it does not appeal to our thought and feeling. We want to improve our farms, but we want still more to improve our farmers.

Such progress as improves our cultivation, without enlarging the intelligence and promoting the well-being of our cultivators, does not satisfy us. Our ambition is to improve in the cultivation of the land by securing the improvement of those who cultivate it; our immediate object is to neglect nothing which, while it is for the good of the country, at the same time improves the condition of our countrymen. Is this result possible? We are convinced that it is by means of establishing and encouraging a system of education specially intended for farmers.

If we wish to instruct anybody we must ascertain: 1st, what they already know; 2d, what it will be useful for them to learn. It is often said that farmers know nothing! This may be correct enough as regards recent progress in the art of agriculture, but is it so as regards agriculture as a whole? I think not, and for these reasons: All experimental science consists of theory, which is truth demonstrated by reasoning; and of practice, which is truth established by experience.

I readily admit the ignorance of farmers in everything belonging to the theory of agriculture, but it is impossible to deny their real knowledge of all that relates to its practice.

There are two distinct classes of agriculturists—theorists and practical men. The former, starting from logical principles, condemn that practice with which they are unacquainted; the latter, attached to old customs, go on with their traditional practice, without intelligence.—Which of the two has the most agricultural knowledge? The innovator has received a better education; he possesses varied information; he might have been a writer, or a lawyer, or a merchant instead of a farmer. In an agricultural point of view he has obtained, by intelligent enquiry, many special endowments; he brings to an undertaking the courage and the will that shape their own ends, instead of a mere spirit of resignation and yielding to necessity. He is a man earnest and determined, and instructed in many matters apart from the art that he attempts to practice: but what does he know of practical farming? Too often, very little indeed.

The working farmer, on the contrary, is ignorant of everything relating to gene-

ral knowledge—history, geography, law, mathematics, and perhaps even reading and writing; but he has an intimate knowledge of practical cultivation. He is initiated into the mysteries of the soil on which he was born; he is acquainted with all the specialities of cultivation that vary in every locality; he possesses an agricultural instinct, a love of its routine, and that patience without which the labour and long waiting of life in the fields would be impossible. In a word, he may be said to have acquired nothing, but he is acquainted with that which cannot be acquired. A stranger to everything that constitutes a mind of common intelligence he is nevertheless strong in real agricultural knowledge, a knowledge truly invaluable, without which cultivation would be impossible, and which cannot be imparted to those who have it not.

Nothing is more desirable than the education of the working farmer; as long as this result is not attained, whatever amount of capital may be invested in farming, general improvement will remain in abeyance, because agriculture cannot entirely prosper except in the hands of those who are entirely farmers.

The theorist may conduct a farm with intelligence, courage, disinterestedness, but he will not devote his life to it; whether he succeeds or fails the day will come when he will abandon his undertaking. But to make real progress in anything we must not merely give up a part of our life to it, we must make it our entire life, and it is only a farmer who can give his entire life to farming.

To give the farmer an education which will enable him to rise to the theory without losing the advantages of the practice of agriculture—such is the problem we have to solve. Education is indispensable, but what sort of education? In the first place we must teach the man who drives a plough or digs the ground that it is thought that contrived the plough and can improve the land; we must impress upon him that all real progress proceeds from mind; that the hands are but instruments of the will; that the art of agriculture, like all other arts, is destined to see intellectual labour rule over physical power; and that material advantages are more dependent on reason and contrivance than on unintelligent labour.

We think this principle ought to be developed progressively, without seeking to overturn routine practice, to do which would only increase the danger arising from an incomplete theory, advanced *a priori* by men incapable of forming a judgment. We must be contented with gradual advancement, in order that the learner may appreciate the soundness of the ideas that he acquires, and that every new mental acquisition may widen, without contradicting, the circle of his thoughts.

The mind must be opened before it can be filled, and therefore a general elementary education ought to be the prelude of that special instruction which only those who are capable of understanding and appreciating its advantages will take the trouble to pick up.

It is in this way that agricultural education ought to be offered to the farmer. Its aim should be to infuse something of theory into practice. It can only attain that object by *progressive teaching*. It is of no use attempting to indoctrinate the sons of toil with excessively advanced notions; we must build on the foundation of what they already know, and enable them to form fixed ideas by giving them an education preliminary and simple.

What are the means of attaining this object? They are at present agricultural schools, but they are too often useless as a means of imparting to the farmer the instruction that he needs.

There are two classes of educational establishments appertaining to, or promoted by the Government. The farm-schools, such at least as we are acquainted with, receive the agricultural pupil gratuitously, and engage to give him a certain instruction in exchange for manual labor. When a preliminary education has been already secured, the district schools undertake the task of initiating the pupil in systematic farming.

Here is just that gradation of studies which we pointed out as being indispensable. The instruction of the farm-school gratuitous and unlimited, except by the capabilities of the master and his pupil, represent the first step in education; that of the regional farm, wider and more advanced, constitutes the second step, after which the pupil ought to be able to manage an extensive business, whether for himself or another.

Here then is a complete organization, intelligent and long established; but it has evidently not produced the results that might have been expected. No doubt that must be attributed, in some measure, to the negligence of the farmers for whose instruction these establishments were founded. That, however, is not the only cause. There are, without doubt, obvious defects in the organization of these establishments.

The youths who engage themselves in the service of the farm school are servants rather than scholars. This is the natural consequence of the system of manual labour by which these schools are supported; but the condition of servitude, however natural and necessary it may be, is open to grave objections. Clearly it is the son of the rich farmer who is the most desirous of instruction, and the most impressed with its necessity. He will only seek instruction when he is of age to appreciate it, that is, when he approaches

manhood. Here, then, is a young man, who, just at the age when he is capable of giving orders, is expected to subject himself; and just when he might undertake the management of the labourers on his father's farm, he is expected himself to become a labourer under the orders of a stranger. It must be confessed this is a prospect not very promising.

A father does not willingly consent to lose his son for several years, just at the age when he might be useful. So, as the son does not wish it, the father troubles himself no more about the matter. Consequently well-to-do young men remain at home under the paternal roof, and the farm-school becomes filled with poor children, who, on quitting it, not having sufficient capital to become farmers, and not being willing to place themselves as servants under the orders of a master inferior to them in education, forsake farming, and try to secure in the towns some means of turning to account the knowledge they have acquired.

With regard to regional schools, the difficulties of gaining admission are considerable. It is necessary to pass an examination requiring an amount of instruction that cannot be found among farmers. Besides this, the scholar at the commencement, and probably during the whole period of his remaining at the school, will have to pay a sum quite large enough, and which is exacted with the same strictness as the taxes. And the regional schools are so few in number that they could only offer a means of education altogether exceptional. An independent and intelligent farmer would not dream of placing his son at a regional school; nobody of his acquaintance would be likely either to have come from or to wish to enter one of them. Three farms in all France cannot educate the agricultural population. From their fewness it happens that those persons who might be able to enter them have no knowledge of them.

Without going into details, the neighbourhood of Saulsaic furnishes an unanswerable argument against the regional schools. What progress has that neighbourhood made in agriculture? Where are its pupils? If a proprietor in Forez, a district essentially agricultural, and where rents are low, wishes to farm his domain, no Saulsaic scholar is likely to offer himself as his manager. This fact may be singular, but it is unanswerable; it suffices, without other proofs, to show that the actual education, either defective or insufficient, does not answer the end, does not promote the education of the agricultural classes; and, consequently, if it be desired to attain the result, other means must be sought.

There are several ways of doing this.

(To be continued.)

**OPERATIONS FOR THE PRESENT MONTH.**

**FLOWER GARDEN AND PLEASURE GROUND.**

Prepare ground for planting. Soil loosened two feet deep dries out less in summer than soil one foot deep. Rich soil grows a tree larger in one year than a poor soil will in three. Under-drained soil is cooler in summer than soil not under-drained. The feeding roots of trees come near the surface; therefore plant no deeper than necessary to keep the tree in the soil. If there be danger of its blowing over, stake it, but do not plant deep. One stake set out at an angle is as good as two set perpendicular. Straw or mat set round the tree keeps the bark from rubbing. Large stones placed around a transplanted tree are often better than a stake. They keep the soil moist, admit the air, and encourage surface roots. Shorten the shoots at transplanting. This induces growth, and growth produces roots; and with new roots your tree is safe for another season. Unpruned trees produce leaves, but little growth, and less new roots.

**GREENHOUSE PLANTS.**

To turn all the plants out in "the first week in May," without reference to any contingency, should not be done. All plants should be early inured to the open air, the ventilators and sashes should be kept open as much as possible, yet by degrees. Sudden changes of temperature engenders mildew, and a species of consumption fatal to many plants. The hardiest things should be placed out first, in a somewhat shaded spot, and if possible on a bottom of coal ashes, to keep out worms. Azaleas and Rhododendrons, Daphnes and Camellias may go out when their growth is finished; no spot will be too shaded, provided they can get an abundance of air all around. If plants are well rooted, and have not been repotted, they should be so before setting out, as they will otherwise suffer at times for want of water. It is objectionable to turn out everything, leaving the greenhouse for the season like a lumber loft; such as will stay in advantageously should be left, and the idea is becoming prevalent that Cape and hard wooded things are better in than out.

**FRUIT GARDEN.**

Grafting can be continued till the buds of the trees are nearly pushed into leaf. Sometimes from a pressure of other work some valuable scions have been left on hand too late to work. It may be interesting to know, that if such scions are put into the ground much the same as if they were cuttings, they will keep good for six weeks or two months, by which time the bark will run too freely, when the scions may be treated as buds, and will succeed just as well as buds taken

from young summer shoots. In planting dwarf pears, it is very important to have them on a spot that has a moist subsoil, either naturally or made so by sub-soiling or mixing some material with the soil that will give out moisture in dry weather. Trees already planted on a dry, gravelly subsoil, should have a circle dug out two feet deep and two or three feet from the tree. This should be filled up with well enriched soil. If the dwarf pear does not grow freely, it is a sign that something is wrong. It should at once be severely pruned, so as to aid in producing a vigorous growth. Strawberry beds are very frequently made at this season, and though they will not bear fruit the same year, are much more certain to grow, and will produce a much better crop next year than when left till next August. Though it is a very common recommendation, we do not value a highly manured soil. It should be well trenched or subsoiled, this we consider of great value. In rich soils there is too much danger of having more leaves than fruit.

[The above selections are from the "Gardener's Monthly," one of the best gardening publications in the United States, of which Mr. Thomas Leahy is agent in Halifax. Price \$2 per annum.]

**THE CATTLE PLAGUE IN ENGLAND.**

The following returns were issued on the 24th March:

These returns do not profess to give the total number of cases which have occurred in Great Britain during the two weeks referred to, but only those which have been ascertained from information received at the office from inspectors. Columns 1 only record the cases reported as having commenced during the weeks indicated by the headings; "back" cases being added to columns 2.

Census Divisions.	1. No. attacked		2. Result from commencement of disease.				
	Week ending March 10.	Week ending March 17.	Attacked.	Killed.	Died.	Recovered.	Unaffected.
Metrop. ....	14	34	1677	3262	3408	333	584
S. Eastern .....	13	12	5018	1881	2785	449	210
S. Midland .....	616	584	15,747	3983	3844	1508	411
Eastern Co. ....	313	233	3958	3947	4764	745	402
S. Western .....	35	35	1634	503	761	108	72
W. Midland .....	405	831	10,476	2444	6109	1187	736
N. Midland .....	910	873	11,817	4169	5981	1048	619
N. Western .....	2023	1604	51,240	6957	33,870	5298	2223
Yorkshire .....	811	999	30,673	4137	18,067	5657	2812
Northern Co. ....	523	547	6555	3021	2478	993	128
Monmouth & Wales .....	96	160	7493	247	6852	1026	358
Scotland .....	766	440	45,262	5256	26,825	10,365	2861
	6,518.	6,261	203,380	30,487	120,834	28,656	14,373

**NEW ORDER IN COUNCIL.**

The Lords of the Privy Council, in exercise of the powers given under Acts 11th and 12th of Vict., cap. 107, have issued an order, applicable to England and Wales only:—

Part I. provides that every local authority shall from time to time appoint such inspectors or other officers as it thinks necessary to carry into effect the provisions of the Order within its district.

Part II. provides that every person having diseased animals shall forthwith give notice to the officer appointed to receive such notices, and, if there is no officer appointed, to a police constable, and shall, as far as practicable, keep such animals separate from animals not diseased. No diseased animal and no animal which has, within 28 days, been in the same shed or stable, shall be removed alive from the premises where such animal may be, except with a licence from the local authority. No such animals shall be placed in any field or other place insufficiently fenced, be exposed for public sale, be driven along any highway, or be sent or carried by any railway, &c.— Where any offence is committed with respect to any animal under the preceding regulations, the local authority may cause such animal to be slaughtered and buried. All diseased animals shall be buried as soon as practicable in some proper place, with their skins slashed in such a manner as to prevent their being made of any use, and with a sufficient quantity of quicklime or other disinfectant, and shall be covered with at least 5 feet of earth, or otherwise disposed of as directed by the local authority with approval of the Privy Council. No person shall dig up any diseased animal, or part of a diseased animal. Every local authority shall within its district, at its own expense, cause the premises in which diseased animals have been to be thoroughly cleansed and disinfected. No fresh animal shall be admitted into any yard or premises in which a diseased animal has been kept until the expiration of 30 days after the cleansing and disinfecting of such premises. The dung, &c., of a diseased animal shall be destroyed, or, with the sanction of the local authority, shall be disinfected and dealt with to the satisfaction of the inspector. The dung, &c., of a diseased animal shall not be removed from the premises where such animal has been, except for the purpose of being destroyed or disinfected. Every local authority shall direct the disinfecting of clothes of, and the use of due precautions by inspectors and other officers brought into contact with diseased animals. Any local authority may, by order made at any time after the passing of this Order, declare any place in which the disease exists to be an "infected place," out of which no animal shall be moved. No

hides, skins, horns, hoofs, or ossal of animals; no carcase of, or undressed meat that has formed part of any bull, bullock, cow, ox, heifer, or calf; no dung of animals, and no hay, straw, litter, or other articles forming the food of animals, or used for or about animals, shall be removed without the license of some officer of the local authority in writing, and such licence shall not authorize the removal of any articles beyond the district of the local authority. This regulation shall not apply to any animal or article carried by railway. No market, sale, &c., of cattle shall be held until the first day of June, 1866; except of cattle not within an infected place, free from disease, and in the possession of the owner or occupier not less than 28 days immediately previous to the sale, which may be sold on the premises. Markets may be held, with the license of the Privy Council, for the sale of cattle intended for immediate slaughter, under certain provisions. Until the 1st of June, 1866, cattle brought by sea from any place abroad shall be marked by clipping the hair off the end of the tail, and shall not be removed alive from such town or place, except by sea. No cattle brought by sea from any place in the United Kingdom into any town or place in England shall be removed from such town or place alive, without a certificate from the local authority that such cattle have been examined and are free from disease. No cattle shall be moved from the metropolis; but persons occupying a farm situate partly within and partly without its boundary, under regulations specified, may remove cattle under licence for seven days. No cattle shall be moved along any highway, thoroughfare, or public place within the metropolis, except for a distance not exceeding 500 yards from part to part of the same farm, or to water, without a licence.

The following are General Regulations:—No cattle shall be moved on any highway between sunset and sunrise, except within a city or town. No cattle shall be moved by or upon any railway, canal, navigation, river or highway, or by any vessel coastwise, without a licence, except for a distance not exceeding 500 yards from one part of the same farm to the other.

Licences shall be of two descriptions, —a licence for cattle intended for immediate slaughter, called a fat stock licence; a licence for other cattle, called a store stock licence.

No cattle shall be moved out of the district of the local authority in which they are without a licence in one of the forms aforesaid. Cattle brought by land from Scotland into England may be moved in England with the same licenses that in Scotland authorise their removal from the district of one local authority to another.

No hide, skin, horn, or hoof of animals

shall be moved by highway, railway, &c., unless effectually covered. Hides, &c., imported into the United Kingdom from India, Australia, South Africa or America, and those that have been effectually limed for manufacturing purposes, are not affected by this order. A local authority may make such orders as it thinks expedient for preventing the propagation of disease by dogs, and may order stray dogs to be destroyed. Every railway or other company or person carrying animals for hire, shall, on every occasion after the animal has been taken out of any pen, truck, or boat, cleanse and disinfect it.

Powers are granted to inspectors and other officers authorised by special order in writing of the local authorities, to enter fields, stables, suspected premises, &c.

Officers or constables are authorised to inspect trunks, &c., and, on reasonable grounds of suspicion to apprehend without warrant those in charge; also to stop any animal moved in contravention of the Order, and to bring them in charge before the justices in manner set forth, who may order the animals to be destroyed.

Every person guilty of an offence against the Order shall for each offence incur a penalty not exceeding £20.

#### LIABILITY OF SHEEP TO RINDERPEST.

The following is an abridgment of the letter addressed by Dr. Smart to the Lord Provost of Edinburgh on the subject of rinderpest preventives and the liability of sheep to the disease:—

In my Third Interim Report on "The Means of Preventing the Cattle Plague," I ventured to direct special attention to the great importance of recommending such measures as should contemplate rather the prevention than the cure of the disease. In the report referred to I recommend the use, in regulated doses, of the sulphite of soda as best calculated to act as a preventive. I further supported this view by stating that Dr. Polli, of Milan, had proved, by careful experiment that the compounds of sulphurous acid with alkalies and alkaline earths possess in an eminent degree the property of arresting decomposition and fermentation in both living and dead animal tissues.—This recommendation has been largely and generally carried into operation over the country; the statement of general principles in my report, upon which I base the advocacy of the preventive action of the sulphites, has proved not unfruitful of many kindred suggestions. Sulphur, sulphurous and sulphuric acids, and the hypo-sulphite of soda, are amongst the chief re-agents which have thus sprung into notice, and been widely tried. The two substances which are, however, undoubtedly of greatest value as re-agents of this class, are the sulphite and hypo-sulphite of soda—bodies which differ only in constitution in the slight difference of

sulphuric acid element composing them.

[Reference is then made to the cases of Mr. J. T. Noakes, of Brockley Hall, Lewisham; Mr. T. Lyon Thurlow, of Baynards Park, Horsham; the Rev. Mr. Smith, rector of Dry Drayton, near Cambridge, and others.]

Mr. Charles Townshend, the treasurer for the county of Chester, was among the very first to adopt Dr. Andrew Smart's "preventive" of sulphite of soda. He has perseveringly used it since last October in his own dairy at Gresford, and has urged it upon all his neighbours. He gives 3 ounces one day and 1½ ounce on the alternate day in water to his cows in the shippin, and in tasty mashies to his young stock in the paddocks. Whilst his neighbours' stock all around him have been swept off, he has not lost a single animal to this day! True, he is most indefatigable in insisting upon his people using instant disinfectants, and, in short, in keeping his shippin as clean and sweet as his dining room.

Mr. William Atkinson of Ashton Hayes, a former high sheriff of Cheshire, assured us a fortnight ago that when his sulphite and hypo-sulphite treatment was first commenced he consulted a clever and disinterested physician, who told him, if there were any preventive in the world, that was the likeliest. He urged it months ago on all his tenants. All who adopted and persevered with it have saved their cows; all who were incredulous and obstinate have, as a general rule, lost their cows.

Generally we may add that, from the most scientific agriculturists in Cheshire down to the least scientific Cheshire farmers, there is a growing conviction that "prevention," rather than "cure," is now their main chance; and that, encouraged by its signal success in the instance of Mr. J. T. Noakes, and of many others alluded to, those who have any cattle left (and two-thirds of the cattle are still left in Cheshire) are wisely adopting this sulphite and hypo-sulphite "preventive."

A gentleman in Scotland, communicating the results of his experience of the sulphite to the *North British Agriculturist* (November 22), expresses himself in very similar terms, thus—"I have had a number of cases on a farm which I occupy. On seeing Dr. Smart's recommendation and prescription for dosing all the unaffected animals with sulphite of soda as a disinfectant, I immediately set to work and had each given its quantum—viz.: 1½ oz. in a half-bottle of water almost daily. I beg now to state that all the animals dosed previous to being seized have recovered under the treatment of the inspector, while those who were not dosed all died."

I shall only at present, in relation to this topic, ask leave to add one extract more. It is from the *Liverpool Mail* (March 17th), from an article headed "Rinderpest Preventives." The writer

after quoting and commenting upon the Edinburgh reports, expresses his estimate of their utility by stating, in conclusion, that "experience proves that the third of these reports by Andrew Smart, M.D., of Edinburgh, has been the most widely useful as suggesting preventives for the Rinderpest which proceed on known scientific principles, and which have proved far away the most successful of any in this country."

Before closing this letter, I shall ask your lordship's permission to express once more my opinion upon one of the most vital and important questions of the day—viz., Do sheep take rinderpest? In a report which I had the honour to submit to your lordship and colleagues, dated the 11th December, and subsequently published, I stated that I had completed a careful experiment, undertaken for the purpose of deciding that very important question, and that I had succeeded in inducing the disease in a perfect form in a sheep which had during a lengthened period been kept in contiguity with affected cattle. Although there were at this time many conflicting opinions and apprehensions as to the ovine susceptibility to the poison of rinderpest, this report, so far as I am aware, gave the first public announcement of the fact, deduced from conclusive experiment, that sheep were undoubtedly liable to the disease. And had the distinct note of warning which I then sounded been heeded, and the simple precautions attended to which I had recommended, I venture to think we should not now have had the plague amongst our flocks, and anxious owners of stock would have been spared the perplexity of diverse opinions. I would again repeat the opinion which I formerly expressed. There need be no great apprehension as to the disease passing over the country as an epizootic among the sheep, as it has been with cattle. With the exercise of ordinary precaution such a catastrophe will not occur, although isolated cases and occasional little outbreaks are inevitable during the continuance of the disease in the country.

Let it be remembered that ovine susceptibility to the virus of true cattle plague is greatly less than pertains to the oxen tribe, and sheep succumb to the disease only after inoculation, or in consequence of lengthened exposure to the contagion in a more than usually concentrated form.—Andrew Smart, M.D., in *Agricultural Gazette*.

**NITRO SUPERPHOSPHATE MANURE.**

A considerable quantity of this manure has lately been sold in Halifax. The sample analyzed by W. T. Rickards, F. C. S., for J. D. Nash & Co., was found to contain—

Moisture - - - - -	16.450
Soluble Organic Matter - - - - -	10.765
Insoluble Organic do - - - - -	23.112
Alkaline Sulphate and Chloride - - - - -	2.226
Soluble Phosphate Lime - - - - -	19.580
Insoluble do. do. - - - - -	20.630
Sulphate Lime - - - - -	6.850
Silica - - - - -	150
Loss - - - - -	242
	<hr/>
	100,000

Nitrogen 5.62 per cent. Ammonia 6.80 per cent.

"In using this Manure it should be first well mixed with about ten times its own weight of dry soil or sand, so as to ensure a uniform distribution over the surface. From 200 to 500 lbs. per acre, according to previous state of the ground will be required. If once used no farmer will ever be without it if he can procure it, as the large increase of crop is such that no other can equal it."

**Communications.**

**A NEW PLAN OF MAKING SUPERPHOSPHATE OF LIME.**

Mr. EDITOR:—I have read many plans for making superphosphate at home and have tried several, but my own is so much superior to any other that I send the details for you to publish if you consider it worthy.

Firstly—pound the bones to a coarse powder with a hammer, then put them into a boiler with a little water and steam them for half an hour, remove the bones to a half barrel or other convenient vessel. If the sulphuric acid is of full strength take of it half the weight of the dry bones you are about to dissolve, and add to it one third of its bulk of water, pour this mixture on the bones, and in about a week, with daily stirring, they will be reduced to a paste. I then put all the hen manure I have on an earthen floor, and pour on it the dissolved bones reduced with its own bulk of water, and mix the whole thoroughly, then add a barrel of charcoal dust or dry peat to every twenty pounds of bones, again mix, make the lot into a snug heap; in a few days, work it over and again let it heat, repeating the working and heating till the whole becomes a dry powder that you can sow broadcast, or feed from a drill machine.

Last year with the bones from the house and the manure from twelve hens, I made eight barrels of superphosphate that proved itself superior to Coe's where ever tried, particularly in the garden and on corn.

The cost was almost nominal:—

Sulphuric acid, 20 lbs. - - - - -	\$1 00
Labour and horses, say - - - - -	1 00
Half barrel spoiled - - - - -	0 50
	<hr/>
	\$2 50

8 bbls. superphosphate, 150 lbs. each—1200 lbs., at Coe's price, 2 cts. per lb. - - - - - \$24 00

This plan is the result of several experiments, and I can confidently recommend it to your readers. I am, &c.,

G. T. B. Granville, April 14th, 1866.

**FRUIT TREES.**

Mr. EDITOR: I am pleased to see that the Journal is about to be enlarged, and I trust therefore that you will be able to spare a corner to an occasional contribution.

I happened to overhear part of a conversation between two gentlemen in the Truro train, relative to their young orchards and fruit trees, and I therefore take the liberty of offering you a few lines on planting and rearing fruit trees.

The gentlemen above alluded to, both remarked that their trees rotted at the root; and they both seemed to think that the soil the trees were planted in was the cause of it. I think you will agree with me that this conclusion was more than likely erroneous.

That a healthy tree properly placed in the ground should come to grief through the roots rotting, I can scarcely understand, for an apple tree will live in almost any soil, though it may not thrive.

If a tree dies after being properly set out, the cause of death may, and most likely does come through the roots, but the head dies first and then perhaps the roots may rot, but I believe it oftener happens that after the head withers and dies, the roots, or some of them, recover and send out a wilderness of water shoots.

I am more inclined to think these gentlemen lost their trees through the instrumentality of the "borer," the result of whose operations will certainly convey to some the idea of a rotten root. I would therefore suggest to those in the country who may have trees that appear to be rotting at the root, to draw the earth carefully away from the base of each tree, and by scraping and washing the bark for a few inches above and below where the soil covered it, search out the cause of this appearance of rot.

The workings of the "borer" can easily be discovered, and the grubs either picked out, or effectually killed by thrusting a small twig into the holes they have bored. Then cover the base of the tree up again with a little lime and charcoal, and it will be more than likely to recover.

I cannot think there is anything in the nature of the soil about Truro that will prevent fruit trees doing well if properly set out and attended to. The subsoil there may perhaps not be congenial to fruit trees, and if such is the case, it should be taken out to a sufficient depth and width, and the good earth from the surface, together with a few broken bones put into its place before the tree is planted. The subsoil or some of it may then be used or spread on the surface without detriment to the tree.

Many people injure their young trees by acting under the idea that each tree should be well manured at the time of planting, whereas manure should not be applied to the roots of any fruit trees the first year of their being set out. Let them first take root in the soil they are placed in (as above directed) and after that—though manuring may be easily overdone while the trees are still young—yet as a rule, by cultivating some crop around, and close up to them, which requires manure you are sure to help them.

A fruit tree will of itself, almost tell you when it lacks food or has too much of it. In the one case the stunted tree will more than likely have a profusion of blossom with fruit of very small size, hard and unpalatable, and the new wood will be very short, while the gorged tree will go almost entirely to wood. The happy medium is the thing.

The best time to feed fruit liberally, is after the fruit is fairly set, and until it has obtained its full growth, by discreet liquid manuring during this period, the fruit may be increased to more than double its ordinary size.

We who have not an apple soil, like that of Horton, or Cornwallis, &c., will have to be very careful how we set our trees out, and how we work them.

Keep the borer and bark-louse from the bark. Prune the head carefully and systematically, keep the roots well drained so that no sour or stagnant water shall surround and poison them; keep the grass from matting over them, give them room enough, food enough, and fair play, and I believe all who plant an orchard will if they live, eat of the fruit thereof.

BEDFORD.

**YOUNG DURHAM BULL FOR SALE.**—The Subscriber has for sale a Durham Bull CALF which, for superior breeding cannot be equalled in the Province. He was sired by the full bred Durham Bull "Sir Gaspard," now owned by the Cornwallis Agri. Society. Dam by "Jock the Laird the Fourth," Ayrshire, imported from Mr. Gray of N.B. G. Dam by a thorough-bred Durham. G. G. D. by Young Favourite, imported from London by the late G. R. Young, acting for the Central Board of Agriculture for Nova Scotia. The

said Bull was calved 7th July, 1865. Girth 4 ft. 10 in., length 5 ft. 6 in., weight 500 lbs. Price \$50, if applied for immediately.

C. C. HAMILTON, M.P.P.  
Cornwallis, April, 1866.

**WANTED**—For the Baddeck Agricultural Society, on or about the first of June next, one Durham or Ayrshire BULL, one or two years old. Also, two young Berkshire BOAR PIGS. Persons having the same for sale will please communicate with the subscriber.

R. A. JONES, Secretary.  
Baddeck, C.B., March 14, 1866.

#### PREPARATION OF MANURE FROM FISH OFFALS—ROOT GRAFTING.

Angus McKay, Esq., North Shore, St. Ann's, requests to be informed through the *Agricultural Journal*, "what is the simplest method of decomposing fish offals, by means of lime;" also, "the best method of Root Grafting."

#### IMPORTATIONS OF SHEEP FROM P. E. ISLAND.

Our correspondence with the Secretaries of Societies in the Eastern part of the Province and Cape Breton shows that there is there a general belief among farmers that any number of sheep of pure breed may be obtained from Prince Edward Island. Persons who are well acquainted with agricultural affairs on the Island have expressed a very different opinion. It is said that of late years the sheep have been allowed to run out, as it was only last summer that a small importation was made from England with a view to redeem the character of the Island flocks. Now, it would serve a useful purpose if some of those gentlemen connected with societies, who imported rams from the Island last year, would publish through our columns an explicit account of the animals obtained, the particular localities in which and farmers from whom they were obtained, the prices paid, and the opinions of Nova Scotian farmers as to their merits.

#### Agricultural Societies.

##### NORTH SHORE ST. ANN'S AGRICULTURAL SOCIETY.

I beg leave to inform you that immediately on receipt of yours a meeting was held in the school house here for the purpose of acquainting the members with their portion of the Provincial Grant, and also for the purpose of adopting the best means of importing a few rams of an improved breed from P. E. Island.—In reference to the latter a brief discus-

sion took place, when it was unanimously resolved, that as it was so late in the season, the funds of the society remain in the Treasurer's hands, until next June, when the society would send one of the members to P. E. Island purposely for such. The sum of forty dollars was subscribed towards the funds for the present year. The society then re-appointed their former office-bearers, after which the secretary was requested by the society to thank the Central Board through you for the kindness shewn them.

Sum in Treasurer's hands - - \$41 00  
Sum granted to society - - - 49 00

\$90 00

Paid Journal of Agriculture - \$2 50  
In Treasurer's hands - - - 87 50

\$90 00

North Shore, 31st March, 1866.

#### BRIDGEWATER AGRICULTURAL SOCIETY.

A new Agricultural Society has been formed during the past month at Bridgewater, in the county of Lunenburg, numbering 70 members, nearly all of whom have already paid their subscriptions. Mr. DesBrisay acts as Secretary of the new society, and A. Hebb, Esq., M. P.P., has taken the necessary steps for having the society put on the list of those organized under the Board of Agriculture and entitled to participate in the government grant.

#### BADDECK AGRICULTURAL SOCIETY.

At a quarterly meeting of the Board of the Baddeck Agricultural Society, held in the Secretary's office, on the sixth day of March, A. D. 1866,—present: Alex. Taylor, Pres.; William Jones, Vice-Pres.; David McCurdy, Robt Anderson, James Kiley, George Ingraham, Directors; Robt. A. Jones, Sec'y, it was moved, seconded, and passed, that the Secretary accept the offer made by Elias Calkins, of West Cornwallis, to furnish the Society next autumn with the number of lambs required by the Society; and that the Secretary is hereby authorised to make such arrangements as may be best suited to the society in getting such sheep. It was also agreed to purchase from Mr. Calkins eight ram and two ewe lambs of the Cheviot breed, and two ram lambs of the old Dishley, if delivered at Halifax next autumn, at \$5 per head.

It was also agreed that the Secretary inquire and purchase from Mr. Calkins, if they can be had, four barrels of good seed potatoes, two bbls. of one kind and two of another; also to inquire of Mr. Calkins if he can furnish the society with

two young boarlings of the Berkshire breed to be delivered at Halifax in the spring.

Moved, seconded and passed that the Secretary advertise in the Agricultural Journal for a bull one or two years old of the Durham or Ayrshire breed and two young Berkshire boarlings.

Moved seconded and passed that a general meeting of the society be held in the Court House on the first Tuesday of June next, then to collect subscriptions for the present year.

The meeting then adjourned.

ROBERT A. JONES, *Secretary.*

### BRIDGETOWN AGRICULTURAL SOCIETY.

The attention of the Society during the past year was chiefly occupied in making arrangements for the successful carrying out of an Exhibition of fruits, roots, seeds, grain, dairy produce, and domestic manufactures amongst the members. The show of fruits, roots, seeds, dairy produce, and domestic manufactures, was held on the 7th October, and was considered quite satisfactory; the grain will be exhibited on the first Saturday after New Year's day.

We have stated the names of all the members with the amount paid by each in a former report.

#### Receipts for the year.

Amount of Subscriptions	-	\$48 00
Provincial allowance	- - -	96 00
Disbursements for premium	-	166 00
For printing	- - - - -	5 87½
Judges dinner—day of exhibition	2	50
Cash in hand after paying expen.	84	15

OLIVER FOSTER, *Vice Pres.*  
JAMES E. FELLOWS, *Sec'y.*

The following persons are officers and directors for the present year:—Dr. Bingay, *President*; Oliver Foster, *Vice President*; James E. Fellows, *Secretary*; Silas L. Morse, *Treasurer*. Charles Whitman, Eugene Troop, Delaney Harris, Robert Ansley, Jared C. Troop.

We stated in a former report the names of the successful competitors at the late exhibition, with the names of the articles exhibited.

It is the opinion of a number of the members that we had better not hold any exhibition in the coming year, but save our funds for the purchase of improved stock. Mr. Decie of Granville,—a member of the society—who imported last year a number of Cotswold Sheep, thinks they will do finely in this county; he has sold during the autumn 6 ewes and 15 ram lambs at \$15 each. He has imported a ram this year whose weight is said to be 340 lbs., and is a superior animal.

The crops in this section of the county

have been rather light the past year, owing to a very severe drought, in the early part of summer.

It is with pleasure that we report the continued and efficient operation of our society.

J. F. FELLOWS,  
*Secretary.*

### NINE MILE RIVER AGRICULTURAL SOCIETY.

*Nine Mile River, March 16, 1866.*

I herewith send you the enclosed schedule and a copy of the constitution and bye-laws of our Society, and the names of officers for the season.

You will perceive that our Society intend purchasing improved stock, and are anxious to know if there are any improved Bulls for sale through the different Societies. If you know of any we will be under obligations to you for the information.

The members have all paid their fees, and wish to know when the Government aid can be drawn, in case of their purchasing stock.

You will please have our Society organized, if according to your rules and regulations; and, if not agreeable to law, I am under the necessity of claiming your direction and assistance.

I was of opinion that our efforts might have been more profitably employed in growing of green crops for the first year, as our funds are small, and feeling confident that little improvement can be made in cattle without good feeding.

Our members all seem to feel deeply interested in the welfare of our Society, and I hope the results will be good. Time alone will tell.

I am anxiously waiting to hear the result of meeting of the Central Board, which will come off soon; and would feel greatly thankful for a copy of the Journal, as you mentioned you would send it to me.

Soliciting your directions and counsel in behalf of our Society, I am, &c.,

JAMES GRAHAM.

### NINE MILE RIVER AGRICULTURAL SOCIETY, COUNTY OF HANTS.

*14th March, 1866.*

SIR:—I embrace the present opportunity of returning the enclosed schedule together with the constitution and bye-laws of the Nine Mile River Agricultural Society.

#### CONSTITUTION.

Actuated by a desire to prove useful to ourselves and others in an Agricultural point of view, we have this evening formed ourselves into a society for the purpose of furthering and promoting the welfare of Agriculture in this locality, and we hereby agree to devote our best energies to that purpose, agreeable to Act of Revised Statutes for the Encouragement of Agriculture, and in compliance with the rules and regulations of the Central Board.

With this object in view we unitedly agree to use our first efforts in the improvement of horned cattle and sheep, and give more particular attention to farm culture in general.

#### BYE-LAWS.

1st.—Resolved that all persons having joined the society and failing to pay their fees within ten days from this date shall have no claim to the benefits of this society; and no person shall have a privilege to join this society until the next annual meeting.

2nd.—That any person wishing to join the society at such annual meeting shall notify the president of same, when he in due time shall bring it before the meeting, and shall be elected in or otherwise as the majority of those present shall determine; and that all persons or person so elected shall pay one half dollar initiation fee, together with his annual subscription the same as the members.

3rd.—Resolved that this society shall meet on the first Tuesday of December and March for the transaction of business connected with the society; and the first Tuesday of every month for the discussion of Agricultural questions, except December, March, June, July and August.

4th.—That all business of the society shall be transacted at the December and March meetings; and if it becomes necessary to hold special meetings the same shall be duly notified.

5th.—Resolved that the president shall have due authority to preserve good conduct and order throughout the different meetings, and where difference of opinion may exist, the question under consideration shall be put to vote, and he shall decide in favor of the majority; or in case of a tie he shall give the casting vote.

#### OFFICERS.

*President*, D. Ferguson, jr.; *Vice-president*, Jas. C. Fraser; *Sec'y*, James Graham; *Treas.*, Wm. Withrow; *Committee*, Alex. McDonald, Senr., John Ferguson, Archibald Grant, Donald Ferguson.

### Arts and Manufactures.

#### CROOKES'S IMPROVEMENTS IN GOLD AMALGAMATION.

At a recent meeting of the Institute of Natural Science, Professor Lawson showed, by a series of experiments, the remarkable effects obtained by the use of sodium amalgam in the separation of gold from its ores. The Hon. W. A. Henry, Atty. General, has taken much interest in the introduction of this process to the Nova Scotia mines. The following is a statement of Mr. Crookes's Patent:—

This invention relates to certain improvements in the method of treating the ores or substances containing gold and silver by amalgamation, and whereby those metals can be more perfectly and completely extracted and separated therefrom than by the processes hitherto adopted. A solid amalgam of sodium is in the first place formed by combining about one part of sodium with about thirty parts by weight of mercury.—The solid amalgam thus formed is then added to the mercury employed for the purposes of amalgamation, the propor-



tions varying according to the quantity of metal contained and the state in which it occurs in the ore or matrix. If, however, the proportion of the alkali metal exceeds that of one part to from 120 to 150 parts of mercury, the amalgam becomes viscid and its manipulation inconvenient. The effect of thus combining the sodium with the mercury is to impart to the latter a greater affinity for or power of adhesion to the metal under treatment than it possesses in its simple and uncombined condition. Instead of using the solid amalgam as hereinbefore mentioned, the sodium may be combined directly with the mercury employed, the proportions varying according to the requirements of the case.

This invention can be used in conjunction with any machine or apparatus for performing the amalgamating process, and in cases where amalgamating vessels or receptacles constructed of iron are employed, an additional advantage arises from the fact that mercury combined as before mentioned with sodium forms a thin film over the surface of the iron, thus collecting very minute quantities of the metal under treatment, and which may be removed by the ordinary process, and subjected to the subsequent treatment usually employed.

The mode of treatment employed is as follows:—An amalgam of sodium is in the first place formed by combining sodium with mercury. The proportions may be varied within wide limits, that is to say, from less than three to more than thirty parts of sodium to one hundred parts by weight of mercury. The sodium and mercury must be caused to unite, and the amalgam prepared with the customary precautions well known to and understood by chemists. The last mentioned method of forming the sodium amalgam is that which the inventor usually prefers in actual practice, but, if desired, the amalgam may be prepared electrochemically, as described by Becquerel and other chemical authors, or by any other suitable means. The amalgam is then added to the mercury employed for the purposes of amalgamation, the proportions varying according to the quantities of precious metal contained, and the state in which it occurs in the ore or matrix; but as in the process the beneficial effects of the sodium are gradually removed, the action should be maintained, if needed, by occasionally introducing fresh supplies of the amalgam into the charge of mercury contained in the machine employed. The quantity must, however, be regulated and determined by the skill and judgment of the operator, as no definite and absolute proportion can be laid down as being necessary. If, however, the proportion of the alkali metal exceeds that of one part to from 120 to 150 parts of mercury, the amalgam becomes viscid, and its man-

ipulation may be inconvenient. The effect of thus combining the sodium with the mercury is to impart to the latter a greater affinity for or power of adhesion to the precious metal under treatment than it possesses in its simple and uncombined condition, so that it will readily amalgamate with the gold or silver, even when the latter metals are soiled by grease or other extraneous matter. Although he prefers that the amalgamation shall be conducted in the presence of water, as in the usual processes, the operation, if desirable, may be performed in a dry manner. The amalgam above mentioned should be stored in air-tight vessels, or under naphtha, such as metallic sodium is usually kept in. Instead of using the amalgam as hereinbefore mentioned, the sodium may be combined directly with the mercury employed, care being taken that the proportions shall remain substantially as already indicated.

This invention can be used in conjunction with any machine or apparatus for performing the amalgamating process, and, in cases where amalgamating vessels, or receptacles or places constructed of iron or other metal are employed, an additional advantage arises from the fact that the mercury combined as before mentioned with sodium forms a thin film over the surface of the iron or other metal, thus aiding in the collection of any minute quantities of the precious metal under treatment. The subsequent extraction of the gold or silver from the mercury may be conducted in any desirable manner. It is not found in actual practice that a small quantity of sodium, if accidentally allowed to remain in the mixture of gold or silver and mercury, affects the subsequent treatment in any appreciable degree. In cases where, from the nature of the ores or substances under treatment, the mercury used for amalgamation becomes divided into minute globules, technically known as "flouring" or "granulating," there is frequently a difficulty in separating the globules from the heavy particles of the powdered ore or substances containing the precious metal; the addition of the sodium amalgam to such a mixture is found to induce the coalescence of the liquid or viscid metallic particles, so that a mechanical separation of the gold or silver amalgam from the gangue may be readily effected. The employment of sodium in combination with mercury will especially be found beneficial in cases where gold or silver occurs with pyrites, sulphurets, or minerals containing arsenic, antimony, tellurium, or bismuth. The process of amalgamation with ordinary mercury is difficult to perform in the presence of such minerals without great loss both of mercury and of the precious metal under treatment, owing to the surfaces of the latter being in such a tarnished or soiled state

that mercury alone will not touch them (as, for instance, when gold exists in pyrites), and also owing to the mercury becoming what is technically termed "sick" or "floured," in which state its power of uniting with the precious metals is much diminished; in these cases the addition of sodium amalgam will be found highly advantageous; whenever the mercury has become "floured" or powdered by the result of distillation, or from any other cause, it is readily restored to the liquid or bright metallic state by the addition thereto of sodium, either in its simple metallic condition, or as an amalgam with mercury.

Although sodium is mentioned as used in the processes above described, other alkali metals, such as potassium and lithium, and other metals strictly analogous thereto in their chemical and physical characters, may be employed in lieu thereof in combination with mercury for the purposes of this invention.

Having thus fully declared and ascertained the nature of his invention, and the manner in which it is to be performed, Mr. Crookes claims that what he considers novel and original, and therefore as constituting his said invention, is, the employment of an amalgam of sodium, or such other alkali metal as aforesaid, in treating ores or substances containing gold or silver for the extraction and separation therefrom of the precious metals, as hereinbefore substantially set forth and described.

---

BEAN SOUP.—A Bachelor of thirty years" wishes a receipt for bean soup. Get a wife that knows how to make it.—Eruka, in *Country Gent.*

---

#### TO CORRESPONDENTS.

Literary Communications are to be addressed to Dr. Lawson, Secretary of the Board of Agriculture, Dalhousie College, Halifax. All lists of subscribers and remittances of subscriptions are to be sent to Messrs. A. & W. McKinlay, Publishers, Granville Street, Halifax.

---

#### *The Journal of Agriculture*

—is published monthly by—

A. & W. MACKINLAY,  
No. 10, GRANVILLE STREET,  
HALIFAX, NOVA SCOTIA.

TERMS OF SUBSCRIPTION:—

*Fifty Cents per annum—payable in advance.*  
A limited number of Advertisements in connection with Agriculture will be inserted on application to the Publishers.