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
- ☐ Covers damaged/ Couverture endommagée
- ☐ Covers restored and/or laminated/ Couverture restaurée et/ou pelliculée
- ☐ Cover title missing/ Le titre de couverture manque
- ☐ Coloured maps/ Cartes géographiques en couleur
- ☐ Coloured ink (i.e. other than blue or black)/ Encre de couleur (i.e. autre que bleue ou noire)
- ☐ Coloured plates and/or illustrations/ Planches et/ou illustrations en couleur
- ☑ Bound with other material/ Relié avec d'autres documents
- ☑ 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
- ☐ 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.

- ☐ Coloured pages/ Pages de couleur
- ☐ Pages damaged/ Pages endommagées
- ☐ Pages restored and/or laminated/ Pages restaurées et/ou pelliculées
- ☑ Pages discoloured, stained or foxed/ Pages décolorées, tachetées ou piquées
- ☐ Pages detached/ Pages détachées
- ☑ Showthrough/ Transparence
- ☑ Quality of print varies/ Qualité inégale de l'impression
- ☑ Continuous pagination/ Pagination continue
- ☐ Includes index(es)/ Comprend un (des) index

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

- ☐ 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: Pages 191 - 192 are missing. There are some creases in the middle of pages.

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
☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☐	☐

THE JOURNAL OF EDUCATION AND AGRICULTURE,

PROVINCIAL NORMAL, AND MODEL SCHOOLS, TRURO, N. S.

FOR THE PROVINCE OF NOVA SCOTIA.

TABLE OF CONTENTS.

Vol. II. **Halifax, Nova Scotia, June, 1860.** **No. 12**

EDUCATIONAL.

THE PREVENTATIVE, BOTH BETTER AND CHEAPER THAN THE RESTORATIVE.

By nothing is this age of progress so signalized as by the large sums that are laid on the altar of Christian benevolence and philanthropy. What would have been considered, some fifty years ago, a munificent sum to give for a charitable or religious object, and published with highest laudations in the Papers of the day, is now looked upon as a mere dribblet and as undeserving of the smallest notice. Whatever is the motive, it is plain that hundreds and thousands are now acting as if they believed the truthfulness of the saying, "It is more blessed to give than to receive," and are ready to acknowledge, as the result of their experience, that in proportion as they give so do they receive, even in temporal things. In proof of the revolution which the human mind has recently passed through in connection with this subject, we have only to look at the numberless associations and external organizations that have sprang into existence, all engaged in works of charity and beneficence, and receiving into their treasuries the untold offerings of young and old, of rich and poor; with their agents, male and female, plying every energy and urging the claims of their respective societies on the sympathy and support of the public. And, turning from the exertions of individuals and Societies, to those of Provinces, States and Nations, as such, here again, do we behold the noblest achievements of humanity and philanthropy in the shape of the most gorgeous and expensive public Institutions, Infirmaries or Hospitals, Asylums of every description, Bridewells, Penitentiaries, Reformatories, Ragged Schools, &c., &c.

Now, whilst we think that no well-regulated mind can regard this state of things without emotions of thankfulness, it surely behoves us often and again to pause, and to enquire whether these agencies, in all their diversity of operation, are legitimately directed—whether the means employed are the best fitted for the accomplishment of the end in view, or whether the result is at all adequate to the expenditure—or whether some other instrumentality might not be resorted to with far greater probability of success. In answer to such a train of enquiries, and looking calmly at the whole aspect of things, we have no hesitation in avowing our conviction that the result is not at all proportionate to the means employed. Not that we would underrate the good effected or abate by one hair-breadth the efforts now put forth, by individuals, Associations, or States, for the alleviation or removal of the ills to which man is heir, as well as for his general elevation, as a physical, intellectual and moral being, yet we must declare our decided opinion that not one tithe of the good is effected

that might, and ought, from such an expenditure of means; and that mainly, we apprehend, because of the all but universal determination to act on the *restorative* in preference to the *preventative*. What, we may ask, is the object contemplated by the great majority of these Associations, or the most public Provincial and National Institutions, such as the Houses of Refuge, the Reformatories and the Penitentiaries—Is it not the effecting of a cure upon the distressed or oppressed either in body or mind—is it not by a course of careful external treatment and the application of sanatory means to endeavour to bring about a reformation upon those who by idleness, improvidence and dissipation have landed themselves in misery, criminality and insanity? And do they really accomplish their object? In some cases, we admit, they do; and these, their advocates say, are a sufficient compensation for all the efforts they put forth. And so, perhaps, they are; and, on this ground, we would urge to a yet more cordial support of these Institutions, to yet more persevering efforts in rendering them more extensively useful. And, whilst we do this, we would also, in addition, urge the adoption of a course far more excellent in itself, as it elevates to a platform more lofty and commanding,—a course, too, far more likely to be attended with beneficial results. We here refer to that which has for its object the use of all sound and legitimate means, by which man shall not only be kept from the contracting of those habits which shall entail upon him vice and crime, and suffering and wretchedness, but by which he shall be trained to those habits of virtue and industry and perseverance which instead of rendering him a burden to society and a befitting object of commiseration, will elevate him to a decent competency, and to a sphere of respectability and usefulness. And surely no one who is possessed of ordinary sagacity can fail to perceive that such an instrumentality cannot fail to be productive of the most beneficial results. True, it demands the exercise of a high-born principle; but this very circumstance is what is most likely to crown it with success and to render it more extensively useful. But it is also the most economical. The *restorative* species of instrumentality, however well devised and perseveringly worked and successful in its operation, does not diminish the objects of our sympathy. If it should be effectual in performing a cure,—and in not a few instances it may be so,—there is always a fresh supply in readiness to take the place of such, and that supply is ever increasing at the same ratio as the population. How different is it with the *preventative* species of means! Not only are the results immensely greater, and much more numerous, and much more to be depended on; but they are gradually diminishing the necessity for the curative, and will continue to do so till the ushering in of a brighter day than our world hath ever seen since the period of man's pristine dignity and glory.

In the foregoing remarks we have had a special eye to the subject of Education. Here pre-eminently should the *preventative* system be carried out into full and vigorous operation. Reformatories and Ragged Schools have done much, and are destined, we believe, to do a great deal more, in reclaiming the vagrant and the vicious among the young. But what are they, after all, but so many substitutes—oftentimes poor and unsuccessful substitutes—for a sound and thorough education ere bad habits are acquired. Would that statesmen and Legislatures but considered this subject in all its length and breadth—would that Provinces and States, but saw and believed that, irrespective of their obligations to the Great Moral Governor of the Universe, to provide a suitable education for every schoolable child within their borders, it is vastly cheaper to build commodious school-houses, to equip them with proper furniture, and adequately to remunerate the living agent, than it is to erect Jails, Bridewells, Hospitals, with all the paraphernalia of military and police and convict establishments, judges, lawyers, &c., &c. In a thoroughly organized system of National Education, the estimated cost of the education of every child is not more than £4 or £5 per annum, and that of the support of every criminal to the nation is about £100 per annum. Did nations, as such, but apprehend this fact—that it is their highest interest to enact and endow a sound system of Education, then would the statesmen who devised such a system be accounted the best patriot, and the teacher the truest benefactor in the settlement. When will some great reformer arise to expose and denounce the grand practical plunder that is now perpetrated in the distribution of charity, and in the allocation of national funds—a man possessed of that moral courage by force of which he shall burst asunder the manacles by which the popular mind is now enslaved, and bid the christianized nations go forth on the royal pathway of *prevention*.

COMPULSORY EDUCATION.

One grand impediment in the progressive advancement of universal education, is the apathy and indifference that reign in the popular mind regarding it. In the most enlightened communities there is not, perhaps, a third in the population that realize its importance to any extent;—indeed, the general notion seems to be that none but parents can appreciate its value, that none but parents can feel any real interest in its promotion. Bachelors, parents whose children are educated, and the great mass of those who are either in a condition of heathen ignorance, or but partially educated, seem to imagine that they have little or nothing with the whole cause of Education. Need we say that so long as this state of things continues Education in any country can never be in health or vigor, that until all and sundry in every community are awakened to a due sense of the magnitude of the interests involved, never will Education assume that position to which it is so justly entitled. And how, it may be asked, is this to be effected? Is it by an earnest appeal to our fellow-countrymen on the ground of our common patriotism, or of our common philanthropy, or of our common Christianity? Alas! we fear, from the imperfections of humanity, that if we are compelled to wait until we receive a suitable response to one or other of these appeals, we shall wait for an indefinite period of time, and the evils all the while are growing apace and increasing at an immensely rapid ratio.—To meet these evils, as they now exist, we must descend to a lower platform and make an appeal to the pockets of all, according to their means; in other words, a modified system of direct taxation for educational purposes must be resorted to. This, we believe, will operate more powerfully than any other expedient that could now be tried in bestirring the public mind, and making all realize a direct interest in this cause.—But even this will not suffice in securing a universal education in any country. Though the school-doors were thrown wide open for the free education of all, there are, we believe, hundreds of our youthful population, and these the very par-

ties standing most in need of education, who would not avail themselves of the boon. This is felt to be the case even in Massachusetts itself, and in some other countries where the Free System, as it is called, has been tried. And what, in these circumstances, must be done? We believe that nothing short of a compulsory enactment, such as exists in Prussia and in some of the German Principalities, by which every parent is punishable if he do not send his children to school within a certain period of their juvenility. We would say, then, try the direct assessment first, and if that plan does not succeed in diffusing a universal education, then let an enactment be pa. d by which parents shall be compelled either to send their children to school for a certain given period, or the children at a certain stage be required to pass through a certain examination on branches of education adapted to their external circumstances, before they are allowed to engage in any lawful business. We discuss not here the point as to the State's power to pass such an enactment. We subjoin, in the meantime, the following statement wri .en by the pen of Dr Guthrie, one of the greatest of living orators, philanthropists and educationists:—

The want of education is not confined to the lowest of the people. Many of the children of our working classes begin the business of life before they have finished that of education, and not a few of them even before they have begun it. The condition of our labour market lies as a heavy curse upon the nation. It is an evil poorly compensated by the growth of wealth, and that more general diffusion of the comforts of life in which we otherwise heartily rejoice. Unfortunately, infant labour is remunerating now-a-days in the way of work, as it used to be in the way of mendicancy. In consequence of this, God's providence and man's plans are in collision—in direct collision. Heaven and earth are at war. The roar of machinery deafens the ear of tender childhood. The boy grows pale upon the loom, and the girl grows stunted by the whirling wheels, who should be drinking in knowledge at its fountains, or rushing from school to play with the lambs upon the flowery sward, or chasing the butterfly by the laughing stream, or gathering health and strength, beauty and symmetry, where the bee collects her honied stores for working days and winter-time. The click of shuttles and deafening noise of the manufactory are in ears that should be filled with no sound but the shouts and laughter of play, the melody of singing birds, or the hum of the busy school.

The harmony of nature is disturbed, and the effects of that disturbance on the physical, moral and religious condition of our people are lamentable—and threaten to be more so.—Children are able to support, before they have sense to guide themselves. Before God has fitted, or even intended them to be so, they are independent of parental control. Hence domestic discord, hence household rebellion, hence the defiance of parental authority. Too early removed from school, hence the spread of ignorance. Thrown in their very childhood into the company of hoary sin, hence their morals are corrupted. They are initiated into the mysteries of vice before they have the power to practise it. Without a parent's hand to guide the reins, before reason and principle have had time to assume their legitimate authority, the passions get it all their own headlong way. And in the fate of a carriage which has none to drive, but strong wild horses to drag it on; or, in the fate of a bark, which, having broken loose from her moorings, catches the gust in her wide-spread sail, ere helm is hung or helmsman stands by the wheel—in that invisible crush, in that shattered wreck, are symbolized the fate of many. Born in our great centres of manufacture, sent to work when they should be sent to school, or continued at it, and earning wages sufficient to maintain themselves before reason is developed and principles are confirmed, they laugh at parental control, and in seeking to be their own masters, become the slaves of their own master passions.

This is neither time nor place to show the extent of this evil, unless to say that, while the most extraordinary errors may lurk under general statistics, the public judging by them alone, may cherish the delusion that all is right when much is wrong. The actual truth may be best arrived at by selecting some particular locality, and subjecting it to a close and searching examination. We have done so in the Pleasance—a district of the city where we are about to build a church and where, through our missionary and his allies, we have laboured four years with such remarkable success. There are worse, far worse districts than that in this city. There are many much worse in every large city in the kingdom, yet there, in an area containing two thousand of a population, we found, when we entered on our labours, no fewer than two hundred children growing up without education—who should have been at school, and were not. They were not without schools, yet with these in the neighbourhood they were without schooling. They had teachers within reach of them, yet they were not taught. Now this is a very instructive fact.—The plain and very important inference to be deduced from that fact is this, that while it is the duty of the state to provide the means of education, it is no less her duty to see that they are used. In the United States of America—a country where, perhaps, more than in any other, the value of education is thoroughly understood, the means of educating all the people are amply, and, in many instances, freely provided.—Yet by one of their late reports, complaints appear to come from every part of the country that many parents neglect to send their children to school. This evil has begun to grow in America, which, in our own land, has reached so gigantic a size. Years of experience and observation, which were spent among the lower and lowest classes of the people, have produced in my mind a rooted conviction that, although public or private benevolence may plant schools in our streets, thick as trees with fruit, the evil never will be cured. From many a dark locality, the city will continue to cry, "My people are destroyed for lack of knowledge," unless the state insist on this, that every child who should be, shall be at school.

From a system of trade which offers up our children in sacrifice to the Moloch of money, and builds fortunes in many instances on the ruins of public morality and domestic happiness—from the cupidity of some parents, and the culpable negligence of others, helpless childhood implores our protection. We laugh at the Turk who builds hospitals for dogs, but leaves his fellow-creatures to die uncured and uncared for. And we forget that dogs and horses enjoy, by act of Parliament, a protection from cruelty among ourselves, which is denied to those whose bodies and whose souls we leave savage parents to neglect and starve. I lay it down as a principle which cannot be controverted, and which lies indeed at the very foundations of society, that no man should be allowed to rear his family, a burden and a nuisance, and a danger to the community.—He has no more right to rear wild men and wild women, and let them loose among us, than to rear tigers and wolves and send them abroad in our streets. What four-footed animal is so dangerous to the community as that animal which unites the uncultivated intellect of man to the uncontrollable passions of a beast?

We have a right to insist that this shall not be. Some rights I may waive. I may waive my right to a fortune. I may abandon my claim to a competent living from those to whom I minister, and turn tent-maker like the great apostle. But if I have a right to interfere for the good of others, to shield the oppressed, to save the perishing, to instruct the ignorant—by any act, on my part, to benefit and bless my country—that is a right which I have no right to waive. God requires me to claim it and carry it into effect. Religion thus lends her holy sanction to the state, when she insists on a universal education. She commands society to take these children under her protection, and see to it that all of them are trained through means of the school to be of service to the state. The parent who does not educate his children should be regarded as a man who is not using his liberty, but is guilty of licentiousness. When will men cease to confound the two, and cease by applying the name of liberty to that which

outrages the rights and destroys the liberties of others, to remind us of the saying of the celebrated woman, who, when they were carting her to the guillotine, as the timbril passed a statue that had been erected to Liberty, rose to exclaim, "O Liberty! what crimes have been committed in thy name." To ally that sacred name to the culpable and cruel neglect of parents who neither do their duty to their children nor to the state is to help the cause of despotism, and make the name of liberty "stink in the nostrils" of the people. Let our country apply a prompt remedy to this evil, and upon the land, which, with judgment to distinguish between liberty and licentiousness, and humanity, to espouse the cause of the wronged, spread the mother's wings over the least of these little ones, we may expect the blessing of Him who folded infants in the arms which sustain the world, and said, "Suffer little children to come unto me, for of such is the kingdom of heaven."

EVILS OF DENOMINATIONAL GRANTS FOR EDUCATIONAL PURPOSES.

In a former article we endeavored to show the inadequacy of the denominational system, even when largely supplemented by the State, to meet the educational wants of any country. We took for our illustration the present condition of England. That part of Britain, as is well known, possesses no national system of education. All that is done there on behalf of this branch of the public service, is done by the different branches of the Christian Church, aided and abetted by munificent supplementary Grants by the Lords of the Committee of the Privy Council charged with this business. For the last thirty years have all the Churches in that land been putting forth their concentrated energies, whilst the State has been nobly, and with a corresponding ratio, seconding their efforts; and what is the result to-day? Not less than four millions of schoolable children are yet without the means of instruction, or at any rate, not receiving it. We hold that this practically settles the whole argument, in so far as the voluntary exertions of the denominational system is concerned. There is, perhaps, no country on the face of the globe where the experiment could have received a fairer trial—no country where the resources of the Christian Church are so great; and yet such a failure even in the matter of supply, after a lapse of thirty years, not only furnishes a palpable demonstration of the utter incompetency of the system, but ought to bestir every genuine philanthropist to secure the best national system that the circumstances will admit of.

And if such are the results, in point of quantity, of the purely denominational system, what must be the evils arising from the attempt to engraft the denominational upon the national, to supplement the imperfections of the latter by grants made out of the public funds, as is now done in Scotland, and to a certain extent in all the Colonies of the British dominions.—At present we merely enumerate these evils. On some future occasion we may take them up and discuss them seriatim. We object, then, to such denominational Grants for the following reasons:—

1. They are in direct antagonism to the fair and legitimate working of a national system of education.

2. They necessarily introduce the sectarian element into the legislative proceedings of the nation.

3. They can hardly be dispensed with impartiality.

4. They form a great hindrance in the progressive improvement of national systems of education.

5. They develope and intensify sectarianism.

6. They indicate a latitudinarian, if not an infidel spirit, regarding the truths of revelation.

A FEW QUESTIONS AND ANSWERS ON THE LEADING FEATURES OF TRAINING SYSTEM.

1. What is the grand end of this system?

It is the formation of character through the cultivation of the physical, intellectual and moral powers of our nature, according to their intrinsic and relative importance.

2. How does it accomplish this?

By a series of adaptations to the leading peculiarities or more prominent characteristics of the recipients of education, and, through the sympathy of numbers, it renders all these subservient to the general good of the school.

3. What are the means employed in this adaptation process?

It is just requiring the scholars to go through the suitable exercises *themselves*; it is not the imparting of knowledge, but the imparting of it in a way that all the parts of the scholar are exercised and strengthened, and thereby fitted for the various duties and trials of life, for all the felicities and glories of heaven; in short, for serving the great end of their being.

4. What provision is necessary for the use of these means in the accomplishment of this end?

1st. A commodious school house, indoor and outdoor, or covered and uncovered; 2nd. A thorough external organization and discipline. 3rd. A class of well-qualified teachers.

OFFICIAL NOTICES.

ADDRESS TO THE TEACHERS OF N. SCOTIA.

This number of the *Journal of Education and Agriculture* is the last of the second year of its existence. That periodical, as most of you are aware, was started mainly with the view of opening up a medium of communication between the Superintendent of Education and the Teachers throughout the Province, and especially of giving publicity to that system of education pursued in the Provincial Normal School. Before commencing the periodical, an application was made to the Legislature for the grant of £100, that a copy might be given to each Teacher and School Commissioner gratuitously. The Legislature refused to give any assistance, and in these circumstances the firm of A. & W. Mackinlay came forward and kindly undertook the pecuniary responsibilities, in the hope that the circulation would be such as would ensure the payment of the working expenses. Such of you as have read the last annual educational report presented to the Legislature must have observed, amongst the other papers, a statement, by the publishers, of the receipts and disbursements, showing a deficit of upwards of £100,—a fact this not at all surprising when it is considered that out of the 1100 teachers

receiving public money, not more than 200 subscribed for the periodical, though the price is only One Dollar per annum.—In these circumstances, we have resolved to make an appeal to the Teachers throughout the Province, and to suspend the publication of the *Journal* until we ascertain the result of this appeal. Both the Editor and Publishers are willing to continue their labors gratuitously for the benefit of education and, if possible, to improve and enlarge the *Journal*; but unless a *bona fide* list of subscribers, sufficient to defray the mechanical expenses, is made up by October or November, it must necessarily be discontinued. In making this appeal, then, we would earnestly solicit you to consider your own interests and those of education generally, and to forward your name as speedily as possible to the Clerk of your respective School Boards, authorizing him to pay your subscription when the Periodical is resumed.

ALEX. FORRESTER, *Editor*,
A. & W. MACKINLAY, *Publishers*.

NORMAL SCHOOL.

Since the issue of our last number, 5 additional students have applied for admission to this institution; and after assigning satisfactory reasons for not appearing at the time fixed by law, were enrolled. This now makes the whole number in attendance this summer, 80, being 8 more than there is accommodation provided for. Should this number continue, it will be indispensably necessary to enlarge the premises.

Application for Teachers.—Those districts that desire Normal trained Teachers at the end of the present Term had better forward their applications to the Principal as soon as convenient.

Grammar School Returns.—These Returns are forwarded semi-annually to the Financial Secretary's Office.—A duplicate ought at the same time to be sent to the Educational Office.

EDUCATIONAL INTELLIGENCE.

NOVA SCOTIA.

It affords us much satisfaction to hear of the unusually large number of School Houses in course of erection in different parts of the country. Though much improvement has taken place within these few years both in the external and internal condition of these fabrics, much yet remains to be done. It is our intention, ere long, to publish a few plans and specifications of School Houses, with some general instructions as to site, size, furniture, &c. It would, we believe, forward this cause not a little were a legislative enactment passed, by which School Districts, on the eve of erecting new School Houses, should be required to assess themselves. We know many districts that would be truly thankful for an assessment of this sort that would demur to a general Educational Taxation Bill.

To the Editor of the Journal of Education and Agriculture.

Dear Sir,—

Permit me, in behalf of the citizens of Walton and its vicinity, to address a note, through your paper, respecting the progress and prospects of Education in this village. Having acted as one of the Trustees for the School in this place, for more than twenty years, I can say, that during that period we have had many Teachers, and many difficulties to encounter for want of a suitable school house, books, and many other things which we required, and our Teachers sometimes not the most competent, and the Schools being conducted after a bad system, caused the people to lag in their energies toward the support of Schools. In which state of things our School dwindled down to what scarcely deserved the name of one, and even then but thinly attended, sometimes about 10 scholars, and at others about 20 or 25. Now, however, I am happy to say, the scene is changed and our prospects appear to be reversed, as within these three years past we succeeded in employing a better class of Teachers. Last year we fortunately applied to Dr Forrester to select for us a Teacher from the Normal School, to which he gladly attended, and recommended to us Mr Forbes from Guysborough, who came and took charge of our School about a year ago; during which time the number of scholars increased to more than 90, our school-house had to be enlarged, and seats and desks after the last model was provided, and stocked with a good selection of books and stationery. Other Teachers gave up their Schools and attended this for further instruction. Some persons at a distance sent near the close of the term, but regretted that they had not moved to the village at the commencement, so that they could have sent all their children that were able to attend, as by his peculiar tact Mr F. had succeeded in bringing forward his pupils at an extraordinary rate, and at the same time maintaining order and regularity in his School.

I would here make mention of some of the difficulties which stand in the way of Education in this locality, and I believe throughout the Province. You are aware that the allowance from Government for the support of Schools is indeed very trivial, and taxation for their support is not tolerated. The wealthy citizens and yeomanry of our country should take the lead, and contribute according to their circumstances, for their support. Instead of which some will say, they have no children to educate and they will not pay a shilling to Schools, and many persons having large families of children, and have not had the benefit of education themselves, say, that their children must do without learning as they have done, consequently the Schools must be kept up and supplied mostly by the poor class of people. And only about one half of the population of children ever attend School at all, the remainder are wasting their time in idleness, and very often in what is worse. This is certainly a bad state of things, and we would say, give us taxation; let it be the law of the land; let all pay in proportion to their means; let the rich be taxed for their thousands of acres of wild land, which they hold to the hindrance of more industrious settlers; let each and every man pay according to his ability for the support of Schools, and for building good and comfortable school-houses, and then the expenses will not be one fourth part of what they are under the present system, the best of Teachers will be common among us and the school-houses will be thronged, and the rising generation, who are soon to take our places, will be fitted and prepared to appreciate the privileges that arts and sciences and a peaceful colony like ours—they have a right to enjoy.

Walton, June 26th.

PUBLIC SCHOOLS.

Pending the investigations of the Education Commission, whose labours will, we presume, be brought to a close before the session is terminated, there are many signs that the interest in the question of public education is unabated, and that the report of the Commission is awaited with considerable anxiety. An elaborate article in the new number of the *Edinburgh Review* on this subject, will greatly strengthen the hands of the opponents of the Privy Council system, and may, we hope, be taken as a sign that Government will be prepared to back up the Commissioners should they deem it expedient to propose substantial changes in the present system. The reviewer, after reducing one-half the estimate

made by Mr Horace Mann on the last census report, that 4,000,000 of children, between three and fifteen years of age, ought to be at school, proceeds to detail the expenditure for 1858, and then makes various important suggestions, which we advert to as showing the dissatisfaction of an influential Whig organ with the system now in operation. One of these relates to pupil teachers:—

One-third of the whole of this expenditure goes to pupil-teachers. *It is now a question among school-teachers themselves how far pupil-teachers are beneficial.* However, on this vexed question we express no decided opinion, aware how difficult it is to collect general results from individual experience, varying probably as they do, of the character of the pupils by whom each master happens to be blessed or afflicted. The number and extent to which this branch of the system is being carried, is, however, more within the test supplied by the report of the committee. And it results from the figures, that if pupil-teachers are to be multiplied at the rate at which they were going last year, and that if each year is to turn out at the termination of their training only two thirds of the number who were admitted in 1858 (that is 2,242), in four years there will be enough of these young teachers to take possession of all the 9,384 schools and departments of inspected schools, and to turn adrift that number of existing teachers. Nor is this all; for in another four years there would be another crop of 9,000 or 10,000 ready to oust and replace them. And four years would be the average duration of a school-teacher's professional career. Of course, this is a rough sketch. A slight deduction must be made, [illegible] by a recent Minute of Council four is to be the maximum of pupil-teachers allowed to any one teacher—a number, however, which few masters exceed. Possibly in this direction a retrenchment of expenses might be made.

The *Edinburgh* is disposed to believe that stipendiary monitors at yearly payments of £5 or £6 would supply all the assistance gained from the worst half of the pupil-teachers.

The reviewer would "readjust" the capitation grants, "which have scarcely answered their object."

The general opinion is, that they have not to any material extent prolonged or increased the attendances, and it is certain that in some cases they have merely replaced local contributions, and that in others the condition on which they are granted, namely, that the school pence shall not exceed fourpence per week, prevents the managers from exacting from parents payments which they are well able to make. So that, *instead of increasing the school fund, they substitute public assistance for private benevolence or parental duty.* If it be thought inexpedient to withhold them, might they not be well appropriated to the payment of stipendiary monitors? Let them go to the teaching power of the school, and, in sums large enough to be appreciated, to children selected for their superior merit and intelligence. This would again reduce the expense of pupil-teachers.

He is also of opinion that the building grants are capable of reduction.

Is due care always taken by the inspector, as a preliminary, to ascertain that the size and simplicity of the building are adapted to its uses? We believe not: we could adduce instances of superfluous expenditure.

Another point touched upon is, the present system of inspection.

Mr Lowe has called the attention of parliament to the extra cost resulting from the present plan of having a separate staff of inspectors exclusively attached to each church or doctrinal denomination. There are distinct staffs for national schools, for union and certified industrial schools, for British and Foreign schools; for Roman Catholic schools; for Scottish Episcopalian schools; for schools connected with, and also for those not connected with, the Established Church of Scotland. This certainly appears to be carrying the desire to humour sectarianism at the public expense a little too far. The inspectors of Dissenting schools are laymen, but they are not necessarily Dissenters; in point of fact, they are nearly all members of the Church of England, and graduates of Oxford or Cambridge. The necessity of inspecting Church schools by clerical inspectors is by no means manifest, and we have ground to think that the Church at large does not require it. It is a relic of the old clerical opposition to any Government interference in education, which was softened only by concessions to the prejudices or to the fears of the Establishment.

An amalgamation of the staff of inspectors is suggested as calculated to produce greater economy as well as efficiency. "No new inspectors would be needed for some years."

Mr Arnold's last report on the British and Foreign Training School indicates that a further economy is not only possible, but requisite. He says:—

The parents of these children (those in British and Foreign Schools) would not willingly consent that their daughters' school-time should be taken up with learning the details of practical housekeeping. In this middling class of society, girls grow up, no doubt, with a lamentable ignorance of these details. So they do in the richer classes; and, in the richer classes, one hears people sometimes lament that girls are not taught to bake, to cook, and to wash. But these very people would be indignant if they found that their daughters' school-time was actually occupied with learning cookery or clear-starching instead of languages or music. So it is with the middling class of society from which British schools are mainly recruited. Doubtless, girls in this class are ignorant of domestic economy; but this is not the ignorance which their parents send them to school to remove. Rightly or wrongly, they think that their position in life may enable them to dispense with a practical knowledge of any branch of industrial work except needlework, and to find others who will perform such work for them. What they want for their daughters, what they send them to school to require, is what is called a liberal education.—(*Minutes*, 1858–59, p. 344.)

The reviewer adds this remarkable comment:—

If it be true (and it is not easy to doubt Mr Arnold's testimony) that the schools connected with the British and Foreign Society are filled mainly by children from the middle classes, *it seems that much of the public money which was intended to educate the poor is applied to educate those who cannot perhaps be called rich but who can still less be called poor. The better these primary schools become, the greater is the inducement to the middle classes to avail themselves of the advantages they afford at a very low rate.*

—*English Journal of Education.*

THE RAGGED SCHOOL UNION.

The seventeenth annual meeting of this institution was held on Monday evening, May 7th, at Exeter-hall, the Earl of Shaftesbury in the chair. The attendance was very numerous, every available spot in the vast area of the hall and of the gallery being crowded, and numbers being disappointed in obtaining admission. Among others present were Earl Ducie, Sir J. Lawrence, the Hon. A. Kinnaird, M. P. the Rev Canon Miller, the Rev E. J. M'Connell Hussey, &c.

The report, as read by Mr Locke, the hon. secretary, stated that, as the object of the institution and its principles had been detailed in the report of the preceding year, it was unnecessary to do so more than to state that they continued the same. Its object was, in short, to care for the outcast and forlorn, the neglected and destitute, of this vast city in which we live; to gather together those who are running wild about our streets, exposed to many dangers, both in body and mind; and to bring them under moral discipline, moral influence, and religious instruction, which vast work, it should never be forgotten, is the formation of character, and the inculcation of principles needed by every class. The committee therefore urge again and again, as a motive for the support of ragged schools, that they have for their primary object the teaching of Bible truth, the pure Word of God being, as they believe, the best foundation for all moral and religious instruction, and the best guide for the right performance of all social and relative duties.

The number of Sunday schools in connexion with the Union is now 199, with an average attendance of 24,860 scholars. There are also 146 day schools, with an average attendance of 15,380 scholars, and 215 evening schools, with an attendance of 9,050, making a total of 560 schools, and 49,290 scholars. As however, many week-day scholars attend on Sunday, the committee reckon the number under their care as 25,000, or about one-half of the aggregate number.

The school buildings now number 170, the voluntary teachers 2,690, the paid teachers, 400, the industrial scholars 3,700, and the paid monitors 380. The scholars placed in situations during the past year number about 1,650. The number rewarded for keeping their places for 12 months

with good character is 870, being a much larger number than usual, as in former years it never exceeded 570 and the average for the last six years is 384. This the committee consider a most gratifying fact, and one that would of itself well repay them for any time and trouble expended on ragged schools, besides being a direct and positive testimony to the benefits conferred on the outcast and necessitous poor by such efforts, as this number also in itself only represents a small proportion of those who are in good places and doing well, though they may not have been eligible for prizes. The number of shoeblacks, as reported by the various societies, is about the same as last year. Their earnings are rather more, amounting to no less than £4,548.

The refuges for destitute children still continue 15 in number, with about 600 inmates. The committee are not anxious to increase these institutions any more than ragged schools, beyond the necessity of the case; at the same time, there are still very many poor, destitute, friendless youths roaming the streets, uncared for, and the funds of few institutions allow of extended efforts, or of accommodating more inmates than they do at present.

The refuges for ragged children, intended to benefit only the most depraved and destitute juveniles of London, bring under notice the very lowest grade of the metropolitan poor. These institutions receive a capitation grant from the committee of £3 each per year for every inmate they receive from the ragged schools; but they are much in need of money in some instances to keep them going, as the expenses for food and lodgings are considerable.

The amount received towards the refuge fund of the Ragged School Union has this year only amounted to £31, and the committee have had to draw £800 from their deposit fund to meet the demand made upon them for capitation grants.

The committee have during the past year only assisted in the emigration of a few lads. The limitation of this branch of operation has arisen from the small amount in their hands for this special purpose, and from the demand for labour at home. The weekly meetings of mothers continue to flourish, and result in pleasure and profit to those who attend them. The total amounts paid into the penny banks, during the past year, has reached £8,880. In no former year has it exceeded £4,400, or just one-half of the present sum. The sum drawn out was £7,856. The number of depositors has also increased 10,000, and now numbers 25,637. This includes friends of parents of the scholars as well as persons living close to the schools, and gives an average of 7s. for each depositor,—a fact which shows that it is not so much an increase of wealth, as some argue, but an increase of provident habits among this class.

The clothing clubs are 49 in number, and have this year collected £598. The magazines go on prosperously. The circulation of the larger one has increased 2,000 during the past year, or double what it was previously. The circulation of the smaller one is 7,000, and it is self-supporting. The total income during the year has been £5,865, and a balance of £909 now remains in the treasurer's hand. The finances are thus so far encouraging that the committee have not had to draw on their deposit fund for current expenses during the year, except the 800 towards refuge purposes already mentioned.

The chairman, on the conclusion of the reading of the report, rose and referred in a feeling manner to the origin of ragged schools by a few individuals meeting in Field-lane, and asked if the latter anticipated the present day, when such a report as they had just heard would be read to thousands. Other speakers followed, and the proceedings terminated in a cordial vote of thanks to the chairman.

BRITISH AND FOREIGN SCHOOL SOCIETY.

The annual meeting of this society was held on Monday 2nd, at the schools in the Borough-road, under the presidency of Lord John Russell, who also took the chair during a portion of the examination which as usual preceded the meeting. On the platform were Lord Lyveden, Sir Walter Stirling, Mr R. Slaney, M. P., Mr H. Pease, M. P., Mr S. Gurney, M. P., Mr Hoare, Mr G. Moore, and several other friends of the society.

From the report it appeared 250 young persons had attended the classes of the Normal College during the year, of whom 116 had been appointed to schools, and 124 are at present resident in the institution. Of the 123 students presented at the certificate examination at Christmas last, every candidate succeeded. In the female department, the number of marks under the head of "domestic economy" and "individual skill" were remarkably high.

In the Model Schools the average attendance in the boys' school was 603; in the girls' school 380. The total number of children who had passed through these schools since their establishment was 87,850.

The system of school inspection had been continued with very happy results. 1,389 visits had been paid during the year to 1,170 schools in 876 towns and villages, besides 212 visits to 160 schools in the metropolis and its immediate vicinity.

The first stone of the new training college at Stockwell, was laid on the 5th of August, by Earl Granville, the Lord President of the Council. The contract for the buildings was £15,672 to which must be added £3,100 for the land, legal expenses, architect's commission, fittings, and furniture. Towards this total outlay of £18,672 about £6,000 might be expected from the Committee on Council of Education, and the sum of £5,342 had been contributed chiefly by the committee and their personal friends, but the balance to be provided for on this account was over 27,000 to raise which an earnest appeal was presented to the friends of the Scriptural education of the children of the poor.

The treasurer's report showed that the total receipts for the year, were £23,305 10s. 8d., which included subscriptions of £100 from the Queen, and £100 from the Duke of Bedford. Lord Lyveden moved the adoption of the Report. The Rev Samuel Martin seconded the motion.

A discussion took place relative to the issue from the repository of certain books teaching special religious dotrines, which, it was contended, was contrary to the fundamental rules of the society. An amendment, remitting the subject to the consideration of the committee, moved by Mr J. C. Lawrence, and seconded by Mr H. Lawrence, gentlemen connected with the Unitarian denomination, was however, lost by a large majority, and the Report was unanimously adopted, one of the members of the committee stating that he had already given the matter their best consideration.

Mr Slaney, M. P., and the Rev Mr Hardy having spoken in support of the society, the Chairman said,—I believe the principle upon which this society was originally founded, and by which it still holds—namely, that of giving daily Scriptural instruction, and at the same time not giving any sectarian instruction—is the right principle, and the best principle for this country. It has been held for a long time, and it is certainly useless to discuss it now; but, while it is useless, I say, to enter into any question of that kind at present, I must warn you that the whole question of education in this country is now undergoing a very strict examination, under a commission of which the Duke of Newcastle is the head. It was stated in the report last year, I think that that commission had asked the British and Foreign School Society to furnish them with information, and that the British and Foreign School Society immediately sent to all their schools, the questions which the commission desired to put. There is no doubt that a valuable collection of information will be in the possession of that commission. At the same time, the questions that they will have before them are most difficult.

The chair was then taken by Sir Walter Stirling, and the meeting was addressed by Dr Lockhardt, from China, the Rev F. Trestrail, and the Rev Hugh Allen, the newly-appointed rector of the parish in which the schools are situate.

HISTORY OF NORMAL SCHOOLS IN FRANCE.

It was in the year 1681 that the earliest movement towards the professional training of teachers was made in France.—In that year, the Abbe de Lasalle, Canon of the Cathedral at Rheims, projected, and in 1684, perfected his Institute for the training of the Brothers of the Christian Schools.

This Institute deserves particular notice in any history of Normal Schools, being not only the earliest of its kind in France, but in the whole of Europe. For some time, the Abbe contented himself with assembling the teachers in his vicinity after school hours, and on holidays, and imparting to them in this irregular way such instruction as he deemed fitted to qualify them for the duties of their vocation, and that he might be able to devote himself more entirely to his adopted work, he resigned his benefice, and appropriated his private fortune, which was considerable, to the education of the poor.

In 1688, M. de Lasalle, with two brothers, took charge of a school in the parish of St Sulpice, in Paris. They found the school in great disorder; without regulation as to the time of opening and closing, the order and length of lessons; and without discipline. By skill and patience, it was improved, and a desire created for similar schools in other parishes.

In 1700, a school of a similar character was opened at Calais. In 1702, the first step was taken to establish an Institute at Rome. In 1703, another was opened at Avignon.—In 1704, the celebrated Institution at Marseilles was established, first under the care of two Brothers, who were afterwards increased to ten. In 1705, M. de Lasalle removed his Institution to Rouen, where a school had been a few months established.

In 1710 and 1716, schools were respectively established in Moulins and Boulogne, and the formation of the latter was the last labor of M. de Lasalle, the projector of the first Normal School in Europe. He died on the 7th of April, 1719, at the Institute of St Yon, near Rouen: the last year of his life was devoted to the instruction of a class of little children.

In 1724, the Society obtained a corporate existence under letters patent from Louis XV., and the next year the rules of the Institute were approved by Benedict XIII., and it was raised to the dignity of a religious order. From this time we cease to regard it as worthy of a place in our history,—on the ground that it is no longer a civil but a denominational Institution.

We have given a brief outline of the history of the Normal Schools established under the auspices of Abbe de Lasalle, until they became incorporated with the Roman Catholic Church, as a religious order. We will now retrace our steps and look at the history of Normal Schools in France in a national point of view.

In 1794, by an ordinance of the National Convention, a Normal School was established at Paris to furnish professors for Colleges and the higher Seminaries. The course of instruction provided, which was by lectures, was too advanced for the class of pupils who attended, and in 1795 the undertaking was abandoned.

In 1808, this Institution was re-established by the Imperial decree which created the "University of France," to which we referred in a former number. It has since been maintained for the purpose of preparing a class of professors for Colleges and Secondary or High Schools.

It was not until 1810 that the first Seminary designed for teachers of Elementary Schools was established. It was by the liberality of Count de Lezai Marnesia that the department of Lower Rhine was privileged to be the seat of this Institution. It was located at Strasbourg and opened in 1811 as a "class for primary school teachers." No pupil was admitted under sixteen years of age, nor over thirty, or who was not acquainted with the studies pursued in primary schools. The course embraced four years, and included a range of studies as wide and thorough as any now required in the best Normal Schools in France. This school has exerted a powerful influence on the education of France, and it now ranks not only as the oldest but as one of the best in Europe. The department of Upper Rhine, after witnessing the results of this undertaking, allowed the handsome sum of six thousand francs to be appropriated as scholarships for a certain number of candidates in the Institution at Strasbourg—thus obtaining for themselves the privilege of participating in its benefits.

The effects of this Institution are made manifest in the report of M. Guizot to the King in 1833, wherein the Academy of Strasbourg is represented as being far in advance of any other section of France, in the efficiency of its primary schools, and the unhesitating avowal is made that the universal opinion ascribes this superiority entirely to the Normal School.

The establishment of two Normal Schools for the departments of Moselle and Meuse in 1820, was followed by the same results, viz., the establishment of schools in communes before destitute, the improvement of those already existing, and the introduction of better methods.

In 1828, a new impulse was given to public instruction by the institution of Teachers' Associations in Paris and elsewhere, and the result was the establishment of a new Normal School in the department of Vosges, until shortly afterwards, another in that of Mentl. About the same time a Normal course of instruction was opened in the College of Charleville for the department of Ardennes, and the foundations of superior Normal Schools were laid at Dijon, Orleans, and Bruges, as well as the Training School, for the Brothers of the Christian doctrine at Rouen. At the close of 1829, there were 18 Normal Schools in operation. The movement already commenced received a new impulse in 1830 by the Revolution, which proved as beneficial to education as that of 1791 had been disastrous. In the three years immediately following the change of dynasty in 1830, *thirty-four* new Normal Schools were established in different sections of France, with the uniform beneficial results.

In 1832, M. Guizot brought in an able report on education in France, in which he strongly recommended the Prussian system of Normal Schools as a model, and advised the establishment of small Normal Schools, in the different departments of France, where from the want of means, or other causes, it was impracticable to support Great Institutions.—Based upon this report of M. Guizot the law of 1833 established a system of Normal Schools in France, which has been rapidly regenerating the elementary instruction of the country.

Since that time the system of Normal Schools has remained substantially on the same basis,—in 1833 there were 43 Normal Schools, in 1849 there were no less than 93—being an increase of 50 during sixteen years.

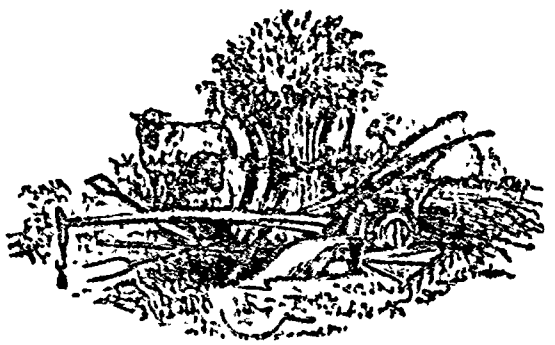
In 1834, there were 1,044 graduates from Normal Schools employed in teaching elementary schools, in 1848 this number had increased to 10,545.

The expense of this branch of the school service cost, in 1841, according to a report of M. Villemain—

To the State,	164,445 francs.
To Communes,	23,890
To Departments,	1,081,318
To Pupils,	268,520
Total,	1,538,203 francs.

M.

AGRICULTURAL.



TO THE AGRICULTURAL SOCIETIES AND FARMERS, GENERALLY, OF NOVA SCOTIA.

—

Many of you are aware that in starting an educational journal for this Province, we embraced the subject of Agriculture, and devoted to it a fair share of our space. We adopted this course for several reasons, but, mainly, because the theory of Agriculture forms one of the branches of education requiring to be taught in our more advanced schools, and, still more, because, at least, a third of our population are engaged in this pursuit, and ought, in our opinion, to be furnished with an organ to give publicity to their views and operations. This arrangement became all the more necessary when the Superintendent of Education was made the medium of communication between the different Agricultural Societies and the Legislature. Last year, accordingly, we were enabled to give publicity to the proceedings of the different Societies, and to diffuse throughout the Province valuable agricultural intelligence. We took the liberty of forwarding six copies of our publication to each Agricultural Society, in the hope that it would pay for them, and use all diligence to aid in the circulation of double that number. In this we have been greatly disappointed. Two or three, out of the forty societies, ordered a few more copies, but by far the greater number seemed to take little or no interest in the matter, and even some of them refused to pay for the copies sent. And the result has been as anticipated. The Publishers, at the end of the second year of the existence of the *Journal*, have found themselves in arrears to the amount of upwards of £100 for the mere working expenses. In consequence of this state of things, it has been determined to suspend the periodical for a few months in order to ascertain whether the Teachers and Farmers are really desirous to have an organ to represent their cause. We are quite willing to give our labor and attention gratuitously towards the furtherance of these important interests, but unless a *bona fide* subscription list is forwarded in the course of three or four months that will guarantee the payment of the mechanical expenses, it can hardly be expected that we can incur any more liabilities. Will you therefore kindly consider the foregoing statement, and let us know, through your Secretary, on or before the first of October, the number of copies you require, and what improvements and alterations you would suggest regarding the *Journal*?

We are, faithfully yours,

ALEX. FORRESTER, *Editor.*
A. & W. MACKINLAY, *Publishers.*

TO THE SECRETARIES OF THE AGRICULTURAL SOCIETIES.

—

The following is the deliverance of the Agricultural Committee of the House of Assembly respecting the Agricultural Societies:—

"They recommend that the grants of last year for the encouragement and improvement of our agriculture should be renewed in the present, that the societies may be kept up, and the foundation preserved for the more sustained and vigorous action recommended by Dr Forrester in his able report, and which they are happy to learn is about to be aided by the powerful influence and co-operation of his Excellency the Lieutenant Governor."

From this brief statement it will be seen that these Societies, in so far as the grant of public aid is concerned, are on the same footing as they were last year. As soon as convenient, therefore, I shall be obliged by your informing me of the position of your Society. It is necessary that I should know this before I proceed to the appropriation of the money for the present year. If one Society in a county has ceased to exist, it will affect most materially the amount to which the others may be entitled. May I also take the liberty of recommending to you and the other office-bearers of your Society the propriety of collecting a reliable body of Agricultural statistics in your locality, and to embody the same in your annual report, that I may be able to present a more full and correct view of our Agricultural condition.

—

YOUNG MEN'S MUTUAL IMPROVEMENT AGRICULTURAL ASSOCIATIONS.

—

During our Western Tour of Visitation in April last we had the satisfaction of meeting several of the Agricultural Associations and addressing the public on the subject of Agriculture. In these addresses, as well as in my published report, I have recommended the formation of the above Associations as well calculated, in my view, to lead to important improvements in this department. Farmers, like every other class in the community, are apt to become stereotyped in their notions and doings, and, in consequence, their prejudices are excited in reference to the application of science in the cultivation of the soil. Young men are not so much exposed to these prejudices, and, therefore, we think every means should be resorted to, for the purpose of enlightening their mind and enlarging their views respecting both the theory and practice of scientific Agriculture. We know no means so likely to be productive of these results as the Associations referred to. At the meetings of these Associations, which may be held once a fortnight or once a month, according to the convenience of the members, the various topics connected with the theory and practice of Agriculture may be discussed. At a previous meeting the subject should be given out, one of the members appointed to introduce it, either by a *viva voce* address or by a short essay; the whole attention of the other members in the meantime being called to it, perusing what available books or periodicals they may possess, consulting experienced practical farmers and extending their own observational powers to the uttermost regarding it, so that when they meet together for the consideration of the same, they may

communicate, in a friendly spirit, the result of their study and observation, and, thereby, whilst they whet and stimulate each other's intellectual powers, they will promote the benefit of the whole Society, and diffuse a more skilful and more profitable style of farming throughout the locality. For the furtherance of the objects contemplated by these Societies, it is necessary that each put itself in possession of a good Agricultural Library for consultation, as well as of a number of the most useful Periodicals on the subject, for circulation. All these things these Societies will be able to effect by a small annual contribution from each member; indeed the members may in this way obtain access to Books which, by their own individual exertions, they could never have an opportunity of seeing. And this is just another of the many benefits arising from the formation of these Associations. The effect of all these operations on the next generation of Farmers must be great indeed;—not only rendering them more skilful and successful in their worldly vocation, but elevating their whole intellectual and moral character. The following may be taken as a specimen of the subjects for consideration at the meetings of these Associations:—

1. What is the reason that whole districts of country are covered with the same external texture of soil?
2. What are the ingredients that enter into the composition of all fertile soils?
3. What ought to be done mechanically, and what chemically, for the benefit of soils?
4. What constitutes good ploughing, and what are its leading advantages?
5. Describe the theory and practice of the drainage of land, and what its advantages?
6. What are the contents of all vegetables—viewed both in their physiological and chemical characteristics?
7. What is the connection between soils and plants—and what the benefits of the rotation of crops, &c,?
8. What are the contents of animals—and what their dependence on vegetables?
9. What are the best modes of rearing and managing the best breeds of pigs, sheep, neat cattle and horses?
10. What are the advantages arising from the importation of new or pure breeds of stock?
11. What should the Farmer mainly look after?
12. What is the kind of Farm Offices best adapted for Nova Scotia?—&c., &c.

The following may be regarded as a sketch of the constitution of these Societies, which may be modified according to circumstances:—

1. That this Association shall be designated "The ——— Young Men's Mutual Improvement Agricultural Association."
2. That the object of this Association shall be the improvement of its members in the theory and practice of Agriculture, and that this object shall be aimed at by discussions on Agricultural topics, previously prescribed, which discussions may be carried on, either orally or by written essays.
3. That every person shall be admitted a member of the Association who subscribes to its constitution and regulations, and who pays the sum of 2s. 6d. or 5s. annually.
4. That the management of the Association shall be entrusted to a President, Secretary and Treasurer, and a Committee of five, all chosen annually by the members.
5. That as soon as the funds of the Society will admit of it, a Library of the most approved Books on Agriculture shall be bought, and Agricultural Periodicals ordered for circulation amongst members,—and that the Managing Committee shall have the entire control of this department.
6. That when the President is absent at any of the meetings the members present shall elect a President *pro tempore*.
7. That the Society shall meet once a fortnight or once a month.
8. That the Managing Committee shall draw up a code of bye laws, for the regulation of all the details, the order of procedure in discussions, the management of Libraries, &c., which shall be submitted to a general meeting of the members before passed into a law.
9. That this Society shall co-operate with the Local Societies of the district in the furtherance of Agricultural pursuits.

SUMMER WORK.

Not for several years have the prospects of all kinds of farm crops and fruits, with the exception of the fall wheat in a few localities, been more encouraging in this province than at the present moment. From all parts of the country we have the same report, the same glowing descriptions of the beauty and luxuriance of the vegetation. The late spring frosts, which astonished us last year, and did so much mischief in the beginning of June, were altogether of an exceptional character, and fortunately have not repeated their visit this year. The supply of rain has been very limited, but the crops do not appear to have suffered materially on that account.

Very little now remains to be done to complete the seed sowing operations of this season. The white globe or other varieties of the English Turnip may be sown from the present time to the 1st of August. It will give a more bulky crop than the Ruta Baga, but of course not equal in quality for feeding purposes. Where the Swedes or Mangels or Carrots have failed, or where a sufficient quantity of them have not been sown, the white turnip may be put in as a substitute. They may be sown broadcast or in flat drills the latter is preferable, upon any rich, porous, well prepared soil. Seed, one to two pounds per acre. Hungarian grass may still be sown either for hay or soiling Indian Corn may be sown for soiling; it is rather too late now to sow this crop to expect it to come to maturity, although we have known the early ripening varieties sown as late as the 20th June and produce a fair crop. Buckwheat may be sown from the latter part of this month to the middle or end of July, upon light sandy or loamy soils. If intended to ripen the seed it should be sown not later than the middle of July, so as to avoid the early autumn frosts; if to be ploughed in for manure, it may be sown later. The quantity of seed is about a bushel per acre sown broadcast; if drilled, less will do.

All sorts of root and hoed crops, such as turnips, mangels, carrots, Indian corn, &c., as soon as they appear sufficiently above ground, should be gone through carefully with the cultivator and hand hoe to keep down the weeds and thin them out to the proper distance. The distance to which these crops should be thinned depends somewhat upon the variety of the root, and upon the quality of the soil. If the growth of leaf is likely to be luxuriant, they should be kept at somewhat wider distances than otherwise, but as a general rule, if mangels and turnips are in drills two and a half feet apart, they should be thinned to a foot apart in the drills. Carrots will sometimes make room for themselves

and fill the ground in a surprising manner, if sown in the right sort of soil, without any great attention having been paid to the thinning process, but to grow an even crop of large, well shaped roots, the rows should be a foot and a half or more apart, and the carrots six inches apart in the rows.

Hay making will commence in some parts of the Province, in fields where the crop consists chiefly of clover, before the close of the present month. Clover should be cut as soon as it has fully blossomed, and begun to assume a brownish hue. There is more lost by letting it remain too long upon the ground than by cutting it a little too soon. Clover should not be too much exposed to the wind and sun. Unless very heavy, or unless it has been exposed to rain, a single turning, after it has wilted a little on the top of the swath, will be enough. It may then be placed in cocks till sufficiently dry to go into the barn. A sprinkling of salt, say 4 or 5 quarts to each load will aid in preserving the hay, and will make it more palatable to the cattle.—*Canadian Agriculturist.*

HAY TEDDING MACHINES.

The operation of shaking out the swaths of newly mown grass, either by the hand or fork, is necessarily slow, and not unfrequently the work is but imperfectly done. This was particularly felt in England, where the hay crop is usually heavy, and consists of a number of fine, juicy grasses, which require to be evenly spread and exposed to the action of the sun and air, in order to make them into hay of the finest quality. Hence several years ago a machine was invented for spreading the grass, drawn by a horse, and performing ten or a dozen acres a day; that is a hay-making day; for hay should not be moved till after the dew is off in the morning, nor after it has fallen in the evening.

Within the last half dozen years great improvements have been effected in these machines, which now consist of two cylindrical sorts of rakes, side by side, in the same length formerly occupied by one; each being worked by cog-work from the wheel next it. In turning, the outer wheel will thus always give motion to that half next it, and the liability to miss its work on turning, prevented. Another important improvement consists in the means now furnished for reversing the direction of its revolution. On first being used in the hay field, it is drawn across the swath, the cylindrical frames revolving contrary to the wheels, as the machine proceeds; the gross is thus carried under and over the machine and tossed high into the air. After this first tedding, the motion of the machine may be reversed, and the grass is thrown from behind, with much less labor, but with almost equal efficiency, now that it is already lying evenly spread, and it is thus turned and winnowed. The rakes attached to the cylindrical framework are held stiffly, but not rigidly to their position by suitable springs.—*Ib.*

PLEURO PNEUMONIA.

We have felt it our duty to lay before our Agricultural readers the following account of that disease which is at present producing such terrible havoc in the Northern States of the Union. It is exceedingly contagious, and every precaution ought to be taken to prevent, if possible, its introduction into this Province:—

We give the following condensed sketch of the progress of the disease since it has made its appearance on this side of the Atlantic.

Mr W. W. Chenery, residing in Belmont, 5 or 6 miles from Boston, Mass., having become satisfied of the superior qualities of some cattle he had imported from Holland, determined to import some other animals of the same breed, the best that could be obtained. He transmitted his orders to that effect in Dec. 1858, and four cows were shipped for him at Rotterdam in April, and arrived at Boston on the 23rd May 1859.

We learn from a letter published by Mr Chenery in the *Boston Cultivator* of March 17th last, that—

"Upon examination the cows were found to be in an extremely bad condition,—very much bruised and emaciated,—one of them, as the mate of the bark stated, not having been on her feet during the twenty days preceding her arrival; another one was totally unable to walk, and these two animals were accordingly carried to the farm in waggons—the remaining two were driven out.

Deeming it impossible for the first mentioned cow to recover, she was on the 31st of May slaughtered, and on the 2d of June following the second cow died. At that time, Mr Chenery was fully persuaded that the bad condition of these animals was caused merely by neglect on the voyage.

The third cow of this importation seemed to be doing well until about the 20th of June, when she became sick and died in ten days after. The fourth cow, Lady Beemster, had, up to a short time since, shown no indications of sickness, but was, on the contrary, in a thriving condition.

Early in the month of August following, symptoms of disease were observable in the Dutch cow, Lady Louise, (imported in 1852.) She died on the 20th of the same month. About this time several other animals were taken sick in rapid succession, and then it was that the idea was first advanced that the disease was identical with that known in Europe as "Epizootic Pleuro-pneumonia." From that date every possible precaution was taken to prevent the spread of the supposed distemper, strict orders having been given that no animals should be allowed to leave the farm nor any strange cattle to come upon the premises.

The following extract from Mr Chenery's letter-book, in answer to an application for stock during the prevalence of the disease, will serve to show his views with regard to it at the time: "I am, at present obliged to decline any applications for stock, owing to an epidemic disease in my herd. The disease is that known as 'Pleuro-pneumonia,' and I have already lost seventeen head, and have ten more very sick. I am using every precaution to prevent the disease from spreading, and you will of course see the propriety of my refusing to allow any animal to leave the farm until the infection has ceased."

"It is manifest," Mr C. continues, "that the means used to prevent the spread of the distemper have so far proved eminently sucessful, inasmuch as, notwithstanding I have lost some thirty animals—nearly half of my whole herd—there has not been a single case of the disease elsewhere in the neighborhood of my farm."

But Mr Chenery had in July, 1859, sold three calves (two heifers and one bull) half Dutch and half Ayrshire, of his old stock, to a young farmer, named Curtis Stoddard, in North Brookfield, Mass. Stoddard owned a large herd of cattle, and was in the habit of trading largely in them, and from this source the disease spread in all directions. We learn from a statement of the Hon. Amasa Walker, published lately in the *Homestead*, that in August last one of the calves purchased from Mr Chenery by young Stoddart was taken sick.

"His father took the calf home to his farm to nurse. It grew worse, and so it was taken back. The herd of the elder Stoddard became sick, and some died. Some of the younger Stoddard's cattle died, but no excitement was caused up to the 11th of February, when it was found that the disease was contagious. Mr Peedleham, at whose place Stoddard put up, when drawing wood from Braintree, discovered it in his herd. A Mr Olmstead bought cattle from Stoddard; his cattle died in January. Some other herds were taken sick, and all were traced to some connection with the Stoddard's herds.

"Last November, young Stoddard had an auction of his herd, which were chiefly heifers. They were sold two or three to a place. The disease began to attract serious attention, and to be investigated in February, and on the 23rd, he, (Mr Walker,) drew up a petition, and his brother took it, after getting numerous signatures, to the legislature. The subject was for five weeks fooled with; a resolution, worse than nothing, proposed, amended, tabled, etc., and up to the 2nd of April, nothing was done. Then the law was passed, under which the Commissioners now act. It contemplates only the check of the disease by slaughter of the animals, and gives power to accomplish only this. It takes a long time to get an idea into the comprehension of common people. So the farmers teamed and travelled, and the cattle came greatly in contact with each other.

"To recur again to one of the chief causes of the spread of the disease. On the 19th of December, a house was moved by twenty three yoke of cattle belonging to thirteen different herds—one yoke came from Stoddard's—one recently sold by the elder Stoddart, every one of these twenty-three then took the disease. Every case can be traced to Curtis Stoddard's stock.

"One of Stoddard's heifers was bought by a Mr Tucker, he kept it a while and sold it to a North Brookfield man; the animal went to 'Ragged Hall,' and was afterwards bought by Mr Bowen, in Sturbridge, three miles from the Connecticut line. He sold it to a man on 'Coy's Hill,' Mr Gleason, and poisoned all of his neighbor's herds. Bowen sold and exchanged others of his stock, seven to ten, in Sturbridge. The original heifer was killed last Saturday, and it was found that this animal *was getting well!* The lung was attached to the diaphragm; the pleura, the pericardium, and the lobes of the lungs had run together, and were healing. This is the only case yet discovered where it was pretty evident that nature, by a great effort, was going to heal the lungs, and the animal would become comparatively sound, after poisoning 200 or 300 head."

The Massachusetts Legislature took up the question in March, and on the 4th April passed a law providing for the appointment of three commissioners to visit herds where the disease was known or suspected to exist, and with power to cause all the animals in such herds to be forthwith killed and buried, and the premises where they had been kept to be purified. All the cattle in such herds not appearing to be infected, were to be appraised before being killed, at the fair market value, and the amount paid to the owners. Any person disregarding orders of the Commissioners, or selling an animal suspected to be infected to be subject to a fine not exceeding $500. The amount appropriated to carry out the provisions of the Act was $10,000. The Commissioners appointed were Paoli Lathrop, of South Hadley, Richard S. Fay, of Lynn, and Amasa Walker, of North Brookfield. They proceeded with their work energetically, and soon expended the sum placed at their disposal. They were then assisted by a guarantee fund raised by subscription.

The following sketch of their proceedings for the first few days, from the *Rural New Yorker*, may be taken as a type of the whole:—

"The first place visited was North Brookfield, in which neighborhood are some twelve or fifteen stock owners, whose herds number about one hundred and fifty head of choice cattle. The disease, in greater or less development, was believed to be among them all. The Commissioners were accompanied by several surgeons and cattle doctors from Worcester and Boston, and upon the farm receiving their earliest visitation, caused fourteen animals to be killed that they might trace the progress and character of disease in all its stages. A cow that died the night before the Commissioners arrived was examined, and both her lungs were a mass of frothy, cheesy corruption. One cow that was taken so long ago as the 1st of January, and seemed to be recovering, appearing bright and healthy, was slaughtered. The left lobe of the lungs was sound, but from the right was taken a mass of pus, looking like rotten cheese, of more than a pint in measurement. She might possibly have thrown off the the disease and lived, had she not been killed. Another cow in the same herd, and showing stronger signs of the disease, had similar, but a greater amount of pus in the lungs, and with it a large amount of watery fluid. An ox that looked bright and well, and ate and chewed his cud as if in a healthy condition, was among the slain, and one of his lungs was a mass of corruption. Another singular case was that of a cow that calved some ten days ago; one lung was healthy, but in the other the disease was developing itself in scattered balls, or masses of pus, looking like liver on the outside, but on cutting, like rotten cheese; and her calf was found to have the disease in precisely a similar stage. A calf, nearly a year old, that was brought from Mr Chenery's herd in Belmont at the same time with the calf to which the whole disease is traced back, was also among the animals killed by the Commissioners, and it was found to have the disease only in the very earliest stages.

On the day following, the stock belonging to C. P. Huntington, where there were some "bad cases," had an examination. Mr Huntington had previously lost eleven cows by pneumonia, and the Committee killed three more, diminishing his stock to eleven head. Dr Bates immediately entered the stable and began the laborious process of examination by percussion, while the appraisers estimated the value of the stock. Two cows were found diseased, and the rest had been so much exposed to infection, that it was decided to kill them also. In the first one examined, they found a strong adhesion of the lungs to the diaphragm, and acute disease of the right lung. The second case also exhibited adhesion, accompanied by indurated lung tissue, and sloughing of the left lung. Cases were observed in the course of the day where the sloughing business had proceeded so far that there was very little healthy lung left. And yet, so insidious is the progress of the disease, that the farmer stoutly declares his cow has never been sick, and will not be convinced that there is anything the matter with her till the proof is laid before his eyes.

From North Brookfield the Commissioners proceeded to New Braintree and visited the farm of Alden W. Woodis. At this point the medical force was much increased. The disease was introduced upon the farm of Mr W., by the temporary presence of an ox, from the "Stoddard" farm, Mr Stoddard having purchased cattle from Mr Chenery, at Belmont, who imported the infected stock. The disease being revealed, eighteen head, the entire herd of Mr Woodis, were slaughtered and buried.

The next farm visited was that of Chas. Needham, also in New Braintree, where the Committee had three cows killed before. Mr Needham had exchanged cattle with Curtis Stoddard. The doctors found a great deal of water in the left chest of the third cow examined, and only a few healthy spots in the lung. Twenty-eight cattle were killed, completely emptying the barn.

Following that of Mr Needham came the farm of Leonard Stoddard. The doctors made their examination, and every hoof in the barn, numbering forty nine, including ten pairs of fine oxen, was condemned to die in the morning. Next in order came the stables of W. W. Chenery, whose residence is in Belmont. It is several months since Mr C. lost an animal, and he felt quite confident that the malady had entirely left his herd. To render assurance doubly sure, three cattle were chosen for the knife, one a cow that had been sick, but was deemed nearly well, with two heifers, one having shown no signs of disease and the other but slight, such as were indicated by a slight cough, and they all proved to be diseased—one of the lungs of one of the heifers being filled with pus. After an examination of the animals slaughtered, the Commissioners returned to the barn and submitted the entire herd to a professional inspection. The stock consists of about forty head, and all but three or four proved diseased, some of them very bad—the symptoms and indications of the disease being unmistakable. The mode of examination was by sounding the chest of an animal over

the lungs, by slight raps—the tone of the resonance, or reverberation of the sound thereof being the test.

Cases similar to the foregoing, might be multiplied did space permit."

Before the end of April about 400 head of cattle in North Brookfield were said to be infected with the disease. It was found to extend over a greater area, and to be more formidable than the commissioners had anticipated. Still they hoped to be able to exturpate it if afforded sufficient money assistance. At that time the disease was confined to a territory about 12 miles square, a territory abounding in cattle. In a memorial of the commissioners, asking for further aid, addressed to the State Board of Agriculture and dated May 15th, they say:—

"In spite of all obstacles, the Commissioners have not hesitated to go to the fullest extent of their powers in the discharge of their duty. They have placed an injunction on every suspected herd. They have destroyed all that gave the slightest appearance of disease, from the poor man's single cow, to the large and choice collections of the most extensive farmers. They have explored every spot which has been brought to their notice as having been in any way exposed, and have endeavoured to ascertain the limits beyond which it seems impossible that the disease can have progressed.

The central point of the infected district, it is well known, is North Brookfield, the farm of Leonard Stoddart, into which the disease was thoughtlessly and innocently introduced, and from which it has been carelessly allowed to go out. Around this spot the destruction is complete; but few animals, indeed, being left in the unfortunate town. The disease has been discovered in the north in those parts of new Braintree, Oakham and Rutland lying contiguous to North Brookfield; on the east, in Spencer; on the south in Brookfield and Sturbridge; and on the west, in West Brookfield, Ware and Warren. It is believed that the precise course and extent of the disease have been explored in each of these towns.

The number of persons whose cattle have been condemned or destroyed, is 75. The number of animals already marked or killed, is 750.

The Commissioners wish they could assure the Board of Agriculture and the community that their work will end here. But they cannot. The fire that is wasting prairie and forest may apparently be quenched for a time; and it is only when, on the distant horizon, its terrific work is painted, and heaven and earth seems all ablaze, that the insidious and appalling power of the elusive element comes home to heart of its pursuers.

This is not the time nor the place to enter into an investigation of the history and character of the disease—that, it is hoped, may be done hereafter. But it is important that the public should know and appreciate the full extent of the contagion. That the disease is peculiar in itself there can be no doubt whatever. The name, Pleuro-Pneumonia, which has been applied to it, and which in its ordinary acceptation signifies inflammation occupying the pleura and the lungs at the same time, does not by any means indicate its true character. The inflammatory stage of the disease is hardly perceptible. But throughout the substance of the lungs, and in the membrane covering them and, lining the cavity of the chest, there seems to have been diffused a morbific poison, under the influence of which the vitality of the parts is threatened with speedy destruction. The contagion is inevitable. Wherever an animal has been exposed, in that animal the disease is sure to be found. Every creature that went out from Leonard Stoddart's herd carried the malady with him, and imparted it wherever he went. In no case has an animal been examined on account of its history, that the disease has not been found in a greater or less degree. In whatever herd the disease exists, the animal that carried it there can be pointed out, and his exposure traced back to that wretched calf that went from Belmont to North Brookfield. The disease is not epidemic. It is not found except as the result of contagion. It has broken out in no spot without a known and well authenticated cause. But it passes from animal to animal in its deadly career, making every victim that comes within its fatal grasp as surely as the water of Tofaña or the poison of Brinvilliers.

To keep the plague within its present limits, and to draw a cordon around the infected district, is now the great object of the Commissioners—a work which the nature of the disease renders practicable, and which nothing but public apathy and inaction will prevent."

An extra session of the Massachusetts legislature was held in the beginning of the present month, for the special purpose of taking up the consideration of the subject. The Governor, in his message on the opening of the session, says:

"A detailed report of the operations of the Commissioners under the statute is herewith communicated to the Legislature. It appears that all suspected herds have been examined, and many cattle have been isolated by order of the Commissioners, 812 have been slaughtered, for which compensation has been allowed by the Commissioners to the amount of $20,432.83.

"The appropriation of $10,000 made by the Legislature was very soon exhausted. The labours of the Commissioners would have been at once brought to a close; but the distemper continuing to spread, and the public mind becoming more excited in the districts where its ravages were chiefly confined, and where it seriously affected and seemed to threaten the destruction of the principal occupation and support of the people, many generous and public spirited citizens representing different business interests, voluntarily subscribed to a fund to continue the work, notwithstanding the failure of the appropriation, and to guarantee all parties concerned against loss, in case the Legislature should fail to recognize and provide for the unauthorized expenditure of money.

"Subscriptions to nearly the amount of $——were at once made, and the Commissioners, under the protection of this guarantee, made some further progress, but the disease had spread over a much larger territory than was at first supposed. More definite instructions on the part of the Legislature were desired as to the course to be pursued. It was believed that more stringent regulations than those allowed by the act of April 4, 1859, were required, and additional appropriations from the treasury would be indispensable.

"On the 18th of May the Commissioners made a formal request that an extra session of the Legislature should be called. This request was supported by a petition of a committee of the State Board of Agriculture, by several members of the Board, and by many influential and honorable citizens of different parts of the Commonwealth. On the 24th day of May the proclamation was issued for a session of the Legislature for the consideration of this special subject.

"Two consideration alone have impelled me, with very great reluctance, to summon the members of the two Houses from their homes at this season of the year. The first has reference to the importance of the interest involved. It is not a disaster affecting Massachusetts or New England alone. If the contagion is allowed to spread without effort to extirpate or restrain it, ultimately it must ravage the whole country. The neat cattle in the United States in 1850 numbering 18,378,000. Estimating the number at the present time upon this basis, by adding 20 per cent. to the number as the natural increase in ten years, it will now exceed 22,000,000.

"The number of milch cows returned in the census bureau for 1850 was over six millions, and the number of working oxen was nearly a million and three quarters. The value of butter, cheese, and milk not used for butter and cheese, returned in 1850, as a portion of the agricultural product, according to the estimate of Prof. Tucker, exceeded eighty million dollars. To this must be added an equal sum as the value of cattle slaughtered for the market; and the value of the labor of nearly a million yoke of working oxen at the present time, estimating their labor for year at $20 per yoke,

and the aggregate value of this yearly product exceeds one hundred and eighty million dollars.

"There is but one agricultural product of equal importance—that of Indian corn. To the aggregate thus stated must be added the value of the cattle themselves, which, estimated at $20 per head, amounts to nearly $370,000,000. Upon the basis of the census of 1850, this interest involved a value of products and property equal to $400,000,000. The average increase in ten years may be safely estimated at 20 per centum, and this would make the same values equal for the present year to $540,000,000.

"But these figures very imperfectly represent the interest of the American people in this gigantic industrial product. How far it enters into the employment of the great majority of persons, how many millions are dependent upon it for the luxuries and necessities of life, to what extent it contributes indirectly to public health and enjoyment, and how large a part it forms of the sound and valuable business of the country, are considerations which naturally occur to the mind of every intelligent person.

'If we could confine the ravages of this fatal distemper so unfortunately deposited upon our shores, to our own State, it would still be of sufficient importance to demand the earnest attention of the people. But unless extirpated on the instant when it appears, it cannot be so confined. If it spread over our own territory, it must ravage other States, and it becomes a duty of the highest character, one which we owe alike to ourselves and to the people of the whole country, to make every available and possible effort to restrain its ravages, if extirpation is impossible."

The governor then proceeds to recommend various amendments to the Act of April 4th, and suggests the propriety of a thoroughly scientific investigation of the disease.

The subject has also engaged the attention of the United States Congress, and a committee has been appointed to procure information in relation to it.

Dr Dadd, Veterinary Surgeon, and one of the editors of the American *Stock Journal*, assisted the Commissioners in the discharge of their duties, and describes the symptoms of the disease as follows:—

"The old saying is that 'in dry times all signs fail,' so it is with exudative pleuro-pneumonia, when it assumes a mild form; when it first appeared at Belmont, and afterwards at North Brookfield, it was in the acute form, and in spite of all treatment run a rapid course; its symptoms were then somewhat uniform—for example, it was ushered in by a short, dry, husky cough, and the animal on being urged to move showed symptoms of distress; the respirations were accelerated; the pulse quick and wiry; the animal dull and listless; the bowels constipated; the milk decreased in quantity and of a yellow tinge, and the appetite not so good as usual.

Now the disease has assumed a milder form, being modified by passing through the systems of various herds, consequently the 'signs fail,' yet let the disease be in ever so mild a form the creature shows unthriftiness, appears dull and has a languid look; the hair in some parts of the body stands on end; the respirations are quickened, as well as the pulse; yet the appetite is not impaired, in fact there is no complaint made about an animal's appetite except when the disease commences in the form pleurisy, in which case very little food is eaten, and if the animal be pressed in the spaces between the ribs it shows signs of pain. It will generally be found that in the acute stage there is considerable tenderness all along the spine, and the moment a person's hand is placed in that vicinity the affected creature will shrink. The horns and extremities are alternately hot and cold; urine dark colored and scanty; faces darker than usual. Yet when the disease takes on the incipient form, the work of destruction goes on in so mild a manner that it eludes detection, until auscultation or percussion reveals it."

THE CULTIVATION OF ROOT CROPS.

From the frequent failures which have occurred in the turnip crop, and the decay of the tubers after they are stored, questions arise as to the modes of cultivation the best suited for the maintaining of a healthy vegetation during the period of growth. Such questions cultivators should endeavour to solve. The numerous diseases to which turnips are liable, may be classed under two heads—vegetable and insect. The former are more under the control of the cultivator, the latter less so. Both are in some measure dependant upon atmospheric causes, but both are greatly influenced by the condition of the soil and the modes of cultivation. Insect depredators usually appear in great numbers one season, and sometimes are not observed for several seasons. But although not generally observed, it may be held as certain that a few appear every season; thus the species are continued, but only appear in great numbers when the conditions are highly favourable for their propagation. The insect known as the turnip fly, black-jack, the green aphis, the green and black caterpillars are the most frequent depredators. Of these the turnip fly is the most common, causing more or less damage every season. To keep in check the turnip fly, several specifics have been recommended—sulphur, soot, lime, singly or mixed, and latterly disinfectant agents. Several disinfectants have been experimented with. One of the best means of saving the turnip crop from the fly and blackjack, is to endeavour to induce a vigorous growth during the first stages of plant life.—After the rough leaf is developed, it is usually considered that all danger from the turnip fly is past. Other winged insects and caterpillars attack the plant in the after stages—generally after the plants are singled.

The vegetable diseases are numerous. One of the most frequent occurrence is mildew, which depends very much on the character of the season as to moisture. Dry and wet rot in the bulbs sometimes cause great damage. Deep stirring of the soil, and only when it is in a suitable state for being stirred, is one of the best means to secure a healthy vegetation. The frequent stirring of the soil during the first stages of growth tends to prevent mildew. The causes of the rot are not well ascertained. It may be held as established that the seed of bulbs which have been affected by rot, are more liable to produce diseased turnips than seed from sound bulbs.—Finger-and-toe and Anbury have lately proved very formidable diseases. The causes of these two closely allied diseases have not been satisfactorily explained. It is found by experiments that an application of calcarious manures in autumn generally proves a means of prevention, if the calcarious matter is applied one or more years previous to the turnip crop. All these diseases are more or less influenced by the manures which are supplied to the turnip crop, but experiments are required to elucidate the connection of certain manures with the checking or wholly preventing certain maladies of the turnip crop. Apart from the constituents of the manures, a good deal depends upon the manner in which these are applied.

The practice of applying the manures in the drills, bringing these in more immediate contact with the rootlets of the plant, may be one of the causes why disease occurs when the plants are growing. Those who have experimented as to the best modes of applying manures have generally found that where a portion of the manures has been mixed and incorporated with the soil previous to the forming of the drills, the plants continued more healthy, being less affected by atmospheric changes than when the whole of the manure was placed in the drills, preparatory to the depositing of the seed. In preparing land for turnips, means should therefore be taken to mix a portion of the manure with the soil previous to forming the drills. Where the farmyard manure has not been applied in autumn, it is necessary to apply it in the drills, except where the manure is so decayed as to admit of being spread on the surface, so as not to interfere with the forming of the drills by the plough, or the depositing of the turnip seed by the sowing machine. Farmyard manure is rarely so decomposed as to admit of its application prior to the forming of the drills. Street manure, however, is generally in a suitable state for this mode of application, while the class of manures known as portable admit of their being so applied. The manures may be ploughed down. After the manures have been applied on the surface, such as guano, superphosphates, rape dust, or other fertilisers, they may be incorporated with the soil by the use of common harrows or light grubbers. In most cases, two turns of the harrows will prove sufficient, preparatory to drilling; but this is not generally necessary, if the soil is loose.—The soil being reduced and ready for drilling, one or more manures may be applied, and the drills formed with two light furrows. The fertilisers are thus enclosed in the body of the drill, and are accessible to the rootlets of the plant, while the manures are more incorporated with the soil than if they had been applied in the drills, and these re-formed preparatory to the sowing of the seed. Thus

PAGE

MISSING

PAGE

MISSING