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# THE JOURNAL OF EDUCATION AND AGRICULTURE,



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

FOR THE PROVINCE OF NOVA SCOTIA.

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Vol. I.

Halifax, Nova Scotia, April, 1859.

No. 10.

## EDUCATIONAL.

### EDUCATIONAL INTELLIGENCE.

#### CLOSE OF NORMAL SCHOOL.

The Winter Term of this Institution was brought to a close on Thursday the last day of March. The courses were pretty nearly the same as on former occasions, and of which a full outline was given in the fourth number of the Journal. The private trials took place the week before. These trials last for three days, the Principal and the other teachers having each a day appropriated. When the Pupils have assembled; the teacher of the day prescribes certain exercises in his own department and they (the Pupils) are required, without the smallest assistance, to answer them in writing within a certain fixed time,—and the answers given form part of the ground on which the Diplomas are adjudged.

Monday and Tuesday of the following week were devoted to a private review of all the work done during the course of the Term. Wednesday was spent in a public review of the same along with specimens of practising in the Model Schools. On Thursday, the public review was resumed at 9 o'clock A. M., and continued till 12 o'clock noon, when Dr Forrester

after a few observations, proceeded to read out the following lists of the names of those who had succeeded in gaining Diplomas.

#### GRAMMAR SCHOOL DIPLOMA.

Mr. Daniel McDonald, Sydney County.  
Charles Pitblado, Colchester.  
William Elder, Hants.

#### FIRST CLASS DIPLOMA.

Miss Sarah McLeod, Colchester.  
Emma Page, Cumberland.  
Mary Annand, Colchester.  
Nancy Archibald, do.  
Martha Campbell, do.  
Mary Jane Campbell, Colchester.  
Mary Jane Cox, do.  
Margaret C. O'Brien, Hants.  
Nancy Barnhill, Colchester.  
Lizzie Walker, Lunenburg.  
Bessie Steele, Halifax.  
Mr. Alexander McKay, Colchester.  
George Ross, do.  
Duncan McPhail, Inverness.  
Malcolm McKinnon, do.  
Angus Ross, Colchester.  
Peter Campbell, Inverness.  
Campbell Stewart, Halifax.

#### SECOND CLASS DIPLOMA.

##### First Division.

Miss Elizabeth Thomson, Hants.

Miss Mary Allan, Shelburne.  
 Sarah Wilson, Halifax.  
 Annie Pitblado, Colchester.  
 Jane Gammel, do.  
 Emma Homer, Shelburne.  
 Letitia Crowell, do.  
 Jane Reid, Pictou.  
 Margaret Murray, Colchester.  
 Lillias McLeod, Pictou.  
 Susan Waddell, Hants.  
 Martha Stewart, Pictou.  
 A. J. McCurdy, Cumberland.  
 Bishop, Sydney.  
 Sarah Jane Davison, Colchester.

Mr. John Chipman, Annapolis.  
 James Christie, Colchester.  
 Donald McLeod, Cumberland.  
 Robinson Cox, Colchester.  
 Allan McMillan, Victoria.  
 Alexander MacRae, Richmond.  
 Charles Kehroth, Lunenburg.  
 Murdoch McKinnon, Inverness.  
 Richmond McCurdy, Colchester.

Thereafter Dr Forrester delivered his valedictory address. He expressed, in highest terms, his satisfaction with the general good conduct of the students during the session, as well as with their diligence and progress. He then exhorted them at some length to carry on steadfastly and perseveringly, the studies which they had so successfully begun, and gave directions as to how they ought to prosecute those studies with benefit both to themselves and to their future calling, dwelling more especially on the necessity of regularity, punctuality, and thoroughness; and concluded by pointing out the vast importance of the office to which they were looking forward, whether viewed in itself, or in its diversified relationships, or in its effects in time and in eternity, and the solemn obligations thereby laid upon them to strive with unabated ardor in order to reach the highest eminence in professional attainment.

After this address which was listened to with the deepest attention, Dr Forrester expressed his regret that none of the Commissioners of the Institution were present, but invited any gentleman to make whatever observations he might see fit respecting what he had seen and heard. Whereupon the Rev Mr Forsyth, Rector of the Episcopal Church, Truro, rose and addressed the meeting with much effect, expressing in the most laudatory terms his entire satisfaction with all he had witnessed, and commented at some length and with great ability on some of the principles of that system of Education inculcated and practised in the Normal and Model Schools.

As soon as Mr Forsyth had finished his well timed and admirable observations Mr Charles Pitblado, one of the students of the advanced section came forward, and in his own name and the name of his fellow-students read the following address:

REV. ALEXANDER FORRESTER, D. D.

Honoured Sir,—

Before we separate, perhaps forever, allow us to present you with a verbal acknowledgement of our sincere regard and esteem, for the faithful and efficient manner in which you have discharged your duty towards us, during the past session.

As educators of the young, we feel truly grateful for the valuable training which we have received in this place. We consider it invaluable as a means of making us more proficient and successful in our important calling. We leave this institution deeply impressed with a sense of the greatness of our work, and feeling that we are better equipped for it than when we entered. Nor is this all, we believe that many of

us have been imbued with a portion of your spirit of enthusiasm in reference to our profession.

We hope that, in some measure at least, we can appreciate the great care and anxiety which you have manifested in your endeavors to instill into our minds correct views on the subject of education. Our future careers will testify how we have profited by your lessons.

In common with you we deeply deplore the amount of ignorance which prevails on the subject of education. As the educators of the young of Nova Scotia we recognise it as our duty to labor for dispelling this ignorance. Not only do we feel it our duty to sympathize with you in your trials and difficulties, but also to labor with you in your arduous work. The field lies open before us. We feel our incapability for occupying it. We know that we must encounter trials and difficulties, that we must exercise great self denial, that we must labor with ardor and perseverance, but all this we are prepared to do, humbly trusting to divine aid, in making a right use of the instruction which we have received from you.

To you this session of the Normal School has been one of great labor. The voluntary task of training one section of the students, which, in addition to your other onerous duties, you assumed, imposed upon you an excessive amount of toil. The students who thus enjoyed your instruction feel that you have laid them under a debt of gratitude which they never can repay. They fondly hope, however, you will see that all your labor so bestowed was not in vain. In the spheres which many of them will be called to occupy the influence of your teaching will be felt for good, as it will enable them to fulfil the duties of their office more efficiently.

And while we thus acknowledge our regard and esteem for you, permit us to acknowledge likewise the faithful and efficient discharge of duty on the part of your fellow laborers in office. To them also we feel bound by strong ties of gratitude for the kindness which they have manifested towards us, and for the valuable instruction which we have received at their hands.

And now when about to separate never in all likelihood again to assemble within these walls, hallowed by scenes and fond recollections of the past, we take a backward glance over the time that has transpired since we met, the scenes in which we have mingled, the toils we have undergone, the ties we have formed, and we think of their influence upon the future. And to you, and to us, Sir, that future is of the greatest importance. We go away as the representatives of this institution—nay, as the advocates and supporters of that system of education which is here taught. One goes to the North another to the South, one East another West, and each goes to sow the seed which he has gathered here. We go, Sir, to be co-workers with you in your great work, we go having common sympathies and common ends in view, to take charge of the rising generation to train for usefulness in time and happiness in Eternity. And to you as the director of our energies, and to this institution as the centre of our associations, will our hearts be ever closely knit. In that future which is now partially unveiled before us, we can see the issue of all your cares, your anxieties, your labors and your prayers. You may now sow in tears, but you shall yet return bringing your sheaves with you rejoicing. Futurity shall disclose the good which has been accomplished by the persevering energy of him who in Nova Scotia advocated that system of education which proclaims benefit to man and glory to God.

To this address Dr Forrester made a brief and appropriate reply, earnestly exhorting his pupils to carry into effect the principles embodied in the address, and never to forget that the Province would draw their conclusions regarding the character of the Normal School, not from its own merit or procedure, but from their conduct and efficiency as the educators of the young.

The Principal having intimated that the Summer Term of the Normal School would commence on the second Wednesday of May next, closed the meeting with praise and the benediction.

The interest manifested by the public in the semi-annual closing service of this Provincial Institution seems unabated. Never on any former occasion was the number of Visitors, greater. Every crevice and corner of the Building and of its entrance, from whence any one could see or hear what was going on, was occupied. The whole proceedings were much enlivened by the excellent pieces of music sung by the Pupil-Teachers at the end of every hour, conducted by Mr Williams the able Music Master of the Institution.

## REPORT OF THE SUPERINTENDENT OF EDUCATION FOR 1858.

MAY IT PLEASE YOUR EXCELLENCY,—

In conformity with statutory enactment, I beg to submit to your Excellency my report of the Common, Grammar, Normal, and Model Schools for the past year.

I shall first of all advert to a few of the more prominent features in the Statistical tables appended, and then present a brief account of my proceedings as Superintendent of Education.

But before I proceed to an examination of these tables, I may take the liberty of expressing my regret that so many imperfections and deficiencies still adhere to them, and that they cannot be regarded in any other light than a mere approximation to the truth. I have in the pages of the Educational Journal frequently and earnestly pressed upon the attention of Teachers, Trustees and Commissioners, the benefit that would flow from their exercising greater diligence and accuracy in gathering up, within their respective provinces and bounds, all educational statistics, yet I do not think they are one whit more complete, than they were last year. I do not mean by this remark to charge any of these parties with dereliction of duty. On the contrary, I believe they have done their duty to the best of their ability; and several of them have bestowed no small amount of pains in collecting much valuable information. The meagreness and deficiencies of these tables, are to be ascribed, not so much to the parties mentioned, as to the legislative educational enactment now in force, there being no staff of paid agents, whose business it is to attend to such matters; and until such a staff of public officers is appointed, I despair of being able to present any thing like an accurate and reliable view of the condition of education in the Province.

In reference to these tables, it may be stated, generally, that they show some improvement on those of last year. The number of schools, and of course, of teachers, is considerably increased. The difference between the number of schools taught in summer and winter, is diminished. Though the public money expended is somewhat smaller than last year, the amount raised by the people is larger, by a few hundreds. The apparatus and equipments, as well as the whole character of the education imparted, both in the Common and Grammar Schools, seem, as far as can be ascertained from these tables, decidedly on the advance. But to be somewhat more particular:—

1. And, first, allow me to call your Excellency's attention to the effect of the additional grant made to the cause of com-

mon education two years ago. It is well known that the Legislature of 1857 voted a third more towards this object. This movement I cordially supported, in the hope, mainly, that such an addition would form a great boon to those teachers laboring in the more sparsely settled districts. Though disappointed in this expectation, in consequence of the increased number of teachers, it was gratifying to observe from last report, that 5000 more children were receiving education. That this enlarged attendance is chiefly to be attributed to this additional allowance, is, we think, abundantly apparent, in the fact, that whilst, during the winter of 1857 and 1858, there was an increase of 2428 scholars above the preceding, the last summer, when the grant was withdrawn, there was a falling off of 3657. In these circumstances, I think no one can hesitate to admit that this additional grant imparted a powerful impulse to the cause of education, at least, in so far, as the quantity is concerned; or to regret, that it should have been found necessary to withdraw it at the end of one brief year.

2. Again, the reduced difference between the number of schools taught in winter and summer seems to demand a remark or two. In the last statistical tables, the Returns of the number of Schools showed a difference of 200 more in summer than in winter. In the tables appended, this difference is reduced to 142. One of the greatest impediments in the way of progressive advancement in the cause of education, in this province is the temporary duration of the great majority of our schools. The irregularity of the scholar is a serious obstacle in the way of progress, but the closing of the school altogether, for months consecutively, if not for a year or more, is still worse. Various reasons may be assigned for this state of things. The nomadic habits of the teachers themselves, the practice, in some districts, of employing female teachers in summer and male in winter, the untenability of too many school-houses in winter, the ignorance or the erroneous view entertained by too many parents;—these, and such like reasons, conspire in shutting up a great number of school-houses. But be the cause what it may, it is injurious in the extreme, to the general interests of education. In such circumstances, no real progress can possibly be made. At the very time when the scholars are becoming acquainted with the teacher, and the teacher with the scholars, does a separation take place. When, after the lapse of a year, or half a year, the school is again opened with a new teacher, the scholars are about half the time of his sojourn in their midst before they arrive at the point where they left off with the former teacher; and thus it is there are hundreds of our youthful population, who are enrolled in our tabular statements, year after year, as receiving instruction, to whom that instruction is of little or no practical benefit in after life; and if it is so disastrous to the rising generation, where, we would ask, is the economy or saving to the parents. It is the most expensive education that children can possibly receive. It is encouraging them to observe, that in this matter, there appear to be some symptoms of amendment. In the absence of a compulsory enactment, requiring a certain amount of attainment, or a certain period of regular attendance at school—which, in my opinion, ought to constitute part of the provision of every national system—I know of no other more effectual remedy for this state of things, than to endeavour to elevate the public tone in reference to the value and benefit of a thorough education.

3. Again, in looking over these tables and comparing them

with those of last year, there would seem, as already hinted, to be considerable improvement in the quality of the education given. The apparatus, and the various external equipments, such as, the School-Registers, maps, Blackboards, &c., are much more complete. The number of common schools, in which Grammar, Geography and Classics are taught is vastly increased. The whole condition of the Grammar Schools, the number of pupils in the higher branches, as well as the general attendance, have all undergone very marked improvement, and from all this, we think, we are warranted to conclude that the Normal School is beginning to tell, both directly and indirectly, throughout the country. There are now upwards of one hundred normal trained Teachers engaged in discharging the duties of their vocation, throughout the length and breadth of the Province, and these, if true to themselves, must exert some influence in elevating the standard of teaching qualification.

I have always maintained that under the most favorable auspices, the benefit of the Normal School would not be felt to any great extent, throughout the Province, in less than five years; and the above fact would seem to indicate the soundness of this view, that Institution having now been in existence about the space of three years.

4. The sum of £600, has as usual, been expended in the purchase of School Books, which have been proportionally distributed among the various School Boards. The Vouchers of the reception of these Books by the different Boards of School Commissioners accompany this report. I think I can now congratulate the Province on the near prospect of a uniformity of School Books. I have been aiming at this ever since I entered on the duties of my present office; and this year considering the Province as ripe for the change, a great proportion of the above sum has been expended in the purchase of the Irish National Series alone. The firm of A. & W. Mackinlay has stereotyped all those of the series required by the Common Schools of the Province, which are sold at a lower rate than any other class of School Books now in general use. Other Booksellers are importing the same series, and the Storekeepers too, throughout the country, are beginning to see the necessity of being well supplied with the same: so that, in the course of a year or so, a complete uniformity in the School Books, used throughout the Province will prevail. Out of the £600 granted by the Province for the above object, £50 has been paid to Mr. H. Reid for 1000 copies of his publication on Geography.

5. I cannot here omit noticing, that nothing has been done during the past year relative to the School Libraries, my views on this subject have been set forth in several succeeding reports. I am thoroughly convinced that there is no way of giving satisfaction in the dispensing of this boon, and in the distributing of these books, but by allowing the people to make their own selection. For this purpose a catalogue of suitable and profitable Books ought to be prepared, to receive the sanction of the Legislature, and a Repository opened, in some central locality of the Province, for their reception. In May next, had it not been for the act of the Legislature of last session there would have been, not less than £2000 due this fund, which if judiciously expended, would go far in laying the foundation of a pretty extensive Library, and, which, being added to year after year, would be the means of diffusing among our population an immense amount of valuable infor-

mation, and tend largely to elevate the whole of our industrial and moral economy.

The only other matter appertaining to the tables on which I shall touch, is that of the distribution of the public money. In examining the returns of the Boards of School Commissioners of past years, as well as of the present, I have been struck with the great diversity of allowance granted, by the different Boards to the same class of teachers, and, have generally found, that in those very sections of the country most energetic in the furtherance of education, and where, in consequence, there is a much larger number of schools in active operation, that in these very sections, the first and second class teachers receive the smallest amount of the public funds. This would hold to be a great hardship, both to the teacher and the section, in such circumstances. To the former, it is so, for he has left a section, where as a first class teacher, he received of public money, say £18 or £20 per annum, and he is now laboring in another section, where he holds the very same rank, and yet he only receives some £10 or £12 of public money, and the other classes of teachers in like proportion. To the Commissioners of the section it is an equal hardship. They receive, it may be a fair proportion of public money, according to the principle on which these funds are appropriated. But they are zealous in the promotion of education within their bounds, or perhaps, it should rather be said, the people themselves are zealous in the cause. This, as a matter of course, increases the number of schools, which again increases the number of teachers, and compels the Board to reduce proportionally the allowance made to each teacher, so that, what should constitute a ground of greater encouragement, becomes the very reverse. Now it appears to me, that two things ought to be done, by which this hardship may be remedied, or at least greatly obviated: First, a more thorough classification of the teachers, both as to scholarship and professional attainment ought to be made. And this, in my opinion, can only be properly done, by a Board of Examination, aiming to bring the same class of teachers, all over the Province, up to the same scale or standard of qualification. Even without such a Board of Examinators, much might be effected by the different Boards of School Commissioners, who, in granting licenses to first and second class teachers, should strive to bring all to the same standard. For this purpose, I have appended to this report, a graduated scale of qualifications for first and second class teachers respectively; and it were well that the Legislature called the attention of School-Commissioners to this matter, as what, at any rate they should seek to aim at. Then, it should be seen that the teachers of the same grades, receive the same amount of public money all over the Province irrespective of the character of the school taught. Now, due care taken in the granting of licenses, this method would form a powerful stimulus to teachers to promote their own improvement. Rendering the state provision dependent on the qualifications of the teachers, it would inspire them with reanimated diligence to strive after higher and higher attainment. The supplementary allowance raised by the School District would form a sufficiently powerful motive to secure the diligent discharge of professional duty, and to give character and efficiency to the school. This is the principle on which the Committee of Council on Education in Britain acts, and it seems universally admitted to be the best calculated to elevate the whole inner life of education.

It will be observed that there is no statistical information

given in the tables regarding the Provincial Academies receiving public money, as was done in my last report. The reason of this is, that I have only received one Return from these Academies, and those that came to hand last year, were exceedingly defective in many important particulars. It appears to me, that this Province has now reached that position in its educational history that so long as it is destitute of a general literary and philosophical University, it behoves it to give the highest possible encouragement to these institutions, seeing that they form the only intermediate link between our better taught Common Schools and the Denominational Colleges of the land. It ought to be seen that the £1600 or £1700, inclusive of Dalhousie College High School, are instrumental in securing a style of education worthy of the age, and not expended on the education of those who might and ought, to be attending the more advanced common or Grammar Schools of the country. If this end be attained, instead of begrudging such a sum, it ought, in my apprehension, to be enlarged. I have to express my regret that it has never yet been in my power to visit officially these Academies in accordance with the instructions laid down in the 30th Paragraph of the present educational enactment, viz.: "That the Superintendent may visit all Academies drawing support from the public funds, inspect their discipline and accounts, offer suggestions for their improvement and report on their state and efficiency for the information of the Executive and Legislative." It is my intention however, at the close of the summer term of the Normal School to visit these Institutions, in due form, and to report accordingly.

#### NORMAL AND MODEL SCHOOLS.

These provincial Institutions continue to prosper. The number of Pupil-Teachers in attendance is still on the increase. During the winter of 1857-58, there were 61 Pupil-Teachers and three paying pupils. Of these at the end of the Term 8 obtained first class certificates and 8 scholarships, and 33 obtained second class certificates. Last summer session, there were in attendance 46 Pupil-Teachers and 4 paying Pupils and 1 Agricultural. Of these, one received a Grammar School Diploma, 19 a first class, and 11 a second class. At the end of this Term there was, for the first time, since the opening of the Normal School, no distribution of Scholarships, in consequence of the Withdrawment of the grant for this purpose at the last meeting of the Legislature. This withdrawal was to me a matter of no ordinary disappointment, as I had been led to believe, that the sum granted for the purpose, two years ago, was to be considered part and parcel of the current expenditure of the Institution—a belief this to which I had often given expression at the public meetings held by me throughout the Province on the subject of Education.

Placing the half of my salary to the credit of the Normal School, the whole sum required for the support of the Normal and Model Schools does not exceed £750 per annum, and surely no one who knows anything of the nature, design, and importance of these Institutions, will venture to say that this is an exorbitant amount; but that on the contrary, it is exceedingly moderate. If the success or efficiency of any system of popular education, depends on the living agents or schoolmasters, and if Normal Schools are intended, and form the only machinery yet devised for the purpose of qualifying these living agents, surely no one will say that, in an expen-

dituro of £40,000 or £50,000, £750 is a large sum to be appropriated to that which can alone secure the end designed to be served by the £50,000.

But we go a step farther, and maintain, that there is no similar Institution with the same equipment and staff of officers, either on this, or the Old Continent, supported at the same moderate rate. Without travelling beyond the neighbouring Province, in the Educational Bill passed by its Legislature last winter, the sum of 6s. per week is granted to every pupil attending the training school in New Brunswick. And what would this itself amount to, were the same sum voted to the Pupil-Teachers attending the Normal School at Truro? According to the attendance at the present Term, it would amount to not less a sum than £450 per annum; and so it is in other Provinces and States. I know not one Normal School on this or the other side of the Atlantic, whether National, Associational or Denominational, that does not support either, wholly, or in part, the students in attendance; and surely, £100 a year, given not in an eleemosynary way, but as the reward of diligence and success in the prosecution of their studies, is a comparatively small sum to appropriate to such an object.

It is, therefore, earnestly hoped, that the Legislature will reconsider this matter, and in its wisdom, see the propriety, not only of renewing the grant of £100 per annum, but of placing it on a permanent footing, so that it shall be considered part of the current expenditure of the Institution.

Did the Legislature, in its liberality, see fit to grant the £100 on which we calculated last year, in addition to the £100 for the present year, it would be of immense service, in the purchase of a consulting or reference library for the Normal School. The hundred pounds granted by the Province for providing Text-Books and Stationary for the students, Fuel, repairs, man-servant &c., are barely sufficient for the purpose, as will be seen in the accompanying accounts. The Institution is now well provided for working experiments in Chemistry and natural Philosophy, £200 having been voted by the Legislature for that purpose at the opening of the Institution. But we are still entirely destitute of a consulting library for the Normal Students—I mean a Library made up of a good selection of Dictionaries, Gazetteers, Grammars, celebrated School Books, on all branches of knowledge and a full assortment of treatises on the science and art of teaching &c., and to which the students, might at all times resort for reference and consultation.

The Normal School is now in session with a larger attendance than on any former occasion. There were enrolled 73 Pupil-Teachers and one paying pupil. Some of these are students who formerly attended and graduated, and who are evidently anxious to arrive at greater proficiency in the practice of our system, and yet notwithstanding this increase, it is not in my power to supply as much as one half of the demand made for Normal trained teachers. Indeed there are already several districts, large and influential settlements, that not only give such a preference, but will take no other, and nobly exert themselves to raise the adequate salary.

The Model Schools also continue to maintain their ground, the number since last report having been considerably increased. The number enrolled during the past year has averaged 196 and the average number in attendance has been 168. The Receipts and Disbursements of this department of the Normal School, are among the other accounts. The teachers

are acquitting themselves to my entire satisfaction, and proving the complete practicability of the system pursued, though the frequent changes that take place in the attendance of the scholars, prevent its success from being so apparent. Nevertheless, it is my confident belief that those children who have steadily attended the Institution since its commencement, will compare favorably with those of any other seminary, whether of a more initiatory, or advanced character.

The connection between the Normal and Model School, is now placed on a more regular and systematic plan of operation, the former imparting to the future teachers of the Province, a knowledge of the Science, and the latter of the practice of Education.

#### EXPERIMENTAL GARDEN AND FARM.

As to the Experimental Garden and Farm, little need be said. It is well known that the application made to the Legislature, last winter, for a grant of money, with the view of carrying out the object contemplated in the purchase of the land, was refused; and it need not be wondered at, in consequence, only one agricultural student made his appearance. Still the time has not been lost, as I have been endeavoring at my own expense to do a little towards the improvement and stocking of the ground. The land is thoroughly exhausted, and before it is capable of answering the end intended it must pass through a process of cultivation both mechanically and chemically. For this purpose between £300 and £400 will be required in consecutive yearly grants of £150. This, however, would not prevent the Agricultural students from immediate benefit. A small portion of the grounds might at once be set off for experimental purposes, and the bringing in and fertilizing of the rest, would of itself be the means of communicating important practical knowledge.

But I do not enlarge, I would rather refer to my last report, where the whole subject is discussed, both as to the plan of operation, and the benefits to be derived. If ever there was a period in the history of the Province when it behoved the Legislature to impart every possible encouragement to the cause of Agriculture, it is now. Never before, were there such favorable opportunities for the sale of farm produce, or such remunerating prices for this produce; and never before was there such a desire manifested to invest capital in land:—and now therefore, is the time for the Legislature to impart stimulus and direction. We do not approve of the Government of a country, becoming a great monopolising farmer, through the medium of model farms and the like, any more than we would approve of it becoming a manufacturer or a merchant, because, we believe, such pursuits are far more successful and beneficial in the hands of competitive emulation; but the Legislature may, nay, it is alike its duty and interest, to impart every possible encouragement to every branch of the industrial economy: and there is no branch so imperatively demanding such an encouragement, or one so immediately remunerative to the great provincial undertakings, as that of Agriculture.

In is well known that in addition to the Principalship of the Normal School, I hold the position of Superintendent of Education, and in that capacity, since I gave in my last report, I have visited every county in the Province, held Teacher's Institutes in all the School Sections, conferred with Commissioners on the condition of education within their respective bounds &c., &c. I have also addressed public meetings

on some branch of education at the following places: Shubenacadie, Windsor, Hantsport, Lower Horton, Kentville, Lake-land, Cannard, Aylesford, Nictaux, Lawrence town, Bridgetown, Annapolis, St. Clements, Hillsboro, Digby, Sandy Cove, Weymouth, Clare, Bear River, Larmouth, Hebron, Tusket, Spinney's Settlement, Barrington, Sheburne, Locke's Island, Milton, Liverpool, Bridgewater, Lunenburg, Chester, Halifax, Dartmouth, Pictou, New Glasgow, Little River, Little Tracadie, Pluister Cove, Ship Harbor, Hogomah, Margaree, Moss River, Baddeck, St. Auns, Boularderie, Sydney Mines, Arichal, McNair's Cove, Guysborough, St. Mary's, Caledonia, Middle Musquodoboit, Stewiacke, Pugwash, and Wallace.

The great majority of these meetings was largely attended, and in several places, much interest seemed to be manifested. The great drawback to the full benefit of these meetings is the want of a duly authorized agency to carry into practical detail the impulse imparted. This, as stated in my last report, requires the appointment of a thorough staff of local Inspectors and till such officers are appointed, perhaps half of my public labors, as Superintendent of Education, is expended to no purpose.

The only other matter worthy of notice connected with my proceedings during the past year, is the commencement of the Journal of Education and Agriculture. I stated to the Educational Committee of the House of Assembly, last year, the propriety of starting such a periodical: firstly, because it was every way becoming that I, as Superintendent of Education, should have a direct medium of communication with all the teachers throughout the Province; Secondly, because such a publication seemed so well fitted to raise the tone of public feeling on the general subject of education; Thirdly, because the intelligence of what was going on in one district of the Province, might, it was thought, stimulate other districts;—and still more, fourthly, because it appeared to me, in every way desirable, that that system of education, whose principles and practise, are expounded, exemplified, and enforced in the Normal and Model School, should be exhibited and circulated in as permanent a form as possible. In order to enable me to send a copy of this publication, gratuitously, to every teacher in the Province, I solicited the grant of £100 from the Legislature. This was refused, and, leave being given to publish it, on my own responsibility I issued the first number in July last. I combined Agriculture with Education, because in the present Educational Bill, Agricultural Chemistry is required to be taught in all the higher Seminaries; and still more, because I deemed it a good medium of giving publicity to the result of the experiments in the projected Garden and Farm. The circulation has fully equalled my expectations, and will, I believe, relieve me from all pecuniary loss for the first year at least. It is matter of regret and disappointment to me that scarcely a half of the teachers in the Province, for whose benefit it was mainly set a going, see this periodical. I fixed the price as low as possible—a dollar in advance—imagining that no teacher, however inadequately remunerated, could fail to afford such a sum. Whether some step ought not to be taken, by which every teacher shall be put in possession of a copy, and by which the Journal may obtain a wider circulation amongst the Agricultural Societies of the Province, is a matter, in my opinion, worthy the consideration of the Legislature.

I have the honor to be  
Your Excellency's  
Most obedt. and hble. Servt.  
ALEX. FORRESTER.

T A B L E A.  
NUMBER OF SCHOOLS AND DISTRICTS --- SUPPORT OF SCHOOLS, &C.

SCHOOL BOARDS.	No. of Schools		SUPPORT FROM DISTRICT.				SUPPORT FROM PROVINCE.				Amount from People for every £1 of Province.	Cost of Pupil to People.	Cost of Pupil to Province.												
	W.	S.	Support in Winter.		Support in Summer.		Support in Winter.		Support in Summer.					Total Support.											
			£	s.	d.	£	s.	d.	£	s.					d.										
1 Halifax City.	21	19	546	6	1	368	10	0	437	10	0	914	16	1	1	0	51	£	s.	d.	4	7	7		
2 " East.	17	15	300	10	0	294	10	0	155	3	3	595	15	0	372	12	7	2	3	7	3	11	3	11	
3 " West.	31	36	588	5	0	678	10	7	247	17	6	1265	15	7	436	8	0	2	15	3	9	0	3	3	
4 " Shore.	12	19	151	5	0	234	0	0	95	10	0	385	5	0	208	10	6	1	19	11	9	0	4	6	1
5 Chester.	14	17	102	6	1	176	7	0	101	14	0	278	13	1	94	0	0	1	8	4	10	10	4	4	4
6 New Dublin.	19	14	237	10	1	117	12	2	97	12	9	355	2	3	71	3	0	2	1	7	7	10	5	2	1
7 Lunenburg.	32	30	312	9	9	286	8	3	191	1	6	707	10	9	150	10	0	1	15	0	6	83	3	10	3
8 Queens.	25	36	344	6	5	363	4	4	260	0	0	426	6	4	190	18	9	1	11	4	8	7	5	6	5
9 Shelburne.	19	22	200	7	10	225	18	6	139	15	0	426	6	4	126	7	6	1	12	0	8	7	5	5	5
10 Barrington.	17	29	207	15	0	292	0	1	108	7	6	429	15	4	145	12	6	1	19	4	254	0	4	1	4
11 Argyle.	16	24	187	17	7	241	18	9	135	17	0	429	16	4	143	18	6	1	10	8	279	15	6	5	1
12 Yarmouth.	25	27	531	11	2	496	17	3	205	0	10	1048	8	5	147	3	10	2	19	10	332	4	8	3	1
13 Clare.	15	19	139	9	8	152	15	1	108	6	0	292	4	9	81	1	6	1	10	0	189	7	6	4	4
14 Digby.	28	45	566	11	3	690	14	2	238	12	8	1237	5	5	222	11	8	2	16	1	411	4	4	4	4
15 Annapolis, West.	25	33	403	3	0	522	4	6	189	0	0	925	7	0	143	0	0	2	15	8	332	0	0	4	0
16 " East.	31	39	688	15	3	742	13	9	252	7	0	1431	9	0	186	9	2	3	8	4	418	16	2	3	5
17 Kings.	61	71	1503	3	3	1609	6	5	373	15	0	3112	9	8	277	12	10	4	15	6	631	7	10	2	7
18 Hanis, West.	29	34	697	11	1	883	14	10	278	10	0	1391	5	11	224	13	4	3	3	3	503	3	4	13	9
19 " East.	18	21	428	6	6	445	12	10	142	5	0	873	19	4	132	13	4	3	3	3	274	18	4	10	4
20 Colchester.	46	53	219	18	4	343	5	0	293	5	5	1919	4	9	208	16	4	3	6	3	631	7	10	2	7
21 Sterling.	14	19	219	18	9	343	5	0	86	12	9	1363	3	9	69	18	0	3	16	5	156	10	8	2	11
22 Cumberland.	60	62	1032	4	9	1066	5	0	315	16	8	2938	9	9	293	4	6	4	0	1	519	1	2	2	2
23 Parrsboro'.	9	11	135	10	2	141	6	3	68	8	0	276	16	5	51	6	6	2	6	3	119	14	6	3	3
24 Pictou, North.	46	61	823	10	0	977	10	0	303	9	10	1801	0	0	261	5	4	3	3	0	564	15	2	8	4
25 " South.	55	62	802	13	5	872	16	10	382	13	8	1675	10	3	320	13	8	2	7	8	702	17	2	2	2
26 Sydney.	54	62	728	14	11	835	0	6	432	15	6	1563	15	6	342	10	4	2	0	4	775	5	10	4	1
27 St. Mary's.	13	14	171	1	6	166	8	2	91	15	0	337	9	8	74	18	4	2	12	5	166	13	4	4	4
28 Guysborough.	27	29	263	5	3	292	16	1	154	10	0	556	1	4	151	0	0	1	16	0	308	10	0	4	4
29 Inverness, South.	49	51	482	9	3	484	0	4	351	16	1	966	9	7	278	2	2	1	10	8	639	18	3	4	3
30 " North.	25	27	295	17	6	355	14	6	164	10	1	651	14	0	121	11	0	2	5	6	286	1	1	3	5
31 Victoria.	32	27	427	14	0	422	10	0	301	14	2	850	4	0	179	0	0	1	5	4	480	14	2	3	1
32 Cape Breton.	64	62	739	7	4	769	9	9	457	8	6	1508	17	1	347	18	0	1	7	5	805	6	6	3	1
33 Richmond.	32	34	337	10	3	321	5	8	275	18	4	658	15	11	290	17	8	1	7	7	476	16	0	4	7
Total.	981	1123	801	15581	4	6	16336	16	7418	8	10	243248	0	9	5911	4	3	2	8	9	13329	13	2	4	0

Total average cost of each Pupil, 13s. 8jd. Total average salary of each Teacher, £33 16s. 11d.

Average. Average.

**T A B L E B.**  
**NUMBER, AGE AND SEX OF SCHOLARS --- NUMBER OF CHILDREN.**

SCHOOL BOARDS.	Paid Pupils.		Free Pupils.		Total Number of Pupils.*		AGE OF PUPILS.				SEX OF PUPILS.				No. of Children from 4 to 15.
	W.	S.	W.	S.	W.	S.	Under Eight.		Over Eight.		Male.		Female.		
							W.	S.	W.	S.	W.	S.	W.	S.	
1 Halifax City, - - - - -	1035	1016	902	888	1937	1904	377	423	1517	1422	1053	1022	726	893	
2 " East, - - - - -	702	611	18	17	720	639	159	201	511	458	397	354	333	303	
3 " West, - - - - -	1088	1341	158	171	1246	1512	277	392	972	120	632	808	574	701	
4 " Shore, - - - - -	289	497	28	35	317	532	68	173	238	356	175	283	142	248	
5 Chester, - - - - -	326	459	72	78	394	532	103	190	295	342	226	283	172	309	
6 New Dublin, - - - - -	385	240	39	37	424	277	72	91	333	186	235	136	189	141	
7 Lunenburg, - - - - -	816	659	168	121	984	780	187	227	797	533	593	417	391	563	
8 Queens, - - - - -	582	812	109	133	691	945	133	297	538	648	423	441	268	504	
9 Shelburne, - - - - -	409	440	57	86	466	526	78	133	388	337	263	243	203	277	
10 Barrington, - - - - -	461	622	59	86	530	707	129	224	391	473	359	332	101	533	
11 Argyle, - - - - -	349	444	57	109	401	553	38	163	386	365	293	273	96	398	
12 Yarmouth, - - - - -	845	962	191	285	1036	1247	78	427	938	820	891	581	233	666	
13 Clare, - - - - -	302	331	80	78	382	412	46	77	336	333	222	182	169	204	
14 Digby, - - - - -	711	1023	122	201	833	1224	81	291	722	933	569	581	261	643	
15 Annapolis, West, - - - - -	593	738	137	175	730	913	105	246	613	617	477	454	213	393	
16 " East, - - - - -	899	966	125	139	1024	1103	138	267	866	785	560	493	238	610	
17 Kings, West, - - - - -	1972	1929	279	412	2251	2341	349	675	1909	1666	1333	1078	696	1263	
18 Hants, West, - - - - -	901	1161	101	147	1002	1311	158	353	854	938	643	698	369	703	
19 " East, - - - - -	773	831	21	51	794	882	153	274	520	601	494	444	274	441	
20 Colchester, - - - - -	1461	1533	98	145	1634	1797	232	308	1361	1299	938	587	676	897	
21 Sterling, - - - - -	568	774	21	40	589	814	96	169	493	645	343	121	246	393	
22 Cumberland, - - - - -	1171	1787	178	161	1949	1951	345	481	1604	1464	1099	1018	830	933	
23 Parrsboro', - - - - -	209	332	14	23	223	255	53	74	163	178	111	131	109	124	
24 Pictou, North, - - - - -	1748	2280	108	170	1856	2450	268	617	1588	1833	1063	1296	794	1154	
25 " South, - - - - -	2370	2589	119	168	2489	2257	384	746	2193	2017	1406	1514	1083	1243	
26 Sydney, - - - - -	1592	1729	190	214	1782	1943	190	324	1592	1619	1044	1071	689	872	
27 St. Mary's, - - - - -	310	347	68	36	378	383	83	103	290	278	213	206	153	181	
28 Guysborough, - - - - -	589	624	131	146	720	796	123	215	593	581	413	410	297	360	
29 Inverness, South, - - - - -	1267	1306	161	186	1428	1493	155	250	1279	1242	926	918	503	574	
30 " North, - - - - -	715	781	81	66	796	817	118	106	676	681	493	556	303	391	
31 Victoria, - - - - -	918	760	88	98	1006	858	113	159	893	699	593	487	413	371	
32 Cape Breton, - - - - -	1785	1819	225	280	2010	2099	286	453	1724	1616	1197	1339	816	869	
33 Richmond, - - - - -	745	750	293	279	1038	1029	167	239	871	770	559	442	479	487	
Total,	28870	28150	4964	5266	34054	33430	5234	9691	27497	24561	20364	19755	13141	18431	

**T A B L E C.**  
**DURATION OF SCHOOLS — SEX OF TEACHERS — CHARACTER OF SCHOOL-HOUSES.**

SCHOOL BOARDS.	Schools in Weeks.		SEX OF TEACHERS.				Common Schools	Noted for Gram. and Geography.	Registers kept.	SCHOOL HOUSES.			LIBRARY			SCHOOL BOOKS.		APPARATUS.		Other Apparatus.	
	W.	S.	Male.		Female.					Log.	Good.	Kind.	Books.		W.	S.	W.	S.	Glozes.		Maps.
			W.	S.	W.	S.							W.	S.							
1 Halifax City, . . . . .	21	19	11	11	14	13	2	All.	5	All.	6	4	522	522	27	80	14	63	24	1	
2 " East, . . . . .	20	22	10	10	5	5	1	"	4	"	9	5	220	239	247	230	2	143	15		
3 " West, . . . . .	23	25	61	63	33	34	3	"	4	"	13	6	89	163	243	78	4	100	15		
4 " Shore, . . . . .	22	19	7	10	5	9	1	"	9	"	All.	3	107	103	64	229		100	7	1	
5 Chester, . . . . .	21	24	6	9	8	11	1	"	3	"	10	2	55	64	165	134		25	4		
6 New Dublin, . . . . .	19	20	11	4	8	10	1	"	15	"	10	2	46	12	76	74		9	5		
7 Lunenburg, . . . . .	21	21	23	18	7	12	7	"	15	"	All.	4	235	191	321	193		21	16		
8 Queens, . . . . .	21	22	15	5	9	8	11	"	12	"	All.	4	363	221	230	200		40	8		
9 Shelburne, . . . . .	16	22	12	6	7	16	5	"	8	"	16	4	135	137	56	102		26	9		
10 Barrington, . . . . .	15	21	16	16	24	24	12	"	3	"	All.	1	308	178	113	100		4	98	2	
11 Argyle, . . . . .	15	18	15	8	1	16	5	"	8	"	12	1	42	44	271	176		48	21		
12 Yarmouth, . . . . .	18	21	21	8	4	29	1	"	20	"	7	1	294	196	190	167		3	93	1	
13 Clare, . . . . .	21	21	7	5	8	14	1	"	4	"	"	4	75	92	63	47			33	1	
14 Digby, . . . . .	19	20	20	8	8	8	1	"	4	"	"	4	59	83	119	47			41		
15 Annapolis, West, . . . . .	22	25	13	19	12	14	1	"	8	"	26	8	105	91	170	97			57		
16 " East, . . . . .	21	23	22	16	9	23	4	"	10	"	"	1	181	248	148	179			177		
17 Kings, West, . . . . .	21	23	43	29	16	42	1	"	19	"	"	1	286	339	156	90			78	1	
18 Mans, West, . . . . .	23	24	21	15	8	20	2	"	4	"	"	8	109	87	121	109			75		
19 " East, . . . . .	21	21	12	8	6	13	1	"	5	"	16	2	61	21	106	23			143		
20 Colchester, . . . . .	21	21	33	37	24	23	2	"	13	"	14	3	126	130	100	75			7	1	
21 Stirling, . . . . .	17	17	2	6	7	5	5	"	13	"	8	3	241	199	111	146			4		
22 Cumberland, . . . . .	20	21	38	41	8	20	8	"	5	"	All.	3	20	20					78		
23 Pictou, North, . . . . .	20	21	41	42	14	20	6	"	4	"	53	6	332	356	530	666			5		
24 " South, . . . . .	20	21	41	42	14	20	6	"	4	"	53	5	97	121	96	297			2		
25 Sydney, . . . . .	22	20	40	39	14	23	7	"	4	"	50	2	82	172	503	249			3		
26 St. Mary's, . . . . .	19	19	10	5	3	9	1	"	1	"	All.	1	203	37	241	101			9		
27 Guysborough, . . . . .	18	21	20	17	10	12	3	"		"	"	1	132	132	215	147			2		
28 Inverness, South, . . . . .	23	23	42	42	7	9	3	"		"	"	1	104	116	283	50			3		
29 " North, . . . . .	20	19	21	21	4	6	1	"	10	"	6	2	89	88	135	64			35		
30 Victoria, . . . . .	22	21	29	24	3	3	3	"	12	"	25	2	417	235	233	114					
31 Cape Breton, . . . . .	23	21	45	43	19	19	3	"	2	"	25	2	302	245	333	43					
32 Richmond, . . . . .	20	21	23	25	9	9	1	"	5	"	8	1	989	1043	239	143			2		
Total, . . . . .	670	701	726	652	332	544	55	678	156	431	129	334	76	6425	5830	6001	4168			85	8

**TABLE D.**  
**ABSTRACT OF GRAMMAR SCHOOL RETURNS.**

SCHOOL BOARDS.	TEACHERS.	Number of Pupils.		Average attendance.		No. Pupils in higher branches.		SUPPORT FROM DISTRICT.		SUPPORT FROM PROVINCE.		Globes	Maps	Black boards.	BRANCHES TAUGHT.			
		W.	S.	W.	S.	W.	S.	£	s.	d.	£					s.	d.	
Halifax City,	James Davison.	66	66	23	27	12	12	120	0	0	24	7	6	0	8	1	Classics & Mathemat.	
" West,	John Miller.	65	85	45	60	16	30	102	14	6	2½	7	6	2	8	2	do.	
" East,	David Laird.	66	58	37	32	23	21	45	0	0	47	2	10	6	2	do.		
" Shore,	None.																do.	
Chester,	Rev. R. Payne.	32	27	30	21	13	13	48	0	0	24	7	6		7	1	do.	
New Dublin,	Hinkle Condon.	74	75	54	48	10	11	104	0	0	25	0	0	0	6	1	Latin & Mathematics.	
Lunenburg,	William Lawson.	42	39	32	34	12	12	80	0	0	25	0	0	2	act	3	Classics & Mathemat.	
	Nicholas Smith.	73	46	22	27	25	20	100	0	0				2	6	3	Latin & Mathematics.	
Queens,	Joseph Tays.	68		42		12		45	5	0				1	18	1	Classics & Mathemat.	
	John Hood.		40		35		10	40	10	0				2	12	1	Latin and do.	
Barrington,	William Richan.	46	30	25	25	15	9	43	13	2½	23	15	0	2	7	1	do.	
	James Doane.	44		30		15		23	0	0	11	17	6	2	6	1	Mathematics.	
Shelburne,	James Mumoe.	36	35			10	11	74	0	0	23	15	0		11	1	Latin & Mathematics.	
Argyle,	None																	
Yarmouth,	George Christio.	83	34	33	26	18	18	77	10	4½				2	7	9	Classics.	
Clare,																		
Digby,	William Laudet.	38	38			16	15	120	0	0	41	13	4	1	8		Latin, French & Mat.	
	George Munroe.	83	90	46	50	12	12	100	0	0	25	0	0	2	3	1	do.	
Annapolis, West,																		
" East,	A. J. McLeod.	40	50	33	43	17	13	96	0	0	25	0	0		2	3	Classics and French.	
	William Shipley.	51	39	33	33	13	11	61	10	0	25	0	0	1	3	1	do. and Mathematics.	
	Jos. R. Hea.	52	48	36	37	30	30	200	0	0	26	10	0	2	22	1	do.	
	Wm. Somerville.	56		38		8		48	12	10½	12	10	0				do.	
	John Moser.	41		23		9		37	10	0	12	10	0		7	2	do.	
Kings,	Jonathan Borden.	50		21		12		40	0	0	12	10	0		10	1	Mathematics.	
	Silas Tupper.		29		16		8	42	10	0	12	10	0		7	1	do.	
	R. O. B. Johnson.		62		31		8	45	0	0	12	10	0		3	1	do.	
	George Gilson.		42		22		13	56	0	0	12	0	0		6	1	Latin, French, Math.	
Hants, West,	Benjamin Curran.	57	49	41	30	27	21	105	0	0	31	13	4	2	4	3	Classics, Fren. Math.	
" East,	Geo. F. McDonald.	40	46	26	33	14	12	68	6	8	31	13	4		9	2	Classics.	
Stirling,	Robert Logan.	70	59	35	40	16	16	105	0	0					12	2	Latin & Mathematics.	
Colchester,	None.																	
	Donald McCauley.	50	72	26	55	15	9	70	0	0	18	15	0		1		do.	
Cumberland,	Donald McKay.	44		26		12		45	0	0	18	15	0	1	1	1	do.	
	Israel Blair.		35		18		11	30	0	0					2	2		
Parrsboro',	Jacob McLellan.	45	42	25	22	16	17	115	0	0					2		Mathematics.	
Pictou, North,	Alex. Falkoner.	46	55	20	33	11	10	25	0	0	28	10	2		12	1	Classics & Mathemat.	
	Thomas Cumming	38		36		18		20	0	0	6	16	10		10	1	do. and French.	
" South,	Thomas Harrison.		40		25		11	20	0	0	12	16	8	1	5	1	Class. Fren. & Math.	
	Alex. Fraser.	73	60	38	36	12	10	40	0	0	23	1	8		1	1	Math & Chemistry.	
	Daniel McDonald.	38	35	24	19	12	13	95	0	0	33	7	6	1	12	1	Class. Fren. & Math.	
Sydney,	John McDonald.	46	47	20	20	10	10	40	0	0	30	6	6		2	1	Class. & Mathematics.	
	And. McGilveray.	43	47	24	31	16	11	44	3	0	33	1	3		5	1	do.	
	John McLellan.	43	41	23	28	10		30	2	4	30	2	4		2		Latin, French & Mat.	
St. Mary's,	Mathew G. Henry.	45	23	16	13	18	3	48	0	0	18	16	8		8	1	Class. & Mathematics.	
	John Forbes		50		32		8	17	10	0					2	7	Mathematics.	
Guysborough,	Thomas A. Taylor.	33	44	23	29	12	12	47	6	6	26	3	10		10	3	do. and French.	
Inverness, North,	John McEachran.	54	40	17	24	12	10	40	0	0	8	4	3		16		Mathematics.	
" South,	Lewis Murray.	41	44	21	27	10	10	40	0	0	30	15	4½		2	7	1	Class. & Mathematics.
	Edw'd. Blanchard.	59	45	40	30	11	10	43	1	9	31	8	2½	1	10	1	Latin, French & Mat.	
	Alex. Farquharson.	24	34			10	11	40	0	0					9	1	Latin & Mathematics.	
Victoria,	Donald McRae.		37		27		6	22	10	0					8	1	do. and Chemistry.	
	John Fraser.	80		30		7		25	0	0					9	1	do.	
	John McLeod.	41	38	31	27	14	15	47	0	0					7	7	do.	
Capo Breton,	Wm. H. Waddel.	36	34	24		12	13	40	0	0	50	0	0		1		do.	
Richmond,	William Hudson.	20	21	19		9	9	75	0	0	50	0	0		2		Math. & Chemistry.	
Total,		2192	1966	1188	1166	596	535	£3038	13	9½	£962	1	1	39	310	70		

## II.—REVIEWS OF SCHOOL BOOKS.

## MENTAL ARITHMETIC, &amp;c. By Hugo Reid.

We are indebted to the author for a copy of the above recent tribute to the cause of Education. The work embraces an investigation of the leading fundamental principles of Arithmetic, showing the *modus operandi* and rationale of the earlier stages of computation, accompanied with illustrative exercises. It contains also a few rules for commercial computation with examples for practice.

Children should be thoroughly trained in the principles of Arithmetic, and as far as practicable be made to understand the reasons for the operations which they perform. It is our practice in the Model School to teach these principles and reasons *viva voce*, in language and style adapted to the mental development of the children.

Mr. Reid is greatly in favour of a decimal currency, and devotes two or three pages to this subject. He adopts one pound as the unit, when of course the first place to the right is tenths of a pound, the second hundredths, and so on.

There is no doubt as to the superiority of the decimal currency in point of simplicity and convenience, and we would be pleased to see it adopted in Nova Scotia; but we prefer the common American system of dollars and cents to that proposed by Mr. Reid.

## AGRICULTURAL.



## I.—THEORY OF AGRICULTURE.

## OF COMMON SALT, NITRATES AND SULPHATES.

Common salt is a manure, the use of which is not only wide spread, but very ancient. In large quantities it is injurious, destroying vegetation rather than increasing its growth. In moderate quantities, however, it has been found on some soils very valuable. Such are most likely to occur in places far distant from the sea. The sea breeze carries small quantities of salt spray far inland, and deposits it upon the soil. All who live in the vicinity of salt water, know that its peculiar smell may often be perceived at a distance of many miles in the interior. For this reason salt is not usually found to be of much value as a manure near the sea.

A small proportion mixed in with a compost heap is likely to be useful. Another good way is to dissolve a little in water used for slaking quicklime. The compound thus formed is very energetic in its action upon vegetable substances, and has been found an admirable application to many soils, particularly on those where there is much inert vegetable matter that can only be decomposed with great difficulty. Common

salt is, according to the popular definition, composed of chlorine and soda.

There are other combinations of soda, that are beginning to be used in this country, and have been greatly approved of in Europe. The most important of these is the *Nitrate of Soda*. This is composed of nitric acid (a substance before described) and soda. The nitric acid contains much nitrogen, and is therefore very active as a manure. One or two cwt. nitrate of soda have been found, in many instances, to produce a very great growth. It gives a bright dark green color to the leaves, and increases the yield of grain. It also produces a marked improvement in grass crops and pastures. Grain that has been grown by aid of this manure is said not to give so much fine flour, being richer in gluten, and having a thicker skin.

Nitrate of soda is in some districts of South America a natural product, being found in a crust on the surface of the ground; it is so abundant as to be brought away by the ship-load, and may be obtained at such prices as would warrant the application of it in moderate quantities. Other nitrates are manufactured which would be excellent manures, but the price is generally so high as to forbid their use with profit. Whenever refuse nitrate of potash, that is, common saltpetre, can be obtained, or refuse liquid in which it has been dissolved for pickling meat, etc., it should be mixed into a compost heap, and carefully preserved.

There are several compounds containing sulphuric acid, called sulphates, that are also valuable whenever they can be had at reasonable prices. Those that have been most commonly employed, are the sulphates of magnesia and of soda. From their composition, both of these must be useful; but it would be necessary to exercise a degree of caution with the sulphate of magnesia, as it is very soluble, and much of it might do harm. It will be remembered that magnesia in any large quantity is quite injurious in the soil: small quantities are very useful.

The refuse liquid from salt-works after the salt has been crystallized out, contains some soluble compounds of lime, magnesia, etc., and might, applied carefully in small quantities, be useful. Pouring a little occasionally upon a compost heap, would be the safest and best mode of trying it. A large dose of this liquid would be fatal to vegetation.

## II.—PRACTICE OF AGRICULTURE.

## SPECIAL WORK FOR APRIL.

From the earliness with which our winter set in, the notion seems to be pretty prevalent that spring will speedily be ushered in. But be this as it may, it is perfectly clear that the Farmer should now be busily occupied in making preparations at least for his spring work.

**MANURES.**—System with the Farmer is of primary importance, and so soon therefore as he has finished assorting and filling his woodhouse with a good supply of oak, maple, birch or beech, he should look after the hauling of his manure to the fields. There will be little or no loss while it freezes and remains so, and as soon as the ground thaws it may be slightly covered. Here it is, on the field where it is to be used, and where twice or three times as much can be applied to the soil in a day, as could be done if it were to be taken from the barnyard or cellar. The finer it can be reduced, the more prompt will be its action, and larger the crop, other things being equal. In order to effect this as soon as the frost will permit, work over, pulverize and mingle the mass, returning it into a well rounded compact pile. Leave two or three small, long stakes inserted in it, and occasionally draw these up and notice by their warmth how far fermentation has gone on,—as nothing more than a gentle heat should be allowed to take place. A manure heap in this condition, mingled two to

four inches deep in moist, porous soil, cannot fail to produce favourable results.

**PRUNING AND TRANSPLANTING.**—This is the best month for pruning both Orchard and Espalier or Wall Trees. Let not the pruning knife be spared. It is with pruning as with thinning. We feel reluctant to pull out a thriving looking young turnip or carrot plant, though it is evidently two or three inches too near its neighbour. We allow it to remain, and the result is that both are small and rancid and wiry.—So with fruit trees and bushes. We spare a fine healthy looking shoot or branch just because we see a goodly number of flower buds upon it, which it is hoped may be turned to profitable account in the autumn. This is poor economy.—Not only will the fruit on the shoot itself be small, but all around will suffer both in size and flavour. Spare not then, we again say, the pruning knife. Much, of course, here depends upon the age and the nature of the growth of the tree or bush as to how the pruning knife should be applied; but there is one rule about which there need be no uncertainty, and that is always to keep the centre of the tree or gooseberry and current bush as open as possible, that a free circulation of air may be allowed to pass through. **Transplanting.**—This with the first half of the month of May is perhaps the best time in Nova Scotia for transplanting trees and shrubs. It is a safe principle never to transplant when the leaves are expanded, but either after they have fallen in autumn, or before they are out in spring. In Nova Scotia, we have no hesitation in saying, that the latter is preferable; and that mainly because of the usual severity of our winters, and the disastrous effects of the frost upon the rootlets. Now, then, is the time for transplantation; and in this two things ought to be attended to. First, every care should be taken of the small roots when the tree or shrub is raised; and wherever the tree is planted, it should be at the proper depth and in soil exactly adapted to its nature.

**SEEDS.**—It is not only well to have the Farm all plotted and each field assigned its crop for the year, but to have all matters connected with the seed in a state of preparedness for being committed to the soil when the proper time arrives.—Much more depends on the character of the seed than many people seem to imagine. True the character of the seed avails little when the soil is unfertilized and uncultivated, but, when this is duly attended to, the seed is of importance. It should consist of the best of the sort in possession, and when the seed is got from any other quarter, and this it should be every third or fourth year, care should be taken to get it from a soil and climate different from those to which it is transferred.

## LEGISLATIVE AGRICULTURAL MEETING.

[REPORTED BY JOHN C. MOORE, FOR THE N. E. FARMER.]

**SUBJECT FOR DISCUSSION.**—*The duty of the Government to encourage the development of its industrial resources, especially the improvement of its Agriculture, as being the foundation of the prosperity of its people.*

The members of this Society met in the Representatives' Hall on Monday evening at 7 o'clock. The attendance was respectable, and included many gentlemen whose practical opinions have been fortified by sage experience in the art and science of farming. His Excellency Gov. BANKS, presided.

Mr FLINT, the Secretary, reported the names of the following gentlemen as a Committee of Arrangements for the meetings of the Society, and the report was accepted:—Messrs. BAGG and PECK, of the Senate, and Messrs. MILLER, of Coleraine, PAGE of Brimfield, SARGENT of Newbury, BARRET, of Auburn, and NASH, of Granby.

Mr FLINT, the Secretary, then read the following resolutions as the basis of the evening's discussion:—

*Resolved,* That it is the duty of every civilized government to encourage the development of its industrial resources, and especi-

ally the improvement of its Agriculture, as being the true foundation of the prosperity and security of its people.

*Resolved,* That the formation of *Farmers' Clubs* for the discussion of Agricultural topics, the promotion of *Agricultural Libraries* for the use of the people, the holding of local or town fairs as auxiliary to the country and State exhibitions, and the collection of Agricultural products and objects illustrating the various departments of the *Natural History* of the country, are among the most practical modes of developing the Agricultural intelligence of the community.

Gov. BANKS, although he said he was unprepared for the task, spoke to the resolutions at length, and with great ability. We can only furnish a brief epitome of his speech, and those which succeeded it. He argued that it was the duty of the national government to give its protection to the interests of Agriculture, although the extent of that protection was a subject concerning which there was much diversion of opinion. The substance of his observations on this particular included the assertion that, in respect to all our material industrial interests, the duty of the government was to protect them to the extent of exacting as much revenue as sufficed for its support, and no more. Regarding the duty of the local government in encouraging the industrial interests of the people, His Excellency thought there could be no question, generally; but the query arose—*What is the best method for their development?* The people of the Commonwealth, he believed, to be willing to sustain and encourage that of Agriculture, as it was with us, as with the State at large, the original universal interest from which all others had to draw recruits to fill the avenues made in the professional and mechanical occupations by retirement and death. What did we see in State Street every day? Men born in Boston, building high the professional and commercial fame of the city? No! but men from the country, who came here, not with jaded look and weakened minds—men with the strong, solid frames, of such as breathed the mountain air, and lived by healthy, invigorating employment. And as it was here, so was it everywhere else. In this respect the encouragement of agriculture was important. But, in another point of view, a more liberal attention to agriculture was necessary as tending to show what the true wealth of the State was. We required from time to time to realize what we could do. We ought to know, and how should we manage to inform ourselves? Only by the accumulation of the products of the State—their aggregation precisely in the way followed by commercial men in regard to the products in which they had a peculiar interest. If the process showed that we have wants, it also told the manner of their supply, and was useful in this special degree; if it exhibited the power on our part to export, it showed our strength—that we had the whole world to trade with, and to draw upon for whatever our requirements suggested. If such accretion of products was not also made for the purpose of example, even, improvement would lag behind. Community of example and opinion have ever been the best incentive to advancement and improvements; for it had always been found to be the best way to interchange visits where the results of each year's exchange and labor were brought together, where comparisons could be instituted and valuable suggestions taught. No better mode of proceeding could be adopted than that specified in the second resolution. Bring on, then, our products, and show us what has and what can be done; and, although we may not attain to a perfect organization and superior merit in a day, or even a series of years, we may ultimately reach a position which, without incentives, we would never have reached.

His Excellency proceeded to say that he had no idea until last summer of the extent of the agricultural interest in the Commonwealth, but he determined that he should place himself in the best position to know. Placing himself at the direction of his friend, Mr Secretary FLINT, his first inquiry was relating to the places and periods where the required information was best attainable. But almost every portion of the State had its agricultural exhibition about the same time, and but a few of the whole could be seen by one indi-

vidual. This certainly was not right, and nothing but failure could proceed from such malarrangements. People must go beyond the limits of their own town, or district, or county to see what they have not been accustomed to see at home. They ought to have opportunity to see the best products of the State aggregated, and then they would be ready to exclaim—"Why is this? What cattle and products I see here! Why is it that I have never heard of such before?" Of course men thus surprised would be very apt to inquire how these superior animals and products were cultivated and perfected— glean lessons of value in the answers—and hence the value of the example, which never could have been had through a merely local exhibition. As exhibitions of what we have in Massachusetts, they are insufficient, for they furnish no idea of what we can or may do; and as this defect constituted a great evil, its correction should be kept for a moment out of sight. No opportunity was furnished at meetings for discussion—although there were very fine speeches made—excellent anecdotes related, and small talk plentiful. The least instruction in respect to anything is found in an after dinner speech, for in them there is just a glimpse at practical matters. And so one might go from table to table—from pen to pen—and solid information invariably keeps well aloof. But by the very nature of their gatherings, farmers require instruction.—They have a previous knowledge of whatever is worthy in their localities, and they do not require to have it repeated. But example and discussion are both useful; therefore, let useless practices be abandoned, and clubs be formed and discussions take place all the year through, and the result would turn out good. To spend one day or two per annum in sober trifling, never would be of any value. The interest of the State demanded that a better system should be inaugurated—a more advanced and profitable cultivation of the soil—and to effect this end, discussions such as were recommended in the resolution would be highly beneficial. The State already gave some \$18,000 per annum for the encouragement of Agriculture, and was probably ready to be more liberal, in the shape, it might be, of employing agents conversant with rural affairs, to visit the several localities, and teach farmers the most improved manner of enlarging their products; and in this connection it would be well to institute such clubs as the second resolution specified, that these teachings could be discussed and their value applied in practice. It would ultimately in a much greater benefit to the farming interests than the present system of local shows, and at the same, or very little more expense. County exhibitions might be retained with some degree of profit if their meetings could be distributed over the districts; but, periodically, the people should be called together to see what the State could do; for the farmer's prosperity was emphatically bound to that of the Commonwealth, and whatever he did to improve his own interests, in similar degree did he contribute to those pertaining to the general welfare. These observations, His Excellency said, in conclusion, were thrown out without any preparation, and he hoped the discussion would have such attention from the meeting as to elicit the most reliable and safe opinions.

SIMON BROWN, editor of the *N. E. Farmer*, was called on by His Excellency to speak.

He said the question before the meeting was one which had occupied his thoughts for many years, although he doubted his competency to lay his views respecting it before the audience in so clear a manner as he could wish. He proposed to confine his observations to the subject of the second resolution, which related to the State. Massachusetts stood high among her sister States in point of education, morals, arts, sciences and agriculture. Her institutions were of the most liberal and enlightened character, and were everywhere copied because of their perfection; her laws were approved on the same grounds, and no section of the union was oftener looked up to and copied as an example, than Massachusetts. It would be strange, then, if she should be found to have neglected any one of the prominent interests of the people; but it was otherwise with her, for she had done every-

thing to promote their welfare. Glance over her territory, and it would be found that her charities recognized every citizen within her limits—that those who were lowest, and who had the least care from those who ought to provide for them, are never forgotten or neglected. She had made ample provision for the alleviation of the unfortunate and the suffering. Look at her alms houses! How many are there? Not only her own citizens, but people from almost every nation in the earth. Could such a State neglect any one of her interests? Decidedly not! Bounties have been in turn offered by her to everything which needed protection. The County Agricultural Societies receive \$12,000 from her per annum, and in past times she has spent much money in their behalf. But had her generosity always been properly appreciated, and her kindness acknowledged? They were not. Some of the counties were endowed with as many as four societies, receiving, severally, bounties amounting to \$400 and \$600 annually, and what had been the conduct of some toward this liberality? If a farmer raised a pair of fine oxen to which a county prize was assigned, the State required of him a specific statement how he had accomplished it, so that his skill and mode of practice should be imparted to every other citizen of the State. And this ought to end the whole matter between them—the farmer having received the *first premium*, and the State as an equivalent for its bounty, a specific statement of the manner of producing the article. But it is quite often otherwise; the information given is frequently incomplete, and the stock, or article receiving the premium, is *taken to other shows*, and premiums again awarded, thus perpetrating a fraud upon the bounty of the State, and cutting off others from the privileges of a fair competition! These facts are well known—that the same plowman, the same stock, the same old rug, vegetables, grains, and implements, after having once received the *highest premium* at one exhibition, are entered at another and again paid the highest prize! This is evidently contrary to the intention of the Legislature, a misapplication of its bounty, and certainly not the spirit in which the generosity of the State should be met; in order to prevent such practices in future, the Legislature should enact a law that *there should be only one agricultural society receiving bounty from the public funds in each county in the State*. She long ago employed Mr COLMAN to make agricultural surveys of the counties, and to whose valuable reports we were so much indebted—for sending Prof. HITCHCOCK abroad at her expense to inspect the agricultural schools there, and show us what we could do at home, if we had the will; for publishing works on the *Fishes, Quadrupeds, Insects and Geology* of the State, each being a monument of her liberality and high purpose, and for establishing a Board of Agriculture which she still generously sustains. Had she ever been parsimonious? By no means; she had done all she ought to do; we ought to be satisfied with her liberality, and if we had not made a progress in proportion to its extent, it was our fault, not hers.

What, then ought to be done, as things now stood? Massachusetts should legislate for the farmer as faithfully as she has done for the manufacturer. Scope for that duty was ample. Let her, among other things, fix on a mode for the measurement of milk. What is a can of milk? a myth, a fabulous hydra, which nobody knows or can reasonably pretend to understand. So far as it could be practically described, it was 9½ quarts when the producer was concerned, and 7 when the buyer became interested, and 10 quarts when resold to city customers!! Let us know what a can is, so that those who furnish large quantities of milk per diem for use in the city, may know how to sell. In this connection, proper officers should be employed to investigate the quality of milk, and detect its adulteration. One fourth of it would be found to be Cochituate water after it came through the hands of the sellers, as could be proved if pains were properly taken. So much for law; and as for money, none was needed from the State beyond the bounties already awarded for agricultural encouragement. If the treasury was wide open, Mr BROWN said, he would not take a dollar to add to that bounty. Farmers did not want it in order

to obtain the information they need. In respect to agricultural information the best way was to commence at the soil, and educate the farmer thence upwards, so that he might be proud of his products as the mechanic was of his invention or the sculptor of his finished marble. Make a man proud of his vocation, and much to ennoble it would be accomplished. Why was the hall not filled to night? Because the people do not care for farming, although they all acknowledge it the organic element in the general prosperity. If this were a discussion of some political party, these seats would be crowded, and the speakers cheered with audible approbation. These vacant seats are so many records of the indifference of the community with regard to agriculture as an occupation, and of the importance of instituting a series of meetings and discussions among the people themselves, to aid them in obtaining a better knowledge of the practical operations of the farm, and of the elementary principles that are indispensable in its profitable pursuits. The person who wrote the article in the *Atlantic Monthly*, which has created so much comment, was right in his estimate of some farmers; but he made a mistake in constituting a general rule for the exceptions he had too truly before him. The fault lies mainly with the farmer that his calling is thought ungentle: he is content to hear and profit not—to listen perpetually to others and produce nothing mental himself.

Now what is wanted, is simply that the farmer should understand his business—that he should know how to do what he undertakes—and that he should endeavor to make his son understand it as well. He had no objection to Colleges for instruction in the scientific principles of agriculture, for the investigation of theories, or for any good purposes which they may subserve, but our first effort, the effort of the present moment, must be, to begin with the simplest elements, and teach them in various portions of each county in connection with the true principles of the practical operations of the farm. If a college were already in operation, he knew of no young men ready to enter it, merely because they had enjoyed no opportunity to qualify themselves for such a position. Who had taught them, and where? On the contrary, we should begin at the lower round of the ladder, and climb progressively and surely to the top. This object would be effected if farmers only loved their occupation. They would cherish it, and talk of it earnestly, and men would listen to them and be taught to profit by their works. Prompted by this love of their occupation, individual effort among farmers would soon work wonders, and on individual effort everything, almost, depended. In conjunction with Farmers' Clubs no limit could be placed to the good it would accomplish; and if gentlemen would go home determined to institute them, if in five years hence they failed to pay for themselves, Mr BROWN said he would, if able, be responsible for the intermediate outlay. Besides the credit of aiding the noblest of all human interests, to the mark of its highest improvement, it should be understood that the benefits of such associations, intellectually considered, would be important and useful to individuals in teaching them to condense and express the promptings of their minds. Mr BROWN concluded by advising that no society should be allowed to duplicate its premiums year and year again, in favor of the same article or animal; that counties spend a portion of their bounty money in the encouragement of meetings and discussions among the people, as where this had been done in New Hampshire and elsewhere, the very best results had followed, and the meeting might rely on it that such good would follow as they had never known to proceed from any hitherto tried means.

SANFORD HOWARD, Esq., of the *Cultivator*, was the next speaker. He endorsed the sentiments of the previous speakers; advocated an extended area of comparison in connection with the products of the State, and illustrated its benefits by relating sundry appropriate anecdotes; recommended but one society in counties, which should have its exhibitions distributed over the territory; approved of Farmers' Clubs, and stated his belief that a due attention to their interests would enable farmers to add a very large per-

centage to their products at a very trifling expense of labor as contrasted with the unscientific manner in which many of them operated at present.

JOHN BROOKS, of Princeton, spoke in opposition to the importing of foreign scientific agriculture to American farmers, as it had always proved unreliable, and in favor of our constituting a science from what our experience taught us. He approved of State exhibitions if conducted by the Board of Agriculture.

Mr SHELDON, of Wilmington, put in a plea for the right of every man to have a portion of the public territory to till—in other words, that it was the burden and duty of Uncle Sam, seeing he had the means, to "give every man a farm."

Mr BROWN, of Concord, then offered the following resolution for the acceptance of the meeting:

*Resolved*, That the Legislature be requested to pass an act requiring each county society receiving a portion of its bounty to devote one third of the whole amount received to the support of Agricultural meetings and discussions in various parts of the county.

After being discussed by Rev Mr BARRIDG, of Pepperell, W. J. BUCKMINSTER, Esq., and others, the resolution of Mr BROWN was laid on the table, with the view that time should be granted the society to consider and act upon it deliberately.

The meeting occupied over two hours; and at its close Mr FLINT announced the subject for discussion Monday evening to be, "What breeds of stock are best adapted to mixed farming?"

#### LORD LONSDALE'S VIEWS OF IMPROVEMENT IN FARMING.

At the meeting of the West Cumberland Society, Lord Lonsdale stated "unless they drained well and cultivated green crops, which were the very foundation of economical agriculture, they were going on at a very slow pace. As to drainage, he would just mention that before he thought of agriculture he was a zealous supporter of drainage; but he began upon roads, and when he inherited his property he applied the same system to land, and being more convinced every year of its necessity, he had gone on until he had attained a length which would surprise some people. He had drained a greater length of land than the telegraph between Ireland and Newfoundland, which was about 2500 miles long. The land thus drained was chiefly on the other side of the county, and was about 10,000 acres. There was a quarter of a mile of drainage in an acre, and the distance between Valentin and New York was about 2500 miles, which was about the length he had drained—and if he had luck to live he should not only have drained to New York, but back again. He believed that with the exception of the Duke of Northumberland no one had devoted more capital to drainage than he had. He believed drainage was a practical benefit to every one; the landlord received his rents, the tenant gained, and the country at large benefited." We understand that the Laird of Netherby, Sir James Graham, has the merit of being one of the first proprietors who practised the substitution of tile pipes for stones and sods in drains. We have been informed that it is in this county that this branch of drainage was first prominently practised, and the first moulds for forming drain tiles made on the Polmaise property, Stirlingshire, were brought from Sir James Graham's property, Netherby. Lord Lonsdale states that he has drained about 10,000 acres. It would have been very interesting had he mentioned the cost per acre, with the depth and distance apart. Will any of our readers glean such information and favour the readers of the *N. B. Agriculturist* with a statement.

In another speech, Lord Lonsdale speaks in strong terms of the advantages which accrued from freeing the land of water, principally as regards the health of the stock. In J. Bailey and G. Culley's report, the cattle are thus mentioned—

"The cattle are a small breed of Longhorns, with a few

exceptions of the Galloway breed intermixed, particularly along the coast from Whitehaven to Carlisle.

"This breed of Longhorns is not distinguished by any peculiar good qualities, which is not to be wondered at, when it is considered that, probably at this time, there is not one person in the county who pays any attention to its improvement. Twenty years ago, Mr. Hazle, of Dalemain, had made some progress in this business, and gained a very useful breed of Longhorned cattle; but his successors neglected them, and the labours of the good old man are totally lost.

"The Longhorned and the Galloway polled cattle are probably the best adapted to this county of any other; but the kind of Longhorns that occupy it at present, may certainly be much improved, by paying proper attention to breed always from the best males and females that can be selected. This end would be the readiest attained by getting good bulls and heifers from the midland counties, where the Longhorned breed are brought to great perfection."

The Longhorns now discarded have given way to the Shorthorn. Along with attention to the breeding of Shorthorns, considerable attention has been devoted to the improvement of the Galloway. An occasional dairy of Ayrshires is to be seen in the county, but a striking peculiarity which we lately observed in passing through this county is, that on one side of the line there was an excellent herd of Galloways, and on the opposite side a herd of Shorthorn crosses. There can be little doubt that the owner of each herd believed his own to have been the most profitable, as they showed that an amount of care and attention had been bestowed on their selection. It is not improbable that an inquirer anxious to determine which breed was the most suitable for the district would have been furnished with information which, to use a Scottish phrase, would show that "both were best." Many will believe that it is less a question of breed for such a district as the county of Cumberland than the selection of that peculiar breed with attention to the requirements and general comfort of the animals. As this county is an extensive breeding district, the question as to the best breed becomes of greater importance to the agriculturists of the district.

Cumberland was, at the beginning of this century, one of the wildest and most backward districts in the country. With an average rainfall of from 60 to upwards of 80 inches in the year at Keswick, it can be supposed that, without modern drainage, except the very driest portions, the land would be almost wholly unfit for cultivation. Nearly the whole operations of the farm were executed by the farmer and his family—nearly all the servants that were engaged were boarded in the farm house, and the wages were at a minimum rate.—Servants were only engaged by the half year, to prevent them from gaining settlements. Wages for men, from £5 to £7; women, £2 to £3. At the end of the last century there were no thrashing machines, no drills, nor horse hoes. Now the former of these are in general use, and the drill and horse hoe is slowly coming into use.

## SCIENTIFIC.

### THE PHILOSOPHY OF RAIN.

To understand the philosophy of this beautiful and often sublime phenomenon, so often witnessed since the creation of the world, and essential to the very existence of plants and animals, a few facts derived from observation and a long train of experiments must be remembered:

1. Were the atmosphere everywhere, at all times, at a uniform temperature, we should never have rain, or hail, or snow. The water absorbed by it in evaporation from the sea and the earth's surface would descend in an imperceptible vapor, or cease to be absorbed by the air when it was once fully saturated.

2. The absorbing power of the atmosphere, and conse-

quently its capability to retain humidity is proportionably greater in warm than in cold air.

3. The air near the surface of the earth is warmer than it is in the region of the clouds. The higher we ascend from the earth, the colder do we find the atmosphere. Hence the perpetual snow on very high mountains in the hottest climate. Now when from continued evaporation, the air is highly saturated with vapor, though it be invisible and the sky cloudless, if its temperature is suddenly reduced by cold currents, descending from above, or rushing from a higher to a lower latitude, its capacity to retain moisture is diminished, clouds are formed, and the result is rain. Air condenses as it cools and like a sponge filled with water and compressed, pours out the water which its diminished capacity cannot hold. How singular yet how simple, the philosophy of rain! What but Omniscience could have devised such an admirable arrangement for watering the earth?—*Scientific Journal.*

### REMARKABLE WORKS OF HUMAN LABOR.

Nineveh was 5 miles long, 8 wide, and 40 miles round, with a wall 100 feet high, and thick enough for three chariots abreast. Babylon was 60 miles within the walls, which were 75 feet thick and 300 feet high, with 100 brazen gates. The temple of Diana, at Ephesus, was 429 feet to the support of the roof. It was an hundred years in building. The largest of the pyramids is 481 feet high and 653 on the sides; its base covers 11 acres. The stones are about 30 feet in length, and the layers 208. It employed 330,000 men in building. The labyrinth in Egypt contains three hundred chambers and 13 halls. Thebes, in Egypt presents ruins 27 miles round, and 100 gates. Carthage was 23 miles round. Athens was 25 miles round, and contained 359,000 citizens and 400,000 slaves. The temple of Delphos was so rich in donations, that it was plundered of \$500,000, and Nero carried away from it 200 statues. The walls of Rome were 13 miles round.

### EFFECTS OF KNOWLEDGE.

The more widely knowledge is spread, the more will they be prized whose happy lot it is to extend its bounds by discovering new truths, to multiply its uses by inventing new modes of applying it in practice. \* \* Real knowledge never promoted either turbulence or unbelief; but its progress is the forerunner of liberality and enlightened toleration. Who dreads these, let him tremble; for he may be well assured that their day is at length come, and must put to sudden flight the evil spirits of tyranny and persecution which haunted the long night now gone down the sky.—*Brougham.*

### DISCOVERIES AND PROGRESS OF THE LAST CENTURY.

There is no period since the commencement of the world in which so many important discoveries, tending to the benefit of mankind, were made, as in the last half century or so. Before the year 1800 there was not a single steamboat in existence, and the application of steam machinery was unknown. Fulton launched the first steamboat in 1807; now there are three thousand steamboats traversing the waters of America, and the time saved in travel is equal to seventy per cent; the rivers of nearly every country in the world are now traversed by steamboats. In 1800, there was not a single railroad in the world; there are now, in England and America alone, about twenty two thousand miles of railroad, costing in the neighborhood of three hundred millions of dollars. In 1800, it took weeks to convey intelligence between Philadelphia and New Orleans; now it can be accomplished in minutes by the electric telegraph, which only had its beginning in 1843.—*U. Canada Journal.*

**DOMESTIC RECEIPTS.**

**FRUIT PUDDING.**— $\frac{1}{2}$  lb. each of flour, grated potatoes and grated carrots, and  $\frac{1}{2}$  lb. of suet. Salt and spice to taste. Boil 3 hours. To be eaten with wine sauce.

**BOILED BREAD PUDDING.**—Half a loaf of stale bread soaked in a quart of milk; 4 eggs; 4 table spoonfuls of flour. Boil  $\frac{1}{2}$  of an hour; serve with wine sauce. A little green or dried fruit mixed in is a good addition.

**"WINE SAUCE" WITHOUT WINE.**—Butter and sugar thickened with corn starch, and flavored with the rind and part of the juice of a lemon.

**POR-OYERS.**—One cup of flour; one egg; butter the size of a nutmeg. Bake in small tin rounds. The same rule is good for nice drop cakes, baked in cups; or boiled batter pudding.

**GRANDMA'S BATTER PUDDING.**—One quart of milk; 9 eggs (if you have got 'em;) 9 table spoonfuls of flour, and a little salt. Steam one and a half hours—if steamed just enough, the pudding will retain its form, and it cannot be excelled for delicacy.

**GRANDMA'S MALBOROUGH PIE.**—Twelve spoonfuls each of sifted (stewed) apple, beaten egg, and melted butter—all thoroughly mixed, and flavored with lemon and sweetened to the taste. Bake without upper crust. Less butter than the above will do.

**APPLE CUSTARD.**—Take fine apple sauce, flavor with lemon or rose, and fill the pie plates with it. Pour over a nice custard flavored with nutmeg or vanilla, and bake.

**A TURKEY BOILED AND THEN BAKED.**—Prepare the turkey just as if for baking; then put in a kettle, covering it with water, and closing it with a lid. Boil until quite tender. Then take it out and brown it in an oven for a few minutes. When put upon the table it will be found very tender and juicy instead of dry and tough.

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