

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.

Additional comments:
Commentaires supplémentaires:

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

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

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

modulating the tones of his voice, so that his voice shall tell that he *feels* what he says. What makes Spurgeon such an orator but that he can take advantage of this, and give expression to his ideas in a voice and language so *natural* as to hold his listeners spell-bound for almost any length of time he chooses. The teacher also gains much by keeping the eye of the child. The eye is the "index of the mind," and as long as the teacher can keep the eye steadily fixed upon him he is nearly sure to have the attention. It is through the sense of sight that we get our most definite knowledge, for "what a man sees that will he believe." Hence the school-room should be studded with objects of all kinds, to be used in illustrating, in order to give the child a definite idea of the subject in hand, through the sense of sight.

II. CONSCIOUSNESS. The moment we perceive an object there is a change produced on the mind, and that moment the perception is done. The faculty by which we become conscious of the change is called consciousness. It is possible to have a perception of a thing and yet be unconscious of it.—For example, we may hear a minister speak and yet be unconscious of what he is saying. Now we control this by the will, and when by its power we turn our thoughts upon an external object, we call that paying *attention*; when in upon our own thoughts, *reflection*. The teacher's province here is to incite the children to habits of attention, by training them to have a command of the will by which they can control the mind. This he may do, to a certain extent, by making the child get its lessons thoroughly. The habit, once acquired, will help to give him that determination of character, that when he has chosen his calling or profession he will follow it to the end; and thus be an honour to himself and a benefit to his fellow-men.

III. ORIGINAL SUGGESTION. Every child has an innate principle of suggestion. He sees a certain effect following a certain cause, the idea at once and intuitively suggests itself to his mind that the same cause will produce the same effect, &c. It is this that gives almost every child a curiosity to find out something new, or a wish to learn the reason of things.—This should be turned by the teacher in the right direction and encouraged. It is not by the occasional glance that the reason and everything connected with anything is found out, but by a patient investigation of it. It is said of Newton that "he did not know that he was different from other men, but he thought he possessed the *power of patient thought* to a greater extent." He is an example worth imitating.

IV. ABSTRACTION, or the power by which we pass from a knowledge of individuals to a knowledge of classes or species. We do this by three mental processes, viz., analysis, generalization and combination. The first resolves the concrete object into its parts, the second singles the parts in one body that are common to others, and the third combines these parts together so that we speak of them afterwards, not as the part of one or another, but as a class. This is one of the highest faculties of the mind, for by it man can trace the order existing in nature, and while so doing his mind comes in contact with the divine mind and he becomes acquainted with the God of nature. To improve this faculty study science.—Grammar affords a fine field for the teacher to exercise this faculty in his pupils.

V. MEMORY, is one of the most important faculties because of its relation to all the others, for by it we retain the knowledge obtained by our other faculties, and recall it at any time

for present use. A perfect memory has susceptibility of acquiring knowledge, retentiveness in keeping it, and promptness in recalling it. The memory may be cultivated to a greater extent than any of the other faculties, but it is only done by patient and persevering use. We may very much aid the memory by having our thoughts arranged, and also by associating them with others. If the teacher would have his scholars remember ideas rather than the mere vocables he must give them a clear conception of the thing itself. This he may do, 1st, by simplifying; 2nd, by illustrating, and here comes in the use of the senses; and 3rdly, by reducing to practice; by which he can show them that they can use the knowledge they have obtained. Repetition is also of great utility in fastening the thing on the memory; hence the necessity of reviews, and no teacher should commence a new lesson until he has reviewed the preceding one.

VI. REASONING, or the faculty by which we go on from certain known facts to new and original knowledge. We do so by a series of conclusions; or, we start from certain premises granted by all, and by a series of conclusions we deduce certain facts equally sound as the premises from which started. It is in this way that we can lead the minds of children on from the known to the unknown, which is the true way of imparting knowledge. Reason may be improved in various ways: by the study of logical books, geometry, and mathematics in all its branches. We should never attempt to reason or say anything unless we have a point to make out.

VII. IMAGINATION, is the power we have of forming pictures and images according to our own fancy. This shows itself differently in different persons, some have a poetical, others a philosophical imagination. We may improve it by "sitting at the feet of nature" and tracing out the laws, or systems of laws, existing there; by acquiring the power of going from the visible to the invisible; and by studying poetical works of high standing.

VIII. TASTE, is that part of our mental constitution that judges of the beauties or deformities existing in nature or art; and feels emotions of pleasure from the one or pain from the other. The more refined the taste the greater enjoyment we will have in examining the beautiful in either. It varies greatly in different persons: some enjoying the wonderful and the grand, others wish for harmony and gentle beauty. It is improved by studying the most beautiful in nature, and the best models of art.

Having now gone over the different powers of the Intellect we are in a position to give our definition of Intellectual Education. This I will do by saying what it is *not* and then what it *is*. It is not merely imparting knowledge to the intellect, but it is so to impart that knowledge as that all its parts shall be unfolded, directed, and strengthened; that it shall be prepared to be, throughout its whole course, a successful seeker after *truth*. It is to train the senses to observe accurately; to discipline the mind so as to endure it, by practice, with the ability to collect its energies at will and to fix them long on one point; to infuse into the mind a principle of enduring activity and curiosity; to accustom the abstraction to properly combine the elements of knowledge obtained, the memory to lay up carefully and recall readily, and the reason to compare, reflect, and judge impartially; and to awaken the whole soul in quest of light, pressing forward towards higher truth and larger knowledge. If such be the work of the Educator, oh! let not the unskilful hand attempt it.

I will conclude with a few general principles as to the *mode* of doing this. In the first place, each part must be supplied with its proper subject of thought, and second, supplied in such a manner that the part itself may be exercised. This the teacher does by coming down to a level with his pupils and leading them on from the known to the unknown by a process of question and ellipsis. Such, at least, is my opinion of Intellectual Education as compatible with the nature of children.

S. F. R.

II.—PRACTICE OF EDUCATION.

SCHOOL GOVERNMENT—OUTLINE OF WHOLE SUBJECT.

This subject is, in our opinion, regarded by not a few in too limited a sense,—as if it merely had respect to the conduct of the scholars, or rather to the devising and executing of those rules by which their conduct ought to be regulated.—This, no doubt, forms a part, and an important part, of School Government; but it is something, in our apprehension, far more comprehensive and exalted. The Monarch of a free and loyal people has something more to do, in wisely fulfilling the trust reposed in him, than to inflict condign punishment upon the guilty transgressor. He has to use every means within his reach to encourage his subjects, throughout their varied ranks and degrees, to habits of industry, of virtue, and of perseverance. He must, no doubt, be occasionally called to the exercise of discipline, to the infliction of merited punishment; but this will only be when failure attends his other work, and in very proportion to the measure of that failure. His grand aim will be so to fulfil his high mission, as that Crime and vice shall as ashamed hide their face, and the necessity for punishment gradually be diminished; and his government have inscribed upon its every feature the ennobling motto: "*The maximum of excellence is the minimum of punishment.*" And as it is with the Monarch, so is it with the Schoolmaster. He, too, has to exercise discipline, to inflict punishment, but this is but a subordinate part of his office as a Master, or Governor. He has to maintain his authority and preserve order. And, for this purpose, he must do something more than give forth his lordly dictates, or execute the penalty incurred by the violators of the laws of his establishment; he must so organize and manage his school, so awaken and stimulate to diligent perseverance in study, and thereby so interest in the various employments, as shall render any formal declaration of his authority in a great measure unnecessary, and his resorting to punishment a matter of comparatively rare occurrence. Viewing School Government in this comprehensive sense, it must be plain to every one at all acquainted with the education of the young that this is a subject of paramount importance, demanding the most grave and serious consideration. We would not, as a goodly number seem to do, constitute this the sum total of the education of the young. This would be to convert the means into the end. The grand end of all education is the expansion of mind, the rendering of the various powers subservient to the purposes for which they were intended. But, for the accomplishment of this end, good order or good government is indispensably ne-

cessary. You may be a first-rate scholar, possessed of high literary and scientific attainments, and you may be well acquainted with the business of teaching in theory, but if you possess little or no capacity or tact for governing, all your other capabilities will prove of little avail;—indeed, you had better betake yourself to some other employment. School Government, then, is nothing but a means essential for the accomplishment of an important end. As, then, the end designed—the education of the young, is, in its highest acceptation, of incalculable value, so is the means of securing it.

Now, there are four prominent points which in the matter of School Government, as now explained, will fall to be considered:—1st. There is the whole matter of incentives to diligence; 2nd. The means to be used for the preservation of good order; 3rd. The exercise of discipline or the infliction of punishment; and 4th. The qualifications requisite for all these purposes, on the part of the Educator.

1st. As to the matter of incentives to diligence in study, no one, we think, who looks into this matter can fail to apprehend its vast importance. Nothing substantial can be achieved in education without diligent personal application. And when this is gained in all, or even in a great majority in the school, the matter of government will be comparatively easy.—Few children, however, love learning for its own sake.—The great mass of children require to be plied and stimulated by every motive and consideration; and this constitutes one of the most important functions which the Educator is called upon to discharge. And now an important question arises, On what principle in the constitution of the young is he to operate in the application of these motives? It is plainly on the principle of emulation, one of the inherent principles of our nature, and which, when properly directed, is productive of the most beneficial results. In what sense, then, is this principle to be taken, and how is it to be plied for the object in view in consistency with its nature and with the only infallible standard, are points which will afford a befitting theme for a future number, involving the whole matter of *trapping*, or of taking of places and of giving of prizes—practices prevalent in all countries to a greater or less extent. But there are other principles in our nature, besides that of emulation, far higher and nobler, which it behoves the Educator to address,—other motives by which to stimulate to diligence and perseverance in the application of mind, and in the formation of character, and which, while they stimulate the intellect, it is not at the expense of the moral sense; yea, they operate upon the former through the medium of the latter. These are such as the following:—1st. The satisfaction and delight arising from the acquisition of knowledge and the cultivation of the mental powers; 2nd. The gratification of securing the approbation of parents and teachers; 3rd. The prospect of greater usefulness in the world; and 4th. A sense of duty. This last is vastly the most important of the whole, and constitutes the motive that ought to be habitually and urgently pressed. If such an instrument is at his service—a weapon the most powerful and the most extensively useful of all, surely it is matter of lamentation that Teachers avail themselves so sparingly of it, hundreds and thousands being seemingly afraid to touch it.

The next point to be attended to is the means to be used for the establishment and preservation of good order. If the Teacher succeeds in animating his pupils to cheerful and persevering diligence in their mental application, much of the difficulty connected with this work is overcome. When the

scholars are regularly and steadily employed there is far less temptation to disobedience, or to the contraction of disorderly habits. Nevertheless, there are means bearing more specifically upon the point, which may and which ought to be used for the effecting of an end so desirable. And these are such as the following:—

1. That every care be taken to produce a favorable impression at the outset.
2. That the entertaining and exhibiting of a suspicious spirit be avoided.
3. That full and regular employment be given as soon as possible.
4. That as few rules as possible be made, and that an excess in governing be avoided.
5. That every effort be used to wake up mind in the school and district, and especially to secure the support and co-operation of the parents.
6. That Registers of attendance, of diligence and good conduct be carefully kept.

With all these appliances, however, the exercise of discipline in the infliction of punishment may be occasionally required, and it is well both to expect and be prepared for such cases. Thus, it will be necessary to open up and discuss the whole matter of punishment. After defining punishment as the infliction of pain upon the mind or body of an individual by the authority to which he is subject, with a view either to reform him, or to deter others from the commission of offences, or both; we shall then consider what punishments are improper and what are proper. The former are such as the following:—1st. Those which excite the feeling that an indignity has been offered; 2nd. Those that imply in the infliction a love of prolonged torture; 3rd. Ridicule. The latter, or the punishments that we consider proper, are such as these:—1st. Kind reproof, administered if possible in private; 2nd. Deprivation of privilege; 3rd. Constraint or confinement; 4th. Humiliation; 5th. Imposition of a task. At this stage we shall discuss the whole matter of corporal punishment, in what cases it may be tried under certain conditions, and, in what cases it may not. Our view is simply this, if the system of education is purely secular or intellectual, then we think it may be resorted to, as a dernier resort, after every other expedient has failed; if, on the contrary, the system pursued embraces a thorough moral training in inseparable union with the physical and intellectual, then is it not only positively hurtful, as inflicted by the Educator, but it is in direct antagonism to the object contemplated.

Much, very much, of the accomplishment of the end aimed at by all these means depends on the Schoolmaster himself. He may be thoroughly conversant with all these matters theoretically, and yet he may be miserably defective in carrying them into practical effect. And this will bring under our review another and an important topic, namely, the qualifications of the Educator in the capacity of a Governor or Master.—These qualifications are such as the following:—1st. Self-government; 2nd. Decision and firmness with humble confidence in his ability to govern; 3rd. Deep moral principle; 4th. Just and correct views of the governed, in reference to their intellectual, moral and emotional framework; 5th. Just views of the great end of government.

The above, which may be regarded as constituting a leading outline of School Government, embraces a very extensive range of observation, and when taken up in detail will furnish

material for a succession of lengthened articles. Considering, however, the vast importance of the theme itself, it is earnestly hoped that neither the time nor the energies of the writer or reader will be found to be unprofitably employed.

MENTAL ARITHMETIC—COMPUTATION OF PRICES.

HAYES already offered a few suggestions on the mode of conducting this study, and furnished some contractions by which operations in the fundamental rules are materially shortened, we proceed to take up the subject in its practical application to the every day business of life. Our Rules, to a cursory reader, may appear to be applicable only in a limited number of cases; but, by a careful perusal, he will find them to constitute a system of contractions which covers the whole ground.

I. TWELVE RULE.

Since 12 pence make 1 shilling, 12 articles at 1 penny each cost 1 shilling. And if the price of each one of the 12 articles were 2d., the cost of the whole would be 2 shillings;—if 3d., 3s.;—if 4d., 4s.; &c.

Then,—To find the price of 12 articles at any price apiece reduce the price to pence and call the pence shillings. Thus, in finding the cost of 12 lbs. tea at 3s. 5½d. per lb.: 3s. 5½d. = 41½d.; now we have only to call this 41½s., and we have the answer in shillings, which, when reduced, we find to be £2 1s. 9d.

Again,—What cost 12 yds. of cotton at 1s. 1¼d. per yd.? 1s. 1¼d. = 13¼d.; call this 13¼s. or 13s. 3d., and we have the answer.

Now, 24 is twice 12, and 36 is three times 12; hence, if the price of 12 be multiplied by 2, the price of 24 is found, if by 3, that of 36 is found, thus:—

What cost 24 lbs. starch at 11½d. per lb.?

12 at 11½d. cost 11s. 6d.; 11s. 6d. × 2 = £1 3s. Ans.

What cost 36 lbs. sugar at 6½d. per lb.?

12 at 6½d. cost 6s. 9d.; 6s. 9d. × 3 = £1 0s. 3d. Ans.

Hence,—To find the price of any number of articles which is a multiple of 12, reduce the price to pence, call the pence shillings, and multiply by the number of times that 12 is contained in the number.

Examples.

What cost 96 lbs. sugar at 4½d. per lb.?

12 at 4½d. cost 4s. 6d.; 96 = 12 × 8; 4s. 6d. × 8 = 36s. = £1 16s. Ans.

What cost 132 yds. lace at 2¼d. per yd.?

12 at 2¼d. cost 2s. 3d.; 132 = 12 × 11; 2s. 3d. × 11 = 24s. 9d. = £1 4s. 9d. Ans.

II. FORTY-EIGHT RULE.

Forty-eight farthings make one shilling; therefore 48 articles at ¼d. each cost 1 shilling; at ½d. each, 2s.; at ¾d. each, 3s.; at 9-4d. each, 9s.; &c. Hence,—To find the price of forty-eight articles, reduce the price to farthings and call the farthings shillings.

Examples.

What cost 48 lbs. sugar at 3½d. per lb.?

3½d. = 15 farthings,—call these 15 shillings. Ans.

What cost 48 yds. cambric at 1s. 7¼d. per yd.?

1s. 7¼d. = 77 farthings; 77 shillings = £3 17s. Ans.

To find the price of 96, multiply the price of 48 by 2; of

144, by 3; of 192, by 4, &c., for example:—

What cost 192 lbs. coffee at 8½d. per lb.?

8½d. = 35 farthings; 35s. = £1 15s. = price of 48; £1 15s. × 4 = £7. *Ans.*

III. SIXTEEN RULE.

Three times sixteen are forty-eight; therefore, if the price of 48 be divided by 3, the price of 16 will be found.

What cost 16 yds. lace at 7½d. per yd.?

7½d. = 30 farthings; 30s. = price of 48 at 7½d.; 30s. ÷ 3 = 10s. = price of 16 at 7½d. *Ans.*

What cost 16 lbs. soda at 5½d. per lb.?

5½d. = 21 farthings; 21 ÷ 3 = 7 farthings; 7s. *Ans.*

Hence,—To find the price of 16 articles, reduce the price to farthings, divide by 3, and call the result shillings.

Examples.

What cost 16 lbs. candles at 10½d. per lb.?

10½d. = 42 farthings; 42 ÷ 3 = 14; 14s. *Ans.*

What cost 16 lbs. soap at 4½d. per lb.?

4½d. = 17 farthings; 17 ÷ 3 = 5½; 5½s. = 5s. 8d. *Ans.*

This is a very useful rule. It is adapted to any number which is a multiple of 16; as 32, 48, 64, 80, 96, 112, 128, &c.

To find the price of any number of articles which is a multiple of 16, reduce the price to farthings, divide by 3, call the result shillings, and multiply by the number of times that the number contains 16.

Examples.

What cost 64 articles at 9½d. each?

9½d. = 37 f.; 37 ÷ 3 = 12½; 64 = 16 × 4; 12½s. = 12s. 4d. × 4 = 49s. 4d. = £2 9s. 4d. *Ans.*

What cost 112 grammars at 1s. 2½d. each?

1s. 2½d. = 58 f.; 58 ÷ 3 = 19½; 112 = 16 × 7; 19½s. = 19s. 4d.; 19s. 4d. × 7 = 135s. 4d. = £6 15s. 4d. *Ans.*

IV. ONE HUNDRED RULE.

One hundred farthings are twenty-five pence, or two shillings and one penny. Hence, to find the price of 100 articles, for every farthing in the price take 2 shillings and 1 penny.

Examples.

What cost 100 boxes wafers at 2½d. per box?

2½d. = 11 farthings; 22s. 11d. = £1 2s. 11d. *Ans.*

What cost 50 lbs. rice at 8½d. per lb.?

8½d. = 34 farthings; 34 ÷ 2 = 17; 34s. 17d. = 35s. 5d. = £1 15s. 5d. *Ans.*

What cost 25 yards cambric at 10½d. per yard?

10½d. = 42 farthings; 42 ÷ 4 = 10½; 21s. 10½d. = £1 1s. 10½d. *Ans.*

V. TWO HUNDRED AND FORTY RULE.

There are 240 pence in a pound; therefore 240 articles at 1 penny each cost 1 pound; at 2 pence each, 2 pounds; at 3 pence each, 3 pounds; &c.

To find the cost of 240 articles, reduce the price to pence, and call the pence pounds.

Examples.

What cost 240 articles at 2s. 7½d. each?

2s. 7½d. = 31½d.; £31½ = £31 10s. *Ans.*

What cost 120 articles at 1s. 5½d. each?

1s. 5½d. = 17½d.; 120 = 240 ÷ 2; £17½ = £17 10s.; £17 10s. ÷ 2 = £8 15s. *Ans.*

What cost 60 articles at 4½d. each?

4½d. = £4 15s.; 60 = 240 ÷ 4; £4 15s. ÷ 4 = £1 3s. 9d. *Ans.*

What cost 30 articles at 5s. 4d. each?

5s. 4d. = 64d.; 30 = 240 ÷ 8; 64 ÷ 8 = £8. *Ans.*

VI. TWENTY RULE.

This rule depends upon the fact that twenty shillings make one pound. It is:—To find the cost of twenty articles, for every shilling in the price take a pound; and in proportion for the parts of a shilling. It will be readily seen that 20 articles at 1s. each cost

	£1 0 0
at 6d.	10 0
at 3d.	5 0
at 1½d.	2 6
at 1d.	1 8
at ¾d.	1 3
at ½d.	10
at ¼d.	5

And no difficulty will be found in calculating for 8d., 10½d., or any other part of a shilling. And by this rule may be found the cost of any number of articles, which number is a multiple of 20; as, to find the cost of 40, multiply that of 20 by 2; of 60, by 3; &c.

Examples.

What cost 20 dictionaries at 7s. 1½d. each?

7s. 1½d.; £7 2s. 6d. *Ans.*

What cost 60 readers at 3s. 3d. each?

3s. 3d.; 60 = 20 × 3; £3 5s. × 3 = £9 15s. *Ans.*

What cost 140 Bibles at 3s. 4½d. each?

3s. 4½d.; 140 = 20 × 7; £3 7s. 6d. × 7 = £23 12s. 6d. *Ans.*

By means of the six rules here given, calculations are readily made when the number of articles is either of the following:—12, 16, 20, 24, 25, 30, 32, 36, 40, 48, 50, 60, 64, 72, 80, 84, 96, 100, &c. And by separate calculations for the intermediate numbers, which can be readily made, the cost of any number of articles at any price whatever may be found.

Examples.

What cost 49 articles at 7½d. each?

By Forty-eight Rule.

7½d. = 31 farthings.

31s. = £1 11 0 = price of 48.

7½ = price of 1.

£1 11 7½ = price of 49. *Ans.*

What cost 77 at 2s. 2½d.?

By Twelve Rule.

2s. 2½d. = 26½d.

£1 6 6 = price of 12.

7 19 0 = price of 72.

2s. 2½d. × 5 = 11 0½ = price of 5.

£8 10 0½ = price of 77. *Ans.*

Or, by Twenty Rule.

2s. 2½d.

£2 4 2 = price of 20.

8 16 8 = price of 80.

2s. 2½d. × 3 = 6 7½ = price of 3.

£8 10 0½ = price of 77. *Ans.*

These examples are sufficient to show that the preceding rules are of general application,—that by them the cost of any number of articles may be found in a few moments, without having recourse to the slate and pencil.

IV.—EDUCATIONAL INTELLIGENCE.

COLONIAL.

NOVA SCOTIA.

MAITLAND, NOEL AND WALTON.

We visited all these localities at the end of last month, and addressed public meetings at each, on the subject of Education. We were much gratified with the whole condition and appearance of the country, as well as with the picturesque character of the scenery,—especially between Noel and Walton. The pretty and thriving village of Maitland, situated at the mouth of the Shubenacadie, is mainly dependent on the shipping and fishing interests. Since our last visit a handsome Presbyterian place of worship has been erected, on a very commanding site, which enhances very much the whole aspect of the village. There are generally one or two vessels on the stocks. One of considerable size was just on the eve of being launched on occasion of our visit. We regret to find that since we last visited this beautiful village, two years ago, no progress has been made in Education or in School Accommodation. The old School House is neither suited to the place nor capable of being repaired; and we trust the day is not far distant when a commodious building will be erected, containing two apartments and furnishing sufficient room for 120 or 130 children. Within a mile and half or two miles of the village there is abundant population for a primary and a superior or Grammar School under the same roof, the former taught by a female and the latter by a male, both carrying on the same system and the one feeding the other.—This would furnish both the cheapest and most efficient education, and would prove of vast utility to the whole neighbourhood for miles around. The drive along the shore from Maitland to Walton, through Noel, is exceedingly beautiful, and in some places, such as about Tenecape, altogether romantic. The distance from Maitland to Noel is twelve miles, and thence to Walton sixteen. The Farming along the shore is, generally speaking, in an advanced condition, far beyond what we had any idea of. We saw Farms in the Smith's and the Denmore settlements, and in the neighbourhood of Walton, that would vie with any in the Province. Now, that the Farmers have seen and reaped the benefits arising from the application of Marsh-Mud to the fertilizing of the soil, we hope that they will soon adopt the practice of sowing a larger breadth of Turnip and other Green Crops. To depend entirely upon the Hay, whether Upland or Marsh, for the feeding of the Stock during our long winters, is neither so beneficial to the cattle or the land, nor so profitable to the Farmer, as upon a mixture of Hay, Straw and Roots. If every Farmer along that interesting shore, with so many fertilizing capabilities, would just resolve to grow every year an acre of Turnip, and one of Potato, and one half acre of Carrot and the other half of Mangold Wurtzel, it would produce a complete revolution on the whole of his operations in the course of a few years. This would require his undivided attention to the Farm. Between Noel and Walton we had some conversation with a Farmer, who told us that for seven years he had not bought a barrel of flour, that during that time he had raised enough, and more than enough, to supply his own wants and those of his family; and added, that he found his Farm had done vastly better, since he devoted to it all his

time and energy, than when he engaged partly in farming, partly in fishing, and partly in plastering. This we considered a noble sentiment, and amply confirmatory of what we have again and again repeated in the pages of our Journal.

We were also much gratified in our drive along these shores to find the subject of Education receiving such a share of public attention. A few of the School Houses on the road, it is true, we found unoccupied, but the great majority of these buildings are commodious, and evidently keep full pace with the dwelling houses and places of worship, and this is the utmost that can be expected. We think we could, by irrefragable argument, establish the position, that school houses, ought to be in advance both of the dwelling houses and places of worship, but so long as they keep equal pace with these edifices we see no room for complaint; and when they do so, it is a pretty good index that the settlement is rising in intelligence as well as in means.

We arrived at Walton in time to attend a Review of the School there, conducted, as far as practicable, in accordance with the Training System. Though Mr. Forbes had not been at work for more than two months, we were delighted to observe the order and obedience that prevailed. Without these, the best qualified Teacher can neither do justice to himself nor his scholars, and when these have been obtained, not by physical, but by moral means, the triumph achieved is all the greater and the proper basis is laid for the erection of a goodly superstructure. The specimens given of the progress of the pupils, in Mental Arithmetic, Grammar, Geography, &c., were highly creditable. We were especially delighted to find that the Geography of Nova Scotia received such a large share of attention. We hold that the Geography of our native country ought to be first and thoroughly studied, and not only its geography, but its history and its resources;—and on these grounds we rejoice in the near prospect of our having not only a more complete Geography Book, but a larger Map of the Province than any yet published.

We were pleased to observe that this System of Education, however brief the duration of the experiment has been, is beginning to be appreciated by the good folks at Walton. The School is already so numerously attended that an enlargement of the room is found to be indispensably necessary. We trust the next addition will be, and that at no distant day, the erection of another apartment for a Female Teacher, that Mr. Forbes may be in a position to devote more of his time and energies to the education of the more advanced. At this moment, we believe, were all within two miles of the village of Walton to unite their influence and means, a structure could be erected, with two apartments, sufficient to accommodate 150 children, and two Teachers supported without the smallest difficulty. And in what enterprise could they combine their strength more inviting, or encouraging, or philanthropic, or God-like, than in the furtherance of the education of the rising generation around.

To the Editor of the Journal of Education.

MILTON, QUEEN'S COUNTY, August 6th,

MR. EDITOR,—

It must be a source of much gratification to you to witness the cheering results of your labours in the cause of Education. Those invaluable principles which you have scattered broadcast throughout the length and breadth of our Pro-

vince, are in many places taking deep root,—eradicating ignorance and prejudice, and bid fair, ere long, to modify the whole aspect of society by developing the physical, intellectual, and moral energies of the young and rising generation. Wherever the training system has been introduced and efficiently carried out, it has given, we believe, general satisfaction. It is, in fact, *the system* which recommends itself to every mind not biased by selfishness or blinded by prejudice.

The inhabitants of this village have taken a noble stride in the cause of Education. While rapidly accumulating wealth, erecting splendid private edifices, and surrounding themselves with all the external elegancies of refined life, they did not forget to attach great importance to the mental cultivation of their offspring. This fact will immediately become apparent to any person visiting the School, which, in so far as external arrangements are concerned, is rivalled by very few in the Province. The School House, a large two story building, is so situated as to command a fine view of the village. The greater part of the lower story is divided into two rooms, which are furnished with accommodations for about 130 pupils. The upper story is used as a Temperance Hall. Last summer the people agreed to assess themselves to the amount of £300 per annum for the support of the School, and also to have it conducted according to the Training System. About the 1st of November they succeeded in obtaining two Teachers, a male and female, from the Normal School, who commenced operations with upwards of 130 pupils. During the winter much inconvenience was experienced from the want of Text Books and suitable accommodations for so large a number. These difficulties, however, were taken into account by the people, and at the expiration of the first half year they determined to enlarge the establishment, and give the system a fair trial. Having fitted up the Temperance Hall for a School Room, they employed another male Teacher, and early in June the School was reopened with three departments.—About 180 pupils are now in attendance, and we trust that something is being done towards developing the physical, intellectual, and moral powers, and forming the habits of this very interesting group.

Much credit is due to the Trustees of this School, who have spared no pains in carrying out their design. Were Trustees generally, and all those entrusted with the oversight of Education in their respective districts, more alive to the importance of the subject and more active in promoting its interests, we believe, Sir, that much more might be done towards establishing and sustaining efficient schools in many now neglected districts.

W. R.

STATE OF EDUCATION IN NEWFOUNDLAND.

Second Article.

There are three Academies in operation in St. John's, the Capital of the Colony. It might be supposed that in receiving a classical and commercial education, the children of the upper classes, in a town of 25,000 inhabitants, might be permitted to mingle in the same Institution. But the motto here, in every case, is "division and subdivision." Accordingly, there are Roman Catholic, Episcopalian and General Protestant Academies. Last year the Wesleyans, who were previously united with Presbyterians and Congregationalists, became uncomfortable under the impression that they were not on a level with the other denominations; and demanded and

obtained a grant for a separate Academy. Thus, in future, there will be four Academies in St. John's, sustained at a cost to the colony of £1,700 sterling per annum. In addition to this, the sum of £3,000 sterling was voted to aid in erecting Academy Buildings. Here again we observe the evil results of the Separate System of Education. About 180 boys are receiving an education in these Academies, at a cost to the Colony of £9 8s. sterling per pupil, per annum. The fees charged are high—ranging from £1 to £10 per annum, according to the branches taught; so that only the middle and upper classes can afford to send their children to these Institutions. If parents are aware of the fact, it must be a serious subject of reflection that each of their children, in attendance, is a burden on the Colonial funds, to the extent of £9 8s. per annum, in addition to the fees they are called upon to pay.—What a fine Collegiate Institution, with a splendid staff of Professors, might be in operation, imparting a noble impulse to the whole intellectual culture of the community, for the sum which these Academies cost! Their income, from all sources, cannot be under £2,700 sterling per annum; and might easily become £3,000. Allowing a staff of eight Professors, at £300 sterling per annum each, for such a College, there would remain £600 for general expenses. The Professors in the Queen's Colleges, Ireland, receive only about £200 per annum, each, on an average; and they are men of first class attainments. Equally able men might be had here, for £300 per annum. Instead of a College of this description, we have three Academies, and shortly shall have four, in which the education imparted does not range higher than that given in any respectable Classical and Commercial School, in a moderately-sized town, in the old country. The course of instruction embraces the ordinary branches of an English Education, with Classics, Mathematics and some of the Modern Languages. The Masters are respectable and well educated men; one of them, in particular, the Master of the General Protestant Academy, is deservedly esteemed; and, as an Educationist, occupies a high rank. The Roman Catholic Bishop is making strenuous efforts to elevate his Academy to the rank of a College; and has erected a magnificent building, and engaged the services of some teachers of eminence, it is said. The Episcopalian are erecting a building at a cost of £3,000; and have one of their clergymen at the head of their Academy. It is, however, a great misfortune that division exists even in the higher branches of Education. An expensive and comparatively inefficient system is the result.

The Inspectors embrace in their Reports the two remaining classes of Schools—the Commercial and Elementary; and from their accounts we are able to form an opinion of the education imparted. These gentlemen appear to have discharged their laborious duties faithfully and ably; and, while evidently not measuring the schools and teachers by a high standard, and anxious to deal leniently with defects, and speak encouragingly of the schools in operation, yet they have stated enough to show that the schools are in a very low condition, with a few exceptions. The difference between the Commercial Schools (twenty-six in number) and the Elementary Schools, is almost nominal,—the former being, in some instances, a shade or two better than the latter, having better qualified teachers. In both, the principal branches taught are Reading, Writing and Arithmetic; in a very few instances, some attempt is made at teaching English Grammar, Geography and Navigation. The Protestant Inspector states that "very few of the teachers understand English Grammar," and that Geography is almost overlooked. The Catholic Inspector found only 94 children out of 5,670 learning Grammar and Geography; 9 learning Navigation; 5 Book-keeping, and 11 Geometry. The majority of the Elementary School Teachers, in the outposts, are fishermen who have simply acquired the ability to read, write and cypher after a fashion; and in order to eke out their incomes, most of them are allowed a vacation of six or eight weeks each summer, to fish. During this period they drop the ferule, and take up the "hook and line." The Catholic Inspector says of those under his charge,—“to make up for the insufficiency of the salaries the teachers are permitted to take a large portion of the summer, which they some-

times contrive to lengthen out into the entire, to follow their avocations as fishermen."

Such being the character of the teachers, it is not surprising to find that the attainments of the children are, as a general rule, very low, and the condition of many of the schools wretched. It is strange to find that with an Educational Grant of £10,525 sterling for the support of these Schools, allowing an average of £47 per school, so many of the school houses are in such a disgraceful state, and un-supplied with school-requisites; while in one-third of the Catholic school districts, there are no school houses whatever,—some miserable room or hovel being the substitute. Indeed, there is something almost pathetic in the Inspectors' Reports, when we reflect that many hundreds of the youth of Newfoundland receive no better training than this, to fit them for the duties of life. Here are a few extracts from the Protestant Inspector's Report, which exhibit the gloomy side of affairs. "Newman's Cove, Elementary School:—The school is kept in a dwelling house rented by the Board at £2 per annum. It is a round stone building, about 25 feet by 13, one part of which is divided off for a Teacher's residence, leaving the school room about 12 by 13 feet. It is attempted to be warmed by a fire on the hearth—the floor is a single one and full of openings, while the blackness of the loft and walls is an indication that it smokes abominably. The Teacher has a family of six children, and his residence is as comfortable as the school house. No school furniture except two faulty stools, and no copy books to be exhibited." "Little Catalina, Elementary School.—The school house is of the humblest description. It is a studded building, 12 by 30; a partition divides it into about equal parts, one of which is occupied by the Teacher's family, and the other by the scholars. It is not ceiled, and the Teacher complains that the snow drift comes in all over in winter, and that it smokes so much he is obliged to poultice his eyes to draw out the inflammation produced by it." Truly here is "The Pursuit of Knowledge under Difficulties"—the snow drift and the stroke to combat against, and the rocky heights of learning to be scaled. One cannot but sympathise with the unhappy Teacher, and speculate how he manages to discharge his duties with a poultice on his eye—whether he makes one eye do duty while the other is under treatment, with a view to relieve its working partner in turn. It is clear that this plan, though doubtless agreeable to idly-disposed boys, who would be sure to keep on the same side as the poultice, could not go on always. This martyr in the cause of Education, receives £25 per annum currency. Surely the Board ought to vote him something extra to meet the expense incurred in counteracting the effects of the smoke in his eyes. The Report makes mention of another hero, unknown to fame, whose deeds deserve to be chronicled. He is Teacher of Ship Cove School, and receives £30 currency per annum. He divides his labours between two settlements four miles apart, walking 24 miles a week. After a service of 30 years, he preferred the following modest request to the Newfoundland School Society, in whose service he was:—"My walk to Ship Cove is very trying sometimes in winter, and the distance more than four miles. I should always be most humbly thankful if the honourable gentlemen of the Society could give me a warm coat for my winter travels to Ship Cove, after my long service of 30 years." It is to be hoped that this very moderate demand was complied with. There is something very touching in this toil-worn old man, after trudging thirty years through the Newfoundland snows, patiently doing his duty, looking up, at the close, without any murmuring, and only asking for "a warm coat for winter travel"—the aged frame, doubtless, not being so defiant of cold as formerly. Truly, there are more heroes in the world than history prates of!

The following entry occurs at the 18th page of the Report—"November 12th.: It was a very cold day for the time of year when I visited British Harbour. On entering the school-room there were but twelve children present, shivering with the cold as there was no fire, or means of making one. A Franklin stove had been sent to the school last year, by the Board, but it was unaccompanied by the funnelling, and as there was no chimney to set it into, it was not made use of."

Here was a parallel to the case of Tantalus—a good Franklin stove before their eyes, and no possibility of using it—radiating cold instead of heat! Had the Board been compelled to sit upon it for a few hours daily it might have awakened their sympathies towards these shivering children. Another school is described in the Report as "kept during the winter in a fisherman's dwelling house in a room 14 feet by 11, warmed by a fire on the hearth." In another "no fire could be made for want of funnelling." Northern Bay School is described as "kept in an old dwelling house, miserably cold—without stove—no desks or seats provided." A singular prejudice prevails among the people of Island Cove:—"The Teacher tells me that their not being classified is not for want of books, but that the parents object to their children being taught in classes." These good people must consider classification of pupils an invidious distinction. The Inspector lighted on a teacher in Adam's Cove "who does not spell or write well enough for this school, and I suspect he allows his attention to be diverted in school hours, for I perceived a new salmon net hanging up in the school-room." One can easily fancy how tempting this salmon net must prove to a Teacher's virtuous resolutions. It would be wrong, however, to form an opinion of the whole from these instances. The Inspector found many schools in a commendable state of efficiency, and many deserving Teachers, struggling under difficulties, but still zealous and successful to some extent. Many of them, in small settlements, conduct divine service on the Sabbath, and in addition to their ordinary duties at other times, act as notaries.

The Catholic Inspector's Report shows the school-houses to be in a still more deplorable condition and the attainments of the children lower than in the case of Protestant schools. One very singular feature presents itself:—"With very few exceptions," writes the Inspector, "the teachers have neglected to keep a register of the attendance of the children in each school, and I was thus compelled to trust entirely to their assertion, as to the maximum and average attendance of the pupils." It is almost incredible that such gross negligence as this should have been tolerated for years; and it is evident that the returns gathered from the guesses of teachers as to the attendance, can only be regarded as an approximation to the truth. The Boards, however, discover an equal antipathy to returns. In the 46th page the Inspector says—"I have received from only four of the Boards of Education detailed statements of the expenditure of the money voted for educational purposes, in their districts." Thus both the expenditure of the Boards and the attendance of the children, in the absence of documentary evidence, must be regarded as falling within the province of the imagination. In this way do irresponsible Boards manage educational matters.

Here are a few extracts from the Catholic Inspector's Report, showing the most discouraging features of some of the schools:—"Ferryland Commercial School"; "The teacher states that he kept a register but was unable to find it. At present he keeps the register on a slate, from which it appears the maximum attendance is sixteen. I find, however, from the school return which he filled up, that he has given the names of 43 pupils as the annual attendance. There is a great discrepancy in these two statements. I am inclined to think that his statement to me is the correct one; and that he has given in the school-return, the number that attended the school since its establishment, through mistake; there were 14 in the school on the day I visited it. The reading of the pupils was very indifferent; of the two boys in arithmetic neither could work a single line in simple multiplication." "In every school I visited with a very few exceptions, the teacher complained of the want of sufficient books, as well as of the mixed character of those he possessed." Of Western Bay School it is said, "The teacher is allowed six weeks vacation in summer; but he had, up to the time of my visit, taken eleven weeks, and, as I am unable so soon to see him, I cannot say how much longer he intended to absent himself." Another school is thus reported (page 19)—"Closed since the 14th March (it was now September). Sullivan, the teacher of the school, is an old fisherman, and the entire summer is given him

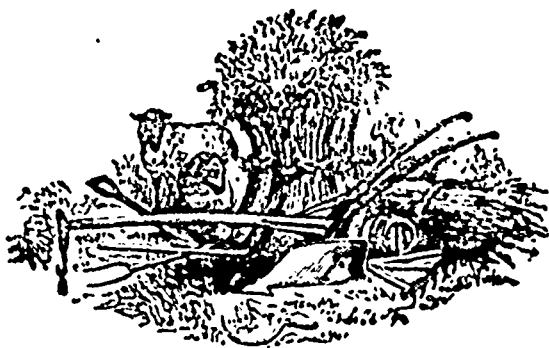
to fish, as his salary is only £10. Average attendance five." Musquito School has been three years "with the chimney level with the roof," so that many days no fire could be lighted. In Middle Long Pond School half the pupils were without books; and in Portugal Cove School "the teacher stated that some of the pupils were unprovided with a book since they came to the school." In Pouch Cove only half were provided with books. The condition of several other schools is described as wretchedly low. With many defects, however, the Inspector found much to commend in several of the schools; but on the whole his Report gives a saddening account of matters. While money is wasted, and Teachers' salaries kept so low, there can be no improvement. In the Roman Catholic list of schools there are five teachers receiving £10 per annum; two receive £12 10s.; one, £14; two, £15; eleven, £20; five, £21 fourteen, £25; three, £27; six, £30; two, £35; five, £40 the remainder range up to £50 per annum. In the Protestant Schools one receives £10 per annum; two, £15, one, £20; one, £24; seven, £25; thirteen, £30; twenty-one, £35; fifteen, £40; five, £45; sixteen, £50; three, £55; one, £65; one, £90.

It is very evident that, in order to secure any improvement in the Educational System, a Normal School for training teachers is indispensable. The sum of £750 per annum sterling, already voted for the training of pupil teachers, would be amply sufficient, if a building were provided. The next step should be to put an end to the payment of money through Local Boards, and to pay all salaries, &c., through a Central Board directly responsible to Government; the Local Boards having simply the supervision of the schools. A saving of £3,500 per annum might thus be effected, and an average of £18 per annum added to each teacher's salary. A superior class of Teachers would thus be gradually introduced, and the standard of Education elevated. There are too many parties, however, interested in keeping silence on these topics, and leaving matters as they are; and hence it is to be feared reform will be slow in arriving.

ALPHA.

ERRATUM.—In first article, page 12, last line but two of first column, for "7s. 4d. per pupil," read "7½d. per pupil."

AGRICULTURAL.



I.—THEORY OF AGRICULTURE.

ORIGINAL ARTICLES ON VEGETABLE PHYSIOLOGY—CELLULAR TISSUE THE BASIS OF VEGETATION.

KING SUBSTANCE OF LECTURES DELIVERED BY DR. FORRESTER TO STUDENTS ATTENDING THE NORMAL SCHOOL.

THERE are five aspects in which we may regard a Plant. 1st. In itself;—2nd. In its relation to other plants, involving the whole subject of Systematic Botany, or the arrangement of the Vegetable Kingdom into classes, orders, genera and species;—3rd. In its relation to the earth below and animal

above, embracing the whole subject of the science and art of Agriculture, as depending on Geology and Agricultural Chemistry on the one hand, and on Animal Physiology on the other.—4th. In its relation to climate, which constitutes the foundation of what is called Geographical Botany; and 5th. In its relation to past epochs in the history of our globe, and this again give rise to Fossil Botany.

It is our purpose, in a succession of articles, to view the plant in the first of these aspects, that is, in itself. In this respect it embraces everything appertaining to the nature of the plant, its internal structure, or its vegetable contents, its external conformation, or its various organs, and the functions discharged by these organs. The office performed by the organs of vegetation and propagation is really what constitutes Vegetable Physiology. Before, however, we are in a position fairly to consider the functions performed by these organs, it behoves us to know something of the nature of the organs themselves, both internally and externally, and to this point we would now invite attention. And first of all, as to the internal structure of the plant, we may state that this consists of three parts, the cellular, the vascular and the fibrous or ligneous tissue. The basis of the whole is the cellular. This is composed of little green sacs or bags, all regularly arranged with a wall of defence between them, as may be seen in the stalk of the Rhubarb or Asparagus, after they have been subjected to the boiling process.—All the lower tribes of plants, such as Mushrooms, Lichens, Sea-weeds and Mosses, are entirely made up of these little cells. So are the first sproutings of all plants, as well as all biennial roots and the edible parts of fruits.

So soon as the young shoot requires to receive nourishment from the surrounding soil, some of these cells elongate and form vessels or ducts, by which the crude juice is conveyed to the leaf, and, after passing through a vitalizing process there, is diffused by these vessels over the whole plant. These vessels differ much in shape. Some are tubes of variable length, with delicate walls, to the inside of which a spirally coiled fibre is adherent, and hence these are called spiral vessels. Some others differ from these spiral vessels in the thread being incapable of unrolling, and usually broken into short coils or into separate rings, such as in Celery or Wild Balm, and these are called ducts. Some again are of greater calibre than any other kind of vessels, the pores being conspicuous to the naked eye on the cross section of many kinds of wood, such as the Oak, Chestnut, Mahogany, and which are the large open orifices of these vessels; and hence they are called dotted ducts. All these vessels convey the ordinary fluids in the plant. Besides these, however, there are other vessels, which convey the peculiar secretions of the plant. These are ramified all over the plant, and their contents, being of a milky complexion, are called the vessels of the latex.

But the stalk and plant must not only be nourished, but supported, and hence the necessity of something to impart solidity and strength. And this is provided in the woody, ligneous or fibrous tissue. This, again, is just a certain portion of the cellular tissue which has become enduring. The thickness of this tissue, extended and hardened, increases with age, by the deposition of encrusting matter, often increasing until the calibre is nearly obliterated. To this cause the difference between the Sap-wood and Heart-wood of trees is chiefly owing. Woody tissue not only forms the principal part of wood, but abounds in the newer bark, where it is usually more tough and flexible, and therefore better adapted for corlidge, cloth, &c. Thus linen, for example, is made from the woody fibres of the bark of flax, &c. It also abounds in leaves, the framework or fibrous skeleton is chiefly woody tissue.

It has long been admitted by Botanists, that the cells is "the typical element, in the structure of the plant," that the lower forms of plants actually consist of cells, separate and independent, and that the higher are built of the same material compacted into masses by varied texture. These minute cells bear the same relation to the entire organism, as the component materials of a building to the whole fabric.

All the parts of plants, including root, stem, leaves, flowers and fruit, are composed of cells and vessels of different kinds,

either separate or combined; and by means of these the Almighty Creator carries on all the wondrous processes of vegetable life.

II.—PRACTICE OF AGRICULTURE.

SPECIAL WORK FOR AUGUST.

We have nearly approached that interesting and important season of the Agricultural year—the grain harvest,—round which so many pleasing and poetical associations combine, and in which, as the realization of the husbandman's labors, the hopes of all classes of the community for the restoration of the prosperity of the Province are mainly based. A few practical remarks in relation to this department of Agricultural labour, will not be considered as inopportune.

First, as to the proper time for cutting grain. In general farmers allow their grain to get too ripe before they begin their harvest operations; and the loss from this practice is, when all things are duly considered, much greater than most people imagine. It has been ascertained by the most careful experiments made in the field and in the laboratory, that wheat, for instance, yields the largest amount of the best quality of flour, when it is cut a few days before it is fully ripe; and the reason assigned is that the grain in ripening loses a certain amount of starch and sugar, which is converted into woody fibre, a substance comparatively in-nutritious. It has long been known to practical men that the grain when fully ripe is thicker in the bran and has a coarser surface or cuticle than when cut in a somewhat greenish state. Wheat, therefore, when dead ripe contains less flour and more bran, and the straw for the same reason is less nutritious as fodder. In this hot and forcing climate, where it is almost impossible to overtake harvest work when it is not commenced betimes, and much of the best grain is lost by shelling out in the field, it is a matter of great practical importance to determine the proper time for commencing harvest operations. If wheat be intended for seed, then the grain should be allowed to ripen fully before cutting, but, for converting into flour, it is in the best condition for reaping as soon as the berries have fairly got out of the milky state and have attained to a moderate state of hardness, and the straw has assumed a yellowish colour. If wheat, however, be cut when too green, the grain will shrivel in harvesting, and the sample will be of less commercial value. On an extensive farm where several varieties of wheat are usually cultivated, and soils differ, it will seldom if ever happen that the whole will ripen precisely at the same time. By beginning, therefore, to cut the forwardest before it is fully ripe, with the present improved appliances for facilitating harvest operations, the whole may, in general, be completed within the desired period.

The above observations more or less apply to the other cereals of the farm.—Barley and oats, for instance, are frequently allowed to stand so long before mowing that a large quantity of the heaviest grain is knocked out in the field, often to the amount sufficient for seeding the sward, and sometimes a great deal more. It is, however, not economical to cut either barley or oats before the grain has fully advanced beyond the milky state, and has become tolerably plump, especially when required for seed; but if over ripeness is allowed to take place, not only is much of the best grain lost in the field, but the straw becomes of little value as fodder for cattle.

In the present season we have observed in many fields, owing to the late severe frosts, and other causes, that the growth of the grain is very unequal, which will doubtless be the case with its ripening. The best way will be to cut the

whole as soon as the earlier portions become fully ripe, and not wait till the later grain attains that state; a proceeding that would be sure to involve serious loss. To get a field of grain to grow and ripen uniformly, is one of the principal achievements of improved modern agriculture, and an essential condition to a heavy crop and superior quality.

The operations of cutting, binding, and shocking, are frequently performed in a careless and slovenly manner. Formerly, when our agriculture was in a cruder state and the price of grain very low, the manner of doing these things was not of so much consequence. But in our present altered circumstances, when our fields in the older settlements are getting clear of stumps and otherwise improved, with a constant demand for produce at enhanced rates, the operations of harvesting, as well as those of general tillage, should receive more attention to their various details, and as a whole have a higher finish. With our much improved reapers, rakes, &c., this can readily be done both expeditiously and profitably.

Farmers would frequently find it profitable to pay strict attention to the binding and shocking of wheat, and indeed of other kinds of grain, than is commonly done. Much inconvenience and loss would by this means be obviated, and the work would have a more agreeable finish to the eye. Sheaves of course, ought to be bound so as to bear the necessary after-handling without coming undone; an effect which occasions both loss and inconvenience. When grain is cut comparatively green, especially in showery seasons, sheaves should invariably be made small and not too tightly bound; and in such case more than ordinary attention should be paid to the shocking. The old country practice of "capping" the shock with two or three inverted sheaves might, in "catching" weather, be advantageously adopted with us, and much sprouted grain be thereby prevented. In the wet harvest of—if we mistake not—1855, we saw a number of harvest fields in the western parts of the Province, in a state of comparative security, by strict attention to good shocking and careful capping. But whatever precautionary measures may be adopted, after a succession of heavy rains, every shock should be examined the first fine day, and if need be, taken apart and thoroughly exposed to the action of wind and sun. In such seasons grain should be put loosely into the mow, and what would be better still, make it into small ricks in the open air. Much grain is absolutely spoiled by being put into barns in a damp state, whereas had it been put into ricks, the dry winds and first frosts would bring it into excellent condition for threshing. These few hints will suggest to the minds of our readers several matters of detail, which, in the aggregate are of much importance. And after using our best means, let us humbly trust that a beneficent Providence will "crown the year with His goodness," and peace and plenty dwell in the land.—*Canadian Agriculturist*.

IMPORTANCE OF THOROUGH TILLAGE.

One of the greatest and most common mistakes to which farmers are liable is the getting of more land under tillage than they have either the skill or capital to manage in the most profitable way. This is a mistake common to the cultivators of the soil all over the world. In some of the more advanced countries of Europe may sometimes be found a sufficient amount of enterprise and capital among individuals to manage economically and profitably large breadths of land; but even there, as a general thing, it will be found that farmers have quite as much land as they have the means of turning to a profitable account. The truth is, that the thorough development of the soil, in which consists the perfection of agriculture, involves an industrial pursuit of the highest order, necessarily requiring a large amount of capital, skill, and persevering industry. In this new western world these remarks are of peculiar significance, as the general tendency among farmers is not so

much to farm well, as to farm extensively. It is true that when a man has to convert the wild forest into a farm, the operations cannot be of a very refined character, and the condition of the land for several years to come will necessarily be rough and unfinished. But in older settlements it would be better for farmers to think more of improved culture, and less of mere territorial possession. The practice which so extensively obtains of estimating the wheat crop of a farm by the number of acres under crop, rather than by the probable yield per acre, is an illustration of the principle which we are now animadverting upon; and which, in order to arrive at a practical system of good husbandry, must be kept within proper bounds. It is imperfect, slovenly cultivation, the neglect of manuring, of selecting pure seed, and judiciously changing the succession of crops, rather than any peculiarities either in the soil or climate, that renders the crops of this North American continent so frequently sickle and diminutive. Better, far better leave a larger proportion of a farm in the state of pristine nature, and cultivate a lesser portion in a thorough and liberal manner. In this way the current expenses of a farm might often be even diminished, while its produce would sure to be increased. Upon this principle the agricultural wealth of Canada admits of a large augmentation. The following observations of Lord Bacon, addressed to a Prime Minister of England, we commend to the best attention of our readers:—"Of all sorts of thrift for the public good, I would, above all others, commend to your care the encouragement to be given to husbandry, and the improving of land for tillage. There is no such usury as this. The king cannot enlarge the bounds of these islands which make up his empire, the ocean being the only unremovable wall which encloseth them; but he may enlarge and multiply the revenue thereof by this honest and harmlest way of good husbandry."

HARVESTING THE GRAIN CROP.

In making a tour of two or three hundred miles last summer, while our farmers were harvesting their crop of small grains, we became convinced that much negligence and waste still prevail, even with some who mean to be tidy and economical farmers.

In harvesting these grains we suppose the first important consideration to be, the time of cutting. When is the proper time to cut wheat, barley and oats? Some persons do not commence until the leaves on the stem are dead, and the berry or kernel is so far advanced as to be considerably dry. Under this practice there must be considerable loss experienced in both grain and straw. At this advanced stage the head has become dry, and the little scales which encircle and hold the grain are separated from it, so that at every touch it shatters out and is lost. The process has also gone too far to permit the grain to produce as much flour and nutriment as it would if the harvesting were done at an earlier day.

As wheat or barley approaches maturity, the careful observer will notice that the stem, immediately below the head of grain, shrivels, and has the appearance of having partially become dry. When this appearance has covered about six inches of the stem immediately below the head, we have been in the habit of cutting these grains; the kernel is then glazed and just going out of the milky state. "If not reaped until the straw is wholly yellow, the grain will be more than ripe, as the ear generally, except in late seasons, ripens before the entire of the straw; and it is observable that the first reaped usually affords the heaviest and fairest sample."

Careful observation will show that "the indications of ripeness in wheat are few and simple. When the straw exhibits a bright golden color from the bottom of the stem nearly to the ear, or when the ear begins to bend gently, the grain may be cut. But—as the whole crop will not be equally ripe at the same time—if, on walking through the field,

and selecting the greenest heads, the kernels can be separated from the chaff when rubbed through the hands, it is a sure sign that the grain is then out of its milky state, and may be cut with safety; for although the straw, may be green to some distance downwards from the ear, yet if it be quite yellow from the bottom upwards, the grain then wants no further nourishment from the earth, and, if properly harvested, it will not shrink. These tokens will be found to sufficiently indicate the ripeness of wheat, barley and oats; but that of rye arises from the straw losing some of its golden hue, and becoming paler. The usual practice in England is to cut down all grain before it is quite ripe, and to leave it in shocks until the grain is perfectly matured and hardened."

This extract, which we take from an excellent English work, does not precisely agree with our remarks in relation to the appearance of the stem, as the latter, we have often observed, may appear nearly dry for a few inches immediately below the ear, while the rest of the stem is quite green. But the suggestions we have quoted are valuable, and will aid many cultivators in deciding at what particular moment to cut their grains.

Another loss in this harvest is occasioned by the careless manner in which grain is gathered and tied up, being brought into bundles uneven at the ends and of irregular size, so that in the shocking and after-handling, the bundles are burst, and the ears broken off. The stooking, or shocking, is often so badly done that they do not shed the rain, or protect the bundles from dews, and are upset, and scattered by the wind. They are often left uncovered, so that in wet weather, as was the case at the last harvest, the loss must be considerable in the quantity of grain, and more still by a depreciation of its quality. We were gratified to notice in our ramble last summer that in some districts, caps, or coverings of cotton cloth, were used on stooks of grain in the field. It had been raining for three days—a part of the time heavily—and yet most of the stooks so covered had received no damage whatever—all their upper portions being entirely dry. We thought that about three farms out of four along a range of towns in south-eastern New Hampshire, were using these coverings. There can be little doubt but that the saving by their use in a single season like the past, nearly paid their cost.

It is a great loss to hurry over, or to perform indifferently, the labor of harvesting, because then the crop has matured, and only needs one step more to return to the cultivator its profit. The gathering in, and stowing away in the barn, should be conducted with great care, to prevent waste of grain, to protect it from vermin, and to give it proper ventilation, so that it shall not heat and start the germ of the seed.—*New England Farmer.*

MOWING MACHINES.

A trial of two mowing machines took place on the farm of Mr Lynde, in Melrose, on Tuesday of last week, which we had the pleasure of witnessing. The machines used were the "Buckeye" and the "New Englander," the first with two horses, and the latter with one. The Buckeye took a swath four and a half feet wide, and the New Englander four feet. Each cut its acre handsomely in forty-two minutes. The grass was light, and the ground very way favourable, so that the labor for the horses was not severe,—that of drawing the one horse machine was not a heavier draft than is required in the use of a common cultivator in working corn.

After this trial, each machine was put into heavier grass, where there was some patches of thick clover, and some of it lodged. The New Englander led the way, cutting the grass finely and turning a handsome double swath. The Buckeye also cut a double swath, and did it well.

Since this trial, we have used Ketchum's and Manny's one horse machines in a very heavy growth of clover on

our own farm. The field was on a hill-side, was encumbered with apple trees twenty-five feet apart, and the clover in many places badly lodged, but both machines cut it as well as could be reasonably expected. It seems to us that the draft on the *Munny* was the lightest, but that the *Ketchum* had more facility in turning, and could be moved over the cut grass, to go from place to place, with greater ease. Where a person cuts fifty tons of hay annually, either machine will pay for itself in three years.

Many trials of machines are taking place, and the public mind seems at last to be roused to something like a proper appreciation of their services.—*Id.*

PLOWING BY STEAM.

Illinois appears to be taking the lead of all the other States in agricultural progressiveness. A prize of \$6,500 has been placed at the disposal of its State Agricultural Society for the best steam plow, and, from a circular sent us, we learn that a company has been formed in the city of Chicago, with a capital of \$50,000, for introducing into practical use the traction locomotive rotary tiller of Thomas Kiddy.

This subject is by no means a new one, although but little attention has been given to it until within two or three years past. We will endeavour to present some information showing what has already been done by others, so that the ground may be better understood than it now is.

England has been the experimental farm for steam plowing, efforts having been made twenty-seven years ago to reclaim and cultivate Chat Moss by steam machinery. An engine, stationed at one end of a plot of land, was employed to drag plows through the soil by means of ropes passing over the drum of a windlass. With some modifications of machinery, this system appears to have been the most successful that has yet been attempted. The person who has done most to render plowing by steam, in England, as economical in cultivating land as animal power, is Mr John Fowler, an agricultural engineer, who has expended no less than \$100,000 for this purpose. He employs a portable engine on wheels, stations it at one end or headland of a field; then at the other end he puts up a frame called an anchor, on which there is a drum, and the distance between this anchor and the engine is the length of the furrow to be turned over; an endless wire rope extends from a windlass on the engine around the drum on the anchor frame, and to this rope is attached a frame carrying six plowshares,—the one placed a little behind the other,—and these turn over six furrows at once. The engine winds the wire rope on one end of its windlass while it is given off at the other, and the plows are then dragged forward towards the anchor, and when they are reversed, the anchor frame moved a little forward at one headland, while the engine moves itself forward for the next six furrows, and the six plows are then dragged back, turning over six other furrows in returning. The engine and anchor frame are thus moved at intervals on the headlands, in parallel lines, but are stationary while the plows are working. This system is very simple, and no power is expended, as in a locomotive steam plow, by dragging the engine through the soft soil. It is stated that the anchor frame can be shifted and the plows reversed at the end, turning nearly as fast as a team of horses can be turned. By the same method of operating the engine and windlass, other implements for cutting up the soil have been tried as substitutes for the plow, such as rotary cultivators, resembling a series of revolving scrapers for plunging into and stirring up the soil. Mr J. Smith, of Wolston, England, has employed this method for five years with great success, and has found it best to apply it in the fall. It brings all the weeds and sods to the surface, exposes their roots to the frosts of winter, and kills them; and it is recorded that stiff clay soils, by this process of cultivation, have become mellow and easily worked.

Another system of plowing, different in principle, was il-

lustrated on page 401, Vol. VI. of the *Scientific American*, and consisted of a locomotive, and having broad-faced wheels, which moved over the field to be plowed, drawing a transverse frame, in which were a series of revolving plows on an endless chain. As the plows operated at right angles to the forward motion of the wheels, the action of this plow was very defective. Another plow, upon the same principle of operation by a locomotive engine, was illustrated on page 297, Vol. VII., of the *Scientific American*. It carried five rotary cultivators, and its action impressed us favorably, but it has not been able to contend with Fowler's which has taken nearly all the steam plow prizes offered by the agricultural societies in Great Britain. A locomotive steam plow, with a broad spiral cultivator dragging behind the engine, has also been tried in England, but with no success.

Little has been done in our own country in the way of steam-ploughing in comparison with the efforts made in Great Britain; still, we have made a beginning, and this is cheering.

In 1855, Obed Hussey, of Baltimore, the well known inventor of the mowing machine constructed a steam plow, and tested it in October, 1856, as described on page 341, Vol. XII., of the *Scientific American*; but since that period we have not heard that it has ever been used, nor the reason why. On the 10th of November, 1858, the steam plow of Mr Fawke was exhibited and tested before the State Agricultural Society of Illinois, and although statements were then made that it had been very successful it does not appear to have satisfied the farmers of the "Prairie State;" hence the prize we have mentioned, which is once more offered by the State Agricultural Society. Mr Kiddy's steam plow, to which we have alluded, is a locomotive that carries its own endless railroad to prevent sinking into the soil, and thus it is intended to save the power that would otherwise be expended to drag itself. It is, in principle similar to that illustrated on page 353, Vol. III., of the *Scientific American*, and which, in England, is called "Boydell's traction system." Its tillers are not common plowshares, but double vertical revolving screw cutters for cutting and stirring up the soil, and they appear well adapted for this purpose. Every American steam plow that has yet been brought before the public embraces the locomotive principle of the engine moving over the entire field, dragging a set of plows, which is quite different in its nature from Fowler's, the one which has been most successful in Europe. The engine used for operating a steam plow should also be capable of being applied to threshing, grinding, and other operations of a farm, as none of our farmers can well afford to keep an engine for ploughing exclusively. In hilly countries the steam plough will never be able to supplant horses; but in such a State as Illinois, where the farms are very large, the soil mellow, and the fields nearly level, and where fuel is abundant, the steam plow appears to be invited to success.—*Scientific American*.

III.—AGRICULTURAL INTELLIGENCE.

NOVA SCOTIA SOCIETIES.

In June last we forwarded a circular to the Secretaries of the various Agricultural Societies throughout the Province, containing the resolution of the Legislature passed last session, relative to the management of these Societies for the current year, and also a few queries bearing on the present condition and future prospects of our Provincial Agriculture. Of the 47 circulars issued, we have received replies from the following Societies, viz., Parrsborough, North Sydney, Caledonia and Kempt (Queen's), Annapolis, Hebron, Bar-

ington, Antigonishe, Wallace, Salmon River (Digby), West Cornwallis, Nine Mile River, Digby, Halifax, St-wineke, Lake Ainslie and Broad Cove, Intervale, C. B., East Rawdon, Truro, Shubenacadie, New Germany, Mahone Bay, Cape Sable Island. We have perused these 21 returns with considerable attention and interest, and have not the slightest hesitation in declaring that they contain a vast amount of valuable information on this important branch of our Provincial prosperity. It is our intention, in subsequent numbers of the *Journal*, to discuss the various queries *seriatim*, noticing, as we proceed, the most important replies. In the meantime, we beg to tender our best thanks to such of the Committees, and, especially, of the Secretaries, as have attended so promptly to our request, and to assure them of the gratification it will give us to receive more full and elaborate communications on any points touching the subject of Agriculture in their respective localities. This was one great object we had in view in starting the *Journal of Education and Agriculture*, namely, to open up a channel for the interchange of view and opinion, of observation and experiment, in connexion with both these departments, on which so much of our Provincial prosperity depends. We publish below a few specimens of the replies we have received. We have selected these, not because of any superiority they possess over the others, but because we were desirous to give something like a fair representation of the views of the Province at large on the various points submitted to the consideration of the different Agricultural Societies.

Before, however, we give the specimens selected from the different districts or sections of the Province, it may be well that we repeat the queries forwarded:—

1. What is the present condition of Agriculture in your district—state whether you consider it stationary or progressive during the last few years, and what causes have mainly operated in the case of the one or the other?
2. Is there anything like general attention paid to the Rotation of Crops?
3. Are any artificial fertilizers used, or any attention given to the manufacture of Compost Beds?
4. What is the average amount of Arable Land cultivated by each Farmer, and what may be the proportion of Grain and Root Crops?
5. Do the Farmers generally possess a copy of *Dawson's Agriculture of Nova Scotia*?
6. Is there any Periodical on Agriculture circulated in the district?
7. From your own observation, do you think that the Agricultural Societies, as at present managed, have been productive of benefit to the cause of Agriculture? Please make any suggestions calculated, in your opinion, to render them still more beneficial.
8. State what you believe to be the grand desideratum for imparting an impulse to this important branch of industry.

ANTIGONISHE, CO. SYDNEY, June 29, 1859.

1. What is the present condition of Agriculture?—Prosperous. Although the cultivated land is probably deteriorating, the Agriculture and the people are decidedly, though slowly, improving in general position, and in horses, carriages, cattle, sheep, oats, wheat, turnips.—Causes—Improvement of markets, Newfoundland and Halifax, and of implements. Commercial competition. Increased value of labor. Stationary in potatoes.—Cause—The continued failure of the potatoe crop. Declining in hay.—Cause—Owing to the increased cultivation of grain.

2. What is the Rotation?—Oats, once or oftener, potatoes, wheat, hay, general oats once or oftener, wheat with manure, hay, casual, but increasing. N.B.—Turnips are being introduced, but the people need the knowledge of special implements for improvement of that crop, viz., the American Eagle Plow, No. 1, complete, Pratt's Seed Sower, the Turnip Cutter; Purple Top Swedish Seed. I have found the potatoe onion, and cabbage for crout, the most profitable crops I ever raised.

3. Fertilizers—Compost Beds?—Nothing of the kind.—The only manure used is of the stables of the winter.

4. Arable Land—Grain to Roots?—The land cultivated will range from 7 to 15 acres per farm; the proportion of grain to roots about 7 to 1 of acres.

5. Dawson's Agriculture?—A dozen or so of Dawson's Agriculture has been here, but is not being sold. The people here can read, but they will not buy books of any sort.

6. Agricultural Periodical?—There is no Agricultural Periodical taken here, and probably would not be, unless disseminated gratuitously through and within the Society.

7. The Agricultural Society, as managed up to the reduction of the Provincial Grant last year, has been greatly productive of benefit in all respects. To make the Societies more so, I would (in accordance with your wish) respectfully suggest:—That uniformity in the Societies should be aimed at, and, in order to that, that a code of rules should be promulgated and made the standard of all the Societies; that it should be incumbent on each Society and Branch to have an Agricultural Library of about 25 of approved Agricultural Books, for the free reading of the members; that one or more Agricultural Periodicals be taken for the same object, and for gratuitous distribution; that the Provincial Grant should not be less than £50 to £20 of subscription, and that it be available at once on being granted, that is, whenever the conditions of the grant are met; that a biennial importation of the purest Leicester Sheep especially—alternating biennially with a similar importation of Durham Cattle (or North Devons)—be regularly imported by the Government and sent to the Agricultural Societies or the counties where they are most needed to be sold at auction, as we find it here even with means impossible to obtain the material necessary to improve the above Stock, and which is by far the most important and most easily improved branch of our husbandry.

8. Grand Desideratum?—Several. Less drinking, more work, a better and more regular supply of water to Stock and Sheep in the winter, destruction of Ticks on the Sheep, an abhorrence of debt, punctuality to one's word, increased Society's means and influence, saving of all the manure. The summer manure is nearly all lost. But the grand desideratum is, I think, the want of a literary habit, or rather the possession of it.

With these few remarks, and trusting that they will not be considered irrelevant,

I am, Dear Sir, Yours truly,

C. W. LEAVER,

Secretary County Sydney Agricultural Society.
Rev. Alexander Forrester, Truro.

PARRSBORO', 18th July, 1859.

SIR,—I received your circular letter of the 1st ult., containing a Resolution of the House of Assembly of last Session, appointing you to examine and certify the accounts and reports of the Agricultural Societies for the present year, and proposing queries No. 1 to 8 on the condition of agriculture in this District.

Having submitted these queries to the Committee of our Society, they have directed me to forward to you the following answers:

1. The present condition of agriculture is good and progressive. The Bounties and Premiums given by the Society for the last seventeen years have had some effect in stimulating it. New farms are constantly being occupied. Families are increasing requiring more land. The good markets for hay and potatoes encourage farming.

2. There is a regular rotation of crops in the old fields to which manure is applied.

3. No artificial manures, guano or bone-dust have been imported, but considerable quantities of lime burnt here have been used and lime is still sought after as a fertilizer. Composts of ashes, burnt clay, black mud, and vegetable substances have been much used, and such composts are encouraged with bounties from the Society.

4. The average amount of arable land cultivated by each farmer is thirty acres, ten of which are in grain and root crops.

5. The Farmers generally have a copy of Dawson's Agriculture of Nova Scotia.

6. The *Country Gentleman* is read here; the *Albany Cultivator* was taken for several years, and the *Nova Scotia Colonial Farmer*

7. The Society here has doubtless been of benefit to the cause of agri culture. In order to the better management of Societies, each county should be divided into three, four, or five or more sections according to its size. To each section £25 should be allowed by the Legislature each year upon condition that it formed a Society, and raised by subscription at least £10 yearly. The subscription should be 5s., the Society should in all cases pay £5 to the Secretary each year for his services in keeping the accounts, preparing and recording the yearly accounts and reports, for correspondence and other necessary writing. The subscription where not paid should be stopped out of bounties or premiums to which members in debt may become entitled.

One person should be paid a salary to devote his time to superintend these Societies, receive their reports, certify their accounts, inspect farms and make a yearly report to the Legislature.

The importation of cattle, sheep, horses and swine with public funds should be prohibited, and improving the breeds from the best animals of our own herds encouraged. When there was any special occasion to import an animal sums from private sources could be made up or special grants obtained.

8. No one thing, but a multitude of things combined are required to give an impulse to the agriculture of this country. Some of these are more manure, cheap labor, good markets, draining, setting out skillfully more orchards, improved machinery and implements, factories, railroads, good roads, the distribution of agricultural papers, agricultural societies properly organized and correctly managed, a minister of agriculture, breeding from our own stock. Fairs as in the old country, Nurseries and seed stores, carrot, turnips, and beet husbandry. A factory for making beet sugar in each county.

JOHN S. SMITH,

Secy. Parrishoro Agricultural Society.

The Rev. Dr. FORRESTER, Normal School, Truro.

EAST RAWDON AGRICULTURE SOCIETY.

RAWDON 29th JULY 1859.

Question 1st in the Circular. Answer. The state of the Agriculture in this Society is not such as we could wish. In the first place our Society has much improved their horned cattle on stock by the purchase of two excellent Bulls of a superior breed, and a fine young Stock are growing from them - We have also selected the best breed of Sheep within our reach, from those imported. Some Rams of the mixed South down breed and some Ewes by other breed's which were sold by Public Auction, and purchased by persons living in different Sections of the Society, have made a good improvement in our Sheep. We have also made considerable improvement in our Hogs, by selecting the mixed breed Berkshire and other Breeds.—We have found much labor saved in purchasing Horse rakes for saving the hay. We purchased a superior threshing Machine for our grain, at a cost of £59. All those Machines have the effect of saving much manual labor. Upon the whole our Society is in a progressive state.

2 There are several who have followed the rotation of Crops, and others have done so partially.

3 It is a general practice in our Society for each member to prepare and make large Compost heaps during the Summer for top dressing from which they derive much benefit.—and many now cultivate the Swedish Turnip, which has become a substitute for the loss of the Potatoe crop.

4. The average amount of arable land to each member is from fifty to one hundred Acres.

5. Every member or nearly so possesses a copy of Dawson's Work.

6. No regular Periodical taken last year.

7. We think the Agricultural Societies have been of much benefit to the cause of Agriculture, by uniting the energies of a combined party, and gives an impulse to all their proceedings, which would not be otherwise carried out. By the united action of the Society, with their general funds, and the aid of Government, they have been enabled to purchase and procure Stock and Machinery, which they would not otherwise have done. Upon the whole we are rather moving forward.

8. We feel assured that the aid given by Government has imparted an important impulse to all the Societies; as it has been the means of calling the Inhabitants together, and of raising funds in addition to what they receive gratis, and this has enabled them to make improvements which they would not otherwise have done. This Society raised altogether £13 the past year.

This Committee are fully persuaded, that there is no way the Legislature could appropriate the same sum to an object of so much use to the Province at large.

This Society will hold another meeting on the 19th day of August coming, when you shall hear from them about their share of the division of the Government aid which they will look for.

We beg leave to suggest that it would be a great improvement, if it could be recommended to the Societies, that a premium be offered of about three-pence per pound to any person or persons in each Society to raise good native Clover seed, as much of that imported is worthless, and none so good as our own raising.

And further it is our opinion that the attention of the Societies should be called to the raising of barley which is almost always a sure crop and makes excellent bread when properly manufactured; and a premium on this after a certain number of bushels to each member for every bushel he raises over the number of cattle he numbers on his farm 1s. 3d. per Bushel would give the poor and rich an equal chance.

All which is humbly submitted

JACOB WITHROW.

MICHAEL WALLACE

WM. C. CAREY.

Select Committee.

The Rev. Dr. FORRESTER

NORTH SYDNEY, July 19th, 1859.

DEAR SIR,

I shall now proceed to answer your eight Queries at the close of your Circular to the best of my judgment. 1st, as to the state of Agriculture in this District. It is certainly progressing, although not to the same extent, that it might or could be wished. I can, nevertheless, see much improvement in many parts of this Township of late years, and the main causes, which, in my opinion, have operated to produce such improvements, are these.—We have some half a dozen practical farmers from the Lowlands of Scotland, settled in this Township, who carry on farming on scientific principles, and are not only making a comfortable, decent living, but in most cases actually saving money, and their example is happily telling on the farmers around them; and I often think that if a few hundred such farmers were only settled, one here and there, throughout the Island, it is impossible to calculate the amount of improvement they would be the means of effecting in a few years hence. Our own Society has also contributed in some measure to the progress of agriculture in this Township. 2d, As to the Rotation of Crops—Our Lowland Farmers seem fully to understand and carry out this principle, and a few others are following their example, but not one in ten of our farmers understand or follow the Rotation of Crops. 3rd, As to the manufacture of Compost beds—this I consider to be one of the most important branches of the farmer's operation, and yet none certainly so much neglected. Throughout this Island, and even in my district, there is some attention, certainly paid to compost preparation for the last few years, but nothing to what it might and should be. There are no other artificial fertilizers used, save lime very sparingly. 4th, As to the quantity of arable land, cultivated in my District it is impossible for me to say. A few of our farmers will have from 40 to 50 acres under a thorough cultivation while many of them have not 15 acres. I would say that on an average, not over 20 to 25 acres are in perfect state of cultivation by the farmers in this Township. 5th, Not one in twenty of our farmers have a copy of Dawson's Work on Agriculture, an excellent work, which should be in the hands of every one. 6th, Our Society gets 10 monthly numbers of the New England Farmer which is distributed amongst the members. 7th, I do believe and verily believe, that Agricultural Societies, even as at present managed, have been productive of benefit to the Cause of Agriculture, though not to the same extent as they have been in other countries, where more skill, knowledge, and means were brought to bear upon their proceedings. Your 8th and last Query is indeed an important one—and one that I am not competent to answer. Still I will hazard an opinion—but one which I am well aware the Government will not act upon—even if advocated by you; that if the Government would encourage a body of Farmers to come from the Lowlands of Scotland, by giving them free grants to settle in various parts of the country. If this course be practicable I know of no greater benefit that the Government could confer on Agriculture. If a Model Farm even on a small scale, was conducted by a scientific farmer, in each of our counties, it could not fail of being a benefit. As to the one at Truro there can be no doubt but it will exercise some influence on the agriculture of some parts of the province. But that influence cannot be supposed to reach or to benefit this Island and some other distant parts—but in a very small degree. Still I think that it was a judicious provision, and that the money expended upon it is not thrown away.

I am, dear Sir,

Yours very truly,

L. ROBERTSON.

REV. ALEX. FORRESTER, D. D., Truro.

HERRON, YARMOUTH, JULY 14th, 1859.

DEAR SIR.—You will excuse me for not having before replied to your Circular as circumstances have prevented my so doing. In answer thereto at this late date I would beg to submit the following as being as correct a conclusion as I can arrive at, at present. With regard to the present condition of the Agricultural Society of this township, I would state that it is working quite harmoniously, but is not so generally taken hold of by farmers as could be wished. It has of late expended its funds chiefly in the purchase of stock from which a marked improvement is already to be observed. It is held in contemplation to appropriate the funds of the present year mostly in giving premiums on stock, and various products of the soil, hoping thereby to stimulate farmers to increased attention, particularly in stock raising; and, in order that the district generally may be benefited, one condition of the premium is to be that all experiments be carefully noted, and a correct report of the management in every case presented to the Society. About £12 have been raised by members this year.

In reply to the queries proposed.

1. Although in a backward state still I think the present condition is one of some progress in many particulars, the foremost of which I consider to be the increased attention paid to enlarging the manure heap, "the farmers mine of wealth," and in preserving manure from waste by sheds, and in many cases, by cellars for preserving the liquids which have heretofore to a great extent been lost; also in the extended culture of root crops especially turnip and carrot. The cause of this I take to be first the necessity from the farms becoming older and having exhausted the fertilizing properties common to new soils; and secondly from the more widely extended information on the subject by the circulation of Agricultural publications, Essays, Lectures &c.

2. Although nothing like a universal system of rotation prevails I am pleased to state that many farmers are giving more attention to the subject than formerly.

3. Heretofore but little has been attempted. The Agricultural Society is the present year experimenting to some extent with guano, the results of which experiments I shall be pleased to lay before you in due time. Composting is considerably practised.

4. The farms are generally small. I should think from 15 to 20 acres would be about an average of the amount cultivated including meadow land; some of course much more, others less, with about an equal proportion of grain and roots.

5. I think nearly one half have a copy.

6. The Albany Cultivator is taken to some extent, with a few copies of your own publication, the Educational and Agricultural Journal.

7. I believe they have been productive of much good even in their present inefficiently managed condition. I hardly feel competent to make any suggestions calculated to benefit, but I think if each Society would exert itself to get up an annual fair, where might be exhibited the various products and manufactures of the district and at the same time endeavour to have an Agricultural lecture by some one competent would be one step in the right direction.

8. In answer to the last and most important query, I believe the Agricultural public require enlightening upon and awaking to the importance of their calling; and in my opinion nothing would tend more to accomplish this, than the more general circulation of good Agricultural publications, the establishments of farmers clubs for eliciting discussion upon the subject and I think carrying out the resolution embodied in your circular will tend greatly to impart increased life. As heretofore our farmers have known but little about the state of the Agriculture of our own Province nothing having ever been published concerning it, except the very hasty report of the Central Board.

Yours truly,
JAMES CROSBY.

REV. ALEXANDER FORRESTER D. D.

WALLACE, July 5th, 1859.

REV. SIR.—Your circular to Agricultural Societies dated the 1st ult, has been submitted to the Committee of our Society who have directed me to offer the following answers to the questions therein contained.

1. The present condition of Agriculture in this district is prosperous and progressing. The Agricultural Society has been the main cause in stimulating the farmers to improve in the various branches of their calling. Remunerative prices for produce and a ready market at home have also contributed to the improvement in agriculture in this place.

2. General attention is paid to the Rotation of Crops, although, perhaps, not always so systematical as it ought to be.

3. The manufacture of Compost Beds is quite general. Bone dust is also used.

4. The time afforded was too short to enable the Committee to

ascertain the average amount of arable land cultivated by each farmer

The proportion of Root Crops is small in comparison to that of grass.

5. Dawson's Agriculture of Nova Scotia has been pretty extensively distributed in the district.

6. There are some periodicals on Agriculture taken in the district.

7. From my own observation I believe that the Agricultural Society has been productive of much benefit to the cause of agriculture in this place. An increase to the grant to Societies would render them more useful.

8. I believe that proper agricultural education is the grand desideratum for imparting the knowledge necessary to prosecute this branch of industry the most advantageously.

I further believe that Agricultural Conventions, similar to those in the United States, would impart an impulse to this important branch of industry.

I have the honor to be

Rev Sir,

Your most obt. servt.

DONALD MCKAY.

Secy. W. A. Society.

The Rev. A. FORRESTER, Truro.

ANNAPOLIS, 18th July, 1859.

DEAR SIR.—The sitting of the Supreme Court for a fortnight and other engagements have prevented me from replying to your Circular of the 1st June at an earlier day, and I beg to apologise for my seeming inattention. I will now endeavor to reply to the queries contained in it, though I fear I shall not be able to do so in a very satisfactory manner.

1. I consider that the condition of Agriculture in this district is surely though somewhat slowly progressive and the improvement during the last few years is apparent. I think the institution of the agricultural societies has contributed much towards this state, and I may add as other reasons that the markets have been good and that the young men are possessed of more intelligence and energy than their fathers were.

2. General attention is not paid to the Rotation of Crops.

3. Artificial fertilizers are rarely used. Much more attention has been paid of late years to the manufacture of Compost than formerly.

4. I am not able to answer. Generally speaking much more land is cultivated, (or rather attempted to be,) than should be. If the same amount of manure and labor were applied to one acre that is now applied to three, the produce of the former would be greater. This County is capable of sustaining a large population if its arable lands were properly managed.

5. Very few of the farmers possess copies of Dawson's Agriculture.

6. There is no Periodical on agriculture circulated in the district. Some few persons take the Albany Cultivator and New England Farmer.

7. I am satisfied that the Agricultural Society as at present managed have been productive of much benefit, in proof of which among other effects I may state that there has been in this district a very great improvement in the stock, especially as respects horned cattle. There has also been a decided improvement as respects swine and sheep. There is unfortunately too much apathy among those for whose benefit these institutions are designed, and if the farmers were to give them their support as they ought, the advantages to be derived from them would be largely increased.

8. My belief is that the grand desideratum for imparting an impulse to this important branch of industry is—Education—Education—Education.

I am truly yours,
Geo. S. MILLIDGE.

POETRY.

THE WILLOW.

"Tongues in trees—books in the running brooks"—Shakespeare.

The willow grows beside the river
And the boughs hang o'er its flow,
Till the green leaves, as they quiver,
Kiss the waves that run below.

The river whispers to the willow
With a sad, mysterious tone,
As the bubbles of each billow
Gurgling break on bank and stone.

What saith the river, as it glistens
In the sun-glints through the tree,
While the bough stoops down and listens
To its plaintive melody?

"Like my waters, life is flying—
Brightest joys have shortest stay—
As my waves speed onward sighing,
With thy kisses far away:

"Human hopes are like the bubbles
Sworn and glittering on my tide,
Till the rocks, like earthly troubles,
Meet and wreck them as they glide."

High o'er willow—high o'er river,
S are a lark in airy rings,
While his voice thrills to the quiver
Of his sun-illuminated wings.

And the ether-vault is riven
With this glad song, as he flies—
"Seek, like me, thy joys in heaven,
And thy hopes within the skies."

—Dublin University Magazine.

PROSPECTUS
OF THE
SECOND VOLUME
OF THE

"Journal of Education and Agriculture."

EDITOR—REV. ALEXANDER FORRESTER, D. D.,
SUPERINTENDENT OF EDUCATION.

THE June number will finish the first year of the existence of this periodical. Though the *Journal* has not received the support that might have been expected from the parties for whose benefit it was mainly intended, still, taking all things into account, it has had a fair circulation for the first year of its history; and both the Editor and the Publishers would gladly avail themselves of this opportunity of tendering their best thanks to the friends of Education and Agriculture, and especially to the Graduates of the Provincial Normal School, throughout the country, who have exerted themselves so strenuously in obtaining subscribers. It is not our intention to make any material change upon its management during the ensuing year, but should its circulation largely increase, which we hope it may, to add considerably to its bulk without any additional charge.

We trust that the Clerks of the different School Boards will continue as heretofore to act as Agents, as well as those to whom copies of this Circular may be forwarded.

We hereby request and authorize all the Teachers in the Province to act as Agents in their locality;—and in their so doing, and thereby increasing the circulation of the *Journal*, we are persuaded they are but promoting their own usefulness and comfort.

As the first number of the second volume will be issued on or about the 15th of July next, the present subscribers will require to renew their subscriptions with the Publishers or Agents.

TERMS.

Single copies, per annum, £0 5 0

Six copies to one address, 1 5 0

In all cases payable in advance.

Subscriptions are not received for a less period than one year.

Advertisements as usual.

June 15.

A. & W. MACKINLAY, Publishers.

Just Published--Price 1s. 3d.

MENTAL ARITHMETIC,

CONTAINING THE PRINCIPLES OF ARITHMETIC for the learner, and NUMEROUS EXERCISES with the answers, for the use of the Teacher.

BY HUGO REID,

PRINCIPAL OF DALHOUSIE COLLEGE, &c.

BY THE SAME AUTHOR:

Geography for British America—1s. 10d.

Historical Memoranda—3d.

Supplement to Lennie's Grammar.

Feb. 15.

Thomson's Arithmetic.

AT REDUCED PRICE.

(April) For sale by

A. & W. MACKINLAY.

500 dozen Phillips' Copy Books.

(April) Just received by

A. & W. MACKINLAY.

NEW EDITIONS

OF

Irish National Series

OF

SCHOOL BOOKS.

A large stock always on hand.

April.

A. & W. MACKINLAY.

Irish National School Books.

FIRST BOOK OF LESSONS, Second Book of Lessons,
Third do do, Fourth do do,
Fifth do do,

Spelling Book Superseded, First Book of Arithmetic,
Arithmetic advanced treatise, Sullivan's Grammar,
Sullivan's Geography, do Geography Generalised,
With all others belonging to the above series.

* A large discount allowed to the trade.

A. & W. MACKINLAY,

October 15.

No. 16 Granville St.

HALIFAX, N. S., JULY, 1858.

A. & W. MACKINLAY,

Publishers Booksellers, and Stationers,
NO. 16 GRANVILLE STREET.

HAVE on hand an extensive Stock of the following Books:—
IRISH NATIONAL SERIES.

Consisting of—
First Book of Reading,
Second Book of do.
Third do do.
Fourth do do.

Fifth Book of Reading,
Spelling Book Superseded,
First Book of Arithmetic, &c., &c.

—ALSO—

Lennie's English Grammar,
Murray's do do.
Sullivan's do do.
Carpenter's Spelling,
Murray's do.
Mavor's do.
Universal do.
Murray's English Reader,
do Introduction,
Sullivan's Geography,
Reids do.
Stewart's do.
Goldsmith's do.
Morro's do.
Mitchell's do.
Woodbridge's do.
Smith's do.
Chambers' do.
Dawson's Geography of Nova Scotia,
Blake's Philos phy,
Swift's do.
Parker's do.
Chambers' Educational Series,
McCulloch's do do.
Lefsch's do do.
Grey's Arithmetic,
Town's Educational Series,
Wallingham's Arithmetic,
Thomson's do.
Reid's Composition,
Colburn's Arithmetic,
Ahn's French Grammar.

Ollendorff's French Grammar,
Noel & Chapin's do.
Chambard's French Fables,
Paul and Virginia in French.
De Fiva's French Reader,
Arnold's Latin Prose Composition,
do Greek Prose Composition,
do First & Second Latin Books,
Author's Anabasis,
do Cicero,
do Virgil,
do Cæsar,
Bullion's Latin Grammar,
Edinburgh Academy's Latin Grammar,
do do Greek do.
do do Latin Delectus,
Hebrew Bibles,
do Grammars,
Phillips' School Atlas,
Lardner's Euclid,
Davie's Algebra,
do Trigonometry,
Hughes' Reading Lessons,
Colens's Algebra,
Walker's School Dictionary,
Pinnock's History of England,
do do Greece,
do do Rome,
Chambers' School Maps, } Imported to
Phillips' do. } order.
Globes,

Coe's Drawing Cards, Drawing Paper, Drawing Pencils, etc., etc.
All of the above are offered on the lowest terms. A liberal discount to the trade.

THE JOURNAL

OF

Education and Agriculture,

FOR NOVA SCOTIA,

IS EDITED BY

THE REV. ALEXANDER FORRESTER, D. D.,

Superintendent of Education for the Province,

AND PUBLISHED BY

A. & W. MACKINLAY.

BOOKSELLERS & STATIONERS, GRANVILLE STREET, HALIFAX,
on the 15th day of each month.

TERMS:—One Dollar per annum, payable in all cases in advance.
This Journal will furnish a good medium for all Advertisements connected with Education and Agriculture. Advertisements not exceeding six lines, inserted for 2s. 6d.; those exceeding six lines, at a proportional rate.

JAMES BARNES & CO, Printers, 179 Hollis Street, HALIFAX.