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JOURNAL OF EDUCATION.

Volume XII.

Quebec, Province of Quebec, December, 1868.

No. 12.

SUMMARY.—**LITERATURE:** The British Canadian Poets. A Lecture delivered by the Revd. Fr. McD. Dawson, (continued).—**EDUCATION:** On Elocution Generally Applied by Mrs. Simpson, Montreal.—**SCIENCE:** Geology, by T. Sterry Hunt, F. R. S.—**OFFICIAL NOTICES:**—Appointments: Examiners:—McGill Model (Girls) School, Montreal: School Commissioners and Trustees.—Books Sanctioned by the Council of Public Instruction.—Erections, &c., of School Municipalities.—Diplomas Granted by Boards of Examiners.—Donations to the Library of the Ministry of Public Instruction.—**EDITORIAL:** To the Readers of the Journal; Departure of Lord Monck from Canada:—General Wyndham, Administrator:—Arrival of Sir John Young, the New Governor-General, in Canada.—Books and Publications Received.—**MONTHLY SUMMARY:** Educational Intelligence, Literary Intelligence, Scientific Intelligence, Meteorological Intelligence and Tables.

LITERATURE.

British Canadian Poets.

LECTURE BY THE REV. F. McDONNELL DAWSON.

(Continued from our last.)

THE RIGHT REV. GEO. JEROSHAPHAT MOUNTAIN. Bishop Mountain who was the son of the first Protestant Bishop of Quebec, and who died at that city in 1863, was chiefly celebrated for his amiability of character, and his numerous prose writings. His "*Songs of the Wilderness*," a volume of elegant and classical compositions published in London (1846), is lost sight of in the number of his more important works. We must claim, however, that he has added to the valuable amount of Canadian poetical literature.

The most competent Judges have eulogized the poetical productions of Miss HARRIET ANNIE WILKINS. This Lady, better known as "*Harriet Annie*," possessed the faculty of writing in verse whilst yet a child. She had nearly a volume of Poems composed before she was 14 years of age. Her published collections of Poems are "*The Holly Branch*," and "*The Acacia*." The latter work reached a second edition which was published in 1864. Dr. Charles Mackay referring to these Poems, speaks of "the play of fancy," "the poetical feeling," "the command of both imagery and language," which they possess.

You will not expect that I should say all that could be said, or even all that I could say, concerning the Hon. THOMAS D'ARCY MCGEE. This gentleman is so eminent as an historian, an orator and a statesman, that we can scarcely think of him as a Poet. Who considers McCaulay or the late accomplished Earl of Carlisle as Poets? And yet, both these orators, authors and statesmen have written poetical pieces of great elegance and beauty, which would have made a reputation for less celebrated men, and clever men too. Mr. T. D'Arcy McGee would be renowned as a Poet, but for his greater renown as a writer and speaker of prose. We lose sight of his highly meritorious volume of ballads when perusing some of his orations. And though we delight to behold him bending pensively

over the tomb of the immortal Tasso, and expressing in classical and melodious verse, the emotions that arose in his mind, as he stood on the spot consecrated by the presence of departed genius, this incident, however interesting, dwindles into insignificance when we consider the statesman and the minister of state representing the interests of this great Dominion among the Powers of Europe and at the centre even of wide Christendom.

Mr. McGee enjoyed in his early boyhood the friendship and companionship of that truly great man the late Daniel O'Connell. At the age of seventeen, he came to settle in America. But soon afterwards, accepting the invitation of Mr. O'Connell to become a member of the editorial staff of "*The Dublin Freeman*," newspaper, he returned to Ireland his native country. Descended from a respectable family of Ulster, and rich in the friendship of the noblest and the best he might have lived honored and independent, if not wealthy, in the land of his birth. But the cause of reform not advancing in that country according to his ardent wishes and as all right thinking men who had at heart the well-being of their fellow-country men, no less earnestly desired, he once more sought his home in the United States of America. He had not been long there, when his friends of Montreal invited him to that city where he became the editor of the journal known as "*The New Era*." Whilst yet engaged in editorial labours, his fellow-citizens deputed him to represent them in the Canadian Parliament. He is still (1) (1868) their representative in the General Parliament or "House of Commons" of the Dominion of Canada. From May 1862 till May 1863, Mr. McGee held office as President of the Executive Council, and again from April 1864 until the Union of the Provinces. In that capacity, he represented the United Provinces of British North America at the late Dublin Exhibition and the *Exposition Universelle* at Paris. If he does not since the Union of the Provinces occupy the high position of a Minister of State, his own disinterestedness is alone to blame. At the banquet lately given in his honor, at Ottawa, and in which many leading representative men of all the Provinces took part, together with all the members of the Government except three whose health would not allow them to leave their homes, the Mayor of Ottawa who filled the chair, the Bishop and a fair representation of the clergy, it was stated by Sir John A. Macdonald, K. C. B. and Premier of Canada, that Mr. McGee at the present moment, occupied a higher place in the estimation of his fellow-countrymen than if he were at the head of the Government: for, he had sacrificed the position which he might have held there,—which he was asked to hold, in order that all the Provinces might be more completely represented in the counsels of the Dominion. This was more than a well deserved compliment. Coming from the quarter whence it came, and delivered in the presence, in which it was delivered, it possessed all the value of a tribute of the highest order to disinterested worth, and became historically important.

On his return from his public mission to Europe,—to Dublin, to Paris, to Rome, Mr. McGee was honored with an ovation by the

(1) This Lecture was delivered the 26th Feb. 1868.

citizens of Ottawa. With the Mayor at their head, they bade him welcome, presenting addresses, &c., before he landed from the steamboat, and escorted him with triumphal honors to his residence.

Mr. McGee's history of Ireland and his other historical works together with essays and written speeches, have conquered for him a very distinguished place among prose writers and particularly writers of history. Some of his Lectures and his speeches in Parliament give abundant proof of his oratorical powers. His grand oration especially, at the close of the last session (1867) in reply to the anti-union views of the Hon. Mr. Howe of Nova Scotia, will be long remembered and must ever remain a monument of his undoubted eloquence. His "*Canadian Ballads and Occasional Verses*," entitle him to honorable notice here, and we can only regret that he has not revelled more in the congenial field of Poetry. Allow me to conclude by addressing the honorable gentleman in the words of the great Roman Bard :

.....mox, ubi publicas
Res ordinâris, grande munus
Cecropio repetes cothurno

(Hor : book II ; ode I) (1)

I come now to speak of a Bard who is, in every sense of the term, Canadian, -Canadian by birth and education, Canadian by choice and feeling, Canadian also by his Poetry, for who has celebrated more, in melodious verse, the unrivalled and hitherto unsung scenery of Canada than CHARLES SANGSTER? This child of the Muses possesses the first great essential quality of a Poet. He was born such. And who does not know that all the arts this world was ever master of will never supply what nature has denied. "*Nascitur not fit Poeta*." Mr. Sangster was a Poet before he could write a verse. In his early days, the Poet's soul within him struggled for expression. But in vain. From defective education, the gift with which he was so richly endowed, could not become manifest. Art was still wanting, but it was destined to combine with genius and form a true Poet. The youthful aspirant to Poetic excellence was not to be daunted by the difficulties which beset his path. The disadvantages of early education must be struggled against and overcome. He had once set foot upon the "rugged steep where Fame's proud temple shines afar," and he felt that he must climb. His laudable perseverance has been crowned with wonderful success.

About twelve years ago, Mr. Sangster published a goodly volume of Poems. Of these "*The St. Lawrence and the Saguenay*" is the longest and the most elaborate. In this Poem the author has attempted the difficult Spenserian Stanza. I am far from saying, "*Magnis tamen excidit ausis*," in plain English, that he has failed. Without reaching the perfection of Beattie, Campbell, Byron, he has grappled nobly with the difficulties presented by the style of his choice, and has produced a most beautiful Poem. If it has not all the pathos and the inimitable inspiration of "*Childe Harold*," we must bear in mind, that his subjects, rich, indeed, in natural grandeur, but wholly devoid of any historical, or poetical associations, beyond a tale of yesterday, were not so promising or so friendly to the Muse, as the many classic scenes which were visited by the "*Childe*" in his memorable 'pilgrimage.' Mr. Sangster's Poem nevertheless, abounds in original thought, poetical expression and stanzas truly elegant and harmonious. One does not require to be a Canadian in order to admire and enjoy his beautiful Ode to "*The Thousand Isles* :

Here the Spirit of beauty keepeth
Jubilee for evermore ;
Here the voice of gladness leapeth,
Echoing from shore to shore.

O'er the hidden watery valley,
O'er each buried wood and glade,
Dances our delighted galley,
Through the sun-light and the shade—
Dances o'er the granite cells
Where the Soul of Beauty dwells.

Here the flowers are ever springing,
While the summer breezes blow ;
Here the Hours are ever clinging,
Loitering before they go ;

(1) How vain, alas ! are all human hopes ! The ink with which these words were written, was scarcely dry, when that deplorable event occurred which deprived the country and mankind of the genius and labours of THOMAS D'ARCY MCGEE.

Playing round each beauteous islet,
Loath to leave the sunny shore,
Where upon her couch of violet,
Beauty sits for evermore—
Sits and smiles by day and night,
Hand in hand with pure delight.

Here the spirit of beauty dwelleth
In each palpitating tree,
In each amber wave that welletth
From its home beneath the Sea ;
In the moss upon the granite,
In each calm secluded bay
With the Zephyr trains that fan it
With their sweet breaths all the day—
On the waters, on the shore,
Beauty dwelleth evermore !

You listen—and, indeed, who could not listen, with pleasure, to such Poetry as this? You will hear with no less delight, I am sure, some of our Poet's Spenserian Stanzas. He is still lingering among "*The Thousand Isles* :

Yes, here the Genius of Beauty dwells.
I worship Truth and Beauty in my Soul.
The pure prismatic globule that upwells
From the blue deep ; the psalmic waves that roll
Before the hurricane, the outspread scroll
Of Heaven, with, its written tomes of stars ;
The dew-drop on the leaf ; these I extol,
And all alike—each one a Spirit Mars,
Guarding my Victor-Soul above Earth's prison bars.

In two other stanzas, the Poet refers to a tradition that might form the subject of an Epic Poem :

There was a stately Maiden once, who made
These Isles her home. Oft has her lightsome skiff
Toyed with the waters ; and the velvet glade,
The shadowy woodland, and the granite cliff,
Joyed at her foot-steps. Here the Brigand Chief,
Her Father, lived an outlaw. Her soul's pride
Was ministering to his wants. In brief,
The wildest midnight she would cross the tide,
Full of a daughter's love to hasten to his side.

Queen of the Isles ! she well deserved the name :
In look, in action, in repose a Queen !
Some Poet-muse may yet hand down to fame
Her woman's courage and her classic mien ;
Some Painter's skill immortalize the scene,
And blend with it that Maiden's history ;
Some Sculptor's hand from the rough marble glean
Thoughts eloquent, whose truthfulness shall be
The expounder of her worth and moral dignity.

One more stanza descriptive of such varied and delightful scenery :

On through the lovely Archipelago
Glides the swift bark. Soft summer matins ring
From every Isle. The wild fowl come and go,
Regardless of our presence. On the wing,
And perched upon the boughs, the gay birds sing
Their loves. This is their summer paradise ;
From morn' till night their joyous caroling
Delights the ear and through the lucent skies
Ascends the choral hymn in softest symphonies.

.....
.....
.....
.....

And now 'tis night. Myriad stars have come
To cheer the earth and sentinel the skies.
The full orb'd moon irradiate the gloom.
And fills the air with light. Each islet lies
Immersed in shadow, soft as thy dark eyes ;
Swift through the sinuous path our vessel glides,
Now hidden by the massive promontories,
Anon the bubbling silver from its sides
Spurning, like a wild bird, whose home is on the tides.

Here Nature holds her Carnival of Isles.
 Steeped in warm sun-light all the merry day,
 Each nodding tree and floating green wood smiles,
 And Moss-crowned monsters move in grim array,
 All night the Fisher spears his finny prey;
 The piney flambeaux reddening the deep,
 Past the dim shores, or up some mimic bay;
 Like grotesque banditti they boldly sweep
 Upon the startled prey, and stab them while they sleep

Many a tale of legendary lore
 Is told of these romantic Isles. The feet
 Of the Red man have pressed each wave zoned shore,
 And many an eye of beauty oft did greet
 The painted warriors and their birchen fleet,
 As they returned with trophies of the slain.
 That race has passed away; their fair retreat
 In its primeval loneliness smiles again,
 Save where some vessel snaps the-isle-enwoven chain

Save where the echo of the huntsman's gun
 Startles the wild duck from some shallow nook;
 Or the swift hounds' deep baying as they run,
 Rouses the lounging student from his book;
 Or where, assembled by some sedgy brook;
 A pic-nic party resting in the shade,
 Spring pleasedly to their feet to catch a look
 At the strong steamer, through the watery glade
 Ploughing, like a huge serpent from its ambushade.

But, in order to appreciate and enjoy Mr. Sangster's poetry you must read for yourselves. In the same volume with "*The St. Lawrence and the Saguenay*," there are many lesser pieces of great beauty. The sonnets are elegant and full of thought. Several pieces in blank verse, such as "*Autumn*," and "*The Revels of the Frost King*," remind forcibly of the lofty style of Milton. That the admirable compositions contained in this volume should not have been more appreciated in Canada, will appear inconceivable to any competent judge of poetry who reads them. We must agree with Mr. Dewart however, that the "subtle delicacy of thought" which pervades them, and their "elevated style" account for their being incomprehensible to the great mass of readers—the "*profanum vulgus*." But our Poet has no enigmas for the well informed and intelligent reader. Such will find in the out-pourings of his Muse, and find in abundance, elevating thought and the sweet music of harmonious song. Hear a few lines of "*THE FINE OLD WOODS*," and you will acknowledge the justice of this remark.

"Oh! come away to the grave old woods,
 Ere the skies are tinged with light,
 Ere the slumbering leaves of the gloomy trees,
 Have shook off the mists of night;
 Ere the birds are up,
 Or the flow'ret's cup
 Is drained of the freshening dew,
 Or the bubbling rill
 Kissing the hill,
 Breaks on the distant view;
 Oh! such is the hour
 To feel the power
 Of the quiet grave old woods,
 Then while sluggards dream,
 Of some dismal theme,
 Let us stroll
 With prayerful soul,
 Through the depths of the grave old woods.

Oh! come, come away to the bright old woods,
 As the sun ascends the skies,
 While the birdlings sing their morning hymns,
 And each leaf in the grove replies;
 When the golden-zoned bee
 Flies from flower to tree,
 Seeking sweets for its honeyed cell,
 And the voice of praise
 Sounds its varied lays,
 From the depths of each quiet dell:
 Oh! such is the hour
 To feel the power
 Of the magic bright old woods!

Oh! come, come away to the mild old woods,
 At the evening's stilly hour,
 Ere the maiden lists for her lover's steps,
 By the verge of the vine-clad bower;
 When all nature feels
 The change that steals
 So calmly o'er hill and dale,
 And the breezes range
 Weirdly strange,
 With a loud delicious wail:—
 This too is the hour
 To feel the power
 Of the silent mild old woods.

Oh! come, come away to the calm old woods,
 When the skies with stars are bright,
 And the mild moon moves in serenity,—
 The eye of the solemn night.
 Not a sound is heard,
 Save the leaflet stirred
 By the Zephyr that passes by,
 And thought roams free
 In its majesty,
 And the soul seeks its kindred sky.
 This, this is the hour
 To test the power
 Of the eloquent calm old woods!
 While the thoughtless dream
 Of some baseless theme,
 Here we can stroll,
 With exalted soul,
 Through the eloquent calm old woods.

I fear I have not much time now to talk to you about Mr. Sangster's second volume. Critics prefer it to his first. Not perhaps because it abounds more in thought and poetic feeling; but because all the poems which it contains, are highly finished and evince greater experience and facility in the art of versification. His "*HESPERUS*" is very fine. But the Poet soars so far beyond the common sphere of thought, and so high into the mysterious ideal, that he will be little understood or appreciated by any who are not like himself, gifted with the soul of poetry.

"*THE HAPPY HARVESTERS*" is a very beautiful Poem, and one that must go home to the hearts of our intelligent rural populations. "*O, fortunatos nimum sua si bona norint!*" "*The Ode to Autumn*" in this *Cantata* is deserving of your best attention. It is very musical and breathes the true Religion of Poetry, or, I should rather say, the Poetry of Religion. The "*Song for the Flail*" and "*The Soldiers of the Plough*," you cannot fail to read with delight.

No maiden dream, nor fancy theme,
 Brown labour's muse would sing;
 Her stately mien and russet sheen
 Demand a stronger wing.
 Long ages since, the sage, the prince,
 The man of Lordly brow,
 All honor gave that army brave,
 The soldiers of the plough.
 Kind heaven speed the plough!
 And bless the hands that guide, it;
 God gives the seed—
 The bread we need,—
 Man's labour must provide it.

In every land the toiling hand
 Is blest as it deserves;
 Not so the race who, in disgrace,
 From honest labour swerve.
 From fairest bowers bring rarest flowers,
 To deck the swarthy brow
 Of those whose toil improves the soil,
 The soldiers of the plough.
 Kind Heaven, &c.

Blest is his lot in Hall or cot,
 Who lives as nature wills,
 Who pours his corn from Ceres horn,
 And quaffs his native rills!
 No breeze that sweeps trade's stormy deeps,
 Can touch his golden prow;
 Their foes are few, their lives are true,
 The soldiers of the plough.
 Kind Heaven speed the plough!
 &c., &c.

'Malcolm,' 'Colin,' 'Margery,' 'The Wine of Song,' 'The Plains of Abraham,' 'The Death of Wolfe,' 'Brock,' 'The Song for Canada,' 'I'd be a Fairy King,' 'The Rapid,' 'Young Again,' and 'The Comet,' are all Poems of rare beauty. Mr. Sangster also celebrates the genius of the Ottawa whom he pictures to us as dwelling in the rain-bowed mansions of the Chaudière. He penetrates further still along the picturesque banks of the great Ottawa, and arriving at the remote Rapids called 'The Snows,' he breaks out in the following strain :

Over the snows
Buoyantly goes
The lumberers' bark canoe ;
Lightly they sweep,
Wildly each leap,
Rending the white caps through.
Away ! away !
With the speed of a startled deer,
While the steersman true,
And his laughing crew,
Sing of their wild career :

" Mariners glide
Far o'er the tide,
In ships that are staunch and strong ;
Safely as they,
Speed we away,
Waking the woods with song"
Away ! away !
With the flight of a startled deer,
While the laughing crew
Of the swift canoe
Sing of the raftsmen's cheer :

" Through forest and brake,
O'er rapid and lake,
We're sport for the sun and rain ;
Free as the child
Of the Arab wild,
Hardened to toil and pain.
Away ! away !
With the speed of a startled deer,
While our buoyant flight
And the rapid's might
Heighten our swift career.
Over the snows
Buoyantly goes
&c., &c.

.....
Away ! away !
With the speed of a startled deer ;
There's a fearless crew
In each light canoe,
To sing of the raftsmen's cheer.

I dare not now read to you the charming song : " *I'd be a Fairy King*"—which I had, marked for quotation, or those truly patriotic, as well as truly poetical, effusions 'Brock' and the 'SONG FOR CANADA.' They who remember the inauguration (1859) of the new monument to General Brock on Queenston heights, the scene of that hero's glorious victory, and no less glorious death, will understand the Poet when in soul stirring words, he addresses a people—one in heart,

And soul, and feeling, and desire !
.....
Raise high the monumental stone !
A nation's fealty is theirs,
And we are the rejoicing heirs,
The honored sons of sires whose cares
We take upon us unawares,
As freely as our own.

We boast not of the victory,
But render homage deep and just,
To his—to their immortal dust,
Who proved so worthy of their trust.
No lofty pile nor sculptured bust
Can herald their degree.

No tongue need blazon forth their fame—
The cheers that stir the sacred hill
Are but mere promptings of the will
That conquered then, that conquers still ;
And generations yet shall thrill
At Brock's remembered name.

A few lines of the "*Song for Canada*," and I take leave, although reluctantly, of Mr. Sangster.

Sons of the race, whose sires
Aroused the martial flame
That filled with smiles
The triune Isles,
Through all their heights of fame !
With hearts as brave as theirs
With hopes as strong and high,
We'll ne'er disgrace
The honored race
Whose deeds can never die.
Let but the rash intruder dare
To touch our darling strand,
The martial fires
That thrilled our sires
Would flame throughout the land.

Our Lakes are deep and wide,
Our fields and forests broad ;
With cheerful air
We'll speed the share,
And break the fruitful sod ;
Till blest with rural peace,
Proud of our rustic toil,
On hill and plain
True Kings we'll reign
The victors of the soil.
But let the rash, &c., &c.

Health smiles with rosy face
Amid our sunny dales,
And torrents strong
Fling hymn and song
Through all the mossy vales ;
Our sons are living men,
Our daughters fond and fair ;
A thousand isles
Where plenty smiles,
Make glad the brow of care.
But let the rash intruder dare,
&c., &c., &c.

You are now I am sure, quite tired listening to my talk about Anglo-Canadian Poetry and Poets. I must, nevertheless, ask your indulgent attention for a few moments longer. There are still some of these Anglo-Canadian Poets that have not yet been noticed, so highly distinguished that I cannot pass them over without honorable mention. Of this number is ALEXANDER McLACHLAN. Although a native of Scotland, Canada justly claims him as one of her gifted children. He was only 20 years of age when he came to this country in 1840. Since that time, labouring assiduously in Canada and as a Canadian, in the not ungrateful field of literature, he has carved out for himself an eminent place in the Temple of Fame. His extraordinary taste for reading enabled him to make up for whatever was wanting in his early education. Although a mechanic's apprentice in Scotland is less unfavorably situated as regards learning, than in most other countries, his opportunities cannot have been very considerable. They were sufficient however to encourage and sustain him in the arduous but laudable task of self-culture. His labours have already been crowned with no ordinary success, and, as yet, he is only mid-way in a great career. He cannot be compared with any Canadian Poet I am as yet acquainted with. As regards originality of thought and beauty of poetic expression, he has not perhaps any peer among them. Our best critics remark, in his compositions, a strong sympathy with humanity in all its conditions, a subtle appreciation of character, deep natural pathos, noble and manly feeling, the expression of which awakens the responsive echoes of every true heart. In 1856 he published at Toronto a volume of poems chiefly in the scottish dialect. Some of these have been pronounced by the Honorable Thomas D'Arcy McGee, a very competent judge, it will be admitted, as not unworthy of Tannahil or Motherwell. In 1858 appeared his "Lyrics and Miscellaneous Poems," and in 1861, "The Emigrant and other Poems." In *the lyrics* there are many pieces of surpassing beauty. They alone justify all the praise that has been bestowed upon him. I had an idea of pointing out to you some pieces as being more particularly beautiful, but on glancing over the volume anew, I found that this was impossible. In order to indicate all the poems that I consider masterpieces of lyrical compositions, I should have to read to you the table of contents. I must

however, in carrying out my programme, give you a specimen or two. What could be more feeling than his "OLD HANNAH?"

'Tis Sabbath morn, and a holy balm
Drops down on the heart like dew,
And the sun beams gleam.
Like a blessed dream,
Afar on the mountains blue.
Old Hannah's by her cottage door
In her faded widow's cap,
She is sitting alone
On the old grey stone
With the Bible in her lap.

An oak is hanging o'er her head,
And the burn is wimpling by,
The primroses peep
From their sylvan keep,
And the lark is in 'he sky.
Beneath that shade her children played,
But they're all away with death,
And she sits alone
On the old grey stone
To hear what the Spirit saith.

Her years are o'er three score and ten,
And her eyes are waxing dim,
But the page is bright
With a living light,
And her heart leaps up to Him
Who pours the mystic harmony
Which the Soul can only hear.
She is not alone
On the old grey stone,
Though there's no one standing near.

There's no one left to cheer her now ;
But the eye that never sleeps
Looks on her in love
From the Heaven above,
And with quiet joy she weeps.
She feels the balm of bliss is poured
In her worn heart's deepest rut ;
And the widow lone,
On the old grey stone
Has a peace the world knows not.

What an admirable reprimand does he not administer in "THE GREAT OLD HILLS," to those who can see nothing better in these beautiful objects than the deformities of nature?

To the hills all hail !
The hearts of mail ;
All hail to each mighty Ben !
They were seated there—
On thrones of air—
Long ere there were living men.
From the frozen north
The storm comes forth
And lashes the mountain rills,
But they vainly rave
Around the brave
The great old hills.

They are fair to view
With their bonnets blue ;
They are Freedom's old grey guards,
Each waving a wreath
Of purple heath
To the songs of Scotia's Bards.
The tempests come
And veil the sun
While ire his red eye fills,
And they rush in wrath
On the lightning's path
From the great old hills.

Men toil at their walls
And lordly halls,
But their labour's all in vain,
For with ruin gray
They pass away
But the great old hills remain

While the lightnings leap
From peak to peak
And the frighted valley thrills,
O'er storm and time
They lower sublime,
The great old hills.

In the "ODE ON THE DEATH OF THE POET TANNAHILL," it is difficult to decide whether the tenderness of feeling which it expresses, or the delicacy, elegance and poetical beauty of the language are most to be admired.

Lay him on the grassy pillow,
All his toil and trouble's o'er ;
Hang his harp upon the willow
For he'll wake its soul no more
Let the hawthorn and the rowan
Twine their branches o'er his head,
And the bonnie little gowan
Come to deck his lowly bed.

Let no tongue profane upbraid him,
There is nothing now but clay ;
To the spirit pure that made him
Sorrowing he stole away.
Let the shade of gen'le Jessie
From the woods of old Dumblane—
Innocence be clothed in beauty—
Plead not for the Bard in vain.

Let the braes of grey Gleniffer.
And the winding Killoch burn
Lofty Lomond and Balquidder,
For their sweetest Minstrel mourn :
And the Stancly turrets hoary,
And the wood of Craigielee,
Waft his name and mournful story
O'er every land and Sea.

Let the lily of the valley
Weep her dew above his head
While the Scottish Muse sings waly (1)
O'er her lover's lowly bed.
Lay him on the grassy pillow,
All his toil and trouble's o'er ;
Hang his harp upon the willow
For he'll wake its soul no more.

(The British Canadian Poets to be concluded in our next.)

EDUCATION.

On Elocution Generally Applied.

A PAPER READ BY MRS. SIMPSON, MONTREAL.

When the kind invitation to read a paper before this Association reached me, I at once felt a wish to accept it. I was sure of meeting with an indulgence which would take into consideration that I am not a public speaker, but only a teacher who loves her calling and desires at all times to reciprocate gratefully the good will of those who are one with her in the bond of a common profession, and to do what she may by example and precept to stimulate and encourage her younger sisters. I was asked to choose some subject bearing on Female education. It was not easy to make my selection, because for four years past I have devoted myself entirely to the study of the Scriptures and have lost sight practically of specialties of all kinds. Suddenly it occurred to me that a trouble which meets me in my own class, which is experienced by my assistant teachers, which exists, as I am told, in most schools and in girls' schools more particularly, might be profitably brought under your notice here.

(1) From the beautiful old Scotch ballad,—

"Waly, waly, up yon bank,
And waly, waly, down yon brae."

I do not pretend to have found *the* remedy, but as these papers are followed by discussions, it would be a pity, perhaps, to be too exhaustive, so I shall therefore make known my grievance, tell you what I myself am doing, and leave you to suggest further means for securing in our schools that which for want of a better term I have called "Elocution." I have no quarrel however with the name. The dictionary informs us that "Elocution" is from a Latin word which signifies *to speak out*; that it is the "power of expressing thought by speech; the art of clothing the thoughts in suitable words"; that it has to do with "pronunciation and utterance."

My only fear was that my title might mislead you, and that you would be disappointed when you discovered that I am no dramatic reader. I have come furnished neither with amusing prose nor pathetic poetry. What I have to say is common-place and matter-of-fact and concerns nothing more interesting than the art of "speaking out", the "right choice of words" "intelligent pronounciation" and "clear utterance." But I could scarcely gather these together under any one term except the word Elocution.

I assert then that there is a want of Elocution in modern educational establishments and that this want is more distinctly felt in girls' schools than in boys', always supposing that the instruction given in the latter is what is called "classical." Classical education is on its trial just now. It has its faults and its virtues, and both are being made the most of by certain writers, but the question does not concern us to-day, so I pass it by, merely remarking that we shall do well to keep what we can of that which was good in the old method, while we are careful not to say that it is incapable of improvement. In my school days we learned our lessons "by heart." Habit enabled us to commit a surprising number of subjects to memory without the least confusion. We understood very little of what we learned; no explanations were required of us; and our reasoning faculties were little tried. Still the books given us were usually well written, the language concise and dogmatic, no circumlocution, no metaphysical mysticism, every thing was clear and straightforward. For example we were taught—"A verb must agree with its nominative case in number and person" and we managed to apply the rule correctly, either from habit or by instruction. Yet neither dunce nor genius had the faintest notion there was any place for abstract mental effort in the study of Grammar.

From our histories and geographies, we got lists of names; some of them hard enough; some no doubt, of incorrect pronunciation enough, but we had to learn them with the view to the "saying" of them, therefore we had to assign to them some distinct sound or other. The education if conducted on this system to its close was very contracted. The pupil could read and speak better than our modern school-girls, but the mind so far as independent individual effort was concerned, had been exercised just as little as possible.

In these days all is changed. Learning by heart is out of fashion. Oral instruction has taken its place and girls no longer submit to the drudgery which their grand-mothers had to undergo. In other words, we have passed from one extreme to the other. The first was narrow, uninteresting, tiresome; the last is wide, slovenly, inexact. But the educational world is not at rest. By the press, religious and secular; by essay lecture and discussion, it still seeks something. There was good in the dogmatism of the past, and there is good in the philosophy of the present, and nothing good must be omitted in the greatest question which can occupy the attention of mankind.

The chief difficulty which I experience is one of quantity. It would be comparatively easy to sift the old and new methods, to throw away the chaff and retain the grain, but no little human being of either sex could consume in the course of one school education, so much mental food as would be left; it would produce a surfeit and its consequences. Whatever the reform, there must be no additions to the class list. Girls at all events learn too many different things at one time as it is.

That which I am trying, by practice and by precept, is to make my pupils so work, that by the diligent study of two things I may get a third, without giving it any particular time or space.

I would make a place therefore by which my coveted Elocution should come out of studies already in progress. If words are the signs and seals of thought, and if thought be the object of all teaching, surely this ought not to be difficult!

Before however I proceed further, I ought to speak of the method for teaching written expression, known as theme-writing. To save time, let me confess in a few words that although up to the present year, I have given it an honoured place amongst the ordinary branches of an English Education yet I have never been at peace with it. It took up so much time and resulted in so little, that after trying every modification of which I could think or hear, I resolved to turn it out altogether. An occasional theme may be well enough, but a class of juvenile English essayists employed week after week in the production of laboriously written, valueless papers, never fails to move my pity. Indeed I scarcely know whom I compassionate the more—the child who writes, or the teacher who reads these vapid, meaningless effusions. I say to myself—can nothing be done to emancipate them from such drudgery? Can the poor human brain be exercised to no better purpose? or again, does exact expression, good clear English, result from this forced writing down of words which should represent ideas? Experience says, No! How can there be a representation of ideas when there are no ideas to represent? How many school girls have any power of original thought at all? Very few. Nor must this be attributed to them as a fault. Thought itself frequently lies dormant in the young mind to awaken suddenly when brought into contact with ideas hitherto unknown, but now found to be congenial; and even original thought, like original music, is all the more valuable for a careful study of the old Masters.

Whilst revolving these things in my mind during the leisure of the last vacation I came across a newspaper in which reference was made to the superior method adopted by the French in imparting a knowledge of their own language to children. At once, I was reminded of large classes of French children, each under the direction of a single teacher, following with attention and intelligence instruction given concerning the value of words, as I had frequently seen them when at school in France twenty years ago. A sentence, taking its leading idea probably from some subject in which their minds were already interested, was written by each pupil in a note book. The sentences were read aloud and compared. Words were carefully measured, and if found unsuitable, exchanged for others, which in their turn were submitted to the ordeal of a rigid criticism. The critics were the pupils, the master merely exercising authority to keep them to the point, and interposing remarks and questions to elicit knowledge and guide the taste. Exactness and beauty were the requisites.

Before I had any opportunity of making use of my reminiscences, I met with a passage in an essay emanating from the university of Cambridge. It was to the following effect.

"The use of the English language by itself has been, if I am not misinformed, tried and found wanting in Scotland and in New England; the fruit of essay writing has been shallow and tasteless fluency. Men of genius with an academy to formalize for them, might have made the English language a classical language, and it might have been brought to pass that as a Frenchman studies French and learns how to write French as an art, so an Englishman might have found discipline in his mother tongue. But at the best, this would, for scholastic practice, fall very far short of the use of a second language. That part of the paper work which we call *translation* whether in the form of epitome or at full length, must be foregone by the English essayist; and we should be left to the cyclic mono-

"tonies and platitudes of that "original composition" which school reformers dislike."

And again; from the same volume.—

"I have allowed the efficacy of *translation* in teaching English expression; it must also be said that it develops very sufficiently the sense of one kind of excellence of form in all the more intelligent and appreciative minds: I mean of minute excellence, the beauty of single words and phrases. It does this simply because it enforces a reverent examination of masterpieces."

In my school, and in most schools in Canada, the study of the French language is all but universal. There is great stress laid upon it by teachers and parents who know its value in after life both in business and society. But the difficulty of imparting a good knowledge of French without damage to the English subjects is too generally admitted to need insistence here. I began to ask myself as I reflected upon what I had been reading, whether I had made the most of my opportunities. *Translation* at all events had by no means had fair play. This exercise is looked upon as easy; beneath the attention of advanced French scholars, but a slight examination will prove that exact and minute differences are unheeded, provided that a general approximation to the sense is attained; and that the so called *English* version is very far indeed from elegant. If the instructor is a native this should not astonish any one. It is not the part of a Frenchman to write *elegant* English. Translation to be useful must be carried on under the guidance of an English master who has a good and sufficient knowledge of French. It should indeed form part of the English course.

Almost all female teachers in the present day have some knowledge of French. I have often heard those, called upon by circumstances to confine themselves to branches of education carried on in their own language, lament that for want of exercise, they were fast forgetting the little French they had gained at school. If they had sufficient inducement, they would give more time and thought to it and classical French scholars would soon be neither few nor far between. Nor would this interfere with the interest of native teachers, on the contrary, the French classes would be really French and not as they are at present from necessity, more than half English.

Translation, verbal or written, disciplines the mind in no small degree. If literal, it teaches precision; if liberal, it exercises the student in the choice of words and induces an easy use of language. Under the guidance of a good teacher, it may be made to lead to beauty of expression, to condensation or expansion, and all this without wandering from the foreign text. I determined to make the "*amende honorable*" for long years of neglect, and at once to give *Translations*, the place vacated by the weary theme-writing. As in a vision I saw my French classes gain life and vigour while English composition assumed a new and interesting character. My dream is still a dream. I have only had time to set the reality on foot. It would not become me to speak with too much assurance of that which I have not tested, but so far as I have watched the progress of my translation classes, I have reason to believe that there will be no rude awakening to a sense of failure when the Christmas Examination shall try the work.

I am of course aware that if translation from the French monopolises all the methods for imparting a good knowledge of written and spoken English, no very brilliant results must be looked for. I have dwelt upon it now to the exclusion of all else; first because I think its great merits and powers have been overlooked, and second because I desire to confine the application of my remarks to education as carried on in girls' schools. I by no means imagine that I have discovered the whole solution of the problem. No one method is of universal application nor suitable for continuous use even in the same place. Besides, I believe there is a general want of that which I have called elocution in every subject taught. It is the fault of modern instruction that the teacher exerts herself too much and the pupil too little. The teacher speaks the pupil is silent; the teacher asks elaborate questions, the

pupil answers in monosyllables, too frequently merely "yes or no." This is not always the result of over-anxiety and industry on the part of the teacher, it is sometimes inexperience and sometimes impatience. She will not wait until the pupil has well thought, and she will not take the trouble to direct that thought until the right answer is reached. We should have fewer worn-out teachers and more sprightly pupils if *manner* were more cultivated by instructors of elementary classes. The catechetical method is doubtless the best for young minds, but they should be encouraged as soon as possible to prepare their own answers. In the higher classes instruction by lecture may be introduced; but in all, care must be had that the pupil shall be able to express in clear intelligible English the substance of what is learned. The idea which cannot be rendered in words is of little value to its owner and of none at all to any one else. The amount of matter which children can take in without any definite notion of its meaning is quite marvellous. Evidence of this may easily be found by questioning a child upon the Scriptures. The knowledge is gathered at random at home, in the school, in the church, and from books, and is accepted without question or reflection. For the want of explanatory geography, history, and chronology the incidents lack reality, and strange and wrong ideas find permanent place in the mind. The beautiful story of the gospels, and the wonderful history of the old testament, lose half their practical uses and all their interest.

However much, or however little, instruction is given, whether the lessons be planned for a year, a day or an hour, let every word be used with intelligence, then whether you have taught a sentence or a volume, you will have imparted that which is substantial and of real worth.

The school-girl thus trained, be she clever or dull, will be true; for true thought and speech lead to true action in life. The every-day intercourse will be habitually upright and just, and she will instinctively command the love and respect of all she meets.

Even as one has written:—

"Think truly, and thy thoughts shall the world's famine feed;
"Speak truly, and each word of thine shall be a fruitful seed;
"Live truly, and thy life shall be a great and noble creed."

But I must trespass on your time no longer. Permit me to close abruptly with a question. What can we do to improve the "Elocution" of our schools without adding to the curriculum? Like Brutus in the market place at Rome, "I pause for a reply."

SCIENCE.

Geology.

Notes on the Geology of Southwestern Ontario, by T. Sterry Hunt, F. R. S., of the Geological Survey of Canada.

(Read before the meeting of the American Association for the Advancement of Science, at Chicago August, 1868.)

The palaeozoic strata of the southwestern portion of the Province of Ontario (late Upper Canada), are generally covered by a considerable thickness of clay, which has made their study extremely difficult. During the last few years, however, numerous borings have been made over a wide area in this region, in search of petroleum, and have disclosed many facts of geological interest. By frequently visiting the localities, and carefully preserving the records of these borings, I have been enabled to arrive at some important conclusions as to the thickness and the distribution of the underlying Upper Silurian and Devonian strata, to which I now beg to call the attention of the Association.

The rocks of the New York series, from the Oriskany sandstone to the Coal, which are regarded as the equivalent of the old world, were shown by Prof. James Hall, in 1851, to constitute three natural groups. Of these, the first and lowest, sometimes called the Upper Helderberg, and consisting of the Oriskany, with its overlying Corniferous limestone (embracing the local subdivision known as the Onondaga limestone) constitutes what may be provisionally called the Lower Devonian. The second group has for its base the black pyro-

schists, known as the Marcellus shale, followed by the Hamilton shale, with the local Tully limestone, and terminated by another band of black pyroschist, the Genesee slate; the whole constituting what may be termed the Middle Devonian. The third group, embracing the Portage and the Chemung shales and sandstones, with the local Catskill sandstone, makes the Upper Devonian. (1)

The black Genesee slate, according to Mr. Hall, is paleontologically related to the Hamilton slates, and by him included as part of the Hamilton group, as recognized in *The Geology of Canada*. Similar black slates, though thicker, less fissile, and interstratified with greenish arenaceous beds, occur at the base of the Portage formation, marked by the remains of land plants and of fishes which characterize the Upper Devonian. The black slates at this horizon thus constitute as it were, beds of passage. The thickness of the lower and more fissile black beds, recognized by Mr. Hall as belonging to the Hamilton group, is, according to him, only twenty four feet at the eastern end of Lake Erie.

There exists in southwestern Ontario, along the River St. Clair, an area of several hundred square miles underlain by black shales, in the counties of Lambton and Kent, of which only the lower part belongs to the Hamilton group. These strata are exposed in very few localities, but the lower beds are seen in Warwick, where they were, many years since, examined by Mr. Hall, in company with Mr. Alexander Murray of the Geological Survey of Canada, and were by the former identified with the Genesee slate forming the summit of the Hamilton group. They are in this place, however, overlaid by more arenaceous beds, in which Prof. Hall at the same time detected the fish remains of the Portage formation. The thickness of these black strata, as appears from a boring in the immediate vicinity, is fifty feet, beneath which are met the gray Hamilton shales. A similar section occurs at Cape Ipperwash or Kettle Point in Bosanquet, on Lake Huron, where bands of alternating greenish and black arenaceous shales, holding *Calamites*, are met with. These strata also were recognized by Mr. Hall, who examined them, as belonging to the Portage formation; and abound in the large spherical calcareous concretions which occur at the same horizon in New York. The entire thickness of the black shales at this point has not been determined, but in numerous borings throughout the region under notice, they are easily distinguished, both by color and hardness, from the soft gray Hamilton shales which underlie them. At Corunna, near Sarnia, a thickness of not less than 213 feet of hard black shales, interstratified toward the top with greenish sandstone, were met with. In the northern part of Enniskillen, near Wyoming, they are about fifty feet in thickness; at Alvinstone, eighty feet; in Sombra, on the Sydenham river, 100 feet, and in two borings in Camden, 146 and 200 feet. A little to the north of Bothwell, on the Thames, their thickness was found to be seventy-seven feet, while southward, along the shore of Lake Erie, about sixty feet of the hard black slate overlies the soft gray Hamilton shales.

From these, and a great many similar observations, which are detailed at length in the Report of the Geological Survey of Canada, published in 1866, it has been possible to determine with considerable accuracy the distribution of these black strata beneath the thick covering of clay which conceals them through the greater part of the region. It being impossible, under the circumstances, to distinguish between that lower portion of the black strata which belongs to the Hamilton group or Middle Devonian, and the overlying Portage formation the whole of these strata, down to the summit of the soft gray shales, are included with the Portage. In Michigan, according to Prof. Winchell, the whole thickness of the Portage (Huron) group, as just defined, including twenty feet of black shale at its base, is only 224 feet, which are represented in Ontario by 220 feet on the Sydenham river, and by 213 feet at Corunna on the St. Clair. Yet, Prof. Winchell, for some reason, doubts the existence of the Portage formation in Ontario.

The Hamilton shale, which in some parts of New York attains a thickness of 1,000 feet, but is reduced to 200 feet in the western part of the state, consists in Ontario chiefly of soft gray marls, called soapstone by the well-borers, but includes at its base a few feet of block beds, probably representing the Marcellus shale. It contains, moreover, in some parts, beds of from two to five feet of solid gray limestone, holding silicified fossils, and in one instance impregnated with petroleum, characters which, but for the nature of the organic remains, and the underlying marls, would lead to the conclusion that the Lower Devonian had been reached. The thickness of the Hamilton shale varies in different parts of the region under consideration. From the record of numerous wells in the southeastern portion, it

appears that the entire thickness of soft strata between the Corniferous limestone below and the black shale above, varies from 275 to 230 feet, while along the shore of Lake Erie, it is not more than 200 feet. Further north, in Bosanquet, beneath the black shale, 350 feet of soft gray shale were traversed in boring, without reaching the hard rock beneath, while in the adjacent township of Warwick, in a similar boring, the underlying limestone was attained 396 feet from the base of the black shales. It thus appears that the Hamilton shale (including the insignificant representative of the Marcellus shale at its base) augments in volume, from 200 feet on Lake Erie to about 400 feet near to Lake Huron. Such a change in an essentially calcareous formation, is in accordance with the thickening of the Corniferous limestone in the same direction.

The Lower Devonian in Ontario is represented by the Corniferous limestone, for the so-called Onondaga limestone has not been recognized, and the Oniskany sandstone, always thin, is in some places entirely wanting. The thickness of the Corniferous in western New York is about ninety feet, and in southeastern Michigan is said to be more than sixty, although it increases in going northward, and attains 275 feet at Mackinac. In the townships of Woodhouse and Townsend, about seventy miles west from Buffalo, its thickness has been found to be 160 feet, but, for a great portion of the region in Ontario underlain by this formation, it is so much concealed that it is not easy to determine its thickness. In the numerous borings which have been sunk through this limestone, there is met with nothing distinctive to mark the separation between it and the limestone beds which form the upper part of the Onondaga salt group or Salina formation of Dana, which consists of dolomites, alternating with beds of a pure limestone, like that of the Corniferous formation. The saliferous and gypsiferous magnesian marls, which form the lower part of the Salina formation are, however, at once recognized by the borers, and lead to important conclusions regarding this formation in Ontario. In Wayne county, New York, the Salina formation has a thickness of from 700 to 1000 feet, which, to the westward, is believed to be reduced to less than 300 feet, where the outcrop of this formation, crossing the Niagara river, enters Ontario.

At Tilsonburg, ninety miles west from Buffalo, borings have shown the existence of the Corniferous limestone directly beneath about forty feet of clay, while two miles to the southwest, it is overlaid by a few feet of soft shales, probably marking the base of the Hamilton. From a depth of 100 feet in the limestone, at Tilsonburg, a flowing well was obtained, yielding an abundance of water, and a considerable quantity of petroleum. This boring was subsequently carried 854 feet in the rock, which at that depth was a dolomite. Numerous specimens from the upper 196 feet were pure non-magnesian limestone; but below that depth dolomites, alternating with pure limestones, were met with to the depth of 854 feet, from which salt water was raised, marking, it is said, from 35° to 50° of the salometer. The well was then abandoned. We have here a boring traversing 854 feet of solid strata, from what was, probably, near the summit of the Corniferous, without reaching the marls which form the lower part of the Salina formation.

In a boring at London, where the presence of the base of the Hamilton was marked by about twenty feet of gray shales, including a band of black pyroschist, overlying the Corniferous, 600 feet of hard rock were passed through before reaching soft magnesian marls, which were penetrated to the depth of seventy-five feet. Specimens of the boring from this well, and from another near by, carried 300 feet from the top of the Corniferous, show that pure limestones are interstratified with the dolomites to a depth of 400 feet. At Tilsonburg a pure limestone was met with at 524 feet from the top.

At St. Mary's, 700 feet, and at Oil Springs in Enniskillen, 595 feet of limestone and dolomite were penetrated, without encountering shales, while in another well near the last, soft shaly strata were met with at about 600 feet from the top of the Corniferous limestones, there overlaid by the Hamilton shales. It thus appears that the united thickness of the Corniferous formation and the solid limestones which compose the upper part of the Salina formation, is about 600 feet in London and Enniskillen, and farther eastward, in Tilsonburg and St. Mary's, considerably greater, exceeding by an unknown amount, in these localities, 854 and 700 feet. The Corniferous at its outcrop in Woodhouse, twenty-five miles to the east of Tilsonburg, measures only 160 feet thick, so that there is evidently, in the locality just mentioned, a great increase in the volume of the Salina formation from the 300 feet observed in western New York. At Goderich, on Lake Huron, the thickness of this formation is much greater. Here are found non-fossiliferous strata, having the character of the so-called Water-lime beds, which belong to the summit of the Salina formation, and are immediately overlaid by fossiliferous strata belonging to the Corniferous formation. At this point a boring in search of

(1) James Hall, in Foster & Whitney's *Geology of Lake Superior*, ii, 386.

petroleum penetrated not less than 775 feet of solid white, gray and blue limestone, chiefly magnesian, with occasional thin beds of sandstone. Below this depth the strata consisted chiefly of reddish and bluish shales, with interstratified beds of gypsum, sometimes ten feet in thickness. After the 164 feet of these, rock salt was met with, interstratified with clay, through a distance of forty-one feet, beneath which the boring was carried five feet in a solid white limestone, probably belonging to the underlying Guelph formation. We have thus, for the entire thickness of the Salina formation at Goderich, 980 feet, of which the upper 775 are hard strata, chiefly magnesian limestones, and 205 feet gypsiferous and saliferous shales. Several wells since sunk in this vicinity, one of them twelve miles to the southwestward, have given almost identical results, including the mass of rock salt at the base. These borings now yield, by pumping, a copious supply of brine, nearly saturated and of great purity, so that this newly discovered saliferous deposit has already attracted the attention of salt manufacturers, both in Ontario and New York. A detailed description of the first well, with an analysis of the brine, will be found in the Geological Report for 1866, already referred to.

Brines are said to have been met with at this horizon in Michigan, where the formation will probably be found to have a much greater thickness than that hitherto assigned to it.

It thus appears that the Salina formation, after being reduced to less than 300 feet at the Niagara river, again assumes, to the northwestward, a thickness of nearly 1,000 feet, and becomes once more salt-bearing, as in the State of New York. The increased thickness of the formation in these two regions, connected with accumulations of salt at its base, would seem to point to ancient basins, or geographical depressions in the surface of the underlying formation, in which were deposited these thicker portions. The existence of these Upper Silurian salt lakes, whose evaporation gave rise to the rock salt, gypsum and dolomite of the Salina formation, shows a climate of great dryness to have then prevailed in this region. A similar conclusion is to be drawn from the more or less gypsiferous dolomites of the Calciferous and Niagara formations, the magnesian limestones at other horizons, and the gypsum and salt deposits of the Carboniferous period,—leading us to infer a very limited rain-fall over the north-eastern portion of this continent, throughout the Paleozoic period.

In this connection, a few remarks with regard to the horizon of the petroleum which issues from the Devonian rocks of Ontario, may not be out of place. In opposition to the generally received view, which supposes the oil to originate from a slow destructive distillation of the black pyroschists belonging to the middle and upper divisions of the Devonian, I have maintained that it exists, *ready formed*, in the limestones below. (1)—In addition to the well known fact of its frequent occurrence in the Corniferous limestones, I have cited the observations of Eaton, Hall and myself, as to the existence of both solid and liquid bitumen in the Niagara limestone, and even in the massive beds of the Hamilton. A remarkable example is afforded in the oleiferous beds of the Niagara formation in the vicinity of Chicago, (2) and still another in similar strata belonging to the Lower Helderberg period, in Gaspé. The deep borings already mentioned in Tilsonburg, St. Mary's and Enniskillen, showed in each case small quantities of petroleum in strata of the Salina formation, and the same was observed at considerable depths in the Goderich well already described.

Apart from the chemical objections to the view which supposes the oil to be derived from the pyroschists above the Corniferous limestone, it is to be remarked, that all the oil wells of Ontario have been sunk along denuded anticlinals, where, with the exception of the thin black band sometimes met with at the base of the Hamilton formation, these so-called bituminous shales are entirely wanting. The Hamilton formation, moreover, is never oleiferous, except in the case of the rare limestone beds already referred to, which are occasionally interstratified. Reservoirs of petroleum are met with, both in the overlying quaternary gravels and in the fissures and cavities of the Hamilton shales, but in some cases the borings are carried entirely through these strata, into the Corniferous limestone, before getting oil. Among other instances cited in my Geological Report for 1866, may be mentioned a well at Oil Springs, in Enniskillen, which was sunk to a depth of 456 feet from the surface, and seventy feet in the solid limestone beneath the Hamilton shales, before meeting oil, while in adjacent wells supplies of petroleum are generally met with at varying depths in the shales. In a well at Bothwell, oil was first met with at 420 feet from the surface, and 120 feet in the Corniferous

limestone, while a boring at Thamesville was carried 332 feet of which the last thirty-two feet were in the Corniferous limestone. This well yielded no oil, until, at a depth of sixteen feet in this rock, a fissure was encountered, from which, at the time of my visit, thirty barrels of petroleum had been extracted. At Chatham, in like manner, after sinking through 294 feet of shales, oil was met with at a depth of fifty-eight feet in the underlying Corniferous limestone.

We also find oil-producing wells sunk in districts where the Hamilton shale is entirely wanting, as in Maidstone, on the shore of Lake St. Clair, where, beneath 109 feet of clay, a boring was carried through 209 feet of limestone, of which the greater part consisted of the Water-lime beds of the Salina formation overlaid by a portion of the Corniferous. At a distance of six feet in the rock a fissure was struck, yielding several barrels of petroleum. Again at Tilsonburg, where the Corniferous limestone is covered only by quaternary clays, natural oil springs are frequent, and, by boring, fissures yielding petroleum were found at various depths in the limestone, down to 100 feet, at which point a flowing well was obtained, yielding an abundance of water, with some forty gallons of oil daily. The supplies of oil from wells in the Corniferous limestone are less abundant than those in the overlying shales, and even in the quaternary gravels, for the obvious reason that both of these offer conditions favorable to the retention and accumulation of the petroleum escaping from the limestone beneath.

The presence of petroleum in the Lower Silurian limestones, and their probable importance as sources of petroleum, was first pointed out by me in 1861. The conditions under which oil occurs in these limestones in Ontario, are worthy of notice, inasmuch as they present grave difficulties to those who maintain that petroleum has been generated by an unexplained process of distillation going on in some underlying hydrocarbonaceous rock. Numerous borings in search of oil on Manitoulin Island, have been carried down through the Utica and Loraine shales, but petroleum has been found only in fissures at considerable depths in the underlying limestones of the Trenton group. The supplies from this region have not hitherto been abundant, yet from one of the wells just mentioned, 120 barrels of petroleum were obtained. The limestone here rests on the white unfossiliferous Chazy sandstone, beneath which are found only ancient crystalline rocks, so that it is difficult to avoid the conclusion that this limestone of the Trenton group is, like those of Upper Silurian and Devonian age already noticed, a true oil-bearing rock.

In concluding these observations on the geology of Ontario, it may be remarked that throughout the southwestern counties, the distribution of the middle and upper Devonian rocks has been determined almost wholly from the results of borings undertaken in search of petroleum. From these it appears that the wide spread of these rocks in this region is connected, first, with a transverse north and south synclinal depression, which traverses the peninsula, and has been noticed in the *Geology of Canada*, p. 363, and secondly, with several small undulations, running northeast and southwest, on the northwest side of the anticlinal of the Thames; which is a prolongation of that passing by Cincinnati, and may be regarded as part of the main anticlinal of the great axis of elevation which divides the coal field of Pennsylvania from that of Michigan.

The Devonian rocks are found in the region under consideration, at depths not only far beneath the water-level of the adjacent, lakes of Erie and St. Clair, but actually below the horizon of the bottom of those shallow lakes. Thus at Vienna, in Bayham, at a point said to be about forty feet above the level of Lake Erie, the underlying rock was met with beneath 240 feet of clay, while at Port Stanley, twenty feet above the lake, the Hamilton shale was struck beneath 172 feet of clay, and at the Rondeau, just above the level of Lake Erie, the clay was 104 feet thick. A similar condition of things exists on the south side of the lake, at Cleveland, where no rock is encountered at a depth of 100 feet below the water-level. Again in Sombra, on the banks of the Sydenham river, which is a very little above the level of Lake St. Clair, a well ten feet above the river passed through 100 feet of clay before meeting the black shales of the Portage group, while in Maidstone, on the shore of Lake St. Clair, and a very few feet above its level 109 feet of clay were found overlying the Corniferous limestone. The greatest depth of Lake St. Clair is scarcely thirty feet, and that of the southwestern half of Lake Erie does not exceed sixty or seventy feet, so that it would seem that these present lake basins have been excavated from the quaternary clays which, in this region, fill a great ancient basin, hollowed out of the paleozoic rocks, and including in its area the southwestern part of the peninsula of Ontario.—*The American Journal of Science and Arts.*

(1) Canadian Naturalist, June, 1861, and this Journal, March, 1863.

(2) It is proposed to give, in a subsequent communication, the results of an examination of this remarkable limestone.

OFFICIAL NOTICES.



Ministry of Public Instruction.

APPOINTMENTS.

The Lieutenant-Governor of the Province of Quebec, by an Order in Council dated 26th ult., was pleased to make the following appointments:

EXAMINERS.

The Revds. Messrs. Jean Marie Baltzard and Alphonse Phaneuf, to be members of the Catholic Section of the Bedford Board of Examiners, in the room and stead of the Revds. Michael McAuley and Edouard Gendreau, no longer residents of the district.

M'GILL MODEL (GIRLS) SCHOOL, MONTREAL.

Miss Amy Frances Murray, to be Head-Mistress of the Girls' Department of the McGill Model Schools, in the room and stead of Miss Mary Anna Coady, resigned.

The Lieutenant-Governor, by an Order in Council dated the 11th inst., has been pleased to make the following appointments:

SCHOOL COMMISSIONERS.

The following Gentlemen to be School Commissioners for the hereinafter mentioned Municipalities:

Ile Bouchard, Co. of L'Assomption: Messrs. Toussaint Payette, Albert Casavant, Louis St. Pierre, Jean-Baptiste Bourdon, and André Prud'homme.

Callières, Co. of Charlevoix: Messrs. Epiphane Savard and Thomas Bouchard, in the room and stead of Messrs. Jean-Baptiste Simard and Michel Talon, Senr, whose term of office had expired,—the election not having been held within the legal time.

Whitton, Co. of Compton: Messrs. John Murray and Peter McLean, in the room and stead of Messrs. Angus McDonald and Angus McLeod,—the elections having been irregular.

Ste. Anne des Monts, Co. of Gaspé: Messrs. Norbert Bouchard, Pierre Paquet, Pierre Lefrançois, Louis Arthur Sasseville, and Jean-Baptiste Vallée, (fils d'Alexis),—the elections of preceding years being irregular.

Iles de la Magdeleine, Co. of Gaspé: Mr. Richard Delaney, in the room and stead of Mr. John Delaney,—the election being irregular.

Rivière au Renard, Co. of Gaspé: Messrs. Narcisse Ouellet, Charles Girard, Bénoni Francoeur, Gilbert Samuel, and the Revd. Mr. François Xavier Bossé,—the elections of preceding years having been irregular.

St Côte, Co. of Joliette: Messrs. Octave Gauthier dit Landry and Séraphin Gaudet, in the room and stead of Messrs. Jean-Baptiste Fafard and Élie Brault,—the election not having been held within the legal time.

St. Féréol, Co. of Montmorency: Messrs. Edouard Lachance, Pierre Bilodeau, François-Xavier Paré, Joseph L'Heureux, and Jean-Baptiste Simard,—the elections of preceding years being irregular.

Wright, Co. of Ottawa: Messrs. John Laframboise and Amable Lacroix, in the room and stead of themselves,—the election not being held in July.

Matane, County of Rimouski: The Revd. Mr. Luc Rondeau in the room and stead of the Revd. Mr. Désiré Vézina,—the election not being held within the legal time.

SCHOOL TRUSTEES.

The following Gentlemen to be School Trustees of the following Municipalities:

Cox, Co. of Bonaventure: Mr. David Joseph, in the room and stead of himself,—the election being irregular.

Winslow (South), Co. of Compton: Messrs. Urbain Champoux, Luc Béliveau and Sévère Bourc,—the elections of the preceding years having been irregular.

Pointe aux Trembles, Co. of Hochelaga: Mr. Irwin Cassidy, in the room and stead of Mr. Creighton Cassidy whose term of office had expired,—the election not having been held within the legal time.

Aylmer, Co. of Ottawa: Mr. Charles Wright, in the room and stead of himself,—the election not having been held within the prescribed time.

Notre-Dame de Hull, Co. of Ottawa: Mr. Christopher B. Wright, in the

room and stead of himself,—the election not having been held within the legal time.

L'Acadie Nord, Co. of St. Jean: Mr. George Leggitt, in the room and stead of Mr. Robert Twamblay,—the election not having been held within the prescribed time.

CORRECTION—On page 167—November No. of this Journal—under St. Jean, County of St. Jean, instead of Mr. Charles St. Pierre, read Mr. Charles S. Peirce.

COUNCIL OF PUBLIC INSTRUCTION.

BOOKS SANCTIONED.

The Lieutenant-Governor, by an Order in Council dated 29th ult., was pleased to confirm a Resolution of the Council of Public Instruction,—adopted on the recommendation of the whole Committee on Books at their Meeting of October 14th 1868,—sanctioning the use of the following Books in the public schools:

FOR ACADEMIES AND MODEL SCHOOLS.

The Edinburgh High School French Grammar, by Charles Schneider, 1866.

The Edinburgh French Conversation Reader, same, 1866.

The Edinburgh High School French Manual, same, 1867.

FOR MODEL AND ELEMENTARY SCHOOLS.

Abrégé de la Grammaire Française, tenth Edition, by C. J. L. Lafrance, Quebec, 1867.

Traité Élémentaire d'Arithmétique, by L. H. Bellerose, Montreal, 1867.

Nouveau Cours de Langue Anglaise, on the plan of Ollendorf,—Beauchemin and Valois, Montreal, 1868.

The Lieutenant-Governor, by an Order in Council of the 26th ult., was also pleased to confirm another Resolution of the Council of Public Instruction,—passed at the same Meeting,—to the following effect:

That the Principal of McGill Normal School, Montreal, be authorised to admit, to the courses of that Institution, young ladies who have finished their studies in other Schools,—said young ladies not to be considered as regular pupils of the Normal School,—on payment of a fee, for each course, of five (\$5.00) dollars, for which sum account is to be rendered, to the Treasurer of the Province, by the Hon. the Minister of Public Instruction, in the same manner as is now done for the fees paid by the pupils of the Model Schools attached to the Normal Schools.

ERECTORNS, &c., OF SCHOOL MUNICIPALITIES.

The Lieutenant-Governor was pleased, by an Order in Council dated the 30th ult.:

1st—To erect the district, comprising the first seven lots of the 1st, 2nd and 3rd Ranges of the Townships of Masham and Wakefield, in the Co. of Ottawa, into a separate School Municipality under the name of the School Municipality of "La Pesche."

2nd—To detach the Village of Stanstead, Co. of Stanstead from the Municipality of this name, and to erect it into a separate School Municipality under the name of the "Village of Stanstead," comprising lots 1, 2, 3, 4 and 5 of the 9th and 10th Ranges of the Township of the same name,—limits to be the same as for civil purposes;—said erection to take effect on and after the 1st July, 1869.

DIPLOMAS GRANTED BY BOARDS OF EXAMINERS.

RICHMOND PROTESTANT BOARD

Session of November 3rd 1868.

Elementary School Diploma, (Eng) 1st Class:—Misses Charlotte E. Newman, M. M. Nutting, Elizabeth Dorjng, Elizabeth Lyons, Emma B. Cascadden, Betsy Atkinson, Jane D. Torrance, and Mr. W. R. Gibson.

2nd Class:—Misses Eleanor McManus and Mary J. Sprouls.

HENRY BURNHAM,
Secretary.

MONTREAL CATHOLIC BOARD.

Session of November 3rd 1868.

Model School Diploma, (Fr.) 1st Class:—Messrs. Zotique Hébert, Augustin Ledoux and Miss Marie Virginie Archambault.

2nd Class:—Mr. Pierre Ferrier.

Elementary School Diploma, (Fr.) 1st Class:—Misses Emélie Aubé, Arthémise Reaupré, Virginie Charbonneau, Obéline Cherrier, Adelaide Caroline Dewitt, Delphine Ernestine Hébert, Victoire Lajoie, Célanire Limoges, Mary McCaffry (Eng), Caroline Raymond, Malvina Rodrigue, and Valérie Faillon.

2nd Class.—Misses Epiphanie ou Stéphanie Brouillet, Matilde Corbeille, Madame Héloïse Desjardins (née D'Aoust), Philomène Poirier, and M. Joseph McCarragher (Eng.).

F X VALADE,
Secretary

CORRECTION:—The following names were published, by mistake in our last issue, amongst those who had received only 2nd Class *Elementary* Diplomas

MONTREAL CATHOLIC BOARD.

Session of August 4th and 5th, 1868

Model School Diploma, (Fr) 2nd Class — Misses Esther Charest, Eliana Unice Gauthier and Mr Louis Valiquet

BEDFORD CATHOLIC BOARD.

Session of November 3rd, 1868

Elementary School Diploma, (F) 2nd Class — Miss Marie Léocadie Bisailon.

J F LEONARD,
Secretary

DONATIONS TO THE LIBRARY.

The Hon the Minister of Public Instruction acknowledges with thanks the receipt of the following donations to the Library of the Ministry of Public Instruction :

From the Publishers, Messrs W. and A. K. Johnston, Edinburgh,—**THE MIDDLE-CLASS ATLAS of GENERAL GEOGRAPHY**, by KEITH JOHNSTON, LL D, F. R. S. E., F. R. G. S., &c, **GEOGRAPHER to the QUEEN.**

KEITH JOHNSTON'S SHILLING ATLAS of MODERN GEOGRAPHY

KEITH JOHNSTON'S SIXPENNY ATLAS of MODERN GEOGRAPHY

HAND BOOK to the MAP of ENGLAND AND WALES by Keith Johnston, LL D, &c, &c

HAND BOOK to the MAP of THE BRITISH EMPIRE (Foreign and Colonial Possessions) by Keith Johnston, LL D., &c, &c

JOURNAL OF EDUCATION.

QUEBEC, PROVINCE OF QUEBEC, DECEMBER, 1868.

To the Readers of the Journal.

In placing before our readers this Number of the *Journal*—in which our editorial labours for the year are brought to a close—we again avail ourselves of a seasonable opportunity of bespeaking the exercise of a little reflection upon the character and aims of this publication, its capacity for further usefulness, the want which it supplies, and its *general value* as an aid in promoting the objects for which it is intended.

It is not so much to those styled *general readers* that we address our observations, as to those who from various causes are, or ought to be, deeply concerned in seeing the great business of education rightly conducted amongst us, for the sake of themselves and the community in which they live, and especially, in the interest of the rising generation upon whose qualities the future status of our country is to depend.

This Journal does not profess to chronicle all passing events worthy of notice, seeing that there are many—perhaps too many—printed periodicals for recording every thing that transpires. It aims simply at being a vehicle, within its prescribed limits, of thought and action pertaining to literature and science bearing upon educational pursuits, while, together with appropriate articles on those subjects, it serves to furnish, as a recognized organ of communication upon Official matters, whatever is re-

quired to be made known to teachers and persons practically engaged in administering the Educational Laws.

A glance at the table of contents of any one of the volumes of the *Journal*, since 1857, will shew that the above description expresses its aims precisely. But, confining our inspection to the numbers issued during the now departing year,—which, we flatter ourselves, are at least not inferior in character to those of former years—we find a large number of articles on the above mentioned leading subjects, of unquestionable utility and merit and derived from the very best sources,—historical, geographical, didactic, poetical and scientific—besides many most valuable discussions or short practical essays upon purely educational matters, of the highest interest to teachers and to all who have the responsible care of young people. The proceedings of literary societies and of educational conventions recorded in the *Journal* for 1868 are particularly instructive, and as fully reported as space would permit. In regard to *obituary* articles, our volume for the year may be styled, alas! unusually *rich*, since within the past twelve months quite a number of distinguished persons, citizens, or otherwise connected with Canada, have passed away. Albeit some of the details are suggestive of melancholy reflections, who is there of those for whom our *Journal* is intended that would not derive benefit from the simple biographical abstracts here presented relative to such men as the late Governor, Sir E. W. Head, the Hon. T. D. McGee, Dr. Archibald Hall of Montreal, and Bishop Fulford? Omitting, for want of space, to particularize in detail discourses upon literary and educational subjects by those amongst us whose views on such matters have been always regarded with respect—the Hon. Mr. McGee, Hon. J. S. Sanborn, Dr. Dawson, Lord Aylmer and others—we would point with satisfaction to the original contributions of Mrs. Leprohon, and those of the Rev. Eneas McDouell Dawson, on *the British Canadian Poets*, also to the authentic Meteorological Tables on the last page of each number, kindly furnished for the *Journal* by Dr. Smallwood of Montreal and by Sergt. John Thurling of Her Majesty's Army Hospital Corps, Quebec, to each of whom we feel bound to return thanks in our own behalf and that of our readers for the opportunities they thus afford of imparting and disseminating a knowledge of the *meteorology of our country*. Nor should we here omit at least to allude to our educational exchanges, English and American—the *Educational Times*, *Museum*, *Papers for the Schoolmaster*, London; the *Massachusetts Teacher*, *Educational Monthly* (Ohio), *Pennsylvania School Journal* and others of the United States—all of them periodicals of the highest merit, and to which our readers have been indebted for many articles republished in our *Journal*.

To indicate the capacity of our *Journal* for greater usefulness, and, in suggestion of a want which it is well calculated to supply, we need only call attention to an original discourse or essay on the *Teaching of Elocution*, by a lady teacher of known ability and experience, published in the present number. We are convinced that the sphere of the *Journal's* usefulness would be enlarged if our own teachers would more frequently thus avail themselves of its columns.

Bearing in mind that we have *two Journals of Education*—the one in *French* the other in *English*—it may be well to remark that without such means of promoting Educational interests, our

position would be but a sorry one. Literary, Scientific, Educational Periodicals, exclusively Provincial, are sufficiently rare amongst us, so that, with becoming modesty, we may be permitted to suggest the positive value to our community of a Journal adapted specially to our own wants. And this we say notwithstanding the multiplicity of periodicals of another and more ephemeral stamp, and of imported literary products, containing, of course, many good things. Quoting from an article published in our number of last May "what the London Lancet "or any other expressly professional publication is to the "physician, such is, or is intended to be, the Educational "Journal to the teacher and his coadjutors in the business of "Education. Such a publication is indispensable to teachers, "desiring to excel in their profession. To all connected with "them in the exercise of their vocation, it is no less useful and "necessary, since it furnishes whatever interests them locally "and at the same time keeps them informed upon educational "matters elsewhere. It would be well, indeed, if the class of "regular readers of such a Journal included not merely teachers "and the parents or guardians of youth, the clergy, educational "officials, school commissioners &c., but likewise all those whose "function it is to legislate for the whole people."

In conclusion, now that our Journal has been brought to the close of its twelfth year, we may be permitted to derive some gratification from seeing more frequently than heretofore our articles quoted in the columns of our exchanges. Although this has not been always done with an accompanying acknowledgement, it serves to encourage us in the conviction that our Journal is not losing ground in regard to its reputation as "a good monthly compendium of Literature, Educational Official Information, and Science, and one that faithfully keeps in "view its professed character as indicated by its title."

Departure of Lord Monck from Canada.

In November 1861, Lord Monck arrived in Canada to assume the reins of Government which he administered for seven years, the usual term of Colonial Governors. Shortly after his Lordship's arrival, Canada was in imminent danger—as it would, undoubtedly, have been the battle-ground between England and the United States, had not the Trent affair, which assumed so serious an aspect at the onset, been amicably arranged. During his Lordship's administration, the Country was several times menaced, and once actually invaded at several points. Numerous Ministerial crises also occurred which proved the aptitude and administrative ability of Lord Monck. The name of Lord Monck, will always be associated with one of the greatest epochs of Canadian History,—the Confederation of the four Provinces of British North America.

His Lordship and family sailed from Quebec on the 14th ult. in the SS. Nestorian for Liverpool.

A guard of honor from the 53rd Regiment awaited His Excellency on the wharf, and the streets leading thereto were lined with troops.

The members of the Privy Council and Local Cabinets, the Bishop of Quebec and his clergy, the Judges, the Military Staff, and many prominent citizens were in waiting to bid Lord Monck

farewell and wish his Lordship and family a safe and speedy voyage. The Nestorian slipped her moorings under salute of the Citadel guns and arrived in Liverpool on the 24th ult.

General Wyndham — Sworn in as Administrator.

His Excellency, Lieutenant-General Sir Charles Wyndham, K. C. B., Commanding Her Majesty's Forces in British North America, arrived at the Executive Council Chamber, Government House, Quebec, shortly before ten o'clock on the morning of the 14th ult., and at ten precisely, Mr. Lee, Clerk of the Privy Council, and Mr. Himsforth, Assistant Clerk, entered followed by the Hon. Chief Justice Meredith, Hon. Judge Stuart, Hon. Judge Taschereau, when, after the reading of the Queen's instructions in the event of a vacancy occurring in the office of Governor-General, Sir Charles Wyndham took the oaths of allegiance and of office as Administrator of the Government.

Arrival of Sir John Young, The New Governor-General, in Canada.

His Excellency Sir John Young and suite, accompanied by Col. Bernard arrived at Prescott, at noon on the 27th ult. On their arrival by the steamer *Prescott* from Ogdensburg, they were met at the Railway wharf by the Mayor, Town Council, Hon. Sir John A. MacDonald, K. C. B., Hon. Messrs. Campbell, Tilley, C. B., Langevin, C. B., Lieut. Col. Atcherly and Staff, Lieut. Col. Jessup, and a very large concourse of the inhabitants. On his landing from the steamer a salute of 19 guns was fired by the garrison of Fort Wellington, the band playing the National Anthem. An address was then presented to him on behalf of the Corporation by Mayor Irwin, to which His Excellency replied,—stating his regrets at not having a written reply,—and then started by the usual train for Ottawa, where it is calculated that not less than 5000 persons were present at the Station on the arrival of the train.

Shortly before 2 o'clock P. M. on the 1st inst., His Excellency left Rideau Hall, accompanied by Lady Young and a few of the principal officers of his suite, and in a few moments the Vice-regal vehicles were seen approaching the Rideau Bridge. At this point the members of the City Council entered their equipages and followed up the lines, the procession closing its ranks behind the vehicles. His Excellency, being arrived at the main entrance to the Parliament Buildings, alighted and was received by the Aids-de-Camp in waiting, and the party conducted to the unrobing rooms, through the passages lined with troops, and received in the Senate Lobby by a guard of honor. The interior of the Chamber presented a most brilliant and imposing appearance. On the floor of the House, seats had been provided for the Clergy and other distinguished personages, and at the Clerk's table were seated the Judges empowered to administer the oaths of office, and the Clerks of the Houses and Privy Council, in their robes, and the members of the Privy Council in their State uniforms of royal blue, resplendent with their bullion trimmings.

In a few moments His Excellency entered the Chamber, dressed in the magnificent blue and gold uniform of office and

wearing the ribbon of St. Michael and St. George, and took his place at the head of the Clerk's table while the brilliant staff which accompanied him, ranged themselves on either side of the throne, Lady Young occupying a seat, on the left hand of the Chamber, beside Lady MacDonald, Mrs. Tilley, Mrs. W. F. Powell, and families of the Privy Councillors.

His Excellency's Civil Secretary then produced the Queen's Commission for his appointment which was read aloud,—the whole assemblage standing. At its conclusion the Judges came forward and administered to His Excellency the Oaths of Allegiance and Office which His Excellency took and signed, a certificate of which was then recorded.

This ceremony being concluded, His Excellency ascended the throne and received, as previously agreed upon, the addresses of the several National and Literary Societies, the spirit and letter of which His Excellency cordially reciprocated.

The following is a condensed sketch of His Excellency :

The Right Honorable Sir John Young, Bart. of Bailieborough Castle, County Cavan, Ireland ; P. C., K. C. B., G. C., M. G., formerly M. P. for Cavan ; successively Joint Secretary of the Treasury from 1841 to 1844 ; Chief Secretary for Ireland from 1852 to 1859 ; Lord High Commissioner of the Ionian Isles ; lately Governor of New South Wales, and now appointed Governor-General of Canada, was born 31st August, 1807, and succeeded his father as second Baronet, 10th March, 1848, having married 8th April, 1835, Adelaide-Anabella, daughter of the late Marchioness of Headfort, by her first husband, Edward Tu' e Dalton, Esq. In Burke's Peerage and Baronetage of the British Empire we find the following details of his lineage :—He is a descendant of John Young, a burgess of Edinburgh in 1541, who married Margaret Scrimgeour, of the ancient and noble family of Scrimgeour, and sister of Henry Scrimgeour, the celebrated scholar, Professor of Philosophy and of Civil Law, at Geneva. Their father was Scrimgeour, of Glaswell, the descendant of an immediate branch of the Scrimgeours of *Dudhope*, who were created hereditary standard-bearers of the Kings of Scotland, in 1057, by Alexander I., and became afterwards Earl of Dundee. His second son, Sir Peter Young, was assistant tutor with George Buchanan, to King James VI. He was three times sent by James as Ambassador to Denmark, besides going elsewhere, and filled other important offices of State. He was knighted in 1605, by James, then King of England, and is said to have enjoyed the confidence and esteem of his royal master till His Majesty's death. Sir Peter Young was a man of distinguished abilities and finished education. His uncle, Henry Scrimgeour, bequeathed him his valuable library, rich in Greek MSS. Some of the descendants of this family went to Ireland and settled in Ulster ; of these, the ancestor of Sir John Young, Bart., the Governor-General, was the Rev. John Young a Clergyman of the Established Church, whose mother was a sister of Sir Peter Young. This clergyman married in Scotland, a daughter of the Earl of Douglas, and afterwards went to the North of Ireland. He obtained considerable landed property through the lady's father by the exchange of lands in the Counties of Donegal and Derry with Lord Abercorn, for an equivalent in Scotland, as a settlement on his daughter and her family. His eldest son, James Young, resided in the County of Donegal, was an active partisan at the siege of Derry, and attained in con-

sequence by James II. John Young, of Coolkeiragh, the great grandson of this James Young, married a grand daughter of the Rt. Rev. Andrew Knox, Bishop of Raphoe. By this marriage the estate of Lough Esk, County of Donegal, came into the possession of Thomas, a younger son of John Young, to whom it was willed by his uncle, Thomas Knox. This second son was the Rev. John Young, of Eden, County of Armagh, who had several children. The second of these, William Young, Esq., of Bailieborough Castle, the father of the new Governor-General, was, for a time, an East India Director, and was created a Baronet on the 28th of August, 1821.

The London *Gazette*, of the 13th instant contains the following appointment : The Queen has been graciously pleased to give orders for the appointment of the Right Hon. Sir John Young, Bart., K. C. B., G. C. M. G., late Captain General and Governor-in-Chief in and over the Colony of New South Wales, to be an extra member of the civil division of the first class, of Knights Grand Cross of the Most Honourable Order of the Bath.

Books and Publications Received.

ARMAND DURAND, or a Promise Fulfilled. By Mrs. Leprohon.—J. Lovell, Montreal, 1868.

It is an interesting spectacle to note the progressive, though slow developments and onward progress of every human community, in its material, religious, and intellectual aspirations. Certainly the course of events amongst us for the last three decades has been in this triple aspect fraught with unmistakable teachings. We say the last three decades ; we might, in all safety, point out to the very year 1840, when the two leading nationalities, which Providence has implanted on this soil, burst asunder the fetters which had enslaved their action for more than a century.

Responsible Government for Canada was not merely a change in its politics ; it was for the sturdy Saxon the opening up of new fields for his enterprise ; for him of the Norman descent and language, the advent of the Messiah of social and political equality. On neither the one nor the other race was the auspicious change lost. The *new subject* soon discovered that politically and socially he was a man ; the *old subject*, (to adopt an accepted term), that neither politically nor socially was he more than a man,—the assurances of an obstructive and tyrannical oligarchy to the contrary notwithstanding. Under the Bourbons, New France, however bright had been her record on the battlefield, in an intellectual point of view was scarcely even a pale copy of her refined metropolis, for years lit up with the glories of Louis XIV., and when the god of battles planted, in 1759, on Cape Diamond, another banner than that of France, bigoted and oppressive autocrats, styling themselves Britons, let drop amongst the *new subjects* only so much of British liberty as was requisite for their own plans of self-aggrandizement. Upper Canada and its *old country* population rebelled in 1837-8. Lower Canada and its *enfants du sol* sought redress by the sword at the same time. The Attorneys-General of both Provinces strongly recommended phlebotomy as an effectual recipe against treason, and reflective men even then began to augur a great change close at hand.

As one of the component elements of this momentous transformation may be reckoned the new intellectual life, which, from that period to the present, has pervaded all ranks of the population. Canada is not only becoming great by her canals, her railways, her shipping, (which ranks her as immediately next to England and France,) her boundless territory, but she is gradually hoarding up stores of intellectual wealth. The names of her statesmen, of her *savants*, and her *litterateurs*, are becoming household words amongst other nations. Our writers have furnished the material of Prof. Bibaud's "*Dictionnaire des Hommes Illustres*," and of Mr. Morgan's "*Bibliotheca Canadensis*. It is a pleasing task for the philanthropist to be enabled this much to state: yes, each day ushers in some new work on the sciences, history, poetry—in fact every department of literature.

To-day, we have to pass sentence on the last book published by the Author of "*Antoinette de Mirecourt*."

Armand Durand will, without doubt, remain one of the brightest gems in the rich casket which Mrs. Leprohon has gathered for herself in the field of Canadian literature. Mrs. Leprohon, instead of diving

in the mazes of a sensational novel, redolent of poisonings, treason and murder, seizes hold of every day scenes of the fireside. Her novel reminds one, by its local colors, its simplicity and its general run of characters, of *Charles Guerin* by Mr. Chauveau, or *La Terre Paternelle* by Mr. Lacombe, two of the best Canadian Romances extant. *Armand Durand*, in our opinion, is immensely superior to *Antoinette de Mircourt*; its morality is sound. How many a rising man, even in our own little cities, where the grades of society are not as clearly marked out as in European communities, has lived to rue the day when he made a *mésalliance*?

"Armand Durand" will, doubtless, find its way to every Canadian home.—*Chronicle*.

From Dawson, Brothers, Montreal:—

Cameos from English History, from Rollo to Edward II. pp. 475, New York, Appleton & Co.

A Practical Introduction to Latin Composition for Schools and Colleges by Albert Harkness, Ph. D. pp. 306, Appleton & Co. Appleton's Illustrated Almanac for 1869.

Notices of the above works (excepting the Almanac, of which it may be stated at once that it is well and neatly got up, and the illustrations good, rivaling those of the English illustrated Almanacs) will appear in our next, being crowded out of our present number. In the mean time we can heartily recommend the "Cameos" as a very interesting and useful book, seasonable and well adapted as a rational Christmas or New Year's Gift to any young person who may have advanced in historical knowledge beyond the first outlines usually placed in the hands of beginners.

MONTHLY SUMMARY.

EDUCATIONAL INTELLIGENCE

—*Continental and English Technical Education*—The two systems cannot well be combined. The foreign plan requires a young man to study in a college till the age of about twenty-three, when it is too late for him to think of entering an office or workshop for three more years, paying a heavy premium, and receiving no salary. Before considering which is the better system, it will be well to give you a somewhat fuller account of what is done in these great technical schools. At Zurich and at Carl-ruhe a staff of from forty to fifty competent professors gives a technical education to the students. Not only do they teach mathematics, mechanics, physics, geology, chemistry, but they teach how the knowledge of all these elements is to be applied to practical problems in every department of engineering. The pupil begins by designing screws, bolts, rivets, or walls, and culverts, and ends by designing, under the master's eye, the most complex machines and the most elaborate bridges and harbours; he is shown the practice of all nations; he is forced to calculate his work so as to meet the requirements of real problems, and so thoroughly is this done, that students do leave these colleges well able to earn a good salary in the drawing-office of the civil and mechanical engineer. I could not have believed this to have been possible had I not seen it, and my personal inspection of the colleges taught me to marvel at the combination of theoretical with practical knowledge evinced by the German professors. At the Ecole Centrale I found that the system was similar; in addition to the usual courses of lectures, projects were each month submitted to each class, that is to say, they received a short specification of a certain work to be designed. The designs, specifications, and estimates were to be ready in one month's time. Meanwhile each pupil was free to consult books, friends, even the professor himself, but he was bound to produce an original design, making the drawings in the class-room. When each design had been sent in, the professor cross-examined every pupil as to his motives for choosing the dimensions, materials, and forms adopted, and finally he corrected and criticised the design. Coupled with this admirable lessons in the higher mathematics, pure and applied, and you will not wonder that the Ecole Centrale turns out men who are thorough masters of the theory and practice of design applied to engineering works. This is the foreign system. What is ours? Young men at the age of about eighteen, enter the office of a civil engineer. Usually few questions are asked as to previous training. Etiquette requires the engineer to show a certain reluctance to receive the pupil; and, in fact, the ordinary pupil is a sort of nuisance in an office, only tolerated in consideration of the fee which accompanies him. From personal experience, I can declare that most pupils are so ignorant of algebra, that they are not only incapable of working out a result for themselves, but actually cannot apply the simple formula which are given in engineers' pocket books. The calculation of the solid contents of a wall is often beyond their powers. Their arithmetic is very shaky, and a knowledge of physics, chemistry, geology, or the higher mathematics is wonderfully rare. The men have too often chosen the profession from an idea that it is pleasant, and because, forsooth, it is guarded by no preliminary examination. Not even a pass-examination

is required, and the ignorance of some pupils, especially in mechanical work-shops, must be experienced before it can be believed. They really seem to think that a little turn for making toy models shows a bent for mechanical engineering such as will justify them in expecting success. These young men during three years have the run of the office or workshop, and, if they are intelligent, toward's the end of their pupilage, often have opportunities of seeing actual work in the field, or of designing some parts of actual machinery, and of assisting in the erection of more or less important works. No one teaches them anything, but they have the opportunity of seeing how some actual work is done; they see just how such mathematics is absolutely required and they pick it up. They see how workmen are managed, and learn their habits, they are brought into contact with the exact class of work which they will have to perform, and they know that unless soon they are competent to do this work, they will not have a chance of employment. The one point for them is, to convince their masters that they are useful, and hence, notwithstanding their ignorance at starting, the neglect in which they are left during their pupilage, the absence of opportunities for improving their theoretical acquirements, many of them do become useful men.—*A Lecture on the Education of Civil and Mechanical Engineers, by Fleming Jenkin, M. I. C. E., F. R. S.*

The public schools of Columbia, under the principalship of Mr. A. O. Newpher, are in a flourishing condition. The most commodious public school building in the county is found here. The School Board some time since purchased, for the use of teachers and pupils, a valuable library, comprising some fifteen hundred volumes—perhaps the best of the kind in the State.—*Pennsylvania School Journal*.

—*Wisconsin*—This State leads all the States in the Union in the comparative number of its Normal Schools, six having been projected—one in each Congressional district. The normal fund amounts in money and lands to \$2,300,000, being, probably, the largest normal fund possessed by any one State. Government \$500,000 of this fund is not available. The Normal Schools are located at Whitewater, Platteville, Oshkosh, Stoughton and Sheboygan.—*Ibid*.

—*Connecticut*—The endowment of professorships in the various departments of Yale College are stated as follows: Natural Philosophy \$15,000; Modern Languages, \$31,330; Divinity, \$13,143; Metaphysics, \$20,000; Law, \$6,500; Sanscrit, \$12,000; Botany, \$23,000; Musical Instruction, \$10,000.—*Id.*

—*Illinois*—Prof. Samuel S. White, Principal of one of the Chicago public Schools, and associate editor of the *Illinois Teacher*, has become Principal of the Normal School at Peoria, at a salary of \$2,500. He has the reputation of being one of the best educators in the West.—*Id.*

—*Maryland*—In Baltimore there are in operation nine coloured schools, having about 1,100 scholars on the rolls, with an average attendance of 800. Twenty-one teachers are employed, whose salaries amount to nearly \$12,000. The rent of buildings for schools is \$2,364.—*Id.*

—*Missouri*—The number of public schools in the State, as learned from the statistics for 1867, gathered by the Superintendent, Hon. T. A. Parker, was 4,840 being 2,156 more than in 1866; number of school-houses, 4135, being an increase of 1,500 new school-houses during the year. The number of colored children educated in the State was 33,617, nearly double in 1866.—*Id.*

—*New-York*—Hon. A. B. Weaver becomes Superintendent of Public Instruction, succeeding Hon. Victor M. Rice, who has held the office for several years. The New York City Board asks for three millions of dollars for expenses of the current year, one half of which is for teachers' salaries. The average attendance in the various schools last year was 90,220; the whole number of pupils, 209,520; the cost per pupil \$8.54. From the last report of the State Superintendent, we learn that the item of salaries of teachers throughout the State, in 1867, amounted to \$3,000,000 and for building and repairs of school-houses, \$1,712,000. Total number of children between the ages of 5 and 21 years, 1,372,000; number enrolled in the schools, 947,162. Number of female teachers, 21,218; male teachers, 5,263.—*Id.*

The late Matthew Vassar, founder of Vassar Female College, was originally a brewer. The College was founded by him in 1861, for the higher education of women. His first donation was \$400,000, much of which was absorbed in buildings and grounds, leaving the institution with insufficient working capital. By the terms of his will he has left \$325,000 additional to the college, which will relieve it from all embarrassments, and permit it to do its real work. Mr. Vassar was 76 years of age at the time of his death.—*Id.*

LITERARY INTELLIGENCE.

—*How Books are Circulated*.—At this period of the year, when the literary season may be said to commence, it is the custom of some of the old-established publishing houses to have what is called a trade sale dinner, at which are shown the forthcoming works of the season. Last Friday Mr.

Murray, of Albermarle street, invited about 60 of the leading book-sellers in London to dine with him at the Albion, in Aldersgate street, when the following new works were disposed of—1,800 copies of the Late Lord Campbell's Lives of Lord Lyndhurst and Lord Brougham 500 'Bickmore: Travels in the Indian Archipelago,' 700 'Mrs. Somerville on Microscopic Science,' 1500 'Dr Childs Benedicite,' in one volume; 600 'Handbook to the Northern Cathedrals,' 400 'Rev. B. Zwickle, Last winter in America,' 1500 'Dean Milman's Annals of St Paul's Cathedral,' 400 'Sir Neil Campbell's Journal at Fontainebleau and Elba, 1814-15,' 1,900 'Principal at Stake, or Essays on the Church Questions of the day;' 500 'Reed on Iron Shipbuilding,' 450 'Smiths Attractions of the Nile,' 1200 'Student's Manual of Modern Geography,' 500 Whympers Travels in Russian America. Mr. Bassam's Narrative of the British Mission to the Emperor Theodore was not in a sufficiently advanced state to be shown. The following popular standard works were sold.—12,000 'Murray's Student's Manuals,' 900 'Lord Byron's Works,' 700 'Lord Derby's Translation of Homer's Iliad,' 2,000 'Dean Stanley's Works,' 550 'Dr Smith's Bible Dictionary' (6 vols.), 700 'Dr Smith's smaller Bible Dictionary,' 9,000 'Mrs. Markham's histories,' 200 'Grote's History of Greece,' 4,000 'Smile's Popular Biographies,' 400 'Murray's Series of Choice Travels,' 7,000 'Smith's Classical Dictionaries,' 900 'Hallam's Histories,' 8,600 'Little Arthur's History of England,' 16,000 'Dr Smith's Greek and Latin course,' 500 'James Esop's Fables,' 400 'Barbauld's Hymns,' 5,000 'Dr Smith's Smaller Histories,' 400 'Darwin's Works,' and 800 Lyell's 'Geological Works'—*Chronicle*

SCIENTIFIC INTELLIGENCE

—*Total Eclipse of the Sun, Saturday, Aug. 1869*—A total eclipse of the sun, which is caused by the dark body of the moon passing directly between the earth and the sun while at any particular place, is so unfrequent that only a small portion comparatively of the inhabitants of the earth ever has an opportunity of beholding this the most sublime of celestial phenomena. In April 1715, the sun was totally eclipsed in London (England), and in May, 1724, at Paris, but from these years to 1900, or during nearly two centuries, the shadow of the moon neither has nor will pass over either of these cities, nor have we residents on this continent been more fortunate. A total eclipse took place in Massachusetts and the central part of New-York on the 16th Jan., 1806. Another occurred in parts of South Carolina and Georgia on the 30th Nov., 1834, and the third or next during this century which will be total and visible on part of this continent on the 7th August. The next following occurring on the 27th May, 1900, which very few now living may witness.

The average width or diameter of the moon's shadow on our earth during a total eclipse, cannot exceed 175 miles. In the present instance the path will be little more than 100 miles wide, although the shadow in a partial eclipse may be upwards of 4,000 miles broad, and it is thus evident that few comparatively will be in a position to see any of these total eclipses.

The total eclipse of 18th August last (1868) was witnessed by many foreign astronomers. Scientific expeditions were fitted out by the various European governments, and although the line of totality passed through India, China, and the Islands of the Pacific, men were found ready to undergo the distant voyage in the pursuit of science.

The line of totality during the eclipse of August next will pass over the North-western States, towards the South-east, through Iowa, Illinois, Kentucky, and North Carolina; and will traverse the Blue Mountains, the Alleghanies and the Cumberland Mountains. The totality will not in any place exceed three minutes of time. Several of the instruments now used, were to former observers almost unknown. In reference to this fact we might only mention the Spectroscope and the various appliances of the Art of Photography. These new appliances of science have already thrown an interest, hitherto unknown, round the wonderful phenomena accompanying a total eclipse, and will urge men of science to prosecute with renewed energy the curious and varied appearances which are presented.

Might not stations on the high mountain ranges of the Alleghanies furnish fresh means in the investigation of Spectrum Analysis? At all events we may suppose that the altitude of these mountain ranges would be placing the observer far removed from the presence of clouds, or mists, to interfere with distinct vision, and thus secure an amount of certainty of observation not to be found on the surface of the earth generally, besides many other suggestions of a very highly important nature will occur to men of science, and we sincerely hope that the first opportunity may not be lost, and that our Province may be able through the liberality of the local government to fit out a scientific expedition to witness and record the interesting appearances. We believe that the province possesses all the instruments necessary, and men of science able to conduct to a successful issue any expedition of the kind; all that is required is the means of transport, which, owing to the proximity of the line of totality, will amount but to a mere trifle compared with the results, which every country seems anxious to join in.

There is little doubt but that some of the European observers will be present; our cousins on the line of the eclipse will, with their usual thirst for knowledge, be fully prepared for the important work, for it may be borne in mind that they fitted out an expedition to visit the uninhabited

coast of Labrador in 1860, for a similar purpose, and our government at that time sent with them a gentleman, fully able, and we hope again willing, to undertake a like duty, assisted, by some of our own men, under the prestige of our local government. It might not be out of place that the different provinces of the Dominion should join with the projected expedition, but the length of territory almost precludes any joint action, and a much greater amount of money would necessarily be required for the outfit, and further, it might be well that each province should bear its own burdens and its own honors in such like expeditions, which occur so seldom, and the extent of which is so circumscribed.—*Montreal Gazette.*

—*The Solar Eclipse as seen by a Ship Captain*—Captain Charles G. Peirins of the Peninsular and Oriental Steamship Company's steamer Carnatic, describes his view of the solar eclipse as follows, in a letter published in the London Times:

"The position of the ship at the time of the first contact was latitude sixteen degrees North, longitude fifty-four degrees fifteen minutes East, being thus twenty miles north of the most northern limit of totality in that meridian. The eclipse was with us only partial, that portion of the sun's disc remaining unobscured being, however, only one sixteenth part of its diameter. At 7:10 A.M. the nearest point of totality had been reached, the altitude being twenty-two degrees ten minutes; it was at this time our best efforts were directed for observing the phenomena presented. That portion of the sun remaining uneclipsed consisted of a narrow streak, in shape like a crescent, of its upper left limb, in size about one sixteenth part of its diameter. The light emitted from this was of a very peculiar character, and difficult to describe, being at the same time extremely brilliant, and yet most remarkably pale. The high sea running appeared like huge waves of liquid lead and the ghastly paleness of the light thrown upon it, and all round, revealed a scene which, for its weird-like effect, it would be impossible to depict as it is to describe. The eclipse not being total (with us), the corona was not visible. The first appearance noted by the spectroscope was that of several dark lines in the spectrum of that portion of the sun visible at its greatest obscuration, which was examined through a narrow chink with the instrument as recommended by Lieutenant Herschel. The next was a roughness on the concave edge of the crescent of sunlight left visible. This was well marked, and seen very plainly with the unarm'd spectroscope; the rapidly increasing brightness of the sun prevented the prisms being of much use except during the darkest part of the eclipse. Throughout the rays between red and grey predominated over those between green and violet. A small black spot was observed on the sun's disc, situated in its upper left limb, distant about one-eighth part of its diameter from its extreme edge. Contact ceased at 15 hours, 43 minutes, 39 seconds, Greenwich meantime.

—In the year 1869 there will be two Eclipses of the Sun, and two of the Moon.

I (1) A partial eclipse of the Moon, January 27, 1869, visible in Canada. The following Table shows the local mean astronomical time at which the several phases occur:

PHASE.	Halifax	Fred-ericton	Quebec	Mont- real	Kings- ton.	Toronto	London
	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.
First contact with the Penumbra.....	7 38	6 53.7	6 34.4	6 23.8	6 12.1	6 0.7	5 53.0
First contact with the Shadow.....	8 14.8	7 4.7	7 44.3	7 34.9	7 23.1	7 11.7	7 4.0
Middle of the Eclipse.....	9 23.8	9 13.7	8 53.4	8 43.8	8 32.1	8 20.7	8 13.0
Last contact with the Shadow.....	10 32.8	10 22.7	10 2.4	9 52.8	9 41.1	9 30.7	9 22.0
Last contact with the Penumbra.....	11 43.8	11 33.7	11 13.4	11 3.8	10 52.1	10 40.7	10 33.0

The first contact with the shadow occurs at 50° from the northernmost point of the Moon's limb towards the east; and the last contact at 31° towards the west; in each case for direct image. Magnitude of the Eclipse (moon diameter=1) 0.450.—*Canadian Almanac.*

—*Motions of the Stars.*—The *Scientific American* says: "A remarkable paper has lately been sent to the Royal Society of England by Mr. Higgins, one of the Fellows. It announces the application of a new and most promising method of enquiry as to the determinations of the stars' motions. Mr. Higgins tested this method by the motion of the star Sirius. The spectrum of this star is crossed by a number of dark lines and among others by one known to correspond to a bright line in the spectrum of burning hydrogen. The two spectra were brought side by side, and due care having been taken to magnify as much as possible any discrepancy which might exist, it was found that the dark line in the spectrum of Sirius was not exactly opposite the bright line in the spectrum of hydrogen, but was slightly shifted towards the red one of the spectrum. It followed from the amount of the displacement that at the observation Sirius was receding from the earth at the rate of forty miles per second. When due account is taken of the earth's orbital motion at the time of observation, it results that Sirius is receding from the sun at the rate of twenty-eight miles per second, or

(1) The other three will be given in our Jan. No.

upwards of nine hundred million of miles per annum." If this method of examining Sirius, which is the nearest of the fixed stars, should be carried into the examination of other and remoter ones, conclusions of great scientific value would be arrived at. Of course the motion to a great extent is apparent—not real—as the whole solar system is known to be moving towards the constellation Hercules and as the observations are made on the earth, the observatory as well as the observed star is in motion.

—*Alcohol-Meter.*—Alcohol dissolves chloroform, so that when a mixture of alcohol and water is shaken up with chloroform, the alcohol and chloroform unite, leaving the water separate.

On this fact Basile Rakowitsch, of the Imperial Russian Navy, has founded his invention.

The instrument he uses is a graduated glass tube into which a measured quantity of chloroform is poured, and to this is added a given quantity of the liquid to be tested; these are well mixed together and then left to subside; the chloroform takes up the alcohol and leaves the water, which being lighter than the chloroform will float on the top; and the quantity of water that has been mixed with the spirit will be at once seen.

—(*The Student and Intellectual Observer.*)

—The death is recorded of Dr. William Bird Herapath, of Bristol. Dr. Herapath was a son of the late Mr. William Herapath, so eminent as an analytical chymist, and like his father, had attained to a high degree of knowledge and skill in the same science. Dr. Herapath's name has also been associated with some useful discoveries in the microscope. Deceased, the cause of whose death was jaundice, leaves a widow and six children. On passing his M. B. examination, in 1844, at the London University, he took honours in no fewer than six branches of medical knowledge. He subsequently became an M. D. of the same institution, and his rapid and brilliant succession of chymical and toxicological discoveries was rewarded by the Fellowships of the Royal Societies of Edinburgh and London, and corresponding membership of most of our learned bodies. Among a mass of scientific communications to various periodicals, we may mention his paper on the "Optical and Chymical Characters, Sulphate of S da Quinine," on "the Iodo-Sulphate of the Cichona Alkaloids," "Discovery and Manufacture of Artificial Tourmalines," "Address on Chemistry in its Relation to Medicine and the Collateral Sciences," "On a New Method of Detecting Hydrogen, Arsenic, and Phosphorus when in company with Mixed Gases," &c. Although suffering from an exhausting and painful disease, his zeal for science remained until the last, and within a few days of his decease, he was engaged in laborious researches with spectrum analyses, more especially as to bloodstains and the chlorophyllia of plants. His early death, at 48 years of age, will be deeply regretted by a large circle of professional and other friends.

—*Atomic Weight*—Professor Frankland, in his address to the chemical section of the British Association, called attention to an interesting fact, which proves the almost entire unanimity of English chemical teachers in rejecting the old atomic weights. Out of 900 papers, worked in all parts of the United Kingdom, at a recent examination held under the supervision of the Science and Art Department, the old weights were used in but twenty cases. Unfortunately the same uniformity in notation and nomenclature has yet to be attained.

—*A New Cement.*—The following directions are given for making cement impermeable by air and steam, which is said to be superior to any in use for steam and gas pipes. Six parts of finely-powdered graphite, three parts of slaked lime, and eight parts of sulphate, are mixed with seven parts of boiled oil. The mass must be well kneaded until the mixture is perfect.

—At Neufchatel, in Switzerland, is an observatory, organized on an extensive scale and provided with the very finest instruments. Besides purely scientific results, it renders immense service to chronometer makers by enabling them to produce watches which are every day becoming more perfect. This is important to the branch of industry in question, which can only exist by constant improvement. Prizes are given to makers whose watches or chronometers approach as nearly as possible to perfection. To give an idea of the wonderful precision that has been obtained in this branch of industry, a marine chronometer lately tested gave the mean variation from day to day, in a two months' trial; sec 0.164. Common watches become more perfect every year. On 67 watches tested since 1866, the mean variation was only $\frac{1}{3}$ of a second in 24 hours.

In 1862 the mean variation was sec.	1.61
1863	" " 1.28
1864	" " 1.47
1865	" " 0.88
1866	" " 0.74

On more than three quarters of the chronometers observed in 1866, the mean variation was less than half a second. These practical results show the importance of such observatories as that of Neufchatel.—*Morgan's Trade Journal*

METEOROLOGICAL INTELLIGENCE.

From the Records of the Montreal Observatory,—lat. 45°31' North; Long. 4h 54m 11 sec West of Greenwich, and 182 feet above mean sea level For November, 1868. By Chas. Smallwood, M.D., LL.D., D.C.L.

DAYS	Barometer corrected at 32°			Temperature of the Air			Direction of Wind			Miles in 24 hours
	7 a.m.	2 p.m.	9 p.m.	7 a.m.	2 p.m.	9 p.m.	7 a.m.	2 p.m.	9 p.m.	
1	29.461	29.389	29.521	39.7	40.1	37.0	SW	SW	WSW	201.10a
2	.750	.847	.862	28.1	53.0	36.1	N	NE	NE	97.24b
3	.761	.717	.631	28.0	49.7	32.2	NE	N	NE	51.27
4	.611	.627	.649	33.2	51.1	36.7	SW	SW	WSW	66.10
5	.412	.407	.475	34.6	48.3	37.0	NE	NE	NE	79.11c
6	.749	.871	.984	33.7	38.1	31.9	W	WbyN	N	67.10
7	30.199	30.184	30.223	22.2	45.7	29.9	NW	NE	W	85.74
8	.051	29.900	29.851	31.8	33.4	32.1	NE	NE	NE	61.11d
9	29.762	.834	.925	33.4	36.3	34.4	NE	NE	NE	55.12e
10	.900	.801	.700	32.7	34.2	34.7	NE	NE	NE	91.10f
11	.698	.477	.551	34.7	38.4	33.7	NE	NE	NE	104.12g
12	.761	.992	30.011	30.0	39.7	29.2	NW	WbyN	W	69.12
13	.911	.909	29.901	32.1	37.7	32.0	WSW	WSW	WSW	61.54
14	30.000	30.111	30.149	28.9	40.3	32.4	W	W	W	58.29
15	.161	.194	.201	31.7	43.2	32.4	NE	NE	NE	61.10
16	.249	.222	.216	28.2	36.1	28.4	W	W	W	71.10
17	.045	29.994	29.817	18.1	31.7	5.0	NE	NE	NE	88.29
18	29.601	.624	.691	25.0	35.9	33.7	NE	NE	NE	106.10k
19	.500	.527	.546	33.1	35.7	34.4	NE	NE	NE	119.14i
20	.561	.554	.537	31.4	36.9	32.2	NE	NE	NE	66.40
21	.500	.467	.499	33.1	38.9	33.1	N	N	N	51.11j
22	.618	.647	.665	31.7	40.3	32.7	NbyW	W	W	66.10
23	.763	.754	.742	28.4	38.4	33.7	W	W	W	55.27
24	.661	.844	.899	32.0	39.8	32.9	W	W	W	64.10
25	.917	.823	.660	27.9	35.7	31.9	NW	W	W	71.11h
26	.347	.301	.350	33.2	34.7	34.2	W	WSW	WSW	57.21*
27	.782	.799	.800	31.9	33.7	31.4	W	W	W	68.10
28	.678	.512	.425	25.2	34.0	32.4	W	W	W	60.00
29	.362	.298	.225	28.1	32.4	30.2	W	WbyN	W	51.17†
30	.161	.217	.300	18.9	26.7	19.4	WbyN	WbyN	WbyN	67.29

RAIN IN INCHES.—a, 0.592; b, 0.217; c, 0.223; e, 0.278; f, 1.797; g, 0.621; k, Inapp.; * 0.645.

SNOW IN INCHES.—d, 4.01; f, 3.75; h, 12.22; i, j, Inapp; † 0.30.

The highest reading of the Barometer was on the 16th, and indicated 30.249 inches; the lowest reading was on the 30th, and was 29.161, showing a monthly range of 1.088 inches.

The mean temperature of the month was 38.30 degrees, which is about half a degree lower than the *Isotherm* for the month of November for Montreal.

—Meteorological observations taken at Quebec, during the month of Nov. 1868. Latitude 46°48'30" N.; Longitude 71°12'15" W.; height above St. Lawrence, 230 feet; By Sergt. J. Thurling, A. H. C., Quebec.

Barometer, highest reading on the 16th.....	30.288 inches.
" lowest " 30th.....	29.152
" range of pressure.....	1.070
" mean for month reduced to 32°.....	29.743
Thermometer, highest reading on the 1st.....	48.6 degrees
" lowest " 28th.....	5.5
" range in month.....	43.1
Mean of highest.....	33.0
" lowest.....	23.2
" daily range.....	9.8
" of month.....	28.1
maximum in sun's rays, (black bulb.).....	43.8
minimum on grass.....	24.2
Hygrometer, mean of dry bulb.....	28.8
" wetbulb.....	26.4
" dew point.....	16.6
Elastic force of vapour.....	.092 inches.
Vapour in a cubic foot of air.....	1.0 grains.
" required to saturate, do.....	0.8 "
Mean degree of humidity (Sat. 100).....	58 "
Average weight of a cubic foot of air.....	565.9 "
(Cloud, mean amount of (0-10).....	7.9 "
(Ozone " " ".....	1.07 "
Wind, general direction.....	Easterly.
mean daily horizontal movement.....	134.3 miles.
Rain, number of days it fell.....	3
amount collected on the ground.....	2.19 inches.
" " 10 feet above.....	2.19
Snow, number of days it fell.....	17