

SIR WILLIAM EDMOND LOGAN, F.R.S., F.G.S.

On Tuesday evening, the 13th instant, the Society of Canadian Literature and the Society for Historical Studies met in the Library Room of the Natural History Society to conclude the programme of their winter's work. The attendance was large, and besides the members of both societies comprised a number of invited friends, prominent among whom we may mention the Rev. W. S. Barnes, Mr. and Mrs. W. N. Evans, Mr. and Mrs. J. E. Kirkpatrick, Mr. A. Loftus and Prof. Thomas Davidson, of New York.

Mr. George Murray, president of the Society of Canadian Literature, occupied the chair, and having called the meeting to order, introduced Mr. Horace T. Martin, whose paper, on the Life and Works of Sir W. E. Logan, was to form the subject of the evening's study. According to a syllabus which had been handed to the audience, the remarks were grouped under three headings—"Geology, Geology of Canada and Biography."

The opening sentences claimed the importance of ranking an acquired science with the possession of a new sense. The capability of reading the story of the works and unravelling the history of the geologic ages is a faculty to be desired, and as there is no royal road to the possession of these gains, and all have to follow much the same career, it seemed appropriate in the first place to outline the course.

Archibald Geikie's Primer of Geology is a book which could not deter the most timid student or reader. It is designed for the use of children, and yet contains suggestions of the most profound nature.

Sir Wm. Dawson's "Lecture Notes" and "Text Book of Canadian Geology" now invite us by their local interest. They carry the sciences much further and prepare a way for a fuller appreciation of the next step. Geikie's "Field Geology" is written in a manner which appeals to every lover of nature to quicken the sense to a better appreciation of the beauty, the eloquence of the earth's many voices—mountains, valleys, lakes, and rivers are made to tell their secrets. And now we are prepared to take up a profounder volume, Dana's "Manual of Geology," a sure guide through nature's workshop, where Vulcan's forge stands robbed of its terrors, and from which we learn the mighty making of continents and oceans.

The outfit for field-work is very simple—the hammer, chisel and bags, with compass, rule and clinometer—need only the pencil and note-book to accomplish good work. The diamond drill, which pierces the earth's crust for hundreds of feet, and like a giant "tester," draws up its samples of the various strata, is valuable, especially to mining interests, but does not obviate the necessity of chipping small specimens of rock with our little pocket hammer.

A matter of greatest satisfaction to the Canadian student is the richness of our country in geological attractions, and the record of them begins with the earliest Canadian writers. Nearly two and a half centuries ago, under circumstances vastly different from anything we know to-day, Pierre Boucher, the Governor of Three Rivers, and whose name we perpetuate in the islands and village of Boucherville, wrote his account of the natural history of Canada. Beasts, birds and fishes; trees, shrubs and plants; rocks, minerals and metals,—all claim his careful attention, even amid the daily fears of the sanguinary Iroquois.

A hundred years pass and we halt to consider the writings of that eminent Swedish traveller, Peter Kalm, the translation of whose works by J. R. Förster amazes us with their research and breadth. Like Boucher, he views and records all natural phenomena, with the material difference of adding scientific names to almost every plant and animal. His books have interest for readers in every capacity, and it is surprising so few copies are to be met with in Montreal.

Another writer of general interest, but one much better known than the former, is Samuel Hearne, who, under direction of the Hudson Bay Company, travelled through a large tract of their northern territory in search of copper. His contributions are mainly of a negative value, and only add to our knowledge an Indian legend to account for the want of copper in a region once supposed to have been rich in this metal.

The "Father of Canadian Geology" is the title chosen recently for Logan by the contributor of a biographical sketch, but with more appropriateness could this distinction be applied to Dr. John J. Bigsby, who visited Canada as secretary to the Boundary Commission, and in the course of his labours recorded the geological features of the country in such a manner as to identify his name forever with the study of the localities in which he worked. To us particularly has his name an interest, as his article on the "Geology of the Island of Montreal," written in 1823, remained for sixty years the only extended record of our neighbourhood. An abridged copy appears in "Hochelaga Depicta," and was only superseded in 1888 by Dr. Harrington's account, which we find in S. E. Dawson's "Guide to Montreal and Vicinity." Dr. Bigsby's greatest work was the study of the Huronian Rocks.

About this period we find several names claiming prominence in the field of geology. All of them rank in the Imperial army and navy, showing qualities which these branches do not usually imply. We must be content merely with a mention of the names: Lieut. F. H. Baddeley, who recorded the geological features of Labrador and the north coast of the St. Lawrence to Quebec; Lieut. F. L. Ingall described the basin of the St. Maurice; Admiral H. W. Bayfield continued the line of the St. Lawrence, and

extended our knowledge even to Lake Superior. These writings bring us to the year 1831, with which we begin another group of geologists whose labours extend to 1842, thus completing the chronological review preceding the establishment of the Geological Survey of Canada. Important as many of these names are, we must hasten by them with only a mention of their work.

I. Finch gives us a pleasant account of the country between Niagara and Quebec by way of the St. Lawrence. Sir R. H. Bonnycastle contributes a very detailed account of the neighbourhood of Kingston. J. Roy is identified with studies of the superficial geology of Western Canada. Dr. A. Gesner, whose works merit an evening's study, was the forerunner of that prominent school of geologists who seem to have received inspiration from the rocks of Nova Scotia and New Brunswick. Much favoured by circumstances, they have given good accounts of their stewardship, as the world to-day acknowledges, and well may Canada be proud of her sons of those rocky coasts.

No more eminent name has ever appeared on the roll of scientists than that of Sir Chas. Lyell. With him was born our modern treatment of those profound geological problems. His name marks an epoch. His travels through Canada are recorded in a very attractive style, and their interest is by no means limited to the scope of a single branch of science. He heralds the foundation of our Geological Survey, and prophesies its value to us, and with proud gratitude should his name ever appear as a co-labourer with Canadian geologists.

For years had this question been discussed, but in the hands of Dr. A. F. Holmes was the matter finally arranged.

Logan is just now entering on his duties as chief of the Canadian Survey, having been called to this office in 1842. But to better introduce the main subject of this paper we shall now take up the Biography and review from its beginning the life of the one we would honour.

With so admirable a book at hand as Dr. Bernard J. Harrington's "Life of Sir William E. Logan," it is almost superfluous to recount much of the history here so attractively recorded. Still a short summary is necessary to fulfil the title of this paper.

In 1794 Mr. William Logan married Miss Janet E. Edmond, who left her Scottish home, near Stirling, for Canada and her future husband. On April 20th, 1798, the third child was born at Montreal, and on May 16th, in the St. Gabriel Street Church, was christened as William Edmond Logan. His early education was received from Mr. Alex. Shakel, in the school on Little St. James street. At the age of 16 he was taken to Edinburgh to complete his studies at the High School. Three years later, having achieved distinguished honours, he leaves for London and enters the employ of his uncle. In 1831 Logan is in Wales superintending the interests of his uncle in some mines, and here the first evidence of any care for geology is exhibited as he writes to his brother in London for text books on mineralogy and geology. Later he writes to Montreal and begs for small specimens of our rocks; his entire ignorance of Canadian geology could scarcely be more clearly shown than by the question: "Did you ever hear of any copper ore in Canada, or anywhere near it?" His spare time was now entirely absorbed in the preparation of a geological map, which, with much modesty, was handed to Sir Henry De la Beche, of the British Survey, and was adopted as part of the official map. This fact actually became the turning-point in Logan's career, and his admission to the Geological Society and his appointment by the Canadian Government became only a matter of time.

It was for the discovery of coal that Logan was called, and Gaspé was his first field. The work was difficult and prolonged, but it has been fully valued. He worked almost alone for some years, but from time to time he contrived to associate with him assistants in the several branches of the work; and it is through his sagacity in selecting men of such high order that we are able to point to his record with such unqualified pride. Surely the union of these men made them more powerful, and over names so eminent it is difficult to pass without proclaiming their merits. Thomas Sterry Hunt as chemist and mineralogist; Elkanah Billings as palæontologist, with the stratigraphical assistance of Alexander Murray and the field assistance of Robert Bell, while names which will live long in the annals of our country include those of Thos. McFarlane, Thos. Devine and many others. Even further went Logan, and enlisted the direct and friendly assistance of England's best scientists, of whom we may mention De la Beche, Murchison, Lyell and Bigsby.

When the results of the work of our Survey had become noteworthy, an opportunity was afforded by the great Industrial Exhibition of London in 1851 to exhibit the collection of minerals, which at once brought our native wealth into prominent notice; again, in 1855, was the good work extended at the Paris Exposition, and on both occasions did Logan well sustain Canadian interests, thereby winning not only honours for Canada but meriting the recognition of a knighthood from the Queen of England, and from the Emperor of France the Cross of the Legion of Honour.

Hard work had yet to be done at home, and as we handle that grand compilation, the "Geology of Canada—1863," we must not forget that it represents the care and labour of nearly eight years, and though some complaint was heard from Parliament the testimony from abroad was highly complimentary, and must have been very gratifying. Thus went the years with their increasing pressure on the diminishing strength of Logan. At last, in 1869, after nearly thirty years' labour, the public received with regret the announcement of Sir William's retirement.

But even yet his work is not done, certain of his conclusions are called in question and he must verify his statements. With this task was he engaged when rather suddenly death closed his career on the 22nd of June, 1875, and he was laid to rest in the churchyard of Llechryd, Wales.

The office of Director of the Survey had been filled by Mr. A. R. C. Selwyn, who continues the good work, while many of Sir William's co-workers still contribute to our wealth of knowledge, being spared to give us many amusing and interesting accounts of their personal experiences with Logan. Sir J. W. Dawson speaks to us from his extraordinary experience, giving us personal reminiscences extending back to Dr. Bigsby; and Dr. Robt. Bell has also a rich store of memory, covering 17 years' constant intercourse with Logan. These accounts, it is hoped, will be published at no distant date, and will add to our appreciation of so great a character. Already Dr. Bell has done good service in establishing the "Logan Club" in Ottawa, which, with its motto, "Mente et Malleo" will serve for both pleasure and profit. Their poet writes:

"By thought and dint of hammering
Is the good work done whereof I sing,
And a jollier lot you'll rarely find
Than the men who chip at earth's old rind."

The Canadian Naturalist and Geologist, the organ of the Natural History Society of Montreal, records many matters of deep interest to scientists. Many contributions of Logan's are stored among its treasures, until in it we find that last sad entry. Volume VIII. contains the obituaries of Sir Charles Lyell, Elkanah Billings and Sir William E. Logan. In concluding his memoir, Dr. Harrington uses words which seem eminently chosen to close the present paper: "If you would do honour to that noble old man, 'who fought so long, so bravely, for his country, for science, for you, then honour the cause for which he fought.'"

MAY MUSINGS.

AFTER RAIN COMES SUNSHINE.

"Oh May, sweet maid, what ails thee? Why so pensive and sad? It is not like thee to have thy bonny blue eyes so often dimmed with tears. Come, smile again before thy short stay is o'er."

"Who is speaking?" asked May, suddenly lifting her dimpled face over the edge of a cloud.

"I am sure I don't know," said a wee William, vainly trying to shake May's tears from its white face. "But I wish you would give us a little more sunshine; it is so cold and damp in the woods."

"Prithee, friend, cease thy grumbling," answered a staidier William, as it swayed gracefully on its long stalk.

"Look under yonder rose-bush, May, and you will see June hiding there; it was he that was speaking."

"Come forth, June, thou art discovered!" And June, somewhat abashed, crept forth from his hiding place. "Ah, June, thou hast no right here, I reign supreme as yet."

"Thy pardon, sweet May, I crave; but I could no longer withhold my complaint; so pray listen and be thine own bright sunny self again."

"Methinks, friend June, thou art somewhat afraid that if my present mood continues thy rose-bushes will not bear as soon as you would wish. Confess now, if such were not thy thoughts?"

"Well," said June, as he laughingly pointed to a rose-bush somewhat destitute of leaves. "You certainly have not done as well as you might have."

"And you would have me resume my character of being the

"Month of bees and month of flowers,
Month of blossoms, laden bowers;
Month of little hands with daisies,
Lovers' love, and poets' praises."

Well, so I will for the rest of my brief stay. Tomorrow listen, and you will hear the blending of many voices in gladsome strains for the perfect day they shall have."

"Did you hear that, my dear? May promises us a fine day to-morrow," said robin to his mate, who, with his head perched on one side, was intently watching a fine fat grub; "but though some others may not like it, we Robins do enjoy the rain, and sunshine, too," quoth she, and away she hopped to seize Mr. Grub.

"The wild wood flowers, so tender-eyed and pale,—
The wood-mouse sitting by the forest spring, re-echoed sunshine, too."

How delightful are the woods in May! what glimpses of rare loveliness are seen through the thin-foliaged trees, which, later on, are hidden from view! What exquisite shades of green meet the eye—from the glossy, light shade just unfolded to the deeper, richer tints, while intermingling with these are indescribable tints of brown; beneath one's feet the soft, thick grass, yielding to the touch, gives back no sound to disturb the calm silence of the woods; and yet, amidst this silence, one feels an undue current of stirring life on all sides. At first the faint hum of bees, glad to escape from their winter quarters—they are eagerly gathering supplies for their honey. Then a noise, like the pattering of rain upon the dead leaves of last year, is heard in yon thicket, and looking more closely, birds of all sizes and colour are seen, from the little wren to his sable majesty the crow, blackbirds, robins and numerous charming yellow canaries, and others with beautiful plumage whose names are not familiar. Hopping among the leaves