

**PROCEEDINGS AND  
TRANSACTIONS OF THE NOVA  
SCOTIAN INSTITUTE OF SCIENCE  
OF HALIFAX, NOVA SCOTIA. VOL.  
VI, PART II, 1883-1884. PP. 89-148**

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**VARIOUS**

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M. B. Daly, Esq., J. P.  
Dep. Speaker of House of Commons

PROCEEDINGS  
OF THE  
Nova Scotian Institute of Natural Science.

VOL. VI. PART II.

*Provincial Museum, October 26, 1883.*

ANNIVERSARY MEETING.

ROBERT MORROW, F. R. M. S., *President, in the Chair.*

INTER ALIA.

The following gentlemen were elected office-bearers for the ensuing year.

*President*,—ROBERT MORROW, F. R. M. S.

*Vice Presidents*,—JOHN SOMERS, M. D., WILLIAM GOSSIP, ESQ.

*Secretaries*,—REV. D. HONEYMAN, D. C. L., F. R. S. C., &c.

ALEXR. MCKAY, Supervisor Public Schools.

*Treasurer*,—W. C. SILVER, ESQ.

*Council*,—WM. H. HARRINGTON, AUGUSTUS ALLISON, SIMON D. MACDONALD, F. G. S., MARTIN MURPHY, C. E., JAMES R. DEWOLF, M. D., EDWIN GILPIN, F. R. S. C., &c., J. G. MACGREGOR, D. SC., F. R. S. C., &c., GEORGE LAWSON, Ph. D., LL. D., F. R. S. C., &c.

ORDINARY MEETING, Nov. 12, 1883.

DR. SOMERS, *Vice President, in the Chair.*

A Paper was read by WM. GOSSIP, Esq., delegate to the Royal Society of Canada, giving an account of his visit to Canada, and of proceedings of the R. S. C.

A Paper by EDWIN GILPIN, F. G. S., Inspector of Mines, "On the De Bert Coal Fields," was read by the Secretary.

ORDINARY MEETING, Dec. 12, 1883.

DR. SOMERS, *Vice President, in the Chair.*

DR. HONEYMAN, by request, read a Paper entitled "Natural History of the Canadian Department of the Great International Fisheries Exhibition, London, 1883."

ORDINARY MEETING, Jan. 1884.

DR. SOMERS, *Vice President, in the Chair.*

A Paper was read by EDWIN GILPIN, F. R. S. C., &c., "On Manganese Ores of Cape Breton."

J. G. MACGREGOR, D. SC., read a Paper "On two Special Auroræ."

A Paper was also read by GEORGE LAWSON, Ph. D., LL. D., F. R. S., &c., "On the Northern Limits of Indigenous Grape Vines."

ORDINARY MEETING, Feb. 11, 1884.

J. J. FOX, Esq., *in the Chair*.

A Paper was read by SIMON D. MACDONALD "On Sabie Island—its changed position," &c.

ORDINARY MEETING, March 10, 1884.

MARTIN MURPHY, C. E., Vice President, *in the Chair*.

DR. HONEYMAN read 2 Papers:

1. "On Glacial Action at Rimouski, Canada, and Loch Ech, Argyleshire, Scotland.
2. "Notes on Polariscopic and Microscopic examinations of Crystalline Rocks of Nova Scotia and Cape Breton."

ORDINARY MEETING, April 14, 1884.

WM. GOSSIP, Esq., Vice President, *in the Chair*.

M. MURPHY, C. E., was elected a delegate to the Royal Society of Canada.

A Paper was read by M. MURPHY, C. E., "On some Physical Features of Nova Scotia, with Notes on Glacial Action."

ORDINARY MEETING, May 12, 1884.

DR. SOMERS, Vice President, *in the Chair*.

A paper, "Notes on Our Fresh Water Sponges," by A. H. McKay, B. A., B. Sc., Principal of Pictou Academy, was read by the Secretary, Alexander McKay, Esq.

## LIST OF MEMBERS.

## Date of Admission.

1873. Jan. 11—Akins, T. B., D. C. L., Halifax.  
 69. Feb. 3—Allison, Augustus, *Meteorologist*, Halifax.  
 77. Dec. 19—Bayne, Herbert E. PH. D., F. R. S. C., *Professor of Chemistry, &c.*,  
 Royal Military College, Kingston, Ont.  
 84. Mar. 13—Bowman, Maynard, *Public Analyst*, Halifax.  
 64. Dec. —Brown, C. E., Halifax.  
 63. Oct. 26—DeWolfe, James R., M. D., J. R. C. S. E.  
 82. May 8—Fox, John J., Halifax.  
 78. Jan. 30—Geldert, J. M., *Barrister*, Halifax.  
 73. Apl. 11—Gilpin, Edwin, F. G. S., F. R. S. C., *Government Inspector of Mines*.  
 63. Jan. 5—Gilpin, J. Bernard, M. D., M. R. C. S., F. R. S. C.  
 63. Feb. 5—Gossip, Wm. *Vice-President*, Halifax.  
 63. Feb. 5—Downs, Andrew, M. Z. S., *Taxidermist*, Halifax.  
 83. Mar. 12—Forbes, John, *Starr Manufacturing Co.*, Dartmouth.  
 63. Mar. 12—Foster, James G., *Barrister*, Dartmouth.  
 81. Dec. 12—Harc, Alfred, Bedford.  
 82. Apl. 10—Harrington, D., M. D., Halifax.  
 67. Dec. 3—Honeyman, Rev. Dr., D. C. L., F. R. S. C., F. A. S., &c., *Secretary*,  
*Curator Provincial Museum*, Halifax.  
 74. Dec. 10—Jack, Peter, *Cashier of People's Bank*, Halifax.  
 63. Jan. 5—Jones, J. M., F. R. S. C., F. L. S., Berwick, N. S.  
 82. Apl. 10—Keating, E. H., C. E., *City Engineer*, Halifax.  
 64. Mar. 7—Lawson, G., PH. D., LL. D., F. R. S. C., F. C. I., *Professor of*  
*Chemistry and Mineralogy, Dalhousie College*, Halifax.  
 81. Mar. 14—Macdonald, Simon D., F. G. S.  
 77. Jan. 13—MacGregor, J. G., D. SC., F. R. S. E., F. R. S. C., *Professor of*  
*Physics, Dalhousie College*, Halifax.  
 72. Feb. 5—McKay, Alex., *Secretary, Supervisor of Halifax Public Schools*.  
 78. Nov. 1—McLeod, John, Demerara, West Indies.  
 77. Jan. 13—Morrow, Geoffrey, Halifax.  
 72. Feb. 10—Morrow, Robert, F. R. M. S., *President*, Halifax.  
 70. Jan. 10—Murphy, Martin, C. E., *Provincial Engineer*, Halifax.  
 79. Dec. 14—Neal, W. H., Halifax.  
 65. Aug. 19—Nova Scotia, the Right Rev. Hibbert Binney, *Lord Bishop of*  
 79. Nov. 11—Poole, H. S., ASSOC. R. S. M., F. G. S., *Supt. Acadia Mines*, Pictou,  
 76. Jan. 20—Power, Hon. L. G., *Senator*, Halifax.  
 71. Nov. 19—Reid, A. P., M. D., *Superintendent of Provincial Lunatic Asylum*,  
 Dartmouth.  
 65. Jan. 8—Rutherford, Jno., *Superintendent of Abitton Mines*, Pictou.

## LIST OF MEMBERS.

64. May 7—Silver, W. C., *Treasurer*, Halifax.  
 75. Jan. 11—Somers, John, M. D., *Professor of Physiology and Zoology, Halifax Medical College.*

## ASSOCIATE MEMBERS.

82. Oct. 1—Gunn, John G., *Inspector of Schools, Cape Breton.*  
 81. Nov. 13—Harris, C., *Professor of Civil Engineering, Royal Military College, Kingston, Ont.*  
 76. Nov. 9—Kennedy, Prof., *King's College, Windsor, N. S.*  
 71. Jan. 11—McKay, H. A., B. A., B. C., *Principal of Pictou Academy.*  
 82. Mar. 31—McKenzie, W. B., *Engineer, Moncton, New Brunswick.*  
 83. Mar. 12—McKenzie, O. H., M. D., *Inspector of Schools, Parrsboro.*  
 78. Mar. 12—Patterson, Rev. G., D. D., *New Glasgow.*  
 84. Apl. 4—Pineo, A. J., *Editor of Canadian Science Monthly, Wolfville, N. S.*

## CORRESPONDING MEMBERS.

71. Nov. 29—Ball, Rev. E., *Tangier.*  
 71. Oct. 12—Marcou, Jules, *Cambridge, Mass.*  
 80. June 10—McClintock, Sir Leopold, Knt., F. R. S., *Vice Admiral.*  
 77. May 12—Weston, Thomas C., *Geological Survey of Canada.*

## LIFE MEMBER.

Parker, Hon. Dr., M. L. C., *Nova Scotia.*



TRANSACTIONS  
OF THE  
**Nova Scotian Institute of Natural Science.**

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ART. I.—NOTES ON THE DEBERT COAL FIELD, COLCHESTER  
Co., N. S. BY EDWIN GILPIN, JR., A. M., F. G. S.,  
F. R. S. C., *Inspector of Mines.*

(Read 18th Nov., 1888.)

DURING the past few months a good deal of interest has been shown in Mining circles over the reported discoveries of coal seams, of workable size, on the DeBert River, Colchester Co. In this conclusion the following notes of a brief visit to the ground may prove interesting to the members of the Institute, and I only regret that the attention necessarily directed to mines in operation has prevented me from giving more time to the problems presented by this practically unknown district.

The presence of coal beds on the DeBert and Chiganoise-Rivers has long been known to the geologist. Gesner, one of the pioneers of Nova Scotian Geology, writing in 1836, described the signs of coal at various points along the north side of the Basin of Minas, from Cape Chignecto to Truro, and remarks, page 129 of his "Geology and Mineralogy of Nova Scotia," that "About five miles northward of the Lower DeBert bridge the coal measures of the mountains rise above the gypseous and saliferous sandstones, and a beautiful section of their strata is made by the river passing over them. Two small veins of coal have been intersected, although it is not known what quantity of that valuable substance is still hidden in the adjacent rocks."

Dr. Dawson, in the second edition of his *Acadian Geology*, page 264, speaks of the metamorphic slates of the Cobequid Mountains being succeeded by conglomerates, and then by "coal measure rocks, consisting of gray sandstones and dark shales,

and a few thin seams of coal, and abundance of leaves of cordaites, and a few calamites and stigmarias."

He further remarks: "We can trace this coal measure back from Advocate Harbour, near Cape Chignecto, to the upper part of the Salmon River of Truro, where it adjoins the carboniferous district of Pictou. It is (generally speaking) much broken and disturbed; and although it widens considerably towards its eastern extremity, it nowhere attains a great development, either in horizontal extent, or in the magnitude of its coal seams." From Advocate Harbour to Partridge Island the belt contains contorted shales and sandstones yielding a few fossil plants, scales of fishes, and shells of Naiadites. Mr. Matthew Jones, a member of this Institute, some years ago found in these strata footprints of a large reptilian animal, referable to the genus sauropus. Similar shales and sandstones outcrop on the banks of the various rivers falling into the Basin of Minas, and show beds of bituminous limestone, with cyprids and fish scales, fireclays, clay ironstones, etc., and yield characteristic fossil plants of several of the species found in the Joggins section.

In the same work Dr. Dawson has discussed the physical conditions which governed the deposition of the coal and associated carboniferous measures of the district. The evidence of the foldings of the carboniferous of the north side of the Basin of Minas, plainly given by the various river sections, leads to the anticipation that the coal measure band may prove disturbed. The longitudinal foldings are useful to the prospector, as they bring the various coal crops to the surface, and define the limits within which his researches can be carried on with profit. The transverse folding and faults caused by unequal strains, and by the irregularity of the great mountain chain, the determining element, may prove a source of expense to the miner engaged in economic development.

The upper DeBert bridge, on the Londonderry road, appears to be a little to the south of the centre of the Basin in this locality. Following the stream downwards from the bridge the coal beds appear about in the relative order of the section, which is descending geologically speaking:—

	<i>Ft.</i>	<i>In.</i>
Strata.....	200	9
Coal seam.....	2	6
Strata.....	120	0
? Coal seam (so-called "nine feet").....	9	0
Strata.....	30	0
Coal seam.....	2	0
Strata.....	140	0
Coal seam.....	6	0
Strata.....	100	0
Conglomerate, base of section.		
Total.....	609	6

The first seam met is one on the west side of the River, and it is stated to measure about 2 ft. 6 in. of coal. The nine feet seam, so-called, had not been opened at the time of my visit, and the thickness is that given by the man in charge of the boring. The seam below this is exposed on the west bank of the river, nearly on the line of the seam just referred to as being nine feet thick.

The six feet seam was opened last winter by a short slope, and about 50 tons of coal were extracted. It is stated to have in the centre a band of shaley coal about 9 inches thick. I was unable to verify the dimensions by actual measurement, as all the openings were full of water at the time of my visit, but the outcrop of the bed under the waters of the river apparently confirmed them.

The coal looked unusually well for a crop exposure, and samples selected to form an average gave the following results:—

Coal compact. Cleavage planes very obliquely inclined to each other. Fractures of the coal presented a conchoidal and lustrous appearance. The deposition planes showed a good deal of mineral charcoal. The coal is laminated with numerous bright pitchy layers up to one-half of an inch in thickness. A few films of calc-spar showed in the cleavage planes, and there was very little visible pyrites. Powder dark reddish brown.