

ART. III.—NOVA SCOTIAN GEOLOGY, AT THE CENTENNIAL EXHIBITION—INTERNATIONAL EXHIBITION OF 1876. BY REV. D. HONEYMAN, D. C. L., *Representative of Nova Scotia.*

(Read February 12th, 1877)

ABSTRACT.

Nova Scotian Geology was illustrated by my own collection,—altogether Nova Scotian,—and a number of maps.

It was also illustrated in the Stratigraphical collection of the Geological Survey of Canada, and by a sketch map of Nova Scotia, New Brunswick and Prince Edward Island, by Mr. Ells, under the direction of A. R. C. Selwyn, F. R. S., Director of the Survey, and Photos, by T. Weston, Esq., Geological Survey.

I. The collection of Rocks which I exhibited were representative :—

1. Of the “Lower Arisaig Series.” *Trans. of the Institute.*

CRYSTALLINE ROCKS.

Laurentian. *Transactions.*

Archæan. *Dana's Manual.*

Syenites,	From Arisaig, N.S.
“	Mts. George's River, C.B.
“	Cobequid Mountains, N.S.
Diorites,	Same localities.
Granites,	Cobequids.
Gneisses,	“
Petrosiliceous,	“
“	Arisaig.
Jaspideous,	Mts. George's River.
Ophite,	Arisaig.
“	Mts. of George's River.
Ophicalcites,	Arisaig.
“	George's River.
Marbles,	Arisaig.

Marbles,	Mts. of George's River.
“	Cobequids.
“	Five Islands.
Porphyries,	Cobequids.
Amygdaloid,	Mts. George's River.
Diorite,	Arisaig.
“	Mts. George's River.

2. Of the “Middle Arisaig Series.” *Trans.*

MIXED CRYSTALLINE.

Cambrian (?). *Trans.*

Lower Silurian (?). *Trans.*

Jaspideous Rocks,	Cobequids.
Petrosiliceous,	Arisaig.
Conglomerates (Ash),	“
“	Cobequids.
“	Scatarie Island, C.B.
Diorites,	“
“	Cobequids,
“	Arisaig.
Porphyries,	“
“	Cobequids.
Amygdaloid,	“

3. Cambrian.

Quartz, etc.,	Halifax.
Slates,	“
Auriferous Quartz,	Waverley.

4. Lower Silurian (?).

Granites,	Cobequids.
Slates (with Fossils),	Wentworth, I.C.R.

Strophomena alternata.

Porphyries,	“
Diorites,	“

5. Of the “Upper Arisaig Series.”

Jaspideous Rocks,	Arisaig Pier.
-------------------	---------------

myself since the Exhibition of 1867. They have all been submitted to the Institute:

(*Transactions*, 1869-76.)

I also illustrated the Geography of Nova Scotia by a portfolio of maps.

1. A new geological map of Nova Scotia and Cape Breton.
2. Map of Cape Breton showing localities examined.
3. Geological map of Antigonish County.
4. Geological map of Arisaig.
5. Map shewing the arrangement and character of the pre-carboniferous rocks of East Pictou.
6. Geological map of the pre-carboniferous rocks of East River, McLellan's Mountain and Sutherland's River.
7. Map of Colchester County, chiefly illustrating the geology of the I. C. R. and Cobequid Mountains.
8. Map of Cumberland County, chiefly illustrating the geology of the I. C. R. and Cobequid Mountains.
9. Map, showing the geological formations on the Grand Lake and Railway.
10. Admiralty Chart of Halifax Harbour, geologically coloured.
11. Map, illustrating the superficial geology of Halifax.

STRATIGRAPHICAL COLLECTION OF THE GEOLOGICAL SURVEY.

I.—In the *Laurentian*, divisions No. 199, 277, are specimens from George's River, Kelly's Cove and Cape Dauphin, in Cape Breton.

The specimens from George's River are like those in my own collection, excepting the ophites, opicalcites and jaspideous rocks, which are wanting in this collection. I regard these as a characteristic part of the series. I have referred to St. Ann's in more than one of my Papers to the Institute, as showing by specimens that the Laurentian existed there as well as at Arisaig. This is connected with Kelly's Cove and Cape Dauphin. In regard to the age of the Cape Breton representatives of my "Lower Arisaig Series," the views of the survey collection correspond with my own.

II.—In the *Huronian* and Lower *Cambrian* divisions are, first: Nos. 395, 416, from Louisbourg, C. B., and second: Nos. 417, 425, from Jebogue Point, Yarmouth, N. S. The Louisbourg specimens, correspond with the Scatarie Island specimens of my collection. They are regarded by the survey as of Huronian age. I have regarded my specimens from Scatarie, C. B.,—the rocks being a part of the Louisbourg series—as corresponding with my “Middle Arisaig Series,” of Arisaig and the Intercolonial Railway. The I. C. R. rocks I have regarded as corresponding with certain Lower Silurian rocks of Wales, described by Professor Ramsay. *Trans.* 1874–5.

In the Catalogue of the Geological Survey, we have a note on the Jebogue rocks:—“The rocks of Jebogue Point and Cape St. Mary seem to be lower than the gold-bearing slates and quartzites (whin) in the same neighbourhood. *Catal.* 141.

LOWER CAMBRIAN.

Atlantic Coast, specimens 426, 450. These are from the auriferous rocks of Nova Scotia.

NOTE.—“Supposed to represent either the base of the Premordial or the Lower Cambrian series.” *Catal.* 141.

III.—Lower Silurian, No. 461. From the Granite Junction, Halifax. Nos. 462, 476; Bras d’ Or and Cape Breton.

The specimens from Bras d’ Or contain *Lingulæ*. They are considered by Mr. Selwyn to be of Potsdam Sandstone age.

IV.—Middle and Upper Silurian, Nos. 736, 53, are from Arisaig, Frenchman’s Basin, East River, Malignant Cove, Doctor’s Brook, McLellan’s Brook.

I would observe that the rocks of Arisaig Pier and Cove, Frenchman’s Barn and Doctor’s Brook correspond with No. 5 of my collection; *i. e.*, with A. of my “Upper Arisaig Series,” *viz.*: Jaspideous rocks and Aluminous Silicates. These were first recognized at Lochaber and then at Doctor’s Brook, by my own observations. They are older than the *Lower Arisaig or Clinton of Dawson*. Others are pre-carboniferous.

The rocks, at East River, are Middle and Upper Silurian, at

McLellan's Brook, they are of same age. The rocks at Malignant Cove are Lower Carboniferous, conglomerates with intrusive Trap. Laurentian lies east of Cove. *Vide* sections in "Geology of Antigonish Co." Trans. 1874-5.

V.—Devonian. Iron ore with Fossils. Nictaux Granites, Nos. 781, 804.

The Fossils in the iron ores of Nictaux are considered by Mr. Selwyn, Dr. Dawson, Prof. Hartt and others, to be of lower Devonian age. In fact the rocks containing these ores are at present regarded as the only unquestioned representatives of the Devonian Formation in Nova Scotia.

The relation of the Granites, occurring at Nictaux, to the supposed Devonian Formation is considered as demonstrating the Upper Devonian age of the former, and also of the Granites associated with the Gold Fields of Nova Scotia. Accordingly specimens of these granites were arranged in this division of the collection.

VI.—Carboniferous. Lower Carboniferous, 805 to 821. Mill stone Grit and Coal Measures, 225 to 839. Upper Coal Measures, 840 to 843.

This extensive, interesting and beautifully prepared collection, with the exception of the first 138 specimens, has been presented to the Smithsonian Institute at Washington. A geological map of the Lower Provinces, coloured by Mr. Ells, of the Survey, under the direction of Mr. Selwyn, was also exhibited, showing the supposed course of the Laurentian axis from Cape North, through Cape Breton, through Arisaig, N. S., Pictou, and the Cobequid Mountains, and through New Brunswick; also the supposed Devonian Granitic axis from Cape Canso through Guysboro' Co., Halifax Co., Lunenburg, and Shelburne, Annapolis, &c.

PHOTOGRAPHS.

There were also exhibited 21 beautiful photographs from well-selected positions, illustrating the geology of the "Upper Arisaig Series" and the succeeding Lower Carboniferous Formation, as exposed in sections on the shore on either side of the Antigonish and Pictou County line, *i. e.* from Doctor's Brook to Mill Brook. These

were photographed by Mr. Thomas Weston, of the Geological Survey.

ADDENDA.

Geological Gleanings from the Economics.

1. Laurentian.

Syenite from George's Mountain, C. B. Exhibitor—James McQuarrie.

Syenite from Campbelltown, C.B. Exhibitor—C. J. Campbell.
Marble—polished; white and mottled, from Marble Mountain, C.B. Exhibitor—J. Silver.

Green Breccia, polished; from Scatarie Island, near Louisbourg, C.B.

2. Cambrian.

Block of Gneiss (Ironstone) from Halifax.

Auriferous Quartz collection. Honorable Robert Robertson, exhibitor.

3. Lower Silurian?

Blocks of Granite. Halifax—Shelburne.

Lower Silurian.

Iron Ore from Whycocomah, C. B.; Red Hematite, East Bay, C.B.; Calchopyrite, Copper Ore, Polson's Lake. W. Ross, exhibitor.

Calchopyrite, from Lochaber Lake, N. S. James Hudson, exhibitor.

Middle Silurian.

Fossiliferous Iron Ore, Blanchard, East River, Pictou, N. S. Crawford and Gilpin, exhibitors.

Fossils *Athyris* in this ore, characteristic of the Mayhill sandstone, *Salter* or *Medina* sandstone, U. S., have led me to regard the bed as lower than *Clinton*; but as this member of the "Upper Arisaig Series," at Arisaig, and other localities, has only a thickness of 250 feet, I am disposed to regard the bed as lying in the *Clinton* and to regard the *athyris* as ranging higher than A of the Upper Arisaig Series.

Limonite, East River, Pictou; Specular Iron Ore, East River, Pictou. Exhibitors—Crawford and Gilpin.

These Pictou ores seem all to be confined to the *Clinton*. *Vide Transactions of Institute.*

MIDDLE AND UPPER SILURIAN.

Brown Hematite, Londonderry Mines, N. S.

Red Hematite, “ “

Specular Ore, “ “

Yellow Ochre, “ “

Ankerite, “ “

Exhibitors—Steel Company of Canada.

The Strata containing these ores belong to the “Upper Arisaig Series,” but do not seem to contain fossils. They may therefore be either Middle or Upper Silurian.

Limonite, Brookfield, N. S. Exhibitors—Advisory Board of Nova Scotia.

Devonian?

Iron Ores, Cleveland Mountain, Annapolis, N. S. Exhibitors—Stearns and Page.

5. Carboniferous.

Gold in carb. conglomerate on slate, from Gay’s River. Exhibitor—H. S. Poole.

Building Stones. Exhibitors—Advisory Board.

Grindstones and Whetstones. Exhibitors—Seaman & Co.

Gypsums. Exhibitors—Advisory Board.

Limestone.

Blocks of Coal. Nova Scotia and Cape Breton.

Pyrolusite Manganese Ore, Tennycape, N. S.

Spathic Iron Ore, Sutherland’s River, N. S.

The Manganese ore is from Lower Carboniferous Limestone. It occurs in large *pockets, masses* and *nodules* in the Limestone.

Triassic?

Magnetic Iron Ore. Exhibitor—D. Chipman.

This occurs in the Triassic trap at Five Islands, Bicton, North Mountain, Digby.

It contains Amethystine veins, Jasper, &c. In the mineralogical collection exhibited by H. S. Poole, Esq., were specimens

of native copper, which also occurs in veins in the same trap rocks. These metallic deposits have not been found to be of economic importance. The trap of this Formation is celebrated on account of its cabinet minerals. Every museum of importance in the United States has specimens of the trap minerals of Nova Scotia.

ART. IV.—INDIANS OF NOVA SCOTIA. BY J. BERNARD GILPIN,
B. A., M. D., M. R. C. S.

(*Read 12th March, 1877.*)

I HAVE thought it desirable to put upon record in the Transactions of the Natural History Society, all the facts I could obtain, either personally or from old and living authors, concerning our native Indians. The time is rapidly passing,—indeed, has now passed, for such a purpose. I may not produce any thing new; but if I only put old things, scattered in many books, manuscripts, or in traditions, into one record, I shall have done as much as I expected to do. The books I have had access to, by the kindness of my friend, Dr. Akins, have been early copies of Cartier, Champlain, and LesCarbot, and Charlevoix,—all eye-witnesses, except the last. I have also had access to all the manuscript documents belonging to the Record Commission of Nova Scotia, from seventeen hundred and twenty-four, nearly to our present time, including the Indian book of the late Hon. Joseph Howe. These, with occasional pamphlets issued from time to time, my own personal recollections, traditions, and Murdock's History of Nova Scotia, are the sources from which I have drawn. This latter gentleman has drawn largely from "Relations of the Jesuits, Quebec."

Our first exact account of the Indians of Nova Scotia is found in Les Carbot, 1609. Earlier mention is made of them, however, in Jacques Cartier, whose first voyages were in 1534. We find that as early as the sixteenth century the shores of Nova Scotia were frequented by fishermen of various nations, and in greater