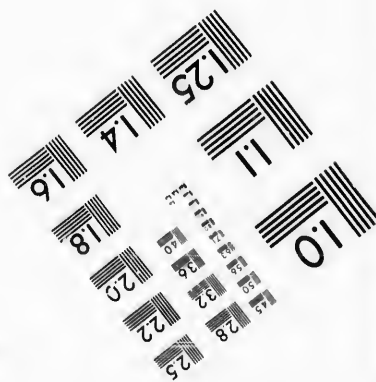
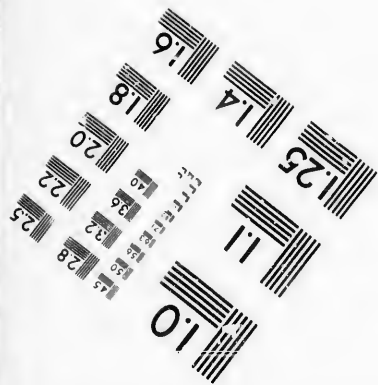
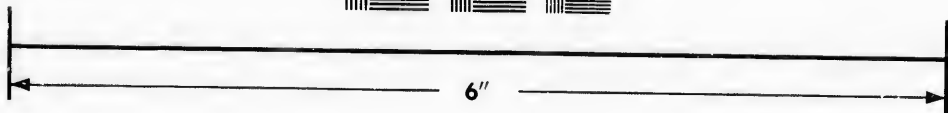
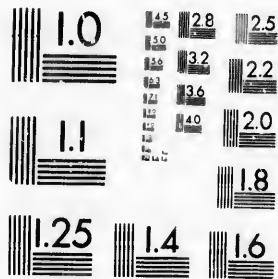


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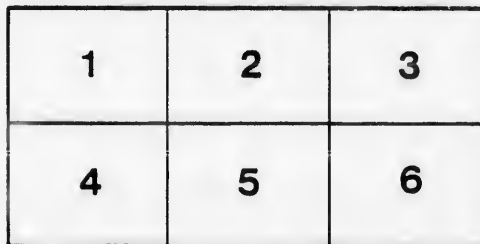
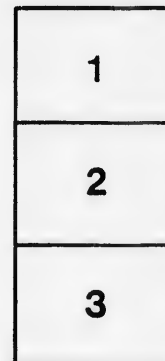
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MINERAL LOCALITIES OF NEW BRUNSWICK.

[Extracted from a Report on the Mines and Minerals of New Brunswick, by L. W. Bailey, A. M., Professor of Chemistry, &c. University of New Brunswick.]

In addition to the Minerals now enumerated, there are a number of others of less importance, which do not require individual notice. They are, however, of interest scientifically, and many of them may receive a limited and local useful application. As it is designed to make the present Report one of reference for all subjects connected with the distribution of Ores and Minerals in New Brunswick, I have determined to present, in a tabular form, a list of all the species known to exist in the different localities of the Province. To accomplish this object, I have been obliged to rely, for the most part, on the labours of those who have devoted a longer period to the study than myself, and whose special object has been the exploration of our mineral wealth.

The accompanying List of Mineral Localities was originally drawn up by Mr. G. F. Matthew, of St. John, (himself one of the most earnest and successful laborers in this field of study,) from the writings of Dr. Gesner, Dr. Robb, and from his own observations. The original list has already been published in the St. John papers, and by Mr. O. C. Marsh in the March (1863) Number of Silliman's Journal. My own labors, however, during the past summer, having allowed me to add so many new localities, and to define with more precision the position of so many deposits, before only imperfectly known, I need scarcely offer an apology for presenting the list anew. It is, moreover, desirable that such a list should be allowed to circulate through the Province in a convenient form for reference, which is not now the case.

The method adopted in the arrangement of these Tables is the same used in all lists of mineral localities. Ordinary specimens are printed in ordinary type; fair specimens are italicized; choice specimens are marked (!); and two marks of exclamation (!!) indicate that the specimens are *unique*. Marks of interrogation placed after a word, express a degree of *doubt* as to the correctness of that word.

ALBERT COUNTY.

BALTIMORE.—Cannel (?) *coal!* formerly mined and used for the manufacture of oil.—
(See Report.)

BLACKWOOD BLOCK—(eight miles from Elgin Corner.)—In the sand of a brook, and in quartz rock, penetrating *talcose slates*, Gold. (See Report.)

COVERDALE RIVER.—Elastic bitumen.

GRINDSTONE POINT and ISLAND.—Barytes, iron pyrites, lignite.

HOPEWELL PARISH—ALBERT MINES.—*Albertite !!*

DEMOISELLE CREEK.—Gypsum (*alabaster* and selenite); per-oxide of manganese.

PETITCODIAC.—Bluff below Edgett's, mineral paint, iron sand.

POLLET RIVER.—Fifteen miles from mouth, coal.

SHEPODY MOUNTAIN.—Alunite in clay, (formerly used for the manufacture of alum, &c.); barytes; *calcite*, (rhombs with manganese); iron pyrites, *manganite?* *psilomelane*, *pyrolusite*, *steatite*.

TURTLE CREEK.—Coal.

REPORT ON MINES AND MINERALS.

UPPER SALMON RIVER.—Two miles from mouth, copper pyrites, iron pyrites, erubescite, malachite, chrysocolla, *red oxide of copper*, (cuprite).—(*Alma, Kinney's, and Williams Mines.*)

CARLETON CO.

BRIGHTON.—Limestone.

BULL'S CREEK, (near Woodstock.)—Chalcopyrite, marcasite, copper pyrites, (formerly mined), pyrrhotine—*soapstone*.

WOODSTOCK and vicinity.—Estey's farm, Jacksontown, (five miles above Woodstock)—*Haematite*, iron pyrites; fifteen miles above Woodstock, haematite; Poulle's farm, pyrrhotine; (precise locality doubtful) cubic pyrites, (vein in haematite); *rock crystal, marble, galena*; Moose Mountain, honestone.

CHARLOTTE CO.

ADAMS' ISLAND.—Copper ore.

BEAVER HARBOR.—Chlorite, jasper (red.)

CAMPO BELLO.—Micaceous iron, specular iron, bi-sulphuret of iron, bog iron, blende, galena, anglesite; at Welchpool, blende, copper pyrites, erubescite, *galena*, iron pyrites; at head of Harbor de Lute, *galena*, (4 inch vein); at Head Harbor, copperas, iron pyrites.

DEER ISLAND.—Copper ore; on west side, calcite (in amygdaloid), magnetite, quartz crystals (in trap.)

DIGDEGUASH RIVER.—Chalcopyrite, *felspar*; on west side of entrance, *calcite!* (in conglomerate), chalcedony; Long or Jasper Island, galena; Rolling Dam, graphite.

GRAND MANAN.—*Analcime!* pure silica, specular iron; between Northern Head and Dark Harbor—agate, amethyst, *apophyllite, calcite, hematite, heulandite, jasper, Thompsonite, magnetite, natrolite, stilbite!*; at Whale Cove, *calcite! heulandite! laumonite! stilbite! semi-opal!*; at Fish Head, two miles south of Eel Brook, chlorite in quartz, (abundant); at Rosse's Island, quartz crystals; at White Head, chlorite, quartz crystals.

HARDWOOD ISLAND, (near Deer Island, Passamaquoddy Bay.)—Copper pyrites (yellow sulphuret) in chlorite slate.

I'ETANG ISLAND.—(Frye's or Cailiff Island.)—On the northern side, at the Mill, *galena, calc spar, heavy spar, fluor*; on shore, half a mile from Mill, serpentine, verde antique, *asbestos*, iron pyrites; on highest part of Island, *galena, fluor, calc spar.* (See Report.)

LATETE.—"WHEAL LOUISIANA MINE."—Copper pyrites, iron pyrites, stalaetic ochre pyrrhotine, actinolite.—(See Report.) "LATETE MINE."—Copper pyrites in quartz and greenstone, galena.

LONG (or Jasper) ISLAND.—See Digdeguash River.

MAGAGUADAVIC RIVER.—At entrance, azurite, copper pyrites in veins, malachite, (probably identical with the Latete mine); one eighth of a mile east, (M'Leod's?) galena.

MILL TOWN, (near St. Stephen.)—Shorl (in granite.)

MOORE'S MILL.—Actinolite, black wad; red, green and striped jasper; serpentine, sulphurets of iron and copper.

NEW RIVER.—At Mills, actinolite? (in porphyry.)

RED HEAD, (on Mace's Bay.)—Red jasper.

SEELY'S COVE.—Hill half a mile north, calcite, iron pyrites, magnetite, quartz crystals.

SIMPSON'S ISLAND.—Copper pyrites and green copper ore—malachite, on the shore below high water. The quantity is considerable.

ST. ANDREWS BAY.—Dick's farm, plumbaginous earth.

ST. DAVID.—Native copper.

ST. GEORGE PENINSULA.—Randall's, limestone; on the farm of Samuel Hatt, galena and yellow sulphuret of copper; on David Crory's farm, (Scotch Settlement) galena. (See Report)

ST. STEPHEN.—*Erubescite*, *specular iron*! magnetic pyrites, wad; four miles north, graphite in slate, molybdenite in gneiss, quartz crystals; at Mill Farm, iron pyrites; nine miles north-west from Calais Bridge, in plumbaginous slate—Gold. (Vide Report, Maine Scientific Survey, p. 424.)

WAWIG RIVER.—*Mispickel*; three miles up, at Cormick's Mills, pyrites in boulders, garnet, felspar crystals, tourmaline; at Bartlett's Pond, quartz crystals; at Oak Bay, hepatic pyrites (in grauwacke.)

GLOUCESTER CO.

BATHURST.—Coal, rhodonite?; Somerset Vale, plumbaginous slate.

GRANT'S BROOK. (a branch of the Little Nepisquit River.)—Auriferous (?) quartz, (See Report); lead ore.

NEPISQUIT RIVER.—On the right bank, near Nepisquit Bridge, a sedimentary deposit of lignite and malachite, in conglomerate; formerly some tons were removed, and yielded 52.5 per cent. of copper. "Rough Waters," (between Bathurst and the Pabineau,) *molybdenite*! Above the Grand Falls, pyritiferous sandstone, cubic pyrites in slate, *haematite*? (See Report.) Reported as occurring on the Stream, copper pyrites, galena.

NEW BANDON CAPE.—*Nodular red haematite*, (in clay of coal measures).

NIGADOO RIVER, (near the Falls.)—Galena.

TATTAGOUCHE RIVER, (eight miles from Bathurst.)—At the Falls, *copper pyrites* and *oxyl of manganese*!; both formerly mined; (See Report); iron pyrites, hydrous silicate of manganese; jasper with *mispickel*; on Kent's farm, boulders of magnetite.

KENT CO.

BUCTOUCHE RIVER.—Coal.

COCAIGNE RIVER.—On branch, three miles from Bridge, coal.

KOCHIBOUGUASIS RIVER.—Coal.

RICHBUCTO.—Black wad, pea iron ore, (in meadows.)

RICHBUCTO RIVER.—Three miles above Ford's Mills, and at Big Brook, coal; at Bass River, iron pyrites; Liverpool, limonite.

KING'S CO.

BELLEISLE BAY.—On north shore, galena in limestone, hornstone, jasper (in trap); at Bull Moose Hill, large bed of magnetite, chert.

BUTTERNUT RIDGE.—(Price's Mill, Havelock.) gypsum.

CLIFTON.—*Chlorite*, *epidote*, *hematite*, *orthoclase* in crystals, *prehnite*, quartz crystals, *specular iron*.

HAMMOND RIVER.—At Sherwood's, graphite in limestone.

DOUGLAS VALLEY.—Shorl, in granite, (at Fall Brook.)

HAMPTON.—At Darling's Lake, in loose pieces, agate, carnelian, jasper.

KINGSTON.—On ridge south of Village, magnetite, magnetic pyrites; also chlorite and red jasper.

NEREPIS.—Near Hatfield's Mill, pyrites; near Mather's Inn, amethyst, felspar, quartz crystals; *blende*, purple and dark talcose slates, hornblende.

NORTON.—One mile and a half from Station, (near Blair's Mill,) argentiferous galena in limestone. (See Report.)

QUISPAMISIS.—Copper pyrites, galena, iron pyrites, laumontite.

STUDHOLM.—Gypsum.

SUSSEX.—One mile north of Baxter's Inn, *specular iron* in crystals, limonite; on Capt. M'Cready's farm, east of Church, *selenite*!! (crystals containing sand, and forming in mud of a spring.)

UPHAM.—On Dutch Valley Road, eight miles from Station, near West Hammond River, extensive beds of oxide of manganese, with limestone, (now mined—See Report); *manganite*, *pyrolusite*, barytes; salt springs; four miles east of Titus' Mills, gypsum.

NORTHUMBERLAND CO.

BARNABY'S RUN.—Opposite mouth, coal.

BOIESTOWN.—Coal.

CHATHAM.—Coal, iron pyrites.

"CLEAR WATER"—(19 miles above Boiestown.)—Bog iron ore.

NEWCASTLE.—Coal.

NORTH WEST MIRAMICHI.—Iron froth.

QUEEN'S CO.

GAGETOWN.—Concretions in sandstone—"fossil cocoanuts."

GRAND LAKE.—At Grand Point, barytes, copperas, and pyrites in fossil trees; Salmon River, (on Crawford's farm,) coal, copperas, pyrites, limonite; Newcastle River, coal mines; Coal Creek, coal, (formerly worked.)

IRONBOUND COVE.—Coal.

LONG REACH.—Opposite Vanwart's, chlorite.

RUSH HILL.—Bog iron ore.

WASHAEMOAK RIVER.—Two and a half miles from Long's Creek, coal; a few miles above mouth of W. River, on south-east side of small cove, carnelian, chalcedony, hornstone, jasper, quartz crystals.

RESTIGOUCHE CO.

BELLE DUNE.—*Calcite! Iceland spar!! serpentine, verde antique marble.*

DALHOUSIE.—*Agate, carnelian, chalcopryite, manganite! asbestos, (in serpentine); zinc blende in boulders.*

POINT LE GARD.—Agates and prase.

POINT LE NIM.—Coal.

ST. JOHN CO.

BLACK RIVER.—On coast, calcite, chlorite, copper pyrites, pyroxene, (green earth,) quartz crystals, *specular iron!*

BRANDY BROOK.—Epidote, *hornblende* (in boulders), quartz crystals.

CAPE SPENCER.—Asbestos, calcite, chlorite, specular iron.

CARLETON.—Near Falls, red calcite.

CHANCE HARBOR.—*Calcite* (deep red) in quartz veins, chlorite in argillaceous and talcose slates.

GOOSE RIVER.—Erubescite.

LANCASTER.—Quartz crystals.

LITTLE DIPPER HARBOR.—On west side, in greenstone, amethyst, barytes, quartz crystals.

LITTLE SALMON RIVER.—Ten miles above Quaco, *Native Copper!!*

MOOSE PATH.—Felspar (red), *hornblende*, muscovite, black tourmaline.

MARTIN'S HEAD.—Between this and Point Wolf, (6 miles from the latter, at the *St. John and Albert Mines*,) copper pyrites (yellow), *Peacock ore*, magnetite, dolomite, chryso-colla?, asbestos, chlorite.

MUSQUASH.—On east side of Harbor, copperas, graphite, pyrites; east side of Musquash, *quartz crystals!* (in conglomerate.)

PORTLAND.—At the Falls, large bed of graphite, (impure); at Fort Howe, calcite, (fine crystals in several forms), graphite; Crow's Nest, asbestos, calcite (fibrous), *chrysotile*, magnesite, *serpentine*, steatite; Lily Lake, white augite? *chrysotile*, graphite, *serpentine*, steatite, talc; Howe's Road, (two miles out), epidote (in syenite), steatite in limestone, *tremolite*; Drury's Cove, graphite, pyrites, *pyralloite?* indurated talc.

QUACO.—St. Martins, coal; near Coal mine, galena in grit; at Light House Point, large bed of oxide of manganese; west of Point, lignite; east of Quaco, at Fuller's Creek, graphite, iron pyrites; farther eastward, asbestos, *chrysotile*, black tourmaline.

RED HEAD.—Calcite (fibrous), red jasper

SHANNON'S.—Chrysotile, serpentine, verd antique.

SHELDON'S POINT.—Actinolite, asbestos, calcite, epidote (pistacite and zoisite), malachite, specular iron.

ST. JOHN CITY.—Cubic pyrites in metamorphic slate.

TEN MILE CREEK.—Coal (in slate and sandstone).

WEST BEACH.—Morrison's, micaceous iron ore, specular iron, red haematite (yielding 65 per cent.); at east end, on Evans' farm, chlorite, talc, quartz crystals; half a mile west, chlorite, copper pyrites, magnesite (vein), magnetite; Beveridge Cove, haematite and specular iron.

SUNBURY CO.

LINCOLN.—Bog iron ore (abundant), wad.

OROMOCTO RIVER.—Ten miles up North Branch, coal.

VICTORIA CO.

AROOSTOOK.—(Hon. Wm. Black's farm,) haematite.

LITTLE FALLS?—(Emerson's) or Trois Pistoles? galena (in cubes.)

QUISIBIS RIVER.—(Madawaska.)—Blue phosphate of iron, in clay.

RIVIERE DES CHUTES.—Haematite.

TOBIQUE RIVER.—Agate, carnelian, chalcedony, jasper; at mouth, south side, galena; near the Red Rapids, north side, calc spar! (in geodes); at mouth of Wapskahegan, red and white gypsum; (in this vicinity there is a salt spring); Plaster Island, gypsum, (with red sandstone, in high cliffs); three miles above Wapskahegan, stalactites; Nietan Lake, (head of Tobique River), hornblende.

WESTMORLAND CO.

BELLEVUE.—Iron pyrites.

CAPE MARANGUIN.—Clay iron stone, coal.

DORCHESTER.—Anthraconite? graphite! red felspar, wad; Dorchester Island, nodular red haematite; on Taylor's farm, canal coal, clay iron stone; on Ayre's farm, Peti-codiac, asphaltum, petroleum spring; on Godie's farm, maltha.

GRAND ANCE.—Gypsum, selenite (large crystals), apatite, (Vide Gesner.)

MEMRAMCOOK.—Albertite in beds, and in veins running through limestone.

SACKVILLE.—Wood's Point, coal.

SHEDIAC.—Four miles up Seadoue River, coal.

TEDISH RIVER.—Coal.

YORK CO.

DOUGLAS PARISH.—At McLeod's Hill, (six miles from Fredericton,) quartz crystals in vesicular trap and wacke; on the Nashwaaksis, anthraconite.

DUMFRIES.—Little Pokiok River, anhydrite.

FREDERICTON.—In large bed near Government House, wad.

KINGSCLEAR.—Maltha?

NASHWAAK RIVER.—Coal, pyrites; Jay Creek, coal.

NORTHAMPTON.—Gypsum.

POKIOK RIVER.—Near mouth, in granite, tin pyrites, (rare.)

PRINCE WILLIAM.—Felspar, cubic pyrites!; three miles from Marshall's Inn, at the mines, antimony ore, crystallised, (stibnite!), also in veins, bunches and masses; quartz crystals, (in boulders and in the shaft), soapstone, honestone, sulphantimonids of lead; quartz boulders, crystallised, and containing specular iron, sulphantimonids of lead and chlorite.

QUEENSBURY.—Wad.

SOUTHAMPTON.—At the Meductic, iron pyrites, Lydian stone, (Basanite.)

GENERAL CONCLUSIONS.

Having now given the results of my personal observations, during the past summer, and added thereto, in tabular form, all that is at present known about the distribution of our mineral wealth, it only remains to be seen, what general and useful deductions can be drawn from the materials thus accumulated.

1st.—*The Geological Position of the Metalliferous Rocks.*—To understand this subject clearly, a slight reference is necessary to the geological structure of New Brunswick. By reference to the geological map of Dr. Robb, (published with Johnson's Report,) it will be seen that the Province is essentially divided into two portions, by a wide belt of igneous rocks, passing across from the State of Maine, in the vicinity of the Cheputneeticook Lakes, to the Pabineau Falls, on the Nepisiquit River. This ridge forms a large anticlinal axis, and, including its development in Maine, has, according to the geologists of that State, a length of nearly two hundred and ninety miles. Its width, as laid down in the geological map, is a mere matter of guesswork, this portion of the Province being almost unknown and inaccessible.

To the south of this great granitic chain is another, entering the Province near Calais, and passing, with a single interruption, to the St. John River. Against the flanks of these granitic ranges, on both sides, rest the lowest aqueous rocks, termed *Cambrian*. The precise age of these latter, which consist for the most part of metamorphic slates, is a matter of some dispute, but the question is one which does not need discussion here. Whatever their name and age, they form two parallel bands of considerable width, stretching along the slopes of the central granitic range. The upper extends from the shore of the Bay Chaleur to the Maine boundary, and probably crosses the head-waters of the Serpentine and Miramichi Rivers. The lower is parallel to this, but does not reach Bathurst, while towards the west it bends around the coal measures, occupies the greater part of Charlotte, and thence extends in two parallel bands to the eastward, one of these terminating at Bull Moose Hill, the other at Shepody Mountain. In the triangular space thus left, is included the great New Brunswick coal field, separated from the metamorphic belts by a thin band of red sandstones and conglomerates, which attain their greatest development at the two eastern extremities. These sandstones probably underlie the coal measures, and are in turn resting upon the Cambrian slates.

To the north of the upper metamorphic belt, are beds of Silurian strata of vast extent, whose limits are at present but little known. My own observations at the head-waters of the Tobique and Nepisiquit, have convinced me that essential alterations must be made in the coloring of this portion of our geological maps. With this portion, however, we have little at present to do. If, by means of the list which has already been given, we trace out upon the geological map the precise localities of the various metallic ores, we shall find them, almost without exception, to be situated in the great metamorphic belts of slate and schist, which have been termed the Cambrian rocks.—

Bathurst and the Tattagouche, with their deposits of copper, manganese, lead and iron, the head-waters of the Serpentine and Wapskahegan, the iron and copper beds of Woodstock, are in the northern metamorphic band; the antimony of Prince William, the gold and specular iron of St. Stephen, and the iron ore of Bull Moose Hill, are in the lower band of a like character. The copper of Charlotte County and Albert, with the manganese of Quaco and Shepody, are in similar rocks; but the latter are associated with beds of limestone, and are considered as Lower Silurian rather than as Cambrian strata. According to Dr. Robb's map, the mines at L'Etang and LaTete, with the deposits of the neighboring Islands, would be supposed to occur in a red sandstone district, the whole of St. George Peninsula being thus marked. These mines are, however, like the rest, in beds of slate and limestone, with hornblende rock, which are frequently injected with dykes of trap. They belong to the Lower Silurian strata.

One other fact is to be noted in this connection, namely, that extensive beds of igneous rocks, trap, syenite, felspar and porphyry, are found in close proximity to the metalliferous districts, and seem to determine in some measure the presence of the ores. This will be found to be the case in all the localities above mentioned.

2.—*The character of Mineral Lodes and their Country Rock.*

a. As regards deposits of copper in the Province, it will be seen that the lodes which bear this metal, are of one or the other of two kinds, either quartz rock, or a "green metamorphic aggregate of bisilicate of magnesia and silicate of iron." The former rock predominates in Charlotte County and the various Islands in Passamaquoddy Bay, the latter at the deposits in the neighborhood of Point Wolf and Salmon River. The country rock for copper is metamorphic slate, especially in the vicinity of trappean dykes. Copper is sometimes found in the slates or chlorite, but these do not form the true vein-rock. The deposit at Bathurst is sedimentary.

b. *Antimony*.—The true vein-rock of this metal is quartz, the country-rock being metamorphic slates. The lode-walls (or at least one of them) are almost invariably dykes of trap. Chlorite and steatite are found in connection with these.

c. *Lead*.—The lodes, which bear this metal, are not homogeneous, but consist chiefly of quartz, barytes, and a little fluor. This is the case at L'Etang, which is almost the only distinct lead lode I have seen in the Province. None of the others are well defined. Barytes and fluor are very favorable indications for this metal. The country-rock of lead is metamorphic limestone. With lead is often associated blende, the ore of zinc.

d. *Manganese* is generally found in quartz or barytes, especially the latter, the country-rock being slates. At Upham, King's County, it has been described as occurring in limestone.

e. *Iron*.—The haematite of Woodstock occurs in calciferous slate, belonging to the mica-schist formation; that of West Beach also in slates, and to some extent in conglomerate. The latter, (*i. e.* the West Beach ore,) is of sedimentary origin.

3. *The Direction of Metallic Lodes.*—This is a point of some interest to determine. It requires, however, for sure results, a considerable number of observations. So far as my own experience has shown, these lodes, especially as regards lead and copper, pursue a course not varying far from east or west, and have as a rule a dip to the northward. This will be more readily seen by the following Table:—

	Strike.	Dip.
Antimony Mines at Prince William,	N.E. & S.W.	to the North.
Key's Mine, (Charlotte,) Champion lode,	7° N. of E.	a little W. of N.
“ 5 subordinate lodes,	“ “	unknown.
L'Etang Lead Mine, principal lode,	E. N. E.	“
Hatt's Lode, (Charlotte,)	about E. & W.	
Crory's Lode,	10° N. of E.	
Campo Bello Lead Vein, not well determined, but tending to E.		
Mines at Salmon River—Champion lodes,	10° N. of E.	
Subordinate lodes,	6° & 8° N. of E.	
Tattagouche Copper Mines, (Bathurst)	E. & W.	to the North.
“ St. John & Albert Mines,” (Martin's Head)	a little E. of N.	to the West.

If the above rule is found to be a universal one, it may serve to distinguish the subordinate from the champion lodes, the difference being a very material point to ascertain. It will be noticed that the above prevailing line of strike coincides nearly with that of the coast line of the Bay of Fundy, and also with that of the central granitic band.

From what has now been said, I think I am warranted in drawing the following general conclusions:—

- 1st.—The principal metalliferous deposits of New Brunswick, (excepting sedimentary beds), are confined to metamorphic slates and mica schists, of Lower Silurian or Cambrian age.
- 2nd.—That in these metamorphic belts, the best mining districts, so far known, are near where the slates and schists have been injected by deposits of igneous rocks, trap, syenite, &c.
- 3rd.—That copper, manganese, and antimony, are generally found in lodes of quartz or greenstone, the country rock being slate.
- 4th.—That lead lodes are principally composed of barytes, quartz, calc spar, and fluor, and their country rock is limestone.
- 5th.—That the metallic lodes of the Province, as a general rule, preserve a course not varying far (10° to the N.) from east and west.
- 6th.—That their dip is generally to the north, at a high angle.

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