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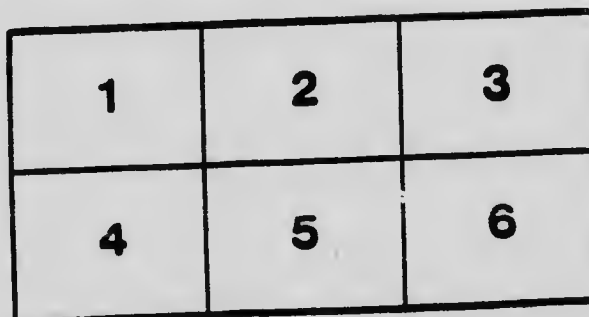
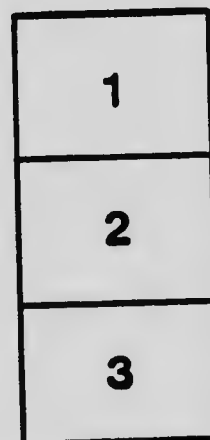
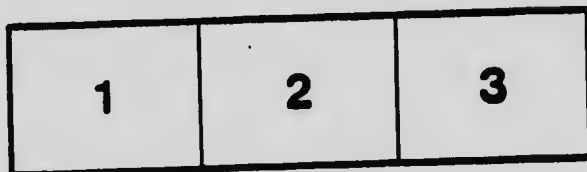
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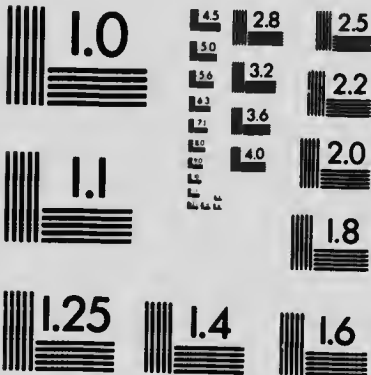
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REPORT
 ON
**Blocking off Land along the
 Railway Line**
 ALSO
**Mineral Statistics for Current
 Year**

By **JAMES P. HOWLEY, F.G.S.,**
 for the Year 1898



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REPORT

ON

Blocking off Land along Railway Line, also Mineral Statistics
for Current Year, by James P. Howley, F.G.S., for the
Year 1898.

St. John's, N. E.,

March 15th, 1899

T. C. DUDER, Esq.,

Minister of Agriculture and Mines.

Sir,—I beg to submit the following report of the past year's operations for the information of the Government.

In the early part of the summer and prior to entering upon the field work of the season the collection of specimens referred to in the previous year's report was, at the earnest request of the Imperial Institute authorities, finally boxed up and despatched to London. These exhibits comprised in all forty-one (41) packages, of which thirty-one (31) contained various specimens of the mineral products, the remainder being illustrative of the forest wealth of the island, as follows:—

LIST OF SPECIMENS

Forwarded to the Imperial and Colonial Institute, London.

No. P'k'ge.	Name of Specimen	Locality or Mine
1	Block of Magnetite	Tilt Cove, Notre Dame Bay
2	" " "	Bishop's Mine, Long Range
3	Manganiferous Iron Ore	Fortune Harbor, N. D. Bay.
4	Chrome Iron Ore	Bluff Point, Port-au-Fort Bay
5	Red Hematite	Red Island, Conception Bay
6	Red Hematite and Clay Stone	Monte-Verde and Grand Lake
7	Mispickel	Stanton's Hr., N. D. Bay
8	Pyrites	St. John's Island, N. D. Bay.
9	Pyrrhotite and Pyrites	Rouze Hr. and Three Arm, N. D. B.
10	Copper Pyrites	Union Mine, Tilt Cove
11	Copper Pyrites and associated rocks	Union Mine, Tilt Cove.

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GEOLOGICAL SURVEY OF NEWFOUNDLAND.

LIST OF SPECIMENS. (Continued)

Facsimiled by the Imperial and Colonial Institute London.

No	Plg	Name of Specimen.	Locality of Mine
12		Copper Pyrites	East Mine, Tilt Cove, Burton's Pond and Rouge Harbor.
13		"	Bloom-don Mine, Bay of Islands
14		Copper Pyrites, Green Ore and Copper Ingot	Tilt Cove at Little Bay
15		Galena	Silver Cliff Mine, Little Placentia
16		"	La Manche Mine
17		"	E. and W. Bays, Port-au-Port
18		Antimonite	Moreton's Hr., N D Bay
19		Steatite Slab, Mica Asbestos, Agalmatolite Fireclay, Shell Marl	Tilt Cove, Labrador Bluff Head and Fox Trap Grand Lake & Bay St. George
20		Three (3) blocks of rough dressed granite	Petties, Shoal Hr and Terra Nova
21		Three (3) blocks of rough dressed granite	Gaultois, Petties and Terra Nova.
22		Four (4) blocks of rough dressed granite	Rose Blanche, Cambo, Hare Is and Petties
23		One (1) block Var. Polished Marble	Humber River
24		One block Gray and three blocks White Marble	Humber River and Canada Bay
25		Coal from 3 ft., 8 ft. and 13 ft. seams	Codroy River
26		Coal from Jukes', Murray, Howley and Shears' seams	Bay St. George
27		Coal from Aldery and Coal Br'ks	Grand Lake
28		"	"
29		Barytes, Syenite, Gypsum	Bay St. George, Codroy
30		Copper Ore, Nicholite, Magnetite, Hematite, Zincite, Molybdenite, Errubescite and Specular Iron Ore	Tilt Cove, Old Land, Fortune Bay, Lady Pond, Fogo Island
31		Petroleum, Red and Yellow Ochre, Red Granite and Syenite blocks	Panzer's Pond, Bay St. George, Petties and Terra Nova.
32		Slates and Dressed Timber	Trinity Bay and Benton
33		One (1) block Red Spruce	Gander Valley
34		One (1) block White Pine	"
35		One (1) block Red Pine	"
36		White Birch	"
37		Yellow Birch	Whitbourne.
38		Poplar	Gander Valley.
39		Yellow Birch	Whitbourne.
40		Tamarack	Gander Valley.
41		Red Spruce	"

The receipt of these exhibits was duly acknowledged by Sir Frederick Abel, Secretary and Director of the Imperial Institute, in a letter of which the following is a copy:—

Imperial Institute Road
London, S. W., July 30th 1898.

My Dear Sir,—

The first instalment of exhibits from Newfoundland, to which your letter of the 17th inst. refers, were received here a few days ago and unpacked in time for Sir James Winter, who paid a visit to the Institute yesterday, to inspect them. I am very glad, indeed, that Newfoundland will now be represented by specimens of some of its products at the Imperial Institute.

I have selected a very suitable position in one of our Galleries for their display. Sir James Winter approved of the locality where they were to be placed, and has given me authority to have cases constructed, and stands for the timber specimens, at a cost of about £50.

I am strongly in hopes that through the action of the Premier and your good offices, Newfoundland will ere long be well represented here by its products—a result which cannot fail to be of material benefit to the Colony.

I am, yours faithfully,

(Sgd.) F. A. ABEL.

Hon. Secretary and Director.

James P. Howley, F.G.S.,

Director of the Geological Survey, Nfld.

These exhibits were, for the most part, fairly good specimens of the crude materials which the country is capable of affording, but should not by any means, be looked upon as a complete and comprehensive suite of the varied mineral and other resources of the Colony. Much more time and means than were placed at my disposal would be required to collect and properly arrange a thoroughly representative one.

There can scarcely be room for doubt that such a means of bringing before the eyes of mining capitalists and others, the valuable natural resources of the country, is calculated, as Sir Frederick Abel remarks, to result in material benefit to it.

This fact is thoroughly recognized by the Governments of the Dominion of Canada, the Australian and other provinces of the Empire, all of which spare neither effort nor expense to make the best possible display of their material wealth; with the result that capital is flowing into these provinces from all directions.

The effect here is already quite perceptible, judging from the interest now displayed by outsiders in the mineral development of the country. The enquiries with regard to the nature and quality of our various ore deposits are numerous and all the time on the increase.

In view of the above facts, I would strongly urge the advisability of adding to these exhibits from time to time, and that a small annual sum of money be set apart for the purpose. Now that the nucleus of a permanent exhibit of the Colony's resources is established at this world-famed Institute, it would, I submit, be detrimental to our interests if we fail in keeping it up to date. The concluding paragraph of Sir Frederick Abel's letter of acknowledgment clearly shows that he assumes it to be the intention of our Government to add to the present collection, which he looks upon as a first instalment only.

Acknowledgments are due to the following persons who, in response to the printed circular sent them, or to a personal application, assisted in procuring or presenting specimens for the above purpose:—

Francis Williams, Esq., Manager for the Cape Copper Company and Captain W. R. Toms, Tilt Cove, Mr. Beatty, Manager of Pilley's Island Pyrites Mine, Mr. Bishop, Bay St. George, Mr. Chambers, Manager of Bell Island Iron Mine, Mr. A. John Harvey, Mr. John Browning, Mr. R. Rendell, Messrs. Shirran and Pippy, Mr. Selater, Mr. Cook, Captain Cleary, Mr. W. Ellis—for mineral and rock specimens; the Messrs. Reid and W. T. Sterrit for the timber.

During the past year several communications were received relative to the mineral statistics of the island. One of these was from the Under Secretary of State for the Home Department of the Imperial Government, and was accompanied by a blank form to be filled in and returned. The object, as set forth in this document, is to obtain a general idea of the mineral wealth of the Empire, and for the purposes of instituting comparisons with that of

other nations, etc. In acknowledging the letter, such figures of a reliable character as it was possible to obtain were made use of, but these, I regret to say, were of a meagre description. I would here beg to draw attention to the fact that there is no act of the Legislature making it compulsory upon those engaged in mining pursuits to furnish details of their operations or output, such as exists in all other mining regions, nor is there any authority resting with any person to collect such statistics. For some years past I have been endeavoring to get at the actual facts with regard to our mining industry, aided by the voluntary assistance of the mine managers and some of our principal mine owners, to whom my thanks are now tendered. Fortunately, only last spring I had the results published in an article on "Mining in Newfoundland" in the May number of the Canadian *Mining Review*.

In preparing this paper every effort was made to obtain the most accurate information, extending back to the very inception of mining in the country. To Mr. Beatty, of Pilley's Island, and Mr. Williams of Tilt Cove, I am much indebted for the full and accurate figures so kindly furnished. The latter gentleman even took the trouble to search back amongst the books of the former company and supply me with data of the earlier years' operations.

These statistics, though valuable for reference, were not by any means perfect, yet they certainly were the nearest approach to accuracy yet published.

A comparison of some of the figures, as given below, with those of the Customs Blue Book for the corresponding years, will convey some idea of the inutility of the latter for arriving at correct conclusions with regard to our mineral wealth.

COMPARATIVE RETURNS OF MINERALS.

AS PER CUSTOMS BLUE BOOK.			FROM MINE MANAGERS.		
Year.	Copper Ore.	Pyrites.	Copper Ore	Pyrites.	
	Tons.	Tons.	Tons.	Tons.	
1864	.....	.....	15	.....
1865	236	.....	459½	.....
1866	283½	.....	1,774½	.....
1867	79	.....	3,377	.....
1868	.....	.....	7,831½	.....
1869	3,422	.....	5,661	.....
1870	5,226	.....	3,908	.....
1871	1,407	.....	1,817	.....
1891	.....	19,150	.....	29,009
1892	.....	35,176	.....	35,216
1893	.....	37,880	.....	39,953
1894	64,672	40,582	45,951	42,095	
1895	}	36,496	5,467	34,330	
1896		}	66,852	15,720	27,274
1897			68,323	32,790	

FIELD WORK.

In July last, as you are aware, when it was decided to commence the blocking off of the lands along the line of Railway, in accordance with the new Contract, and for the purpose of facilitating the selection of the said lands, I was appointed to superintend the work. A plan was prepared and submitted to the Government for approval, showing what was deemed the best method of carrying out the provisions of the Contract. It was proposed that all lands bordering on the line of Railway be blocked off as nearly as possible in conformity with its general trend, but at the same time, and in order to avoid subsequent confusion, every block was to be bounded by true North, South, East and West lines. As different portions of the Railway assume entirely different courses, it was found best to separate it into three main divisions of nearly equal lengths, which, for convenience, were called the Eastern, Central and Western Sections. The first, beginning at Hall's Bay junction, extends to Gambo River. The second from thence to the mouth of the Humber, and the third from Bay of Islands to Port-aux-Basques. The general trend of the first and last sections approaches more nearly a Northerly and Southerly direction than

any other, consequently the lands along each were to be bounded by true East and West lines, while the trend of the Central section being more nearly Easterly and Westerly, true North and South lines were found best adapted to this section.

At first it was contemplated running out all the lines to the full extent of ten miles on either side of the track, where the land area would permit of doing so, but this idea was subsequently modified, and it was decided for the present to traverse the railway track and distinctly mark the intersections of every mile block with posts driven into the ground on either side of the right of way, which posts were also to indicate the direction of the boundary lines. At every fifth mile intersection a more permanent mark or hub was to be inserted in the centre of the road-bed, and marked with a cross-headed iron spike on the top. These were to serve as fixed points, from which a departure could at any time be taken if required to run out any of the lines, or to establish the position of any point of interest or importance in the vicinity.

The system having been approved of by the Government, Messrs. White and Noel were given charge of the field work, and instructed to proceed with the survey forthwith. Written instructions and tracings showing the proposed system were furnished each for their guidance.

Mr. A. White was directed to commence at Port-aux-Basques, the western terminus, and from thence work northerly along the Railway towards Bay St. George. Mr. Noel's instructions were to take his starting point at the intersection of the Little Barachois River, near the head of Bay St. George, and thence work towards Bay of Islands. Each in turn, having finished his section, would move on ahead, and make a new departure from some well defined point on the line.

Both parties proceeded by rail to their respective destinations, but owing to the absence of regular freight arrangements in the early part of the season, it was decided to send their provisions and outfit by the Coastal boat, Grand Lake, westward. Mr. Thorburn and myself also took passage by her. We met White's party at Port-aux-Basques, where all their stores were landed, and at Sandy Point we found Noel and party awaiting us. With as little delay as possible, the remainder of the outfit was landed and transported

by boat across to the Main that, at the head of the Bay, where our first camp was pitched.

Before starting work here, Mr. Noel and myself took separate sets of observations to ascertain the correct variation of the magnetic needle, and establish a true meridian to work from. The result of these observations was very satisfactory, giving a mean variation of $30^{\circ} 37'$, which was subsequently confirmed by a third set of observations taken by myself, giving an exactly similar result. Having next decided upon the starting point for Mr. Noel near the bridge, at the intersection of the Little Barachois River, and further fixed it by permanent marks and bearings on surrounding objects, I left him to prosecute his traverse along the railway track northward.

In the meantime, two men of the neighborhood were hired to accompany Mr. Thorburn and myself in an exploration of those parts of the adjacent country not fully examined previously. The lands in the immediate vicinity of the track being first inspected, we then made an excursion up country from the head of the estuary of the Main River, by means of a stream known as Bottom Brook. This fine stream enabled us to penetrate, with canoe, a considerable distance inland, from whence we traversed over much of the country lying between its waters and those flowing into the western end of the Grand Lake.

On our return to the coast we moved to Seal Rocks and examined the country on the south side of Flat Bay. We next proceeded by train to Middle Barachois River, and made a similar examination along the track in each direction. Here we met White's party again, coming up from Port-aux-Basques. They had completed their traverse to Craib's Brook, making rapid progress, and were now pushing on towards the end of their first section.

While in this vicinity the opportunity was availed of to take a further look at the coal seams uncovered in 1889, some ten miles up country, and also to explore and survey some of the tributary streams of the Middle Barachois. On arrival at the coal outcrops we found them completely obliterated by landslides and debris fallen from the cliffs above, so much so, indeed, that without a previous knowledge of their whereabouts one might pass along entirely unsuspecting of their existence. Not a vestige of them could be

seen, except at one point, where, after some considerable labor, we were able to uncover a part of the Jukes' seam.

On again reaching the railway track we moved to Fishel's River, and examined the country in this vicinity. An excursion was made inland over the Long Range Mountains, taking in a wide range of country between Fishel's and Flat Bay Waters, bringing us out again near Cairn Mountain, and thence back to Seal Rocks.

In the meantime White's party, having completed their traverse up to where Noel commenced, had moved on to Grand Lake and taken up a new section, commencing at Junction Brook.

Our provisions now running low we had to send for a further supply, and go on to Bay of Islands to await their arrival from St. John's.

During the delay here I proceeded on foot to Deer Lake, where Noel's party were then encamped. I found them progressing most favorably with their work, which was faithfully performed throughout.

Having obtained our fresh supplies we went back by train to St. George's Pond, where a considerable time was spent in an examination of the surrounding country. Those portions towards the north and west not having hitherto received much attention were now traversed in several directions. Portions of the Lewis and Blo-mi-don ranges were also included, and a visit paid to the York Harbor Copper Mines.

The remainder of the season was devoted to a further examination of the coal areas of the Grand Lake region, and an inspection of the coal mining operations now being conducted by the Messrs. Reid at Coal and Goose Brooks.

Mr. White, having completed his second section to Joe Gload's Pond, (now Millertown Junction), was employed surveying a line of road to connect White Bay with the railway near Sandy Lake River. Noel, having also completed his second section, had commenced a third between Gload's Pond and Norris' Arm, and was now working down the Exploits Valley. Subsequently both parties took up another section each, Noel working from Gambo to Clode Sound and White from the latter place to Come-by-Chance.

That portion of the country lying between Norris' Arm and

Gambo having been previously surveyed, the blocking off of the land along the entire line of railway from Port-aux-Basques to Come-by-Chance is now completed. The total number of mile blocks laid off amounts to three hundred and eighteen (318), but the actual traverse of the line is considerably more, the measurements of the past season alone being three hundred and ninety-four (394) miles.

I have the honor to be, Sir,

Your obedient servant,

JAMES P. HOWLEY.

Report on the Mineral Development and Statistics of Newfoundland for the Year ending December 31st, 1898.

THOMAS C. DUDER, Esq.,

Minister of Agriculture and Mines.

SIR,—In view of the rapidly growing importance of the mineral development of the country, the time seems to have arrived when it would be a matter of great public interest to have a regular and reliable annual record of the mining statistics kept for general information.

The placing of an intelligent and satisfactory review of this important industry before the world at large each year could scarcely fail to have a beneficial result, and to draw attention, such as actual figures are best calculated to do, to the mineral possibilities of the country.

I had previously made several attempts to get at the facts with regard to this branch of industry in the past, and had met with a fair amount of success, but not being fortified with the necessary authority to demand information from those engaged in mining pursuits, I had to depend entirely upon the courtesy of those parties which, in most cases, was freely extended to me. Still a certain amount of reluctance or indifference on the part of a few made it all but impossible to obtain full and accurate figures in every case.

Upon presenting to the Government the importance of such statistics, and the difficulties under existing circumstances of collecting the necessary data, etc., I am now happy to inform you

that by a communication received from the Hon. Colonial Secretary, of date February 3rd, 1899, my request to be authorized by the Government to collect and arrange such information has received their sanction. Since then I have used every effort to get at the most correct and reliable figures possible.

There are many difficulties, however, still to be overcome before an absolutely satisfactory statement can be produced. Nothing short of a personal visit and inspection of each mining locality and the obtaining of direct information on the spot, during the working season, would, it appears to me, accomplish the desired result.

In previous publications on this subject recourse was had to such returns as were published in the Customs Blue Book or the Year Book of Newfoundland, etc., but these were subsequently found to be unreliable.

In 1892, in a pamphlet entitled "The Mineral Resources of Newfoundland," I made the first attempt at presenting to the public statistical figures of this important industry, depending almost entirely upon the above mentioned sources of information. Subsequently an appeal was made to the mine managers and those interested in the mineral development for more direct information with good results. A much more satisfactory statement was produced and published in the May number of the *Canadian Mining Review* for 1898. This, with the information obtained latterly, enables me now to present the fullest and most complete returns ever yet placed before the public on this head, as the accompanying tables will attest.

It may be necessary to state, that in the following tables the long ton of 2240 pounds is used throughout, except where otherwise stated. The value of the ores are chiefly only approximate, but wherever possible the correct figures are given. The calendar year ending on December 31st, 1898, is used instead of the fiscal year, because the information obtained referred thereto, and it was not feasible to arrive at the proper proportions of the shipments for the year ending June 30th.

The mining people, as a rule, make up their returns extending over the whole shipping year, so that I could not expect them to take all the trouble to divide up their yearly output and furnish returns including the last half of one year and the first half of another

With regard to the discoveries and development of the past year, the information given is derived chiefly from those parties engaged in mining whose statements may be considered reliable; my thanks are especially due to the following gentlemen:—Mr. Williams, manager of the Tilt Cove copper mine; Mr. Beatty, manager of Pilley's Island pyrites mine; Captain Toms, of Little Bay mine; R. E. Chambers, M.E., manager of the Bell Island mine; Hon. P. Cleary, proprietor of Sunday Cove Island mine; Mr. John Currie, of Wilton Grove slate quarry; the Messrs. Reid, John Browning, R. Rendell, Thomas Cook, R. Sleater, P. Holden; and to Mr. J. C. Laver, Secretary of the Cape Copper Co.; and Mr. Rothwell, Editor of the *Mining Industry*, New York. From these and other sources an amount of valuable information has been gathered which, when properly formulated, cannot fail to be of interest.

In this connection, if I might offer a suggestion, I think it would be advisable in the future, should the publication of annual Mining Statistics be approved of, to have a set of printed blank forms prepared to be furnished to parties engaged in mining pursuits, with a request to have them filled in and returned to the Department.

These blank forms might be arranged somewhat as follows:—

NO. I.

MINES AND MINERALS STATISTICS.

Name of Mine and Char. of Product	Quantity of Ore Raised	Manuf'd or used in country	Exported To What Market	Value of Crude Material at Mine

NO. II.

NUMBER OF PERSONS EMPLOYED IN AND ABOUT MINE.

Above Ground	Below Ground	Totals

NO. III.
NUMBER AND KIND OF ACCIDENTS.

Name of Individual	Occupation	Nature of Accident	Remarks

DISCOVERY AND DEVELOPMENT, 1898.

Under this head I propose to give a brief account of what has been accomplished in the furtherance of our knowledge of the mineral resources of the island by such exploration and development as has taken place during the year, and of which no regular mining statistics are yet available.

It is well known that renewed interest was taken in the exploration for, and exploitation of mineral deposits last year, not only in Newfoundland but on Labrador. According to the reports circulated from time to time some of the various prospecting parties met with considerable success. Of course it is difficult to obtain any reliable information from such sources, and all the reports in question must be received with a considerable amount of caution. Where, however, actual mining development has taken place, even though no shipments of ore have yet resulted, it is possible to get at some interesting facts. These will appear under the headings to which they refer in the following detailed account of the year's mining operations.

Brick.

I am indebted to Messrs. W. C. Job, James Pittman and Charles Pelley for such information of this industry as could be acquired. Mr. Pittman informs me that some forty years ago a Mr. Cameron, builder, of St. John's, made the first attempt to manufacture brick in Smith's Sound, Trinity Bay, at the place now known as the Brick Yard. After some five years experience Cameron sold out to Pittman, who, with his family, has been prosecuting the business on a small scale ever since, depending on the local markets for the disposal of the product of their industry. Their output averages about 60,000 brick per annum, which they sell at their yard for seven dollars (\$7) per M. Mr. Pelley, of

George's Brook, also in Smith Sound, has been making brick since 1888, and turns out about the same average quantity, which he disposes of in St. John's at the same rate of \$7 per thousand.

Eight or ten years ago a company was formed to work on a more extensive scale at a place called Elliot's Cove, on Random Island, in Random Sound, and a considerable outlay in procuring the necessary plant was undertaken. For the first few years their operations were not very successful as regards quality, though a large quantity of brick was made. According to the census return for 1891 the figures for that year are given as 100,000, valued at \$7,000. Of late years much improvement has taken place in the character of the product turned out, and a consequent better demand for the article has resulted. Mr. W. C. Job, who is largely interested in this venture, informs me that their annual output to date has averaged about 750,000, and that the selling price in St. John's is about nine dollars (\$9) per M. They are introducing some new and expensive plant this season and expect, if circumstances prove favorable, to produce at least one million brick.

The manufacture of brick is the only industry as yet established, dependent upon the clay deposits of the country for the raw material. As, however, it has been pointed out in the reports of the Geological Survey, there is a vast natural supply of clays, suitable for a variety of purposes, in the island, there is consequently room here for an immense development of kindred employments.

Few people realize the important part clay plays in the economic enterprises of the globe. There is in reality scarcely any product of the mine whose value to the world at large outweighs that of this commonplace material. The value of the clay and clay products of the United States in 1897 reached the immense amount of \$56,121,101, being only exceeded by that of the coal and iron products. In Canada, also it was over \$2,000,000, ranking next in importance and value to that of gold, silver and coal.

Building Stone, etc.

The only returns I could obtain under this head were from Mr. H. D. Reid, who kindly furnished me with the figures of building stone and paving stone quarried by them on Southside Hill last year. As both products were obtained from the same quarry and are of the same material (Signal Hill sandstone) I shall, for

convenience, class them together. Some 400 tons of building stone, valued at \$400, and 1,500 tons of paving stone, worth \$13,600, were extracted and rough-dressed during the season.

A considerable industry in quarrying rock of a similar character from the hills or ridges in the vicinity of St. John has been prosecuted for a great number of years, and an enormous amount of the material has been utilized in the past in the construction of several of our churches and other public buildings. It is used extensively also in such works as retaining walls, home foundations, etc., and the debris in macadamizing the streets of the city. The industry is, however, of a desultory nature, and is only active when some large structure is in course of erection, or at such times as during the building boom consequent upon the great fire of 1892. A few farmers and others devote a part of their leisure time each fall and spring to quarrying in the neighborhood of their farms, and usually find ready sale for the small amount they take out.

Altogether, if the figures could be even approximately estimated, it would be found that this source of employment is representative of a considerable amount of wealth in the community.

Under the head of paving stone, also, it should be noted that beach stones used in laying down the sidewalks. The Municipal Council purchase each season an average of \$500 worth for this purpose.

Sand and gravel for mortar and for concrete are of considerable value, but no figures can be given to indicate their accuracy.

Chromite Ore

The Bluff Head Chromite Iron Mine is reported to have been actively worked during the year 1898, but the crushing and concentrating of the lower grade ore previously mentioned in the shipment, as per table, of 12 1/2 short tons of chromite oxide. The only other mining operations for minerals of commercial value was a small attempt to open up a deposit on the west coast near Rocky Bay. I have no particulars of the result of this latter work.

The figures in Table 2 are the actual quantities of ore mined, but 863 tons were shipped to market up to the end of last year.

Coal.

Last year witnessed the first actual bona fide attempt at coal

mining in Newfoundland. Early in the season the Messrs. Reid constructed a branch railway line from the trunk line near Scott's Pond to Coal Brook, head of Grand Lake, a distance of about $2\frac{1}{2}$ miles, and established at the junction the new station of "Howley," where a fine house and other structures have since been erected. They commenced mining on the No. 1 seam, Coal Brook, in July with some twenty-five (25) men, afterwards increased to fifty. Most of the work was of a preliminary nature, preparatory to mining on a large scale. I was informed by Mr. H. D. Reid that up to the end of the year some 2,900 tons of coal were taken out, a portion of which was consumed on their locomotives and is said to have given satisfaction as a steam coal.

Copper Ore.

The greatly increased value of metallic copper of late years owing chiefly to the demand for this substance for electrical purposes, has given an impetus to the search for copper-bearing ore all over the world. Mining properties not hitherto considered worth developing are now eagerly sought after, and several abandoned mines are being re-opened under new auspices. Among those latter the Little Bay Copper Mine, in Notre Dame Bay, was operated last year by the Newfoundland Copper Company, Limited, a new Company recently formed, which holds options on several other properties in the same neighborhood. I learn from the manager at Little Bay, Captain Toms, that during the season they sent to market from Little Bay and Lady Pond Mines 413 tons of ore and twenty tons of regulus, while they had in stock at end of the season 150 tons of ore at Lady Pond and 130 tons at Little Bay. Previous to this Company's taking over the properties in June last Messrs. Stewart and Foote, of Little Bay, had shipped 220 tons of ore and 30 tons of regulus of 24 per cent.

During the same season also, the Tharsis Company took options on several properties in the same Bay and did considerable developing work on one or two, especially on Sunday Cove Island Mine and on a claim in S. W. Arm. No particulars of their work could be obtained direct from the management, but by parties interested in both properties I was informed that from the former they raised 200 tons of ore, and from the latter 100 tons. None of this has yet been marketed. The Hon. P. Cleary, owner of Su

day Cove Island Mine, I previously raised 130 tons of ore, which is, also, still on the ground.

The Messrs. Reid worked on a very rich copper vein in the Lewis Hills Range, West Coast, for a time, raising about one ton of ore. The Messrs. Harvey & Co. did considerable mining at York Harbor, Bay of Islands, on the foot-hills of the Blomidon Range, and though not much ore was actually taken out, the indications presented especially during the work of last winter, give promise of its developing into a good mine. Several smaller attempts to open up copper deposits took place in various sections of the island and on Labrador, but I have not been able to procure any particulars of the results. Operations at Tilt Cove were active during the year, and no less than 66,085 tons of ore were sent to market up to the end of December.

Granite.

During the construction of the cross-country railroad, the Messrs. Reid have opened up three granite quarries. One near Shoal Harbor, Trinity Bay; another near Benton, east end of Gander Lake; and the third on the Three Topsail Range, near the height of land in the western interior. The material derived from these quarries was almost exclusively used in the construction of their bridge abutments, and was found admirably adapted for the purpose. In fact, the rock is not only durable but pretty, and when polished presents a very handsome material for structural or monumental purposes, for which latter a small portion has been used. This refers more particularly to the Three Topsail granite. What the value per annum of the material so quarried and utilized may have been I do not know. Mr. Reid estimated last year's output at 1,000 tons, valued at \$20,000, and this would probably be a fair average of the amount and value for each year since the quarries were opened. Many beautiful granites occur along the course of, or in proximity to, the railway. Varieties of a pretty black and white, and white and yellow rock are seen near Gambo; and a red granite, fully equal to, if not superior to the St. George rock of New Brunswick, lies not far from the Topsails.

Granites and granitoid rocks of infinite variety of color and texture occur in many parts of the Island. At Petites, on the Southern Coast, Mr. William Ellis, builder, has opened up a

quarry of clove-grained reddish syenite of a unique character. This rock presents a set of remarkable cleavage planes, which admits of its being quarried out in slabs of almost any dimensions, from a few inches up to several feet in thickness, and of various lengths up to twenty-five (25) or more feet. Its natural cleavage and the perfect parallelism of the bedding planes render it suitable just as it comes from the quarry, and with scarcely any dressing for many useful purposes, such as door and window sills, stair treads, hearth stones, paving and curb stones, etc. During the past few years Mr. Ellis has brought to St. John's, in schooners, about three hundred tons of this rock, which he has succeeded in disposing of to advantage in the local market at the rate of about eight dollars (\$8) per ton, but the demand for such material in the country is too limited. I fully believe if this rock could be properly introduced into foreign markets it would create a demand for itself in a short time.

Iron Ore.

The only iron mine which can be said to have been systematically worked as such, so far, is that of the Nova Scotia Steel Company, situated on the eastern end of Bell Island, in Conception Bay. Their output last year reached the respectable figure of 102,000 tons, which shows a rapid development. Only four years ago the first shipment of 150 tons took place from this property. Preparations were made last autumn for a very extensive scale of operations during the coming season. The tramway was extended east and west from the present workings about one mile each way, and a new mine established at either extremity with independent power houses, hoisting gear, etc. The surface has been stripped and the ore band exposed over several acres of ground. I understand orders were then booked in advance for at least 200,000 tons of ore. It was rumored that negotiations were pending with the Whitney Syndicate for a transfer of a portion of this property to the latter for the handsome sum of one million dollars (\$1,000,000). Should this deal be consummated, it would mean the opening of a separate mine under different auspices on this favored islet.

Quite recently information reached us that the famous German gun manufacturers Krupp & Company—have purchased out the rights of those individuals holding leases over the western half

of Bell Island. It is to be hoped this information, also, is correct, and that the coming summer may witness still another iron mine opened, which should afford quite a lot of employment for our people.

In the District of Bay-de-Verde last year, prospecting for iron was prosecuted with vigor, and resulted in the application for licenses of search covering almost the entire area of the peninsula between Conception and Trinity Bays.

The "Newfoundland Iron Ore Company, Limited," having acquired the leasehold of some fourteen square miles of this territory in consecutive order, through the entire length of which the continuity of the main hematite lode of the district is said to have been proven by means of shafts and trial pits, and commenced last year to prepare for active mining operations. A main shaft was sunk vertically at Workington, near Lower Island Cove, to a depth of one hundred and twenty (120) feet, which is expected to intersect the lode at about 200 feet below the surface. In all, seven holes have been sunk at intervals along the lode, ranging from forty (40) to one hundred and twenty (120) feet in depth, and it is reported that some four hundred (400) tons of ore have been raised to the surface, and about half a million (500,000) tons are said to be in sight (?). The ore is a red hematite, of a higher grade than that of Bell Island, and freer from injurious ingredients, such as sulphur and phosphorus. The Company have built a railroad from Workington to Old Perlican in Trinity Bay, seven (7) miles in extent, and at the latter place constructed a substantial loading wharf, so that everything will be in readiness to ship ore the coming season.

Another Company, known as the "Coltness Company," has just leased a second area of nineteen (19) square miles in the same district, near the Ochre Pits, said to cover the continuation westward of the same deposit of ore.

Several other discoveries of iron ore and a few attempts to open them up were made during 1898. The Messrs. Reid commenced work upon a deposit of hematite near the Grand Falls of the Exploits River, and took out about one hundred (100) tons of ore. I am not in possession of the facts as regards the extent or thickness of this deposit. Mr. William Cook struck some pockets

of a rich hematite at his manganese mine, Fortune Harbor, Notre Dame Bay. Mr. Robert Rendell had some men at work on another somewhat similar deposit of hematite in White Bay. The value or otherwise of these latter finds has yet to be established by actual experiment. So far as the ores are concerned, all the specimens seen by me were of a superior quality, averaging over sixty (60) per cent. in metallic iron.

Quite an excitement has been created during the past autumn and winter by the discovery of iron ores at several points on the south side of Bonavista Bay, and a consequent rush for licenses of search to cover the ground has resulted.

Other finds of iron ores both in this Island and on the Labrador were rumored last year, but nothing reliable could be obtained regarding these latter. They all serve, however, to emphasize the oft repeated opinion that iron ores abound and are likely to become a great source of wealth and employment for the people in the future. The advantage of our proximity to the principal markets of the world should weigh greatly in our favor in this respect.

Manganese.

Some work was done during the summer at Fortune Harbor by Mr. William Cook on the manganimiferous iron deposit in that locality, but no shipment of ore was made. So far as I can learn only one cargo of 1,500 tons, in 1897, has as yet been sent to market, and I am unable to find what disposal was made of it.

Petroleum.

There was no work done either at Parsons' Pond or St. Paul's, on the N. W. Coast, last year in the way of further developing the oil region there.

Negotiations were pending as regards the former property with an English syndicate, which were finalized during the past winter, and it is understood the work of testing the property will soon be resumed, with a more thorough equipment, when it is confidently hoped by the Newfoundland Oil Company that the results will fully come up to their expectations. Mr. Andrews, of St. Stevens, N. B., did a considerable amount of prospecting and boring for petroleum at the Middle or Shoal Point of Port-au-Port Bay during the summer months. Four bore holes were put

down to varying depths, each of which gave indications of oil. It has been stated that quantities pumped from these wells indicated a probable yield of 20 barrels per diem (?). I cannot vouch for these reports, as I had no opportunity of either visiting the spot or of acquiring definite information of the work performed, etc. As the formation is identical with that of Parsons' Pond, and the quality of the petroleum quite similar, there seems reason for the opinion that the other conditions are likely to prove pretty similar also. I am informed extensive boring operations will be conducted in this field the coming season.

Pyrites.

Pilley's Island Mine has, as usual, shipped a large quantity of ore, amounting to 32,355 tons, all of which went to the United States market.

A new pyrites mine was opened at Middle Arm, Bay of Islands by the Messrs. Reid last year, which gives promise of becoming a large producer ere long. About 200 tons of ore high in sulphur were mined, but none has been shipped away as yet. Another deposit which looks favorable for development was discovered near York Harbor, Bay of Islands, on the foot hills of the Blomidon Mountain Range.

Slate.

The slate industry of Trinity Bay is not, I regret to say, in as flourishing a condition as the undoubted excellent quality of the raw material and the facilities for operating the quarries in Smith's Sound should warrant. Mr. John Currie, who is now the only person engaged in the manufacture of slate, informs me that there is an unlimited supply of first class material available, but it would require a large capital and access to foreign markets to make a good paying business of it. Mr. Currie can only find a local demand for some 300 squares per annum, valued at about four dollars and fifty cents (\$4.50) per square at the quarry.

In view of the large and increasing demand for a good quality of slate for roofing and other purposes and the fact that in the United States this trade is growing rapidly in importance owing to an increased export, it does seem a pity that our slate cannot be turned to better account. So far as I can learn none of the ma-

terial used in the United States is of better quality than that of Trinity Bay, which in point of excellence ranks fully up to the standard of the far-famed Carnarven slate. It is very probable, also, that it is situated in exactly the same geological horizon as the latter.

MISCELLANEOUS.

Under this heading a few notes referring more particularly to ores mentioned in Table II., but not operated last year, may be of interest.

Antimony.

A visit to the antimony mine at Moreton's Harbor last spring, and a close examination of the property convinced me that it was a valuable deposit. The census returns for 1891 give 80 tons of ore valued at \$6,400, whereas the Customs returns only show a value of \$1,000 for the same year and \$1,200 for the year previous (1890), or a total of \$2,200. These are the only figures I could procure, and they are evidently not much to be relied upon. While at the mine last year I was informed that about 150 tons of ore had been shipped therefrom altogether, and some eight or ten tons were then on the ground in a dump near the entrance to the main drift and at the inner end of the same drift.

Arsenical Pyrites.

Only one small lot of 125 tons was shipped in a schooner from Stewart's mine, Moreton's Harbor, in 1897, to some part of Nova Scotia, but I am told no return was ever made, as the purchaser of the ore declared insolvent about that time.

Asbestos.

In 1895 the Customs returns put a value of \$2,000 upon some sample bags of asbestos sent to England, but the owner of the material, Captain Cleary, has not, so far, realized anything from this shipment.

Gypsum.

Considering the immense deposits of this material in the country, surrounding St. George's Bay and the Codroys, it is rather strange it has not been utilized to better advantage. Large quantities of gypsum are mined and shipped every year from Nova Scotia, Cape Breton and the Magdalen Islands to the United

States markets. An attempt was made a few years ago by a Mr. Scoles to work gypsum at Codroy and Bay St. George, and I find the following figures of the result in the census and Customs returns:—in 1891, 250 tons, \$1,250; 1892, 170 tons, \$850; and in 1893-94, \$1,000 and \$1,200 worth. There are no returns since the latter date, so that the work must have been abandoned about that time.

Labradorite.

About 1894-95 some Americans took out claims for this mineral on St. Paul's Island, Labrador, and made an attempt to mine or quarry it and introduce it into the American market. Evidently the experiment did not prove remunerative, as they have not continued to prosecute the enterprise. The Customs returns for 1895 are responsible for crediting them with a shipment of \$400 worth.

Lead.

Nothing has been done of late in the development of our galena deposits, and I can only find the small sum of \$200, in 1893, credited to this mineral. From whence the shipment was made or what it of ore it represents does not appear. In the early part of last spring a Mr. Treloar, representing the Tharsis Company, had the old workings of the Silver Cliff mine, at Little Placentia, cleared out, and did a little prospecting work there, but nothing has so far come of it. Mr. R. Rendell has some men at work on a galena deposit at Sopp's Arm, White Bay. The ore is contained in a ferruginous quartz vein, in combination with copper and iron pyrites, assays of which have shown it to contain an appreciable percentage of gold.

Lime.

There are no returns either of lime-stone quarried or lime burnt that I can get hold of, except from the last census of 1894. That year, it appears, some 13,500 bushels of lime, valued at \$3,610, were manufactured in or near St. John's. It is well known that for a great number of years lime has been regularly burnt at three or four kilns in St. John's and Topsail. Much of the stone used was of local product, quarried near Topsail Head, Conception Bay, or at Cobb's Arm, New World Island, Notre Dame Bay. A large amount of lime-stone also was used in fluxing the copper

ores at the smelting works in the latter Bay during their operation. No account of this source of industry is obtainable.

Precious Metals.

Though both gold and silver are known to exist not only in the free state but in combination with other metals in the island, we cannot so far point to any output of either amongst our mineral products. It is worthy of note, however, that the assays of many of our ores, especially copper and iron pyrites, have shown the presence of both gold and silver in many instances, and often in appreciable quantities. In 1892, in the pamphlet published on the Mineral Resources of Newfoundland, it was stated that gold to the value of £10,000 sterling had been extracted from the Tilt Cove ore, in the process of smelting it, during the previous twelve months. Since then I have ascertained that this information was quite correct. Colonel Young, one of the owners of the Tilt Cove property, informs me that the Cape Copper Company, at their smelting works at Briton Ferry, are obtaining a yield of gold of about two ounces to one ton of metal. As the ore averages $31\frac{1}{2}$ per cent., or say 33 1-3 tons of ore produce one ton of metal, we thus have an average yield of about 1 1-5 dwts. of gold per ton of ore. A further confirmation of the profitable extraction of gold from this ore is to be found in the *Mineral Industry* for 1897, published in New York, which credits Newfoundland, for that and the preceding year, with a production of 3,000 ounces of gold, valued at \$62,010, and 4,000 ounces of silver each year, all of which was derived from the same source.

TABLE I.
MINERAL PRODUCTION OF NEWFOUNDLAND FOR THE YEAR 1898.

Name of Product.	Quantity.	Value.
Brick	930,000	\$ 8,010
Building Stone	100 Tons	400
Chrome Ore	724 Short Tons (a)	15,000
Coal.....	2,900 Long Tons (b)	11,600
Copper Ore.....	66,798 Long Tons (c)	274,452
Granite.....	4,000 Long Tons	20,000
Iron Ore.....	102,000 Long Tons	102,000
Paving Stone.....	1,700 Long Tons	13,600
Pyrites	32,335 Long Tons	161,675
Slate.....	300 Squares	1,350
		\$608,087

(a)—This is the amount of ore dressed, *i.e.*, concentrated at the mines and shipped to market last year. It assayed 55 per cent. As every unit over 50 per cent, increases the value from 75 cents to \$1 per unit, I have assumed \$15,000 as the probable value of this shipment.

(b)—These were the figures given me by Mr. Reid. He, apparently, did not deduct the cost of mining, *etc.*

(c)—For the Tilt Cove portion of this output, Mr. Williams, manager of the mine, estimates the value of the ore at about \$3 per ton. Mr. Rendell, agent for the Company, thinks it should be about \$1.50 per ton. From other grounds I have assumed \$3.50 as the probable average value of the ore after deducting all charges for working expenses, *etc.* The regulus which, from the Cape Copper Company's reports, averages about 16 per cent, metallic copper, should, after deducting all costs for mining, smelting, *etc.*, stand about \$36.60 per ton, allowing thirteen cents per pound of metal as the market price for the year.

The figures given in Table II, are based chiefly upon the metallic contents of the ores and the average price per ton of the manufactured material during the years specified, without deducting the cost of mining, shipping, *etc.* The values of the non-metallic substances are chiefly the selling prices in the local market, which was the only source from whence to form any conclusions.

I have the honor to be, Sir,

Your obedient servant,

(Sgd.) JAMES P. HOWLEY.

TABLE
COMPARATIVE STATEMENT OF MINERAL PRODUCTION FOR THE

MINERAL PRODUCT	1888		1889		1890		1891		1892	
	Quan.	Value	Quan.	Value	Quan.	Value	Quan.	Value.	Quan.	Value
Antimony										
Arsenical Iron						\$ 4,270		\$ 4,000		
Asbestos										
Brick	120 M	\$ 840	120 M	\$ 840	120 M	\$ 840	82 M	7,140	870 M	\$ 7,570
Building Stone										
Chrome Ore										
Coal										
Copper Ore										
Regulus, etc. †	5,817*	\$433,950	4,119	421,719	2,245	230,148	11,825	472,065	20,613	780,527
Granite										
Gypsum										
Iron Ore							250	4,250	170	850
Labradorite										
Lead										
Lime										
Manganese							13,500	3,610		
Paving Stone										
Petroleum										
Sulphur										
Sulphurites	1,850 †	9,250	7,530	37,650	16,070	80,350	29,000	145,045	30,216	186,750
Slate										
Totals		\$443,140		\$443,209		\$312,508		\$630,710		\$1,810,477

* Based on the average percentage of metallic copper, and its market value, during each year.
† Average estimated value at mine, after deducting all costs and charges, \$5 per ton of ore.

TABLE II.
FOR THE PAST TEN YEARS, FROM 1888 TO 1898, BOTH INCLUSIVE.

Value	1893		1894		1895		1896		1897		1898		TOTAL VALUE.	
	Quan.	Value	Quan.	Value	Quan.	Value	Quan.	Value	Quan.	Value	Quan.	Value.		
													\$ 2,200	
									125					
							\$ 2,000						2,000	
7,570	870 M	\$ 7,570	870 M	\$ 7,570	870 M	\$ 7,570	870 M	7,570	870 M	\$ 7,570	870 M	\$ 7,570	62,650	
											100	400	400	
						32 ?	60	1,500	22,500	2,300	33,350	sh 1724 ?	11,400	70,890 ?
												2,900	11,600	11,600
527	45-131	630,101	41,893	523,001	45,051 ?	248,300	51,197	584,325	68,323	690,354	66,798	656,741	5,907,638	
						50 ?	501	120 ?	1,008	120	1,008	4,000	20,000	22,520
850		1,000		1,200									4,300	
						750	750	38,450	38,450	38,040	38,040	102,000	102,000	200,140
							400						400	
		200											200	
													3,610	
										1,500 ?	18,000		18,000 ?	
											1,700	13,000	13,000	
So	30 053	109,765	42,095	210,175	34,330	171,050	27,271	136,370	32,790	163,050	32,335	161,075	1,502,200	
			300 sq.	1,350	300 sq.	1,350	300 sq.	1,350	300 sq.	1,350	300 sq.	1,350	0,750	
947		\$847,930		\$743,596		\$666,500		\$793,000		\$974,552		\$980,330	\$7,829,158	

bring each year.

or ton of ore.

