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REPORT

ON THE

REID AREAS

IN THE

GLACE BAY DISTRICT

OF THE

Sydney Coal Field,

BY

JOHN RUTHERFORD, Esq., C.E., M.I.M.E., England.  
*(Formerly Inspector of Mines in North Carolina.)*

TOGETHER WITH

A PLAN

OF THE

GLACE BAY DISTRICT.

BY HENRY YOUNG RIND, M.A.

SHOWING THE

OUTCROPS OF THE SEAMS

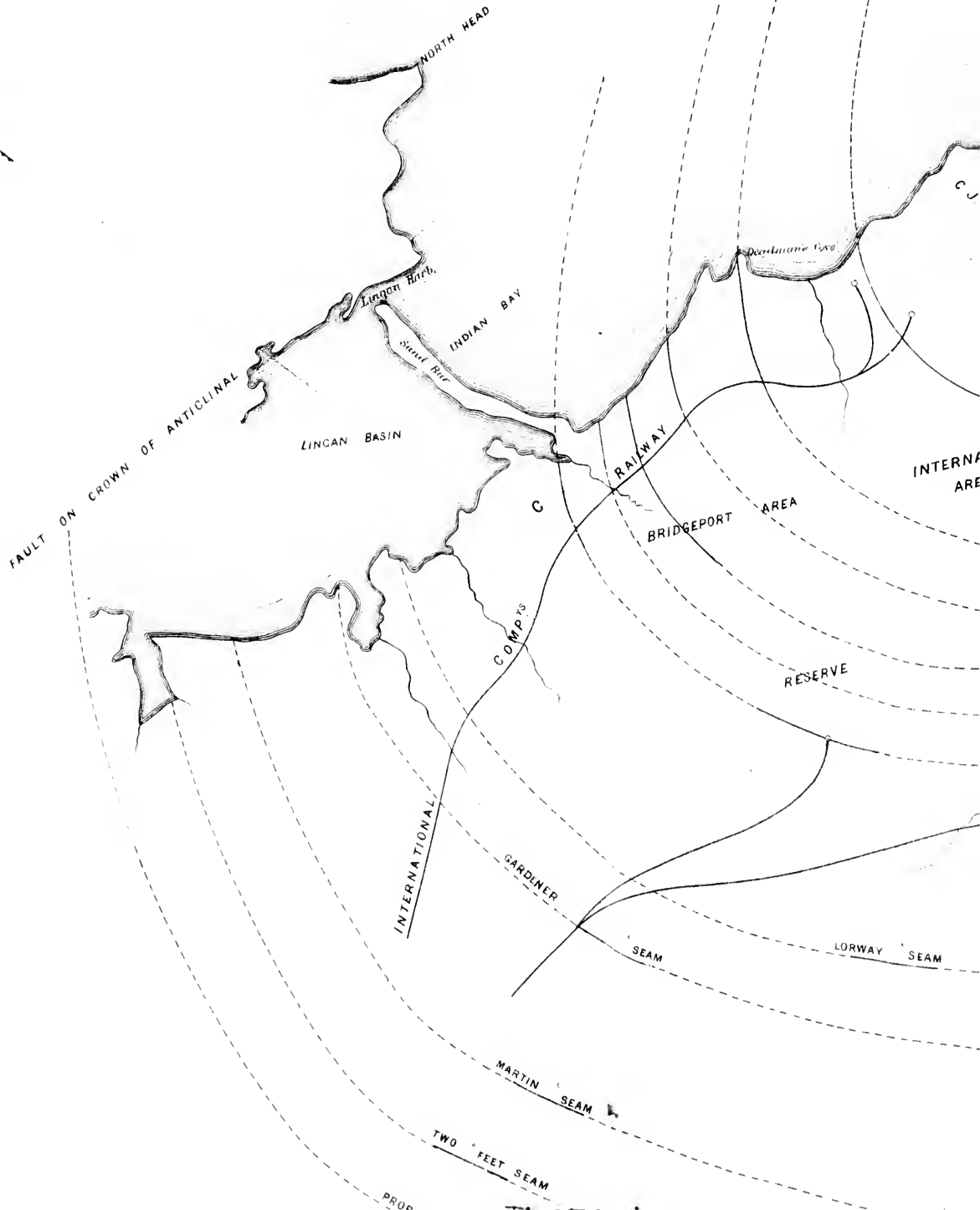
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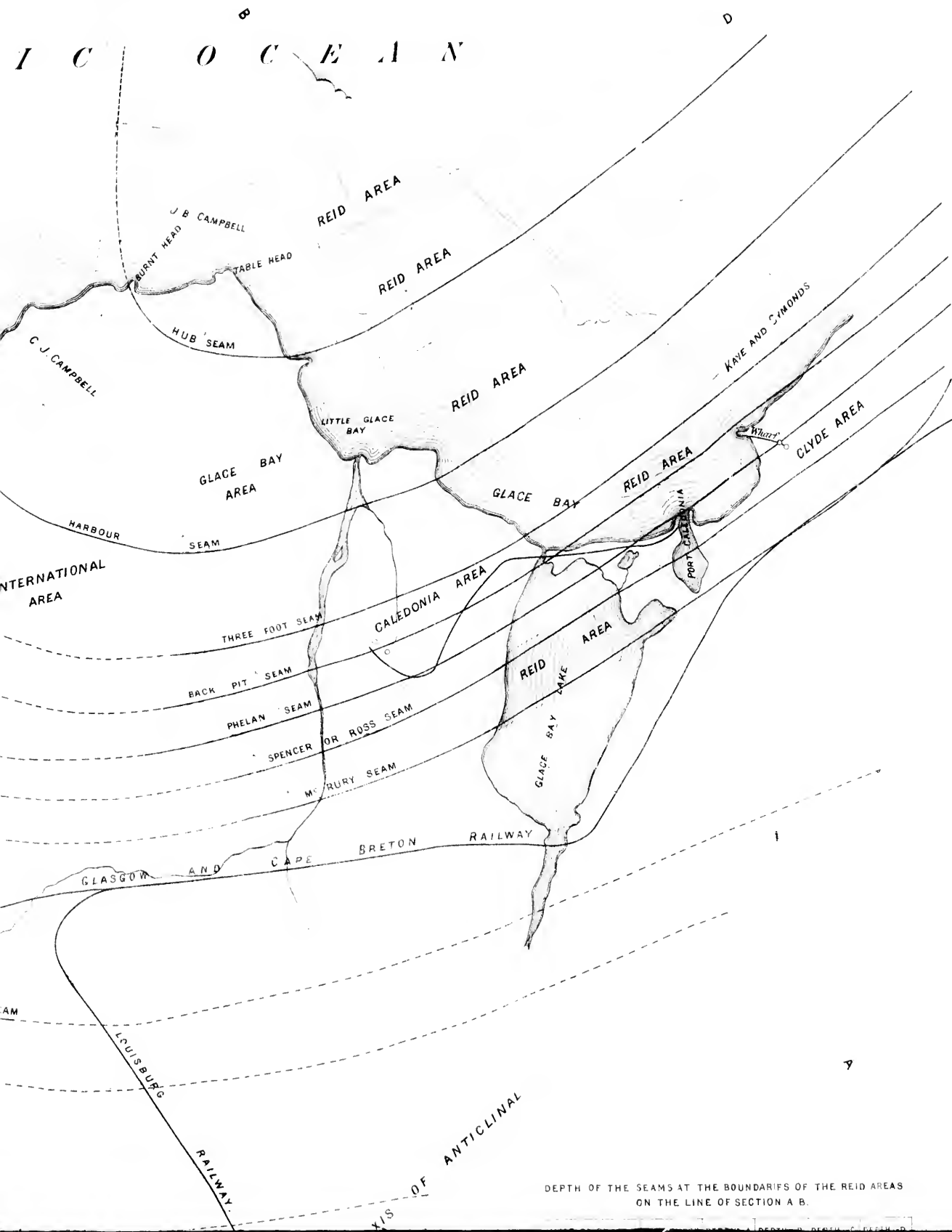
DISTRIBUTION OF THE COAL.

HALIFAX, N. S.

PRINTED BY FOWLER & PATRICK, HOLLIS STREET,  
1875.

# A T L A N T I C





DEPTH OF THE SEAMS AT THE BOUNDARIES OF THE REID AREAS  
ON THE LINE OF SECTION A B.

Plan  
SHOWING THE POSITION  
OF THE  
**REID AREAS**  
IN THE  
GLACE BAY DISTRICT  
of the  
**SYDNEY COAL FIELD.**

WITH SECTIONS

Illustrating the structure of the Basin.

Scale 40 Chains 1 Inch.

Henry J. Reid  
July 21 1873

SECTION

Scale 2

SEA LEVEL

D

HUB SEAM

REID BOUNDARY

EAM

LOUISBURG

RAILWAY

AXIS OF ANTICLINAL

DEPTH OF THE SEAMS AT THE BOUNDARIES OF THE REID AREAS  
ON THE LINE OF SECTION A.B.

NAME OF SEAM	THICKNESS	DEPTH A	DEPTH B	DEPTH C	DEPTH D
Harbour	5 feet				160 feet
Three Foot	3 "			230	706 "
Back Pit	4.6 ins			387	760 "
Phelan	8.3 "			395	867 "
Ross	5.0 "		50	535	1008 "
McRury	2.8 "		140	637	1100 "
Lorway	4.6 "	400	544	1031	1504 "
Gardener	4.9 "	664	808	1295	1764 "

SECTION ON LINE A.B.

SCALE 20 CHAINS=1 INCH

HARBOUR SEAM

C

THREE FOOT

BACK PIT

PHELAN

B

ROSS

McRURY

A

LORWAY

GARDENER

REID BOUNDARY

CALEDONIA BOUNDARY

CALEDONIA BOUNDARY

REID BOUNDARY

REID BOUNDARY

GARDNER

LORWAY

MURRY

ROSS

PHELAN

BACK PIT

THREE FEET

HARBOUR

HUB

BRIDGEPORT AREA

INTERNATIONAL

C. J. B. CAMPBELL

GLACE BAY CO

J. B. CAMPBELL

REID BOUNDARY

SECTION ON LINE

SCALE 40 CHAINS = 1 IN.

SECTION ON LINE, C. D.

SCALE 40 CHAINS = 1 INCH

INTERSECTION OF LINES OF SECTION

GLACE BAY CO

J. B. CAMPBELL

T. S. REID

\* REID BOUNDARY  
\* CALEDONIA BOUNDARY

\* CALEDONIA BOUNDARY  
\* REID BOUNDARY

\* REID BOUNDARY





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A PLAN  
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SHOWING THE  
OUTCROPS OF THE SEAMS  
AND THE  
DISTRIBUTION OF THE COAL.

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SUNNYSIDE, WINDSOR, N. S.

*July 21st, 1879.*

*Dear Sir,*—I have now the pleasure to enclose the Map of the Glace Bay District of the Sydney Coal Field, with sections showing the structure of this Basin. Your areas are coloured pink so that they can be readily distinguished. You will observe that the strata in the Basin are symmetrically arranged, and according to numerous observations which now extend over nearly the entire Basin, there is no evidence of dislocations between the two anticlinal folds shown on the plan. The sections are made in conformity with this view.

Very truly yours,

HENRY Y. HIND,  
*Geologist.*

THOS. S. REID, Esq.

HALIFAX, N. S.



# REPORT.

*Halifax, November 11th, 1869.*

To THOMAS S. REID, Esq.

SIR,—In accordance with your request I now submit the following Report on your Coal Property at Glace Bay, Cape Breton :—

The property consists of four areas, each one square mile in extent. These areas extend from the northern shore of the Big Glace Bay along the coast line about half a mile on the north side of the Little Glace Bay Harbor and seaward at the easternmost part about two and a quarter miles.

The importance of the position of the property and its consequent value is due to the following circumstances :—1st, The number and extent of the seams of coal; the existence of which has been proved on the adjacent areas. 2nd, The facility and comparatively inexpensive manner in which the seams may be opened.

Careful explorations, made by Professor Leslie, have clearly defined the position of the principal beds in this part of the Cape Breton Coal field. These are known on the northern side of Big Glace Bay as the Hub, the Harbor, the Phelan and the Ross seams.

The first or uppermost in the series is the Hub seam which is of the following sections :—

	feet.	inches.
Top Coal (coarse).....	1	2
Coal (good).....	5	6
Band (stone).....	9	1½
Coal (good).....	3	0
Total.....	9	9½

It is worked exclusively by the Glace Bay Company, the line of crop being not far from the shore, and nearly altogether in that Company's property.

The next seam, the Harbor, is also worked by the same Company. It is of the following thickness :—

	feet.	inches.
Coal (coarse).....	0	2½
“ (good).....	1	5
Band (soft).....	0	0¼
Coal (good).....	3	4½
Total.....	5	0¼

The Phelan seam has been opened at the Caledonian Mine, which adjoins the Glace Bay Company's property on the south and west; it is 8ft. 3ins. in thickness.

The Ross seam, the crop of which is farthest removed from the shore, varies in thickness from 4 to 5½ feet. It has not been mined on the north side of the Bay, but has been opened at Schooner Pond on the south side.

There are other beds between these varying from 4 to 2 feet in thickness; their present economic importance is not such, however, as to require further notice. On the Southern side of Big Glace Bay the continuity and regularity of the beds has been fully ascertained. The crops of the upper seams do not, however, appear, owing to the more southerly position of the shore in relation to the range of the northern crops; but there is no reason to doubt that they maintain their relative position with the lower ones. The seams have a dip to the north-east varying from 5° to 7°.

The accompanying plan shows the crops of the seams and will make clear the extent of the coal underlying the areas. Assuming the crops of the Hub and Harbor seams to continue in a south-easterly course, it will be seen that the northern area will contain a portion of the Hub seam and be entirely underlaid by the Harbor, Phelan and Ross seams. The crop of the Harbor seam will probably run along the southern boundary of the adjoining area, and the seam will thus extend under the whole of that area. It will also contain the Phelan and Ross seams. The areas to the southward of these will also contain a portion of the Phelan seam and the crop of the Ross seam is probably near the southern boundary of the property. It is, I think, unnecessary to go into details of the quantity of coal that may be obtained

from each seam. In those areas in which the seams have their crop, it will be evident that a portion of the coal must be left for some distance from the crop in order to protect the workings; and it is probable that some regulation by Government of the proportion to be mined for some distance from it, may hereafter be considered desirable. The dip of the seam and the character of the overlying strata are the most important elements to be considered in framing such regulation, and in this respect the property is favorably circumstanced.

One other most important point in connection with these, as with all submarine areas, is the mode of reaching the coal. When the crop of any of the seams happens to be on the land and near the shore, an easy means of access to that seam is by slope from the crop, if the dip of the seam be such that the strata rapidly thickens between the bed of the sea and the seam, or by driving a slope in the strata at such an angle as will cut the seam at a point sufficiently protected by the overlying strata, and then proceeding in the seam. The over or underlying seams could be reached by shafts or drifts from the first opened seam and the produce of each seam have thus the same outlet.

So far as the Hub seam is concerned, the former of these methods of opening can not be adopted, inasmuch as that portion of the area which is underlaid by it, does not adjoin the main land and it could not therefore be reached except by passing through both the Glace Bay Company's coal, and also that in the intervening area, to obtain the privilege to do which would, I fear, be too costly. And for the same reason an opening of this seam by means of a shaft and stone drift cannot be recommended. This is of less moment, however, since it is only the extreme northern portion of the area that could be worked.

Two other localities offer facilities for effecting an opening into the seams. At one of these, the southern promontory of Little Glace Bay, the Harbor seam could be entered by shaft or drift near the shore; the other is the corner of the property adjoining the Clyde area, with the owners of which an arrangement could probably be made for an opening in the Phelan seam.

The choice of either of these points must be regulated by a consideration of the facility of shipment and other cir-

cumstances. If arrangements could be made with the owners of the Glace Bay area, the opening on the south promontary of the Bay would be favorably situated for shipment in Glace Bay harbor, or if it be deemed preferable to open on the Phelan seam, probably a means of shipment might be secured at Port Caledonia.

In conclusion I may remark that the success which has attended the working of sea areas has considerably emboldened the holders of similar areas; and no difficulty has been experienced in opening in the manner described. The Victoria Colliery, at Low Point, is being prepared to work extensively, and submarine operations are being successfully carried on at the Sydney Mines.

I am, Sir,

Your obed't, servt.

JOHN RUTHERFORD.



Since the foregoing report was written, other seams underlying those named have been opened and found to be of excellent quality, and of a workable size. These seams now known as the Gardiner and the Lorway are 4 ft. 9 in. and 4 ft. 6 in. in thickness respectively. They will doubtless underlie the entire property.

The following section is of interest in showing the relative position of the seams to each other.

STRATA.	THICKNESS.	SEAM.	THICKNESS OF SEAM.	REMARKS.
Sandstone and Shale.	240 feet.	Hub Seam.	9 ft. 8 in.	{ Excellent gas coal 10,000 c f. p. tn { Hard, compact gas coal
Strata.	520 "	Harbor "	5 ft. 0 in.	
Strata.	243 "	Three ft. "	3 ft. 0 in.	
Strata.	54 "	Back Pit "	4 ft. 6 in.	
Strata.	104 "	Phelan "	8 ft. 3 in.	{ Good for gas & domestic purposes. { 9700 c. ft. gas per ton. { Good for gas yields 9500 c. f. per ton.
Strata.	135 "	Ross "	5 ft. 0 in.	
Strata.	90 "	McRury "	2 ft. 8 in.	
Strata.	400 "	Lorway "	4 ft. 6 in.	
Strata.	260 "	Gardiner "	4 ft. 9 in.	
Strata.	460 "	Coal "	2 ft. 0 in.	
Strata.	250 "	Martin "	2 ft. 0 in.	
Strata.	2756 "	Coal "	51 ft. 4 in.	

\* See the Coal Fields and Coal Trade of Cape Breton by R. Brown, Esq., F. G. S.

A highly important addition to the value of the property has been recently made, by the construction of a railway from Sydney Harbor to Schooner Pond. This railway passes the proposed opening on the Clyde area at a distance of about a mile. As it is connected with the extended line to Louisburg now in course of construction, the importance of this position will be evident.

The character of the Cape Breton coals is now well known. For gas making they are held in high estimation; the yield from some of the seams being as high as 10,000 cubic feet per ton.

In addition to the facilities afforded by the railways named, it has been recently proposed to construct a shipping place in False Bay Lake, distant from the property about seven miles; the scheme is undoubtedly feasible and will materially add to the value of the property.

THOMAS S. REID.

Halifax, N. S. Jan. 25, 1875.

## Memo.—Description of Reid Areas at Glacé Bay.

Lease No. 73.—Dated June 26th, 1874.

Beginning at the south-east angle of E. P. Archbold's Mining lease, and on the southern line of lease granted William Sword; thence by the course of last mentioned S.  $70^{\circ}$  E. 126 chains; thence south-easterly parallel to the shore at high water mark 64 chains, or to the prolongation of the northern line of water lease granted the Caledonia Company; thence by said prolongation and line N.  $70^{\circ}$  10' to the shore at high water mark, thence by high water mark on the shore, northerly and westerly to the place of beginning.

### LICENSE TO WORK.

No. 86.—Dated June 12th, 1873.

Beginning on the northern line of License to Work, granted Thomas S. Reid, June 30th, '71, and on the eastern line of license to work, granted John Taylor as attorney of the estate late John B. Campbell, being a portion of that known as the Sword area; thence by the first named line, S.  $70^{\circ}$  E. 160 chains, or to the eastern line of license to search granted Thomas S. Reid, June 13th, '72, out of which this area is selected; thence by last named line N.  $30^{\circ}$  W. 76 chains; thence N.  $70^{\circ}$  W. parallel to the line first described 96 chains, or to the eastern line of Taylor's license aforesaid; thence by said eastern line south-westerly to the place of beginning.

### LICENSE TO WORK.

No. 87.—Dated June 12th, 1873.

Beginning at the northern shore of Big Glacé Bay Lake, at the southern angle of the lease granted Converse, Emery, Howe & Hubbard (Caledonia Company); thence by the shore of the lake, north-easterly to the south-western line of the water lease granted the Caledonia Company, thence by the said south-west line S.  $70^{\circ}$  E. to the end

thereof; thence N. 20° E. 90 chains by the south-eastern line of the said water lease to the eastern angle thereof; thence S. 70° E. to the north-eastern line of water lease granted Kaye & Symonds. Thence by last named line the shore of Glace Bay, the Northern line of lease granted to Kaye & Symonds on the southern side of the lake aforesaid, crossing the beach in front thereof, and the southern shore of the lake to a point bearing S. 70° E. from the place of beginning; thence N. 70° W. crossing the same lake to the place of beginning.

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### LICENSE TO WORK.

No. 92.—Dated June 10th, 1874.

Beginning at the North-west corner of E. P. Archbold's Mining Lease, thence N. 60° E. 80 chains, thence S. 30° E. to a line, being the continuation of the north line of license to work No. 42, granted to Thos. S. Reid, June 30th, 1871, thence by said continuation and line North-westerly to the shore of Glace Bay; thence by the shore northerly to the place of beginning; exclusive of that portion covered by what is known as the Sword area, and one square mile licensed Thomas S. Reid—covered by this description.

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### LICENSE TO WORK.

No. 93.—Dated June 10th, 1874.

Beginning on the northern shore of Big Glace Bay Lake, at the southern angle of lease granted the Caledonia Company; thence by the shore of said Lake, North-easterly to the sea shore; thence by the sea shore northerly to a point about equi distant from the mouth of Little Glace Bay harbor and "Shag Roost;" thence S. 70° E. 190 chains; thence S. 20° W. 95 chains, until it meets high water mark; thence westerly by said shore until it meets the Beach in front of Dyson's Pond or Big Glace Bay Lake; thence crossing said beach south-westerly to the southern shore of Big Glace Bay Lake; thence by the shore to a point bearing S. 70° E. from the place of beginning; thence crossing said lake to the place of beginning, exclusive of one square mile leased the Caledonia Company, two square miles licensed Thomas S. Reid, and that portion of Kaye and Symond's lease covered by this description.

