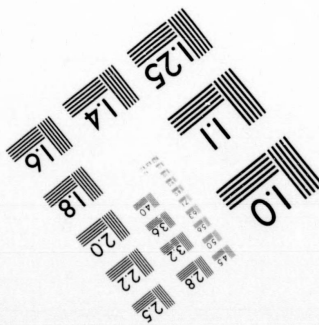
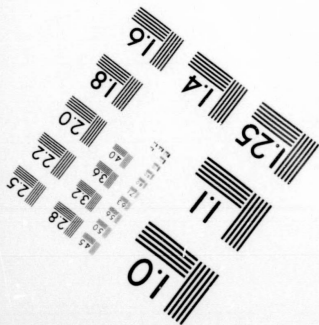
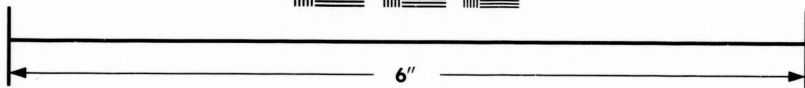
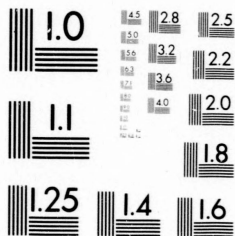


**IMAGE EVALUATION
TEST TARGET (MT-3)**



**Photographic
Sciences
Corporation**

23 WEST MAIN STREET
WEBSTER, N.Y. 14580
(716) 872-4503

Can

**CIHM/ICMH
Microfiche
Series.**

**CIHM/ICMH
Collection de
microfiches.**



Canadian Institute for Historical Microreproductions

Institut canadien de microreproductions historiques

1980

Technical and Bibliographic Notes/Notes techniques et bibliographiques

The Institute has attempted to obtain the best original copy available for filming. Features of this copy which may be bibliographically unique, which may alter any of the images in the reproduction, or which may significantly change the usual method of filming, are checked below.

L'Institut a microfilmé le meilleur exemplaire qu'il lui a été possible de se procurer. Les détails de cet exemplaire qui sont peut-être uniques du point de vue bibliographique, qui peuvent modifier une image reproduite, ou qui peuvent exiger une modification dans la méthode normale de filmage sont indiqués ci-dessous.

- Coloured covers/
Couverture de couleur
- Covers damaged/
Couverture endommagée
- Covers restored and/or laminated/
Couverture restaurée et/ou pelliculée
- Cover title missing/
Le titre de couverture manque
- Coloured maps/
Cartes géographiques en couleur
- Coloured ink (i.e. other than blue or black)/
Encre de couleur (i.e. autre que bleue ou noire)
- Coloured plates and/or illustrations/
Planches et/ou illustrations en couleur
- Bound with other material/
Relié avec d'autres documents
- Tight binding may cause shadows or distortion along interior margin/
La reliure serrée peut causer de l'ombre ou de la distorsion le long de la marge intérieure
- Blank leaves added during restoration may appear within the text. Whenever possible, these have been omitted from filming/
Il se peut que certaines pages blanches ajoutées lors d'une restauration apparaissent dans le texte, mais, lorsque cela était possible, ces pages n'ont pas été filmées.
- Additional comments:
Commentaires supplémentaires.

- Coloured pages/
Pages de couleur
- Pages damaged/
Pages endommagées
- Pages restored and/or laminated/
Pages restaurées et/ou pelliculées
- Pages discoloured, stained or foxed/
Pages décolorées, tachetées ou piquées
- Pages detached/
Pages détachées
- Showthrough/
Transparence
- Quality of print varies/
Qualité inégale de l'impression
- Includes supplementary material/
Comprend du matériel supplémentaire
- Only edition available/
Seule édition disponible
- Pages wholly or partially obscured by errata slips, tissues, etc., have been refilmed to ensure the best possible image/
Les pages totalement ou partiellement obscurcies par un feuillet d'errata, une pelure, etc., ont été filmées à nouveau de façon à obtenir la meilleure image possible.

This item is filmed at the reduction ratio checked below/
Ce document est filmé au taux de réduction indiqué ci-dessous.

10X	14X	18X	22X	26X	30X
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
12X	16X	20X	24X	28X	32X

The copy filmed here has been reproduced thanks to the generosity of:

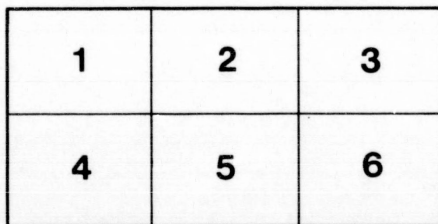
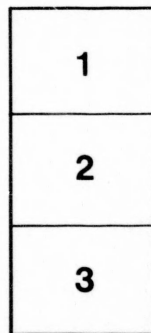
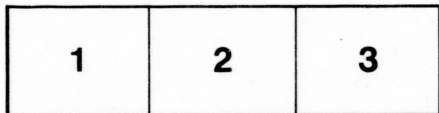
Bibliothèque nationale du Québec

The images appearing here are the best quality possible considering the condition and legibility of the original copy and in keeping with the filming contract specifications.

Original copies in printed paper covers are filmed beginning with the front cover and ending on the last page with a printed or illustrated impression, or the back cover when appropriate. All other original copies are filmed beginning on the first page with a printed or illustrated impression, and ending on the last page with a printed or illustrated impression.

The last recorded frame on each microfiche shall contain the symbol \rightarrow (meaning "CONTINUED"), or the symbol ∇ (meaning "END"), whichever applies.

Maps, plates, charts, etc., may be filmed at different reduction ratios. Those too large to be entirely included in one exposure are filmed beginning in the upper left hand corner, left to right and top to bottom, as many frames as required. The following diagrams illustrate the method:



L'exemplaire filmé fut reproduit grâce à la générosité de:

Bibliothèque nationale du Québec

Les images suivantes ont été reproduites avec le plus grand soin, compte tenu de la condition et de la netteté de l'exemplaire filmé, et en conformité avec les conditions du contrat de filmage.

Les exemplaires originaux dont la couverture en papier est imprimée sont filmés en commençant par le premier plat et en terminant soit par la dernière page qui comporte une empreinte d'impression ou d'illustration, soit par le second plat, selon le cas. Tous les autres exemplaires originaux sont filmés en commençant par la première page qui comporte une empreinte d'impression ou d'illustration et en terminant par la dernière page qui comporte une telle empreinte.

Un des symboles suivants apparaîtra sur la dernière image de chaque microfiche, selon le cas: le symbole \rightarrow signifie "A SUIVRE", le symbole ∇ signifie "FIN".

Les cartes, planches, tableaux, etc., peuvent être filmés à des taux de réduction différents. Lorsque le document est trop grand pour être reproduit en un seul cliché, il est filmé à partir de l'angle supérieur gauche, de gauche à droite, et de haut en bas, en prenant le nombre d'images nécessaire. Les diagrammes suivants illustrent la méthode.

laire
s détails
ques du
t modifier
iger une
e filmage

/
uées

aire

by errata
ned to

ent
une pelure,
façon à



32X

622.0
C17

Ca

M

INT

622.009
C17

REPORTS
AND
INFORMATION
CONCERNING THE
Cape Breton Marble Company's Property
AT
MARBLE MOUNTAIN,
WEST BAY,
INVERNESS CO., CAPE BRETON.

WINDSOR, N. S.:

PRINTED AT THE OFFICE OF THE WINDSOR MAIL.

1878.

P622.009

C 17

REPRODUCED FROM
THE ORIGINAL

MARBLE MOUNTAIN, N. S.,

February 10th, 1879.

Sir,

Referring to the National Policy of the Dominion now shortly to come before you in the House of Commons, we take the liberty of calling your attention to the requirements of one of our home enterprises and soliciting your favourable consideration of the same.

The Marble Quarries of Marble Mountain are situated on the shore of the Bras d'Or Lake, within a few miles of the St. Peters Canal, and have been so far developed as to have been pronounced by competent authority *at least* not inferior in quality, quantity and facilities for quarrying and Shipping to anything yet discovered in America. (See accompanying report) and require but the fostering care of Government to make them one of the largest enterprises and employers of labour in the Dominion.

The American duty is \$6.25 per ton, which completely prohibits us entering their Market. Whilst they with their well developed Quarries, immense Capital and immunity from duties, hold control of the Markets of the Dominion, completely paralyzing any new enterprise of ours struggling into existence.

We ask protection for Marble to the extent of the *American duty*, and trust we have the sympathy of a large majority of our Representatives.

THE CAPE BRETON,

MARBLE COMPANY.

To Hon. L. G. Baby
Ottawa

53103

P 622.009

C 17

[Faint, illegible text covering the majority of the page]

IN

AT NO

Profes

SI

The
West I
Esq., in
date, a
it to be
barytes
of Inve
Hood t
assigni
that ma
6000 ac
the usu
ing from
tends fo
from th
mounta
have sh
tain to
opening
had bee
velopme
Wharf
wharf.
which c
wind a

REPORT
ON THE
MARBLE PROPERTY
OF

MESSRS. N. J. BROWN & CO.,

AT NORTH, OR MARBLE MOUNTAIN, INVERNESS CO., CAPE BRETON,

BY

HENRY HOW, D. C. L.,

*Professor of Chemistry and Natural History, University of King's College,
Windsor, N. S.*

SITUATION, EXTENT, AND GENERAL CHARACTER OF THE PROPERTY.

The Marbles of Messrs. Brown & Co. are situated on the north side of the West Bay of Bras d'Or Lake, where they were discovered by N. J. Brown, Esq., in September, 1868. In the limited time which has elapsed since this date, a great deal has been done in securing a large tract of land and proving it to be rich in valuable varieties of marble and limestone, and to contain barytes. From a document signed by the Registrar of Deeds for the County of Inverness, it appears that Mr. Brown has on record in his office at Port Hood twenty-nine deeds, leases, and other documents from different parties, assigning him the exclusive right and privilege of all marble or other stone that may be found on the premises in question, comprised in an area of about 6000 acres, at the North of Marble Mountain. The said documents convey the usual right of working within the area named for periods of time varying from 100 to 999 years. The area is of most convenient shape, as it extends for 9 1-4 miles along the shore of the lake, and about 1 1-2 miles back from the water; about 3000 acres have been proved to consist of marble. The mountain averages 700 feet in height, and openings in more than 40 places have shown the existence of marble, and that only, from the top of the mountain to the margin of the lake. As the mountain is very steep operations in opening and draining are easily conducted; in September last three quarries had been opened down to the solid marble, and others were in course of development. There is good bold water for shipping at the Marble Quarry Wharf on the property, and a railway has been made from the quarries to the wharf. Within a few miles is the St. Peter's Canal, opened last autumn, by which communication is readily obtained with the outer waters; with a fair wind a vessel will reach Canso Light in four hours.

QUALITY OF THE MARBLES.

Mr. Brown enumerates thirteen varieties of marbles differing in shade of colour and quality; the most esteemed is a pure white—valued for monuments. This and several others I examined last autumn; the colours in the latter are grey, nearly black, blue, and pale red, intermixed with white in clouds, bands, and streaks; in one variety the prevailing tint is pink, and variegation is produced by a little blue, in another these colours are about reversed and white streaks are added. The result of the mixing of the tints is the production of varieties very pleasing to the eye. As regards quality the samples forwarded to me seemed excellent, considering they were for the most part obtained during the earlier operations: I thought them especially adapted for building purposes and monuments. Prof. H. Y. Hind concurred with me in the favorable opinion formed. It was particularly mentioned with reference to the white marble sent that the specimens had been taken a few feet only below the surface, and that the quality was found to improve very much in depth. Samples had been sent to the United States, all of which were pronounced equal to Italian marble for building, and three or four kinds were found equally good for other purposes. The *Boston Traveler*, Dec. 12, 1869, spoke of some samples as indicating a very fine quality of marble. Blocks suitable for monuments, weighing from 4 cwt. to a ton, were also sent about the same time to different parts of New Brunswick, Prince Edward Island, and to Pictou and Halifax, N. S., and placed in the hands of marble workers. The favorable opinions expressed with regard to some of these blocks, as given below, cannot fail to be very gratifying to the owners.

Messrs. G. W. Ross and Co., Marble Workers, Pictou, N. S., write to Messrs. N. J. Brown and Co.:

"Pictou, Jan. 6th, 1870. We are in receipt of yours wishing to know how we like your marble sent to us in November last. We have as yet worked but one monument. We are very much pleased with its texture and quality. It works as freely as the best Italian marble, and we believe it will be more durable for outside work. It takes as good a polish as any marble we ever used. The Vermont is not a circumstance to it. Your marble will no doubt soon run all others out of our market."

Mr. James McGrath, Marble Worker, St. Stephen, N. B., who has been in the marble quarries of Italy, writes to this effect:—

"Jan. 22, 1870. Now I have a small monument of a late design finished and standing outside in the principal street in St. Stephen; every one seems to like it, and I am in hopes that yours will take the lead of the marble here, at least for all large monuments. One thing I can assure you, that I am fully satisfied with it. You will please let me know your price for monument stock, as there are many inquiring about it."

Mr. G. A. Sanford, Marble Worker, Halifax, N. S., says:—

"Jan. 20, 1870. I have this day completed a monumental headstone of your marble, and have very great pleasure in pronouncing its quality as a weather stone *good*. The samples forwarded have quite a number of face fractures, which can only be perceived when the marble is polished, but as you go into it, I have no doubt they will disappear entirely. It works as free as Italian marble, takes as brilliant a polish, and I believe will stand the climate fully better. It resembles the New York building marble in texture, but some of the small specimens are equal to the finest statuary. I set up the monument in my yard to-day; it has attracted great attention and is much admired as the finish is equal to glass surface. Give me something like a price per ton of sizes suitable for steps, sills and landings; if it can be produced at anything like granite prices, I think a large trade might be done, and as soon as you can produce thoroughly sound blocks it would command full market price."

Mr. J. polished the count thought l Philips t marble. ing had r than him

To the Brown's

"Feb. 8, at the mar me it is the to acknowl costs nearl handsome Vermont m

The ba blue colour of this lin

From t very pure the absen decided tr Some carg that prep lime which found to b lime for n

King's Co Me

Mr. J. Philips, Marble Worker, Charlottetown, P. E. I., made a nice little polished monument, much admired by many people from different parts of the country, from one of the blocks first got out at the close of last year, not thought by Mr. Brown to be so good as those sent elsewhere. While Mr. Philips thought some of the specimens hard, he said others were equal to any marble. His former partner, Mr. Wells, of Truro, N. S., he described as having had more experience and as appearing to form a more favorable opinion than himself.

To the foregoing from practical men may be added a few lines from M. Brown's Agent in Boston, Thos. Kirwan Esq.:

"Feb. 8, 1870. There is a large block going up near our office, and I have been looking at the marble it is built of. It is just the same as your coarse marble. The workmen tell me it is the best building marble in the world. I showed them some of yours, and they had to acknowledge it was as good. The marble I speak of comes from New York State, and costs nearly as much for freight on the railroad as yours could be set down here for at a handsome profit. The fact is you could beat them all hollow in building material, for the Vermont marble is not worth anything for that purpose."

THE LIMESTONE.

The base of the Marble Mountain contains a large deposit of Limestone, of blue colour, which burns to a very good white lime. An analysis of a sample of this limestone, gave me:—

Carbonate of lime	- - - - -	94.31
Carbonate of magnesia	- - - - -	75
Oxide of iron and alumina	- - - - -	45
Water	- - - - -	14
Phosphoric acid	- - - - -	decided traces
Siliceous residue	- - - - -	4.35
		<hr/>
		100.00

From these results it follows that the lime obtained on burning must be very pure, and valuable not only for mortar but for fertilizing purposes; the absence of magnesia in all but a very small amount and the presence of decided traces of phosphoric acid are both favorable in this latter respect. Some cargoes of the lime have been shipped and with such encouragement that preparations are being made for carrying on a considerable business in lime which has also been burned from some of the variegated marbles, and found to be perfectly white. Some rather large orders have been received for lime for next season.

(Signed) HENRY HOW.

*King's College, Windsor, N. S.,
March 18th, 1870.*

SECOND REPORT
ON THE
MARBLE PROPERTY

OF
N. J. BROWN & CO.,

NORTH OR MARBLE MOUNTAIN, BRAS D'OR LAKE, CAPE BRETON.

BY

HENRY HOW, D. C. L.,

*Professor of Chemistry and Natural History, University of King's College, Windsor,
Nova Scotia.*

Having spent some days in making a survey of the Marble and Limestone deposits at North Mountain, near West Bay, Bras d'Or Lake, Cape Breton, I am quite satisfied that their importance was not overrated in my previous report, which was founded on documentary evidence from various sources, and contained my own opinion of the quality of the stones submitted to me for examination.

I was accompanied by N. J. Brown, Esq., the discoverer of the deposit in 1868, and what I saw was sufficient to convince me that he is in possession of a very valuable property; indeed, no one who visits the place can fail to be strongly impressed by the sight of the marble already taken out, and that laid bare, and the evident advantages in every respect of the locality for Marble and Limestone Quarries.

The deposits are about 12 miles east of West Bay Head, on the south side of the North Mountain. I observed marble exposed in quantity by openings, and coming to the surface in masses at various levels, up to at least 100 feet above the top of the quarries, or in all through a height of about 500 feet; in an east and west direction the rock can be traced for a long distance, and in a north and south direction for about a mile and a quarter.

In my former report it was stated that marble was found over 3000 acres of the 6000 included in the exclusive stone-mining rights of Mr. Brown; this is true, but it has been proved lately that the best solid pure white and variegated rock will not, from present indications, be met with over more than 200 or 300 acres. Further, it is now believed that the Grand Quarry is in the very centre of the best deposits. The beds run in a nearly east and west course, and are nearly vertical with a dip of 80 degrees to the south. The Grand Quarry is situated about 450 feet above the level of the lake, and at present marble is there laid bare for at least 300 feet east and west; it is seen at the surface, and late operations have exposed a face of about 60 feet

in height
that the
ed on th
mouth o
Operati
earth ab
the rock
is 120 fe
ble, on a
which is
the rock
extent in
rock is w
four to fi
can be re
thought
such val
The mar
rather hi
have late
average :
Several c
visit sev
them we
of very s
tunnel I
ved much
below th
yards to
and a br
depth, a
tunnel, a
solid rock

The m
poses, an
more mig
pose, but
cation, as
when it c
as mentio
is about
shipment
with a fa
Peter's C

The m
the white
are found
The diffe

- 1.—Fine
- 2.—Fine
- 3.—Coars
- 4.—Blue

in height, showing nothing but marble throughout. As it was soon evident that the quality of the marble improved rapidly in depth, a tunnel was formed on the slope of the mountain to strike the solid rock and it is opposite the mouth of this tunnel that the lower part of the 60 feet face is exposed. Operations were greatly facilitated by the occurrence of a bed of soft yellow earth about 8 feet thick against the face of the marble. This being removed the rock will be readily quarried out and carried through the tunnel, which is 120 feet long and runs through solid self-supporting blue and white marble, on a railway, and deposited in the yard at the mouth of the tunnel, which is about 200 yards only from the edge of the lake. At the upper part the rock is very much broken, but the cracks diminish in number and extent in depth, and for some distance about the mouth of the tunnel, the rock is white, solid, and quite free of flaws, and as the beds here are from four to five feet thick from north to south, it is clear that immense blocks can be removed. It is not proposed to work this portion at present as it is thought better to wait for the arrival of a skilled workman, than to sacrifice such valuable rock by the imperfect operations now alone practicable. The marble actually being removed is from the east of the tunnel, and at a rather higher level; it is taken out by plug and feather, and some 200 tons have lately been quarried. Three blocks are each about nine feet long, and average about two feet square, and weigh considerably more than a ton. Several others are of smaller but still considerable dimensions. During my visit several blocks of white marble were split off east of the tunnel, two of them were each nearly nine feet long and two feet square on an average, and of very satisfactory quality. A stone lately taken out fifteen feet above the tunnel I saw being dressed on the wharf for the base of a monument; it proved much finer in grain than that above it, so that it is fully expected that below this level the entire rock will be found equal to the Statuary found 150 yards to the east where the Statuary Quarry shows a face of twenty-five feet, and a breadth of thirty feet. As the rock evidently improves in quality in depth, a few blocks only have been taken out, and it is intended to drive a tunnel, as in the Grand Quarry, but probably at a greater depth, to strike the solid rock.

The marble as yet taken out, about 280 tons, is excellent for building purposes, and a few blocks can be selected suitable for good monuments, many more might be chosen equal to much of the marble used for the latter purpose, but it is not proposed to recommend the present out-put for this application, as it is evident that plenty of the best quality remains to be taken out when it can be done to advantage. The facilities for quarrying and shipment as mentioned in my former report, could hardly be surpassed. The quarry is about 300 yards from deep water, and situated at such a level that the shipment of the blocks will be easily effected, and it is but a few hours' sail with a fair wind from the quarry wharf to Canseau Light, through the St. Peter's Canal.

The most abundant, and at present the most important marble by far, is the white, and it is this which is being quarried; but the colored varieties are found in considerable bands, and may doubtless be utilized if necessary. The different qualities of rocks may be classified as follows:

- 1.—Fine white statuary Marble, East or Statuary Quarry.
- 2.—Fine white building marble, Grand Quarry.
- 3.—Coarse " Ice Marble, "
- 4.—Blue and white clouded, or Brocatello Marble, at west end of Grand Quarry.

- 5.—' rocatello' Marble is traced 600 yards west of Grand Quarry, in which distance it is mixed with some six varieties of coloured marbles viz: green and white, green, blue and white, red streaked with blue and white.
- 6.—Fine flesh-colored Marble at east end of Grand Quarry, and again east of the Statuary Quarry, where it changes to darker marbles, about 100 yards distant, viz: blue and blue mixed with red; the last seen in this direction had rather deep red stains, mixed with green and striped with nearly black lines.

Hence it appears that abundant materials exist for varied inlaying and other applications of colored marbles. With regard to the opinions expressed as to the quality of the marble got out last autumn, which was decidedly not equal to that now being quarried, I need merely state that favorable certificates were given in my former report from four marble workers in this province and elsewhere. To this it may be added that a few blocks were sent to one of the upper provinces, from a quarry near the base of the mountain, and were well spoken of, and that about the beginning of his operations, Mr. Brown sent nine small specimens of white and coloured marbles to Sir James Malcolm in England, they were polished there, and five were returned with questions as to price, as they were approved as saleable. Since my report was published, two marble workers have visited the quarries and expressed very favourable opinions of what they saw; one of them indeed purchased the 80 tons for building purposes before mentioned. I have also quite recently seen statements in writing, that some of the marbles have been called good in the United States.

As compared with New York or Vermont marbles, the rock, while somewhat similar in appearance, is tougher and takes much sharper cutting. Mr. Sanford, of Halifax, informs me that the rock in blocks has greater resistance to crushing power than any stone except granite, and he calls it a tough tenacious material.

The Limestone, which is found a little above the level of the lake, and at a short distance from the shore, in a band of 100 feet thickness, is becoming so much a favorite, that it may be made important in the operations of a company working the Marble Mountain. Mr Brown has the exclusive right of disposing of all limestone as well as marble found on his area, and vessels may be loaded at the wharf. The orders for the limestone are already more than can be filled with present arrangements. One order for 2000 tons is from a dealer who imported a small cargo to Prince Edward Island last autumn. A letter just received from another dealer, states that the limestone is preferred to that of Pugwash.

From what is here detailed, I have no hesitation in repeating my conviction that Mr. Brown has a very valuable property, and in saying that a proper expenditure of money will doubtless place the Marble Mountain Quarries among the largest and most important existing mining operations.

(Signed)

HENRY HOW.

HALIFAX, JULY 14th, 1870.

Since
found h
The C
the tun
quality.
Along
mense q
sent less
and mar
a nature
would r
It is b
will pro
while th
that the

HALIFAX

FURTHER INFORMATION.

Since the above reports by Professor How, the leases of the land in which the marble is found have passed into the possession of the Cape Breton Marble Company, Limited.

The Company have continued the work of developing for the last two years, have finished the tunnel referred to, and have found that the marble at the end of the tunnel was of good quality.

Along the whole surface exposed to view, there is abundant evidence that marble in immense quantities is easily available. In short, the developments now made justify the present lessees in expressing their firm conviction that the variety and extent of the limestone and marble rocks cropping out in such profusion in every direction on the estate, are of such a nature that a judicious investment of capital on a scale commensurate with its importance, would render it a mine of wealth to its fortunate possessors.

It is believed that the variety of shade and texture, and the great extent of the formation will prove on further developments to equal the quarries at Carrara and Massa, in Italy, while the facilities for quarrying and shipment, and the manufacture of lime are so obvious that they only require to be seen to be appreciated.

HALIFAX, N. S., 1st July, 1873.

, in which
ed marbles
d with blue

again east
bles, about
he last seen
green and

laying and
pinions ex-
h was de-
state that
our marble
l that a few
r the base
ginning of
d coloured
there, and
ved as sale-
visited the
w; one of
mentioned.
the marbles

while some-
atting. Mr.
er resistance
it a tough

ke, and at
s becoming
ations of a
clusive right
and vessels
ready more
000 tons is
Island last
he limestone

my convic-
that a pro-
ain Quarries
.

RY HOW.

THE MARBLES OF AMERICA.

From the DAILY REPORTER AND TIMES, November 14th, 1870.

A gentleman interested in marble, who who has been on a visit to the United States, and while there made it his business to visit the principal marble quarries of Vermont and New York, and by personal inspection and enquiry ascertained their extent, resources, &c., gives us some of the results of his observations and the experience thus acquired.

The principal quarries of fine marble are located within four miles of the town of Rutland, Vermont, distant about one hundred and twenty miles to the north-west of Boston. They are five in number, and are located in different sections of a vein of marble, which is not in any place more than sixty-five feet wide. This vein, or stratum, runs in an east and west direction for several miles, but it is only in the vicinity of the quarries, (which altogether do not exceed an acre in length of over six hundred feet,) that white marble is found. The expense of opening quarries in this place, being a wet flat surface, has been immense, huge masses of foreign rock underneath having to be removed before marble of paying quality could be reached. Beyond the limit named there has been found no white marble, but the product seems to degenerate into a dark or bluish marble of very inferior quality, which it will hardly pay to open up. Of the marble itself there are some peculiarities which are not generally appreciated. It is not in reality a marble in the true sense of the term, being rather in the form of a precipitated white sand or sediment, and resembles, more than anything else, loaf sugar; but it is so brittle that it can be powdered in the fingers like chalk, and has only its pure whiteness of color to recommend it. It does not occur in large masses like the marble in Italy and Cape Breton, but is found in narrow vertical seams, with a dip to southward between other strata of darker colored marble, mostly white and green colored. It is about 25 years since this deposit of marble was discovered, but it is only within, say, eight or nine years since these quarries have been worked with success. Some of the men—the pioneers—engaged in opening up these quarries, though starting with considerable capital, were so reduced in means before the quarries were opened up, that they were on the verge of bankruptcy more than once. But success came at last, and with it immense fortunes for all engaged in the enterprise.

As a curious instance of how these quarries are appreciated in value, we give the history in brief of one of them, communicated by the principal party concerned in it. About six years ago Gen. H. H. Baxter, of Vermont, bought one of the quarries in West Rutland for the sum of one hundred thousand dollars. He worked it for two years very successfully, and then sold it to Mr. Jerome, a New York capitalist, for two hundred and fifty thousand dollars. Jerome upon taking possession of the quarry, put it into a Joint Stock Company, with a capital of five hundred thousand dollars.

Since that time the issue has been doubled and the stock is held at one million dollars. This stock is mostly owned in New York City, the name of the corporation being the Rutland Marble Company. The dimensions of the property of this Company, that is the quarry, are only about one hundred feet by sixty feet on the surface—an area of about six thousand feet. There are two other companies, or concerns, also working marble in the vein, and two have had to stop work, the quarries being flooded with water; their united area, including that occupied by mills, yards, &c., being not over eight acres in extent. There is connected with these works one of the largest steam sawing mills in the United States or the world, the gangs of saws (24 in number) and other machinery, being all driven by an immense engine of two hundred horse power.

To
neces
surfa
speal
Unio
per
with
from
solid
the l
Of
The
same
East
New
fily
thoug
and
quar
coars
only
ton a
by A
large
have
They
rels t
Su
State
mach
that t
mens
into t
variet
quarr
inspe
sults
mark
comp
exten
this h
menti
time
will n
what

Am
is owi
from t

To show the wonderful success of this Yankee marble enterprise, it may be necessary to state that, in addition to the disadvantages of having a meagre surface vein of white marble of limited extent and poor quality, comparatively speaking, the cost of transportation by rail to any of the great marts of the Union is from thirty to seventy-five per cent. greater than the freight costs per ton of marble brought across the Atlantic Ocean from Italy. Yet, notwithstanding all this, there has been an immense prosperity, as may be seen from the facts given, which would not be facts were they not borne out by solid results; in other words, the increase of stock has been fully justified by the large dividends paid by the marble taken out of the quarries.

Of the marble deposits in New York there need not be a great deal said. The vein of marble, which is vertical with a Southern dip, and runs in the same direction as the Vermont vein, viz: East and West, it is estimated in East Chester County, at a place called Tuckahoe, some seventeen miles from New York city in a northerly direction. The width of the vein is only about fifty feet, and the length in which white marble is found is not very great, though the vein has been traced several miles in length during which it dips and crops out in several places, all of which, however, except where the quarries are now located, being of a dark color and inferior quality. It is a coarse-grained, brittle marble, more like a sort of granite, but very white, only fit for building purposes, being largely used in this manner both in Boston and New York. There are only two quarries opened in this vein—one by A. T. Stewart, the New York millionaire, who is building and has built large palaces in New York, and another by Messrs. Masterton & Hall, who have a quarry and saw mill in operation and employ sculptors on the spot. They also have lime kilns, burn the refuse marble, and send the lime in barrels to the New York market.

Such is a brief statement of the principal marble quarries of the United States, which employ thousands of men and millions of dollars in capital and machinery. They are no doubt large affairs, when it is taken into account that there are no larger in that country; but when compared with the immense deposit in the marble mountain of Cape Breton, they dwindle down into utter insignificance, both as regards quantity and quality, as well as variety and texture of grain. Our informant, having heard so much of these quarries, conceived the idea that they were immense in extent, but a careful inspection convinces him that they are only immense in one thing—the results already achieved. For all the natural advantages of easy access to market, facility, cheapness of cost in quarrying, &c., they are no more to be compared to the deposits in Cape Breton than they can compete with it in extent and quality. Enterprise and capital have made them successes. If this has been achieved in the instances noted, under all the disadvantages mentioned, what will not the marble mountain of Cape Breton realize in time? The result must, under favorable circumstances, be so vast that we will not challenge the credulity of our readers by stating our conviction of what that will be.

MARBLES.

From the NEW ORLEANS TIMES.

Among the inorganic products of the earth marble takes high rank. This is owing to its durability, the fine polish of which it is susceptible, and its use from time immemorial in works of art. Of late years its sphere of uses has

th, 1870.

visit to the Unit-
municipal marble
on and enquiry
results of his ob-

r miles of the
nty miles to the
ed in different
than sixty-five
ction for several
together do not
marble is found.
at surface, has
g to be removed
e limit named
to degenerate
will hardly pay
which are not
sense of the
sediment, and
ittle that it can
nteness of color
arble in Italy
a dip to south-
ite and green
was discovered,
ries have been
ed in opening
ere so reduced
n the verge of
ith it immense

n value, we give
cipal party con-
ermont, bought
idred thousand
en sold it to Mr.
ousand dollars.
nt Stock Com-

s held at one
y, the name of
ensions of the
ne hundred feet
t. There are
vein, and two
; their united
er eight acres
gest steam saw-
(24 in number)
if two hundred

been greatly extended. It may now be found in some shape or other in almost every dwelling house throughout the land. In the construction of furniture it has become almost as essential as mahogany or rosewood, no fine bureau, table or washstand being complete without its marble top.

Geologically speaking, marble is a metamorphic rock of granular and crystalline structure. All marbles except the serpentine and verde antique varieties are limestones, and all limestones are marbles, except those not susceptible of a high polish. The color of marbles is extremely varied, though pure white statuary marble is most valuable, it being much more rare than the other varieties.

The most ancient quarry known to have been worked is that of El Massar, in Egypt. It furnished the marble for the tombs in the Pyramids and the most ancient and best preserved of ante-historic Egyptian buildings. Mount Pentelicus, in Attica, Luna in Etruria, Lesbos in Phrygia, and Cyzicus on the Propontis, all furnished fine statuary marbles for ancient works of art. The Parian, found in the Island of Paros, however, acquired a celebrity which the products of no other quarries obtained. Of it the most celebrated statues, such as the Venus de Medici and Diana Venatrix were wrought.

Of modern marbles Italy has been the greatest producer, and whenever, in this country, large blocks are seen about a marble yard, they are at once pronounced "Italian." Most of the Italian statuary marble is obtained at the famous quarries of Carrara, about four miles from the sea coast, on the Apennine range. This marble when analyzed furnishes 98 per cent. of pure carbonate of lime, with but 2 per cent of foreign substances. As Italy has long been regarded "the home of art," the sculptors of the world gather there for instruction and the facilities which, in models and materials, that country so abundantly furnishes.

Thus far in our local History Vermont has been the marble State of the American Union, but marble in greater or smaller quantities is found in that continuous range of mountains which stretches from Canada to Alabama known respectively as the Green Mountains, the Blue Mountains, the Cumberland Mountains and the Blue Ridge. But beside the marbles of this extensive mountain range, there are some fine deposits in California, and other sections of the Union. California furnishes specimens of marbles variegated by brilliant hues of red and brown, which compare in showiness with the well-known "calico marble" of Tennessee.

One of the finest deposits of statuary, monumental, and building marble, within the limits of the United States, is found in Alabama, near the line of the Chattanooga Railroad. As yet the quarries have not been worked, though they have been sufficiently explored to prove their extent and value. Some of the samples which we have seen are pronounced equal to the finest quality of Italian statuary marble. They are susceptible of the highest polish, and of being successfully cut into sharp edges and acute angles. These quarries are yet destined to furnish Mobile, New Orleans, and the cities of the west, with the great bulk of the marbles they require.

But, perhaps, the most accessible, varied, and valuable deposit of marbles to be found in any single locality in America, is that known as the Marble Mountain, in Cape Breton, Nova Scotia. This mountain overlooks Bras d'Or Lake, and though it was long known to be composed chiefly of rock, it was only about two years ago that its real character was discovered. N. J. Brown, Esq., while climbing its steep sides in pursuit of game accidentally tore off the mossy covering, and left a beautiful wall of white marble exposed to view. The discovery was to him as much a surprise and as great a piece of good fortune, as was the similar discovery of the famous silver mine of Potosi, in Upper Peru, in 1845. Mr. B. took immediate steps for securing a right of pro-

perty in
ficult, as
has since
ing the
feet from
How, of
mountain

- 1.—Fine
 - 2.—Fine
 - 3.—Coar
 - 4.—Blue
 - q
 - 5.—Broc
 - d
 - g
 - 6.—Fine
- the statu
tant, viz
rather de

erty in the mine which he had discovered, an undertaking by no means difficult, as the mountain had previously been considered wholly valueless. He has since established a marble company, and has made arrangements for working the mines on an extensive scale. They are situated but a few hundred feet from tide water, where vessels of any capacity may lie and load. Prof. How, of King's College, Windsor, thus classifies the marbles of the Marble mountain :—

- 1.—Fine statuary marble, east of Grand Quarry.
- 2.—Fine white building marble, “ “
- 3.—Coarse white building ice marble “ “
- 4.—Blue and white clouded or brocatello marble, at the west end of grand quarry.
- 5.—Brocatello marble is traced 600 yards west of grand quarry, in which distance it is mixed with some six varieties of colored marbles, viz : green and white, red streaked with blue and white.
- 6.—Fine flesh colored marble at east end of grand quarry, and again east of the statuary quarry, where it changes to darker marble, about 100 yards distant, viz : blue and blue mixed with red ; the last seen in this direction had rather deep red stains mixed with green and striped with nearly black lines.

other in al-
duction of fur-
wood, no fine
pp.
ular and cry-
e antique vase
not suscep-
l, though pure
er than the

of El Massar,
ids and the
lings. Mount
Cyzicus on the
of art. The
ity which the
ated statues,

whenever, in
e at once pro-
ined at the
on the Ap-
t. of pure car-
Italy has long
er there for
at country so

State of the
found in that
abama known
Cumberland
his extensive
other sections
ated by bril-
ie well-known

ling marble,
the line of the
, though they
Some of the
quality of Ita-
y, and of be-
quarries are
e west, with

t of marbles
the Marble
ks Bras d'Or
ock, it was
N. J. Brown,
lly tore off
osed to view.
e of good for-
tosi, in Up-
right of pro-

THIRD REPORT
ON THE
MARBLE PROPERTY

OF ^{the}
Cape Breton MARBLE & CO.,

NORTH OR MARBLE MOUNTAIN, BRAS D'OR LAKE, CAPE BRETON.

BY

HENRY HOW, D. C. L.,

*Professor of Chemistry and Natural History, University of King's College, Windsor,
Nova Scotia.*

Since the publication of the "Reports and Information" in 1874, new developments of a highly important character have been made. A second tunnel has been driven, beginning a little above the main road about half-way between the upper (original) tunnel and the shore, the full width of a tramway of 400 feet, going the whole distance through marble, improving in quality all the time, till it struck the wall face 170 feet below the surface, consisting of clear white, seamless marble, superior to any yet met with in the quarries, and seen or traced for nearly a hundred feet. The shaft is 18 feet along the wall face and 10 feet wide. The quarries have been visited by Mr. Fletcher of the Geological Survey, and thoroughly inspected, and, although no opinion can be had from him till the publication of his official report, there is no fear entertained but what this will fully bear out all that I have written on the subject and that the specimens which he has had selected under his own eye, to be cut, and polished, and placed in the museum of the Survey, will be found to surpass my former descriptions. The quarries have also been visited and examined by Mr. Underhill, a marble worker of 30 years experience, and the following letter from him will give a practical man's evidence which is highly favorable and agrees with my former reports.

N. J. BROWN

WEST RUTLAND, March 16th, 1877.

DEAR SIR:—Your letter is received asking for information in reference to marble sawing machinery, and also my general opinion of your marble deposit, &c. When I visited and inspected your quarries, in May last, I freely give you my candid opinion of its value, also again when I wrote you in June. I have been engaged in quarrying marble for over thirty (30) years, (I may say the superintending the quarrying of marble has been my business altogether till of late.) I have seen most of the marble deposits in the States, but do not know of any to compare either in variety or extent with that of Marble Mountain West Bay, Cape Breton. I have thought much about it, and have many pleasant recollections of my short visit to that romantic place.

In my
would scar
the side of
facilities to
mensin sto
procure fro
that \$5,000
Grand Qua
and put eve
short time,
that: the sup
able will be
been expen
long ago.
sistance in
ity to have

Part of
wire ropes
for operati

It may
of for deve
and the co

The closi
but it is b
opening a
much to th
1880.)

Referen
ing at the
first Repor
a coarse hl
white marl
America e
spect, and
ed samples
mentioned.
of lime. V
is not: t al
lime-burni
Mountain.
of quarryin
the stone is
the cost of
business is
advantage

King's Col
De

In my travels last summer I shewed your marble samples to many marble dealers, they would scarcely credit the facts when I described them your quarries, being so dry, and in the side of the Mountain and so near the Harbor. I know of no place where there are such facilities to do an immense business in quarrying and shipping marble, and also sawing dimension stock on the place, as you have the *proper sand* and fuel, both of which we have to procure from a distance at considerable outlay. I think in the condition of your opening that \$5,000, (five thousand dollars,) will put your principal quarry (the one you call the Grand Quarry,) in good working order and build you a Mill sufficient to commence with, and put everything in full blast, and with right management I do not see why, in a very short time, your enterprise would not be one of the biggest things out, as it is quite evident that the supply is practically inexhaustible, and the more marble taken away the more valuable will become the quarry. At the same time I must say I think more money has been expended to *no purpose* there than would have made the whole thing self-sustaining long ago. Should you want my services and let me know in time, I will render you any assistance in my power to put it in good working order. Hoping you will succeed, as it is a pity to have such a property lie idle.

Respectfully yours,

R. M. UNDERHILL.

Part of the money referred to has been expended in tramways, cars, derricks, wire ropes, and other gear, buildings, etc., which are all in good order, ready for operations.

It may be mentioned also that there is a reserve fund of shares to dispose of for developing purposes without calling on the holders of shares at first, and the concern is clear of debt.

The closing of St. Peter's Canal the last year or two has kept back operations, but it is being made so excellent a ship's canal that it will be the means of opening a large trade in the Bras d'Or Lake and the Mountain and add much much to the value of the Marble property when finished, (possibly in May, 1880.)

Reference must also be made to the valuable deposit of blue limestone lying at the base of the Mountain of which an analysis of mine is given in my first Report, where it stated to burn to a very good white lime. It is in fact a coarse blue marble, forming an immense bed between the shore and the white marble. No stone exactly like it has yet been found in North America except at Brooklin, Maine. It appears to resemble this in every respect, and has been recognized as similar by persons of that place who compared samples shewn them by Mr. N. J. Brown which he took from the bed above mentioned. This Brooklin blue limestone makes the very finest and whitest of lime. When the facilities mentioned in former reports are remembered, it is not at all too much to say that there is no place in North America where a lime-burning business could be carried on to greater advantage than at Marble Mountain. The lime at Brooklin costs ten cents (10 c.) per cask for privilege of quarrying the limestone, the quarries are four (4) miles from shipping, the stone is hauled the same distance *by teams* to the kilns at the shore, and the cost of fuel is about three times that at Marble Mountain, and yet a large business is carried on. Everything is seen to be comparatively much to the advantage of Marble Mountain as a lime producing locality.

(Signed)

HENRY HOW,

Prof. of Chemistry

King's College, Windsor, N. S.
Dec 7th, 1878.

J. W. Underhill

T Y

RETON.

e. Windsor.

new de-
second tun-
t half-way
of a train-
proving in
urface. con-
ith in the
is 18 feet
ted by Mr.
although no
rt, there is
ve written
under his
e Survey.
e also been
years ex-
's evidence

16th, 1877.

marble saw-
I visited and
value, also
r over thirty
business al-
but do not
n West Bay,
tions of my

The following is copied from the general Mining Report of the Inspector of Mines for Nova Scotia, by Henry Pool, Esq., F. G. S. Associate of the Royal School of Mines, &c., published in 1877, page "67."

The Marble Mountain Quarries did nothing pending the repairs and enlargement of the St. Peter's Canal. Sample blocks of the white and various colored marbles sent from these quarries to the Centennial exhibition were much admired. The quarries were visited by Mr. Underhill, of West Rutland, Vermont, who wrote and spoke most favorably of the quality; a matter that can only be fairly judged by a practical worker in marble.

Of the extent of the deposits and the facilities for quarrying I can justly say nothing more could be desired. An abrupt hill of solid marble several hundred feet in height rises from the shore of the Bras d'Or Lake with deep water within 100 feet. A tunnel has been driven through the broken and weathered beds on the slope of the hill into a rent which, when cleared of the clay which now fills it, presents an extended face of marble unskaken by frost. The cleavage planes of the beds are wide apart and lie parallel to the mountain range and shore, so that large blocks can economically be extracted, removed through the tunnel, and by a self-acting incline lowered to a mill, there to be cut into slabs for shipment.

While the prohibitory duty of 50 cents a cubic foot for the present closes the United States market, there would be no difficulty in competing for the local demand. On the re-opening of the St. Peter's Canal, if only the quality is suitable for the trade. The value of unwrought Marble imported by Nova Scotia in 1875-6 was \$3,261.

The following is a letter from M. J. Griffin, Esq., a first class Marble Worker of Halifax N. S., who, last month, polished samples of Marble, from the Marble Mountain Quarries, C. B.

Acadia
Marble and Granite Works,
Monuments, Gravestones, Tablets, &c.
224 Barrington St., Halifax, N. S.,
M. J. GRIFFIN.

JANUARY, 27th 1879.

MR. N. J. BROWN.

DEAR SIR:—I received the samples of different coloured Marbles which you sent me and was greatly surprised to find the quality of the stone so good and the varieties of different colours so numerous. I was not aware that we had such a valuable Marble deposit so near home. The samples I found could be worked easily and were susceptible of a very high polish. In my judgment the Marble is suitable for all purposes of use and ornament, from the best building purposes to those requiring finer grades, such as Monumental and Statuary work. I earnestly hope that you will soon be in a position to supply the Marble dealers of the Dominion with all the rough stock they require, as I believe it to be in every respect equal to the finest grades of Italian or American Marble.

I remain,

Respectively yours,

M. J. GRIFFIN.

he Inspector
of the Royal

e repairs and
e and various
hibition were
Vest Rutland,
a matter that

g I can justly
arble several
ke with deep
e broken and
leared of the
aken by frost.
the mountain
eted, removed
, there to be

e the present
in competing
al, if only the
ble imported

t class Marble
of Marble, from

th 1879.

Marbles which
e stone so good
t aware that we
s I found could
n my judgment
from the best
onumental and
ition to supply
ey require, as
alian or Ameri

. GRIFFIN.

