



Report to
Archibald

Sept 1/49

Acton Sept 22 1849

To C. D. Archibald Esq

Dear Sir

The following notes of an examination of the Iron deposits of Lord Londonderry made in company with J. L. Hayes Esq at your request, are intended as supplementary to the report on the same subject given to you and other parties interested in Sept. 1846, and of which extracts (not very fully showing its import) have been published in the prospectus of the "Londonderry Mining Company".

New Exposures of the vein &c — Since 1846 excavations have been made at a point ~~about~~ about half a mile eastward of the most eastern point noticed at that time. Here the vein appears to be largely developed and 18 feet of its width consisting of wherry red iron ore and Red Arkhite* have been exposed without reaching either wall. At the most Eastern point of my former examination new

* On reference to the analyses attached to the report of 1846 it will be observed that the substance to which I have given the name Arkhite differs somewhat in composition from the ordinary varieties of that mineral; for reasons which I hope at a future time to state fully do not consider this difference of specific importance

excavations have been made showing a great thickness of ankerite but no workable quantity of iron ore though narrow veins of specular ore occur in the ankerite. As it does not appear that either wall of the vein has been reached at this place it is probable that by continuing the excavations, especially to the northward, more valuable masses of ore may be disclosed.

On J. Fottens Lot, the locality of the largest development of the vein noticed in the report no new excavations have been made.

Westward of of the last mentioned lot, on the property of J. Rop by two large excavations have been made for the purpose of extracting ore for shipment. On the most eastern of these, that which showed, on my former visit, a large mass of specular iron ore, that ore appeared to in descending to the depths of 13 feet to have in some degree given place to the red shaly ore. The excavation here has exposed 13 feet of the width of the vein and about 18 of its length. To this extent its contents appeared to be a confused mixture of red and specular ores and ankerite with a little brown Hematite. No distinct rocky walls were seen but large fragments of rock were imbedded in

the ore. The ankerite was decomposed to the depth of about 8 feet from the surface leaving a residue of ochrey yellow hydrous peroxide of Iron.

Between this and the western excavation on this property the course of the vein is marked by the occurrence on the surface of numerous large fragments of brown hematite. The western excavation exposed 10 feet of Red ore with bands of specular ore and yellow ochre. On the South side of the ore was about 17 feet in thickness of ankerite. The Northern wall of the vein was not seen but the southern wall was distinctly exposed and consisted of grey quartz rock and olive slate much shattered and penetrated by irregular strings and bunches of red ore and ankerite.

In the section of the Folly river we were as formerly unable to find any valuable continuation of the vein, which seems here to be represented only by small strings of ankerite. Westward of the Folly river on Fleming's farm and the lot ad-joining it to the westward, large blocks of hematite mixed with quartz rock, mark the continuation of the vein, and two small

excavations have shown the occurrence of red and ~~specular~~ specular ores. Between this point and the eastern branch of the Great Village river no exploration has been made. Between the east and west branches of the river the colour of the soil and the occurrence of small fragments of ore on the surface indicate the continuation of the deposit but no excavations have been made.

On the W Branch of G & River at the site chosen for the buildings of the Beattie mine the vein of chert accompanied by Red ore appears in the bed of the river. On the eastern bank the red ore is seen in two small openings but on the western bank it attains an elevation of 327 feet with an average slope of about 30° ^{are} very ~~irregular~~ ^{irregular} excavations consisting of open cutting & levels at the ^{margins of the} base of the slope and benches at various heights on the slope. At the lower excavations the vein appears to be divided into two portions (by a ^{thin} ~~thin~~ vein) - each of which appears to contain about 3 feet in thickness of red and specular ores and a much larger quantity of ferruginite. The rocky mass separates

stating that two portions of the vein
 seems by no means unproductive
 since before my visit a very large
~~mass~~^{branch} of ore had been removed
 from one part of it. ~~It is probably~~
~~that it contains~~ ~~minerals~~ ^{and} The structure
 of other parts of the ~~same~~ vein indicates
 that it will probably be traversed by
 numerous branch veins and crop
 figures filled with ore. Both divisions
 of the vein have a distinct undulation
 to the south, (and the northern wall stand
 curved is smooth. The northern however is
 rugged & uneven.) In several parts of
 the steep slope rising above these ~~exposed~~
~~vertical~~ trenches ~~have been~~ cut across
 the vein ~~and~~ have ~~exposed~~ exposed
 workable quantities of ore indicates that
 the ~~vein~~^{deposit} contains to be productive and
 even to ~~improve~~ ~~in~~ increase in its dis-
 minution to the summit of the high
 bank above mentioned.

The appearance of complications
 communicated to the vein at this
 point by the existence of the large rock
 particles above noticed is greatly in-
 creased by the occurrence of numerous
^{transverse} fracture figures by which the vein

has probably been slightly shifted. ~~and~~
This is an appearance which I have not
observed at other points. It leads to
the same extent and it may properly
be very local. Notwithstanding the
difficulties presented ^{regularly} to many obser-
vations of these complications, it is
evident that ~~the vein~~ ^{deep veins at the point very} ~~exists~~ ^{and the}
~~can be~~ ^{to a great extent} ~~extracted~~ ^{of} ~~of~~ ^{open excavations}
for which the ground affords the most
admirable facilities. I may add
that from the greater thickness of the
mineral mass of rock on the East side
of the river ~~and~~ there is reason to
believe that in fallow the vein
to the westward its two parts will
be found to be reunited and in
that case a decided improvement
in its productiveness may be anticipated.
In tracing the continuation of
the vein farther westward the color
of the soil indicates its continuance
and in Cook's creek the west stream
^{very} large fragments of specular ore have been
obtained, though the creek has made
but a very slight excavation and the
outcrop of the vein is of present width

4
of debris. At this place a shaft sunk in the
bed of the creek has penetrated ^{to the depth}
of 100 feet through a mass ^{with some few crystals of copper} of yellow ochre
with occasional irregular bands of chert.
This is probably the south side of the vein and
of an unusually great thickness. It is composed ^{of}
of carbonate of iron and of siliceous matter
it is likely that the upper parts of the vein may
be found. The whole mass appears at
this level unprop. we will believe that
it will be found to be one of the best de-
veloped and least disturbed parts of
the deposit. Still farther to the west in
a stratum but a narrow vein of specular
ore has been seen in one of the deposits
and the other parts of the vein are probably
present though much of debris. The above
remarks here do not however indicate
that it attains any considerable thickness.

This deposit has now been traced
nearly continuously for 7 miles, and this
is good evidence that there are not
the extreme limits in that direction
it presents general faults at which
it can be conveniently and cheaply worked
and its whole produce may if necessary
be concentrated at any one point along
the line. It has been explained it preserves

with considerable regularity a course
of N 80 North magnetic the variation
being 21° west. The course of the Swela strake
in what it is included being S 60 or 70 W

On the whole the facts stated in the
present year compare well in the opinion
stated in my report of 1846 that the
deposit is a true vein very unequal
and irregular in its thickness and the
development of its ^{under the} ~~most~~ values contents
is capable of ^{being} ~~forming~~ very large masses
of remarkably pure & well as
of iron:

Grey quartz rock with layers of an
olive flint slate, and it after luff
that the land occurs a full
or rapid in the streams - with a
little above or a little below the
junction of the vein. This quartz is
the first & hard & heavy part of the water
series. This may not perhaps hold for
the whole gully - as at the junction of the
veins - the land of Puffin occurs -
At the junction along the line of
the vein large masses of hematite and
sometimes of specular ore occur
and the vein after being colored
by the oxide of iron

A type of dark green greenish
veins at about 150 paces
S of the vein and occupies nearly
the same part at the mill creek
when it occurs at the mill stream
This type is however not seen at

3 Indications in the vein showing the deposit - as there may be a pressure along the vein & thus the deposit to the vein or its parent explained. I shall state a few of the most important.

1 The course of the vein as well as its (895°N) is in the main very uniform and in the part just noted does not appear to be less distinct & very great extent of joints. It may be some of the rocks of the vein but I be there a little to the effect in being very joints

2 The position of the sandstone shells & fragments of lime from which they also extend over a side of Colgate hills is usually at no great distance from the vein. The vein which is situated at ~~the~~ ^{near the margin} ~~great distance from the edge~~ of the meta rocks of the hills -

3 In the Coes hill there explained the vein contains in a thick band of

Grey granite rock with layers of an
olive flint slate, and it is after copper
that the land occurs as a full
or rapid in the streams - each a
little above or a little below the
junction of the vein. This granite occurs in
the first or hard country part of the water
series. This may not perhaps hold for
the whole of the valley - as at the junction of the
veins - the land of Puffin occurs -

At the junction along the line of
the vein large masses of hematite and
sometimes of specular ore occur
and the vein is often highly colored
to the width of them

A style of dark green granite which
occurs at about 150 paces
S of the vein and occupies nearly
the same part at the mill creek
when it occurs at the mill stream
This style is however not seen at

3 Coal deposits in vicinity of the Iron vein
On the bank of a small creek opposite
the Eastern most eastern locality of the ore
mentioned above, Colucreame rocks
occur including a bed of shales & shales
with small layers of iron, which app-
ears of no mining value. Westward of
this place on the bank of a creek east
of the Folly R below the bridge are
two bands of black shale with thin
coaly bands and dipping $N 60^{\circ} E$ The
thickest layer of iron in these bands is
4 inches. It has had been dug a
little to the E of where these beds app-
ear. It is free of water but the surface of
the material extracted from it and its
position suggested me that it is sand on the
continuation of iron of the beds above mentioned.
The continuation of these beds appears in the
E bank of the Folly a little below the bridge.
They are a continuation of a thin bed of
grey clay which may be a sericite ma-
terial. Westward of the Folly in
Smiths Brook a small bed of iron ore
a continuation of iron of the beds above men-
tioned is seen dipping $N 60^{\circ} E @ 40^{\circ}$. At
this place the course of the creek

The largest bed of that material that
has yet been in the bed measure of
this county. It is of course of little value
~~unless~~ that a small quantity of it may
perhaps be extracted in connection with
the clay which accompanies it. In the
clays ~~occupy~~ all the way along
the whole plain there are small beds
of clay containing but not a sufficient
amount to be of economical value.

The Academy must for the
present depart. In its efforts of
as the pure prints which are at
the moment being after

I send to you as per order the 2d set seen at
you of as coming any of the open sheets
as they occur. I put any prints not
of which I shall communicate to
you.