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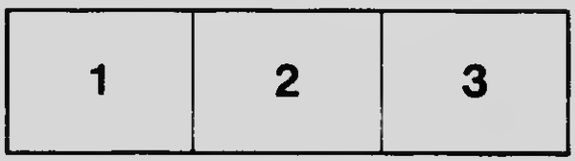
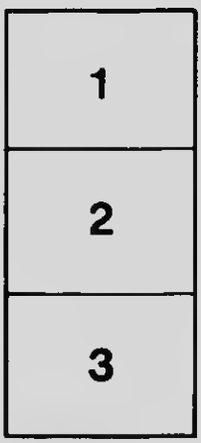
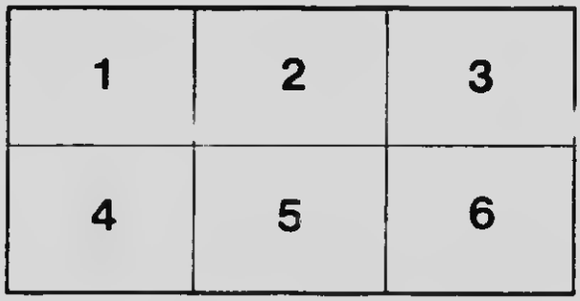






IN CHETICAMP

CAPE BRETON.

RICHFIELD MINING CO. LTD.
HALIFAX, NOVA SCOTIA.

THE properties described in the following pages are held by the RICHFIELD MINING COMPANY, Limited, free of any bonded inbedtedness whatever. They were acquired from the Trustee of the Inverness Mining Company, Limited, under the terms of a contract entered into on the 12th day of May, 1903, which contract has been filed with the Registrar of Joint Stock Companies at his office in Halifax.

Halifax, N. S.,
May 20th, 1903.

Richfield Mining Company

LIMITED.

AUTHORIZED CAPITAL - - - $1,000,000.00

ONE MILLION SHARES—PAR VALUE - $1.00 EACH

Mines at CHETICAMP, CAPE BRETON. *Head Office*: HALIFAX, CANADA.

DIRECTORS:

MR. EDWARD STAIRS, President of Wm. Stairs, Son & Morrow, Limited	HALIFAX, N. S.
MR. H. St. C. SILVER, of the firm of W. & C. Silver	HALIFAX, N. S.
MR. JAMES REEVES, Treasurer of the Nova Scotia Furnishing Co., Limited	HALIFAX, N. S.
MR. ROBERT J. LESLIE, of the firm of Leslie, Hart & Co., Steamship Owners	HALIFAX, N. S.
MR. T. H. ESTABROOKS, Wholesale Tea Merchant	ST. JOHN, N. B.
MR. F. A. RONNAN, Commission Merchant	HALIFAX, N. S.
MR. JAMES REARDON, Merchant	HALIFAX, N. S.
MR. JOHN W. REGAN, Managing Director the Industrial Publishing Co., Ltd	HALIFAX, N. S.
MR. WILLIAM R. DUNN, President of the Inverness Mining Company, Ltd.	HALIFAX, N. S.

OFFICERS:

PRESIDENT	EDWARD STAIRS
VICE-PRESIDENT	H. ST. C. SILVER
MANAGING DIRECTOR	WILLIAM R. DUNN
SECRETARY-TREASURER	JOHN W. REGAN
RESIDENT-MANAGER	MILTON V. GRANDIN
	Mining Engineer

BANKERS

THE BANK OF MONTREAL.

Opinions of Leading Authorities.

SEVERAL years ago Professor J. Edmund Woodman, then connected with the Geological Division of Harvard University and now in charge of the Dalhousie School of Mining in Halifax, was commissioned by the Government of Nova Scotia to visit Northern Inverness and report on the mineral resources of the Cheticamp and other districts.

In his official report to the Government Professor Woodman says:

"For some reasons difficult to discover, the firm belief appeared fixed in the minds of many that nothing good of a metallic nature could come out of the island. That this is a false impression any one can learn by a sufficiently careful study of the rocks.

"*There is no doubt but that the region occupied by the older rocks is one in which a number of districts are capable of successful development, if judiciously handled, with the proper distribution of men and money.*

"*I am the more pleased to have arrived at this opinion because it has been reached by direct field work, influenced by no prepossession in favor of the region, with little help held out except by a few who had seen some of the territory, and with full knowledge of the well-nigh universal condemnation accorded to the country in commercial circles.*

"I would be unjust if I were to convey the impression that I have seen anything which indicates the presence of enormous wealth in the rocks of any locality. But it is not upon such foundations that the prosperity of a region can be based. Prosperity is far more likely to follow the healthy development of *lasting investments which yield moderate rewards*; *and I believe there is room for such in the ores of Cape Breton.*"

Dr. Edwin Gilpin, Deputy Commissioner of Works and Mines for Nova Scotia, and Fellow of the Royal Society of Canada, in one of his official reports to the Government refers as follows to the report of Prof. Woodman:

"*I have on several occasions drawn attention to the probability of the Northern part of Cape Breton yielding valuable deposits of gold, silver, lead and copper. However, as an outside opinion was worth more* than one from an official of the Provincial Government, and would carry more weight with the world at large, Mr. Woodman's services were secured.

"He approached the subject with no pre-determined views, and you will be pleased to learn that *he considers the districts promising, and that their mineral possibilities have been very much undervalued, and that they should, if properly prospected and developed, prove valuable additions to our mineral wealth.*"

Richfield Mining Company,

LIMITED.

Capital Stock - $1,000,000.

In Shares of $1.00 Each.

Head Office :
HALIFAX, Nova Scotia.

Mines :
CHETICAMP, Cape Breton.

THE **Richfield Mining Company, Limited,** has been incorporated under the Nova Scotia Companies Act, with an authorized capitalization of $1,000,000, divided into one million shares of the par value of One Dollar each. The object of this company is to undertake the development of **large bedded Auriferous Arsenical Deposits** in the Cheticamp Mining District, Island of Cape Breton. Two of these deposits, **where enormous masses of valuable ore** are shown, are known as **Iron Cap** and **Mountain Top.** Other similar deposits have been exposed on the company's property.

Two Hundred Thousand Dollars of the **Capital Stock** has been placed in the Treasury as a **Reserve for future operations.** None of this Reserved Stock will be issued until special circumstances demand it, such as the installation of a complete plant when the development work now under way has been advanced sufficiently to justify it. It is anticipated that the results of the present work will enable the company, if necessary, to dispose of the Treasury Stock **at or above par.**

Cheticamp District.

THE **successful operations** of the Inverness Mining Company, Limited, and the Eastern National Copper Company, Limited, have established the fact that the **Cheticamp Mining District is one of the most important in Canada.** Its development during the next year or two will undoubtedly be rapid and the facts already demonstrated with respect to the richness and extent of its mineral deposits are a strong indication that **the mines now being opened will in a short time be among the greatest ore producers on the continent.**

The island of Cape Breton has already established its place among the foremost coal and iron countries of the world. Now, through the operations being conducted at Cheticamp, its claim to be classed as a producer of gold, copper, silver, and iron, must soon be conceded.

The exploratory work of the Inverness Mining Company, Limited, conducted for four years or more, proved the existence of numerous beds of ore, of great but undetermined extent, on the property owned by it. The Eastern National Copper Company, Limited, has since the autumn of 1902 been operating on an enormous bed of copper-gold ore and the work performed to date has been of a most satisfactory character. **The presence of a vast deposit has been fully demonstrated** and the prospects of the enterprise are highly encouraging.

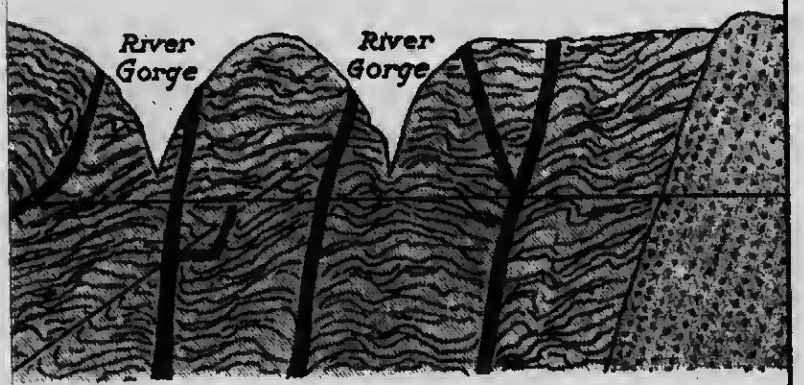
The Heart of the Rich Region.

THE properties of the Richfield Mining Company, Limited, are in the heart of the Cheticamp Mining District, and are held under direct title from the Government of Nova Scotia. They consist of Three Hundred and Eighty-Three areas of mineral lands, 150 feet by 250 feet each, and are situated about seven miles, in a south-easterly direction, from the village of Eastern Harbour, in the County of Inverness. The harbor of Cheticamp is one of the best harbors on the north shore of Cape Breton, being large and well sheltered. The Cheticamp District will also have the advantage of rail communication with outside points, it being intended to extend the Inverness and Richmond Railway to Eastern Harbor at an early date. This railway now runs to

East.

Plateau.

Heavily Wooded Country.



Silver, Copper Lead & Zinc Ores

a, Chlorite & Hornblende Schists-Syenite.

likes & Veins of Trap & Felsite.

Pre - Cambrian.

M. V. Grandin, Feb 1901.

Mining District.

West

Gently Undulating ountry Foo

Ho

Gulf of St. Lawrence. | Cheticamp Island. | Cheticamp Harbour & Village. | Cultivated Land. | Plaster Pits. Swamps.

Building Stone & Hones
Sandstones & Shales.

Plaster & Lime.
Gypsum, Marls & Limestone.

Copp

Middle Carboniferous. | Lower Carboniferous. | L. Ca

Generalized Geological Section Ac

East.

Plateau.

Foothills

&

Heavily Wooded Country.

Hogsbacks.

r Pits.

ps.

Copper Ores. Copper Ores, Gold, Silver, Copper Lead & Zinc Ores

tone. Conglomerates, Granites Hydromica, Chlorite & Hornblende Schists-Syenite.

Grits & Traps. & Traps. Cut by dikes & Veins of Trap & Felsite.

L. Carb. Metamorphic. Pre - Cambrian.

ING COMPANY, LIMITED, HALIFAX, NOVA SCOTIA.

M. V. Grandin, Feb. 1901.

Across Cheticamp Mining District.

Broad Cove, only thirty miles distant, and the road to Eastern Harbor has been surveyed. The Inverness road connects at the Strait of Canso with the Intercolonial Railway, one of the trunk lines of Canada.

Deposits Owned by This Company.

THE two principal deposits owned by the Company are known as **Iron Cap** and **Mountain Top**—the former consisting of a bed of chlorite schist **at least nine feet in thickness**, carrying auriferous arsenical ore in large quantities; the latter consisting of beds of serecite and chlorite schists **aggregating fifty feet in thickness**, carrying similar ore. Several other deposits of valuable ores of gold, silver, arsenic and copper are also owned by the Company within a short distance of **Iron Cap**.

Iron Cap and **Mountain Top**, as well as the other deposits, are all situated on the McLeod Brook, which flows north-easterly and is a feeder of L'Abime Brook, which in turn is a tributary of the Cheticamp River, the main artery of the District. **Iron Cap** and **Mountain Top** are respectively 500 and 1000 yards in a south-westerly direction from the junction of the McLeod with the L'Abime.

Geological Formation.

THE district lies partly within the Carboniferous and partly within the Pre-Cambrian formations. The former generally contribute the undulating and fertile country, and consists of conglomerates, sandstones, limestones and gypsum, whilst the latter contributes the plateau and the more rugged country, and consists of felsites, syenites and other granitic rocks, together with chlorite, hydromica and hornblende schists. Both formations are frequently invaded by sheets and dikes of trap. Three series of the Carboniferous are here presented, viz., the Middle, Lower and Metamorphic. In the Pre-Cambrian the schists are the greatest ore contributors, although the granite rocks are frequently metalliferous.

Values Shown by the Ores.

THE tabulated Assay Statement below will give an approximate idea of the average value per ton of the **Company's Ore Deposits.**

Mountain Top.

No.	Gold.	Silver.	Copper.	Total.
1	$ 4 60	$1 70	$1 29	$ 7 59
2	Trace.	4 40	2 16	6 56
3	4 60		x	4 60
4	56 43	70	x	57 13
5	1 86	1 39	x	3 25
6	43 41	53	x	43 94
7	12 50	50	x	13 00
8	12 00	1 32	x	13 32
9	4 13	52	x	4 65
10	90 00	2 64	3 96	96 60
11	26 66	1 17	3 93	31 76
12	29 15	87	2 00	32 02
13	10 00	60	63	11 23
14	8 27	x	x	8 27
15	21 00	97	1 89	23 86
16	21 08	x	x	21 08
17	10 00	6 00	x	16 00

x Not determined.—Assay No. 2 showed $2.81 in lead. With this exception the samples were not assayed for lead and arsenic.

Iron Cap.

No.	Gold.	Silver.	Copper.	Arsenic.	Total.
1	$ 4 00	x	x	x	
2	12 00	$2 58	$5 45	$13 32	$34 35

x Not determined.

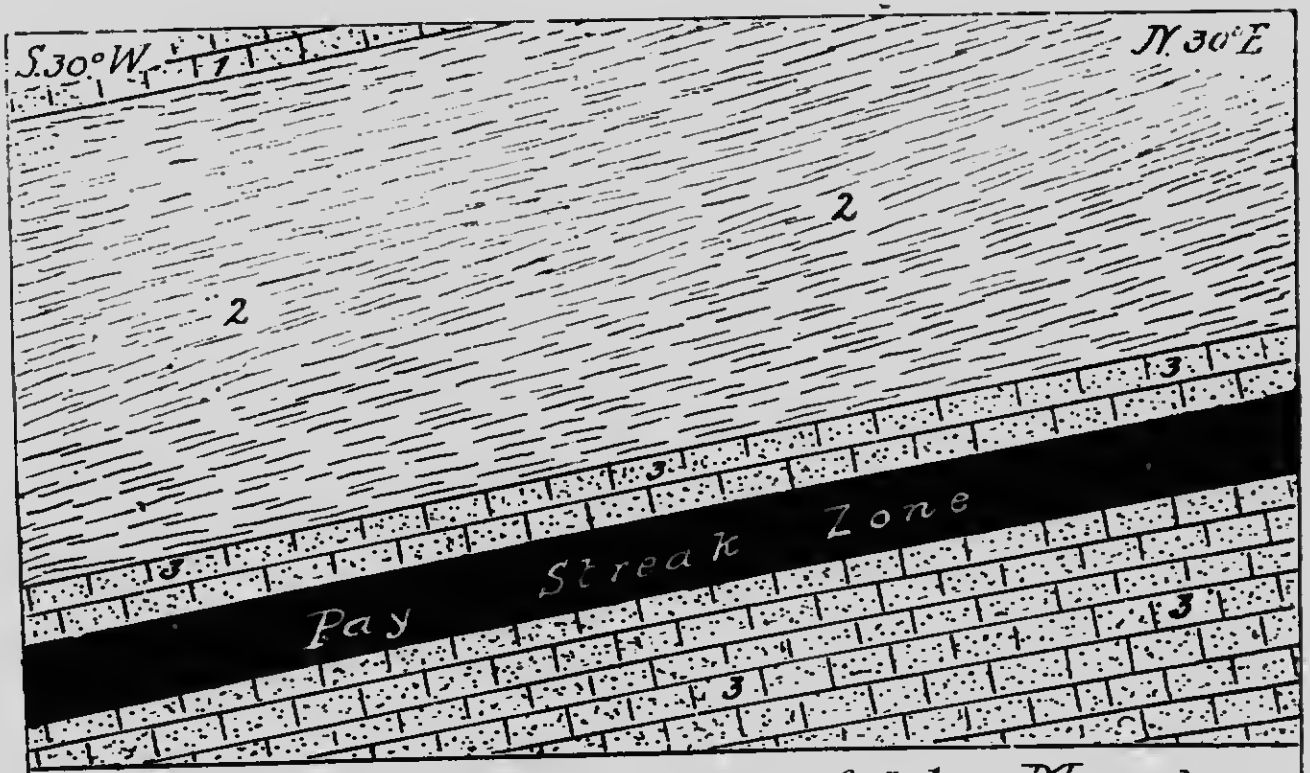
Mode of Occurrence of the Ores.

THE Company's deposits occur in Pre-Cambrian corrugated and contorted beds of chlorite, hydromica and hornblende schists, which are cut by dikes of felsite, porphyry, trap and intrusive bosses of granitic rocks. They have all been subjected to great lateral pressure, which has thrust them one over the other and thrown them into series of anticlinal and synclinal folds. Probably **in no other part of Cape Breton are ore deposits so numerous** in such a restricted area as on the Company's property in Cheticamp.

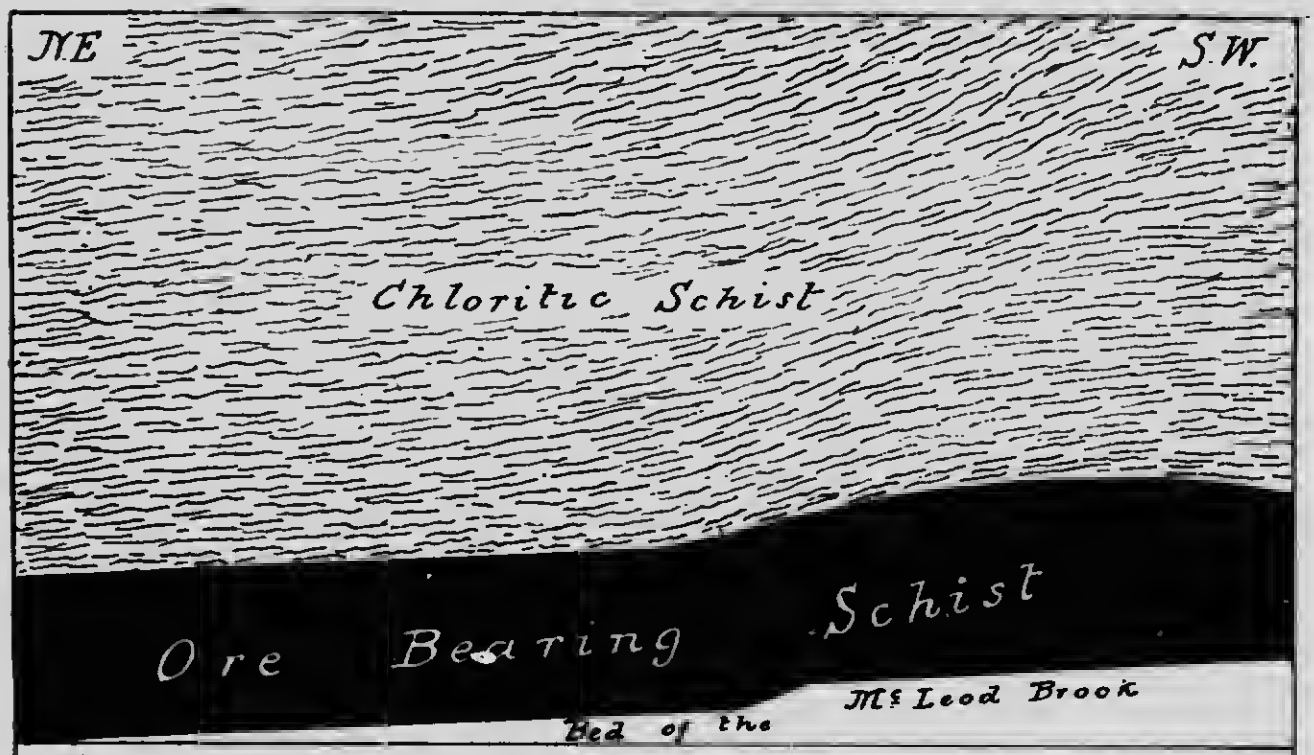
The lowest estimate of the thickness of these ore-bearing schists from data obtainable at present **cannot be placed at less than 700 feet.**

The ores, in the order of their importance, are **gold and silver-bearing Arsenopyrite,** Chalcopyrite, Galena, Pyrrhotite and Iron Pyrites. Arsenopyrite is almost always present and has proved itself **the most valuable ore in the district.**

The ores are found principally in lense-shaped masses in the planes of schistosity, where they have been deposited in the cavities formed by the thrusting of the corrugated beds over each other. These lenses vary in size from four to five feet thick to a fraction of an inch, and range from a few inches to several feet in length. The ores are also found in bedded masses in plates in the joints, in grains disseminated through the rock-masses, and in contact, fissure and gash veins.

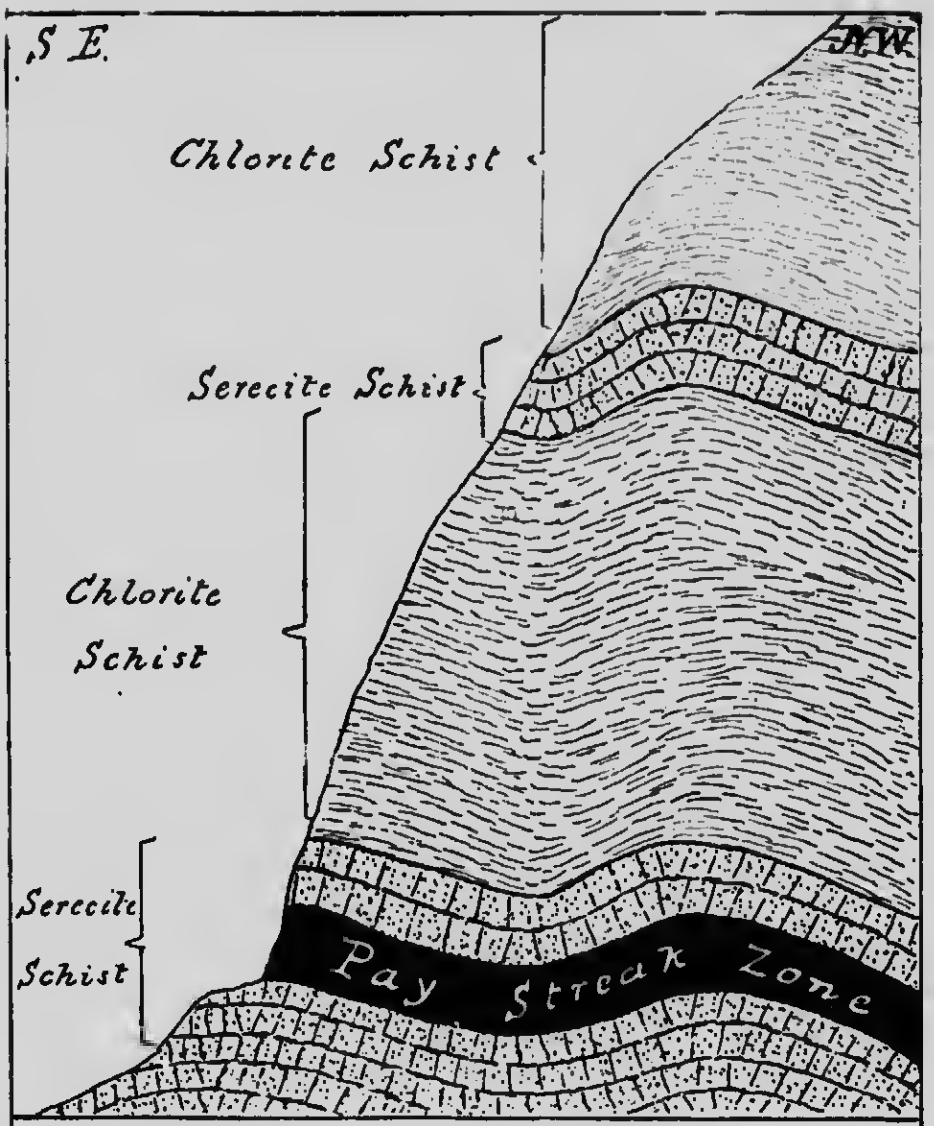


Section parallel to axes of folds. Mountain Top Deposit.
Scale: 1" = 12 ft
1. Serecite Schist 2. Chlorite Schist. 3 Serecite Schist.



Section exposed in cliff above the bed of the Mc Leod Brook Iron Cap Deposit.

Scale: 1" 12 ft.



Vertical Section. Mountain Top Deposit.

Scale: 1" = 12 ft

Mountain Top and Iron Cap.

Description of the Deposits and Proposed Development Work, by Mr. M. V. Grandin, Resident Engineer of the Company.

Mountain Top Deposit.

THIS deposit consists of a series of ore-bearing hydromica and chlorite schists, and may be taken as a type of the ore deposits of the district. **The lenses of ore here sometimes exceed eight inches in thickness.** They are generally from two to four feet long and frequently in continuous series, giving them **the appearance of bedded veins.** The bedded forms proper vary in thickness from an eighth to two inches, the plates in the joints from the thickness of tissue paper to half an inch, the grains from microscopic sizes to crystals a quarter of an inch in diameter. **Very little of the rock mass so far explored appears to be barren.** The formation has here been thrown into a series of corrugations, the longitudinal axis of which pitch S. 30° W at an angle of 10°.

In prospecting the **ore-bearing schists have been stripped for a distance of 150 feet** from the south-west to the north-east along the steep banks of the McLeod Brook, showing up to the present **a thickness of fifty feet carrying pay ores.**

A Rich Pay Streak.

A rich "**Pay-Streak**" in the deposit occurs in a bed of serecite (hydromica) schist. This bed of schist has been traced for nearly a quarter of a mile to the north. To the south-east, 230 feet distant, a trench has been cut exposing a thickness of fifty feet of this schist and its junction with the lower bed of chlorite schist.

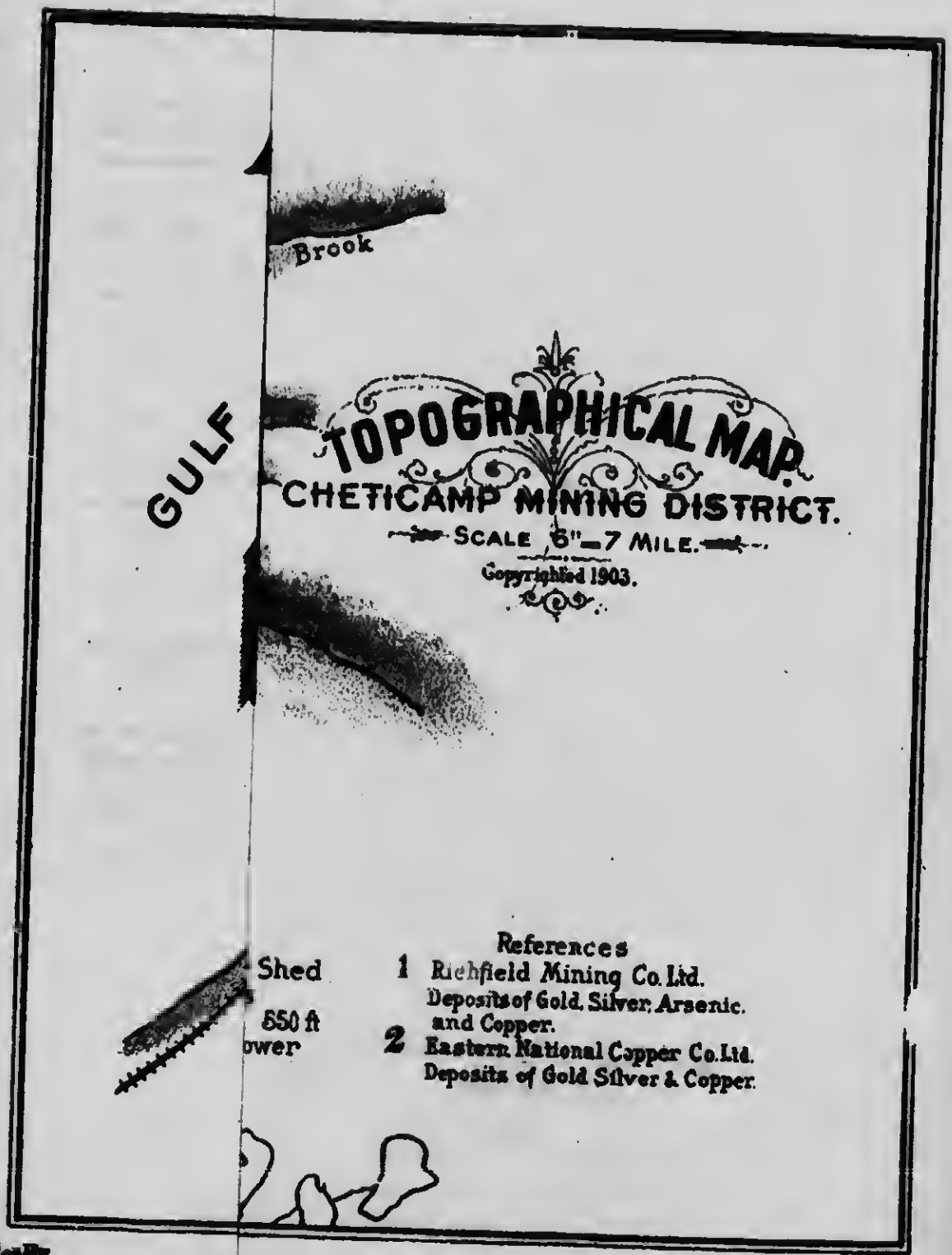
The "pay-streak" referred to has been stripped for eighty feet. It runs parallel with and about three feet below the contact of the chlorite schist and consists of a series of lenses so closely joined together as to give it the appearance of a bedded vein. The lenses vary from a fraction of an inch to eight inches in thickness.

Above and below the "pay-streak" there is **a bed of from ten to twenty inches thick of well-mineralized rock.** Below these mineralized beds, and reaching to the floor of the adit, are **at least ten feet of rock carrying pay ore.** Above the "pay-streak," schists aggregating **38 to 40 feet in thickness are well impregnated with pay ore.**

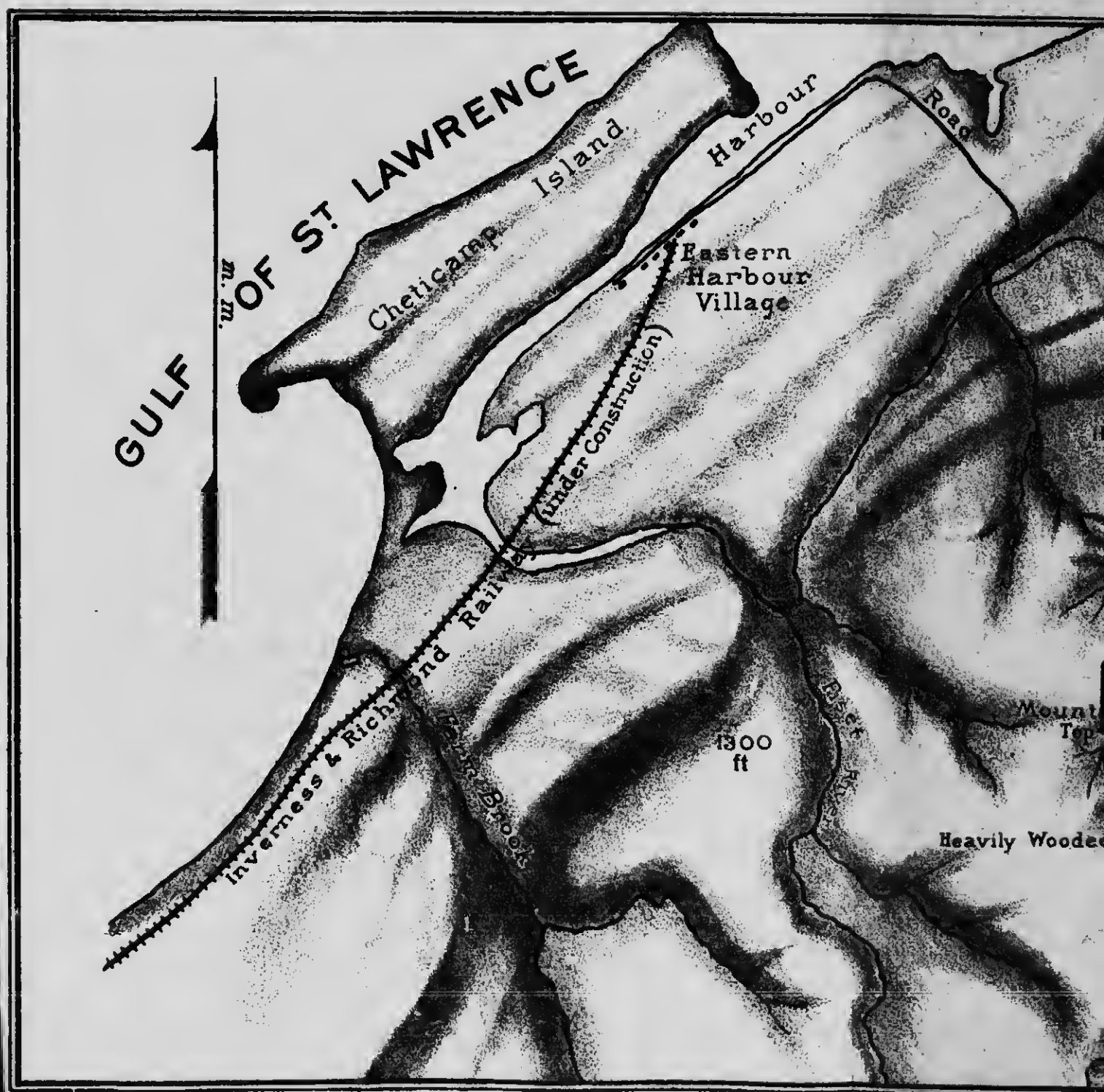
AT MOUNTAIN TOP.

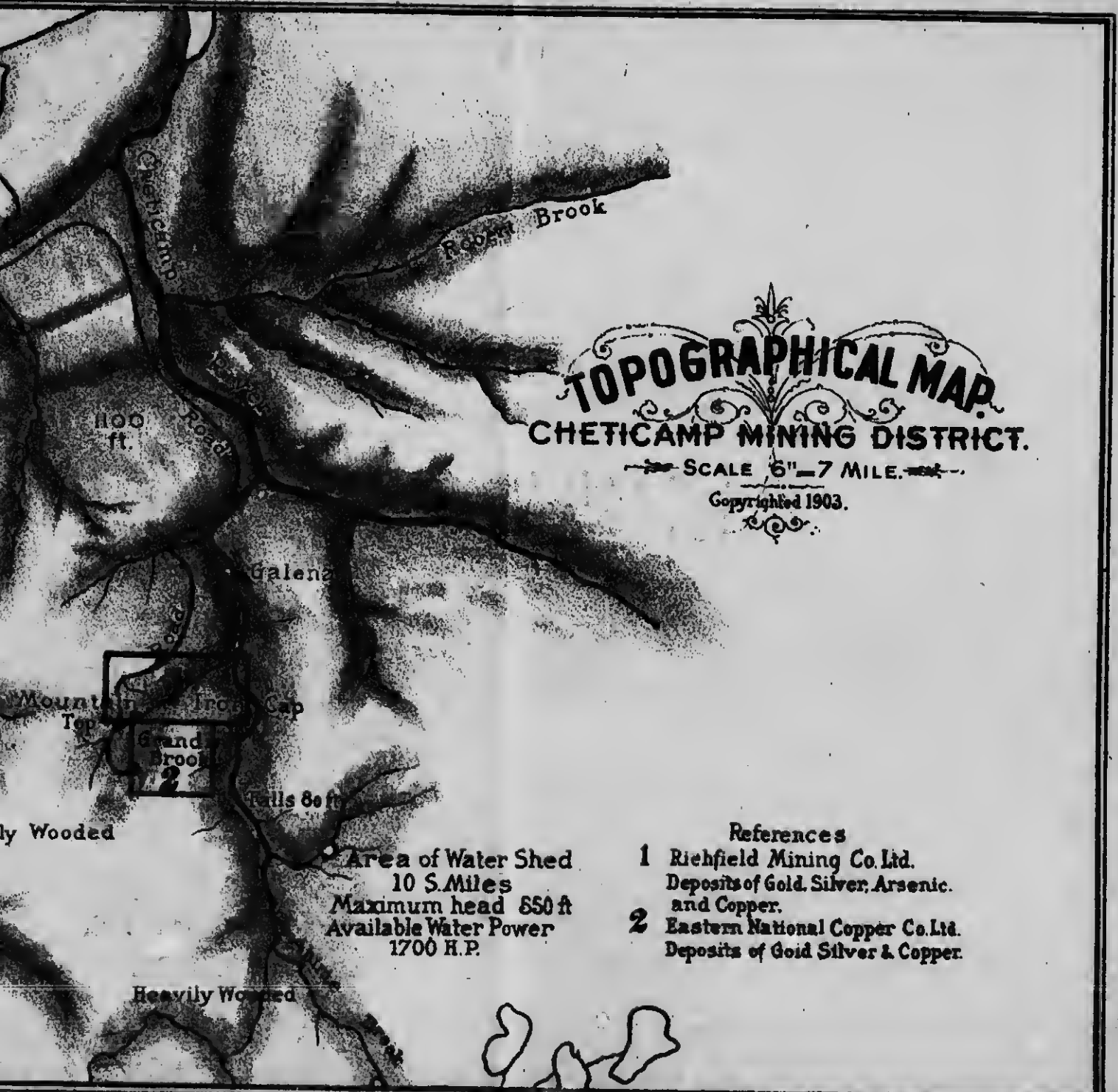
Phenomenal Values.

In no place yet has the ore been reached altogether free from the oxidizing effects of surface agencies. At the western extremity of the outcrop of the "pay-streak" the ore is least decomposed and here it has given some **phenomenally high gold values,** sometimes **going as high as $90.00** per ton. In other places it is often so decomposed that the interior of the lenses have been leached out; here the lowest values have been found. In the adit, where decomposition has not reached such an advanced stage, but where considerable oxidation has occurred, the



of Nova Scotia
, N. S.


GULF OF ST. LAWRENCE
Chetticamp Island
Harbour
Road
Eastern Harbour Village
(under construction)
Inverness & Richmond Railway
Brook
1300 ft
Heavily Wooded



TOPOGRAPHICAL MAP.

CHETICAMP MINING DISTRICT.

SCALE 6"—7 MILE.

Area of Water Shed
10 S. Miles
Maximum head 650 ft
Available Water Power
1700 H.P.

References

1 Richfield Mining Co. Ltd.
Deposits of Gold. Silver, Arsenic. and Copper.

2 Eastern National Copper Co. Ltd.
Deposits of Gold Silver & Copper.

medium values have been obtained. **These facts undoubtedly indicate that the ore will prove richer when the rock has been penetrated** sufficiently to be clear of surface agencies.

Iron Cap. This deposit outcrops at the base of a vertical cliff running in a north-easterly direction along the southern bank of the McLeod Brook. The outcrop has been cleaned off and **a face 75 feet long by seven to nine feet thick exposed of ore-bearing rock.** The true thickness of the deposit has not yet been ascertained, as it sinks below the level of the brook; but as ore outcrops in the bed of the stream there is very little doubt that **the ore body is considerably thicker than nine feet.** The mode of occurrence of the ore is similar in all essential details to that at Mountain Top; **the lenses, however, are much larger and the rock-mass carries a greater percentage of ore.**

The schist here, which is a chloritic variety, lies approximately horizontal, dipping slightly to the south-east at the eastern extremity of the outcrop and north-west at the western extremity.

An Enormous Body. **This deposit is one of the most promising of the Company's properties,** as the series of chloritic schists in which it occurs **has been traced over an area three-quarters of a mile long by half a mile wide, and at all points of outcrop it has shown pay ore.** The principal ore of this deposit is arsenopyrite. An average sample cut through the thickness of the deposit gave on assay $4.00 in gold alone. Selected samples have given as high as:—

Gold	$12.00
Silver	2.58
Arsenic	13.32
Copper	6.45
	$34.35 per ton.

Proposed Development.

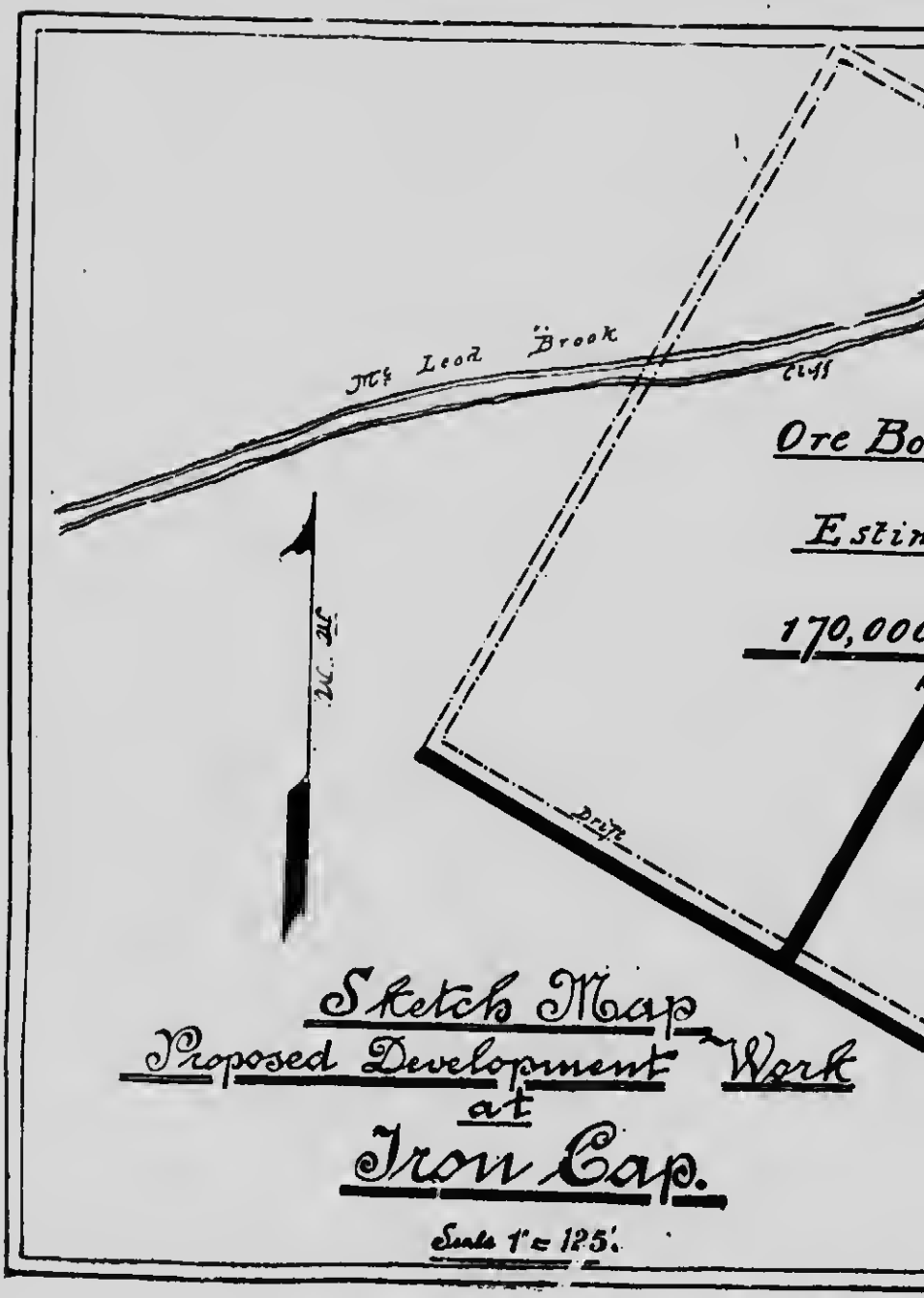
Iron Cap. ALTHOUGH this deposit has not shown the phenomenal high values of Mountain Top, yet on account of its very favorable situation and the coarseness and **abundance of its ores**, I would advise the Company to commence exploratory work here. A road about three quarters of a mile long, sufficient for preliminary purposes, could be made for about $250, which would connect

OVER THE HILLS.

with the Eastern National Copper Company's mountain road and direct communication would thus be established with Eastern Harbour, the port of the district. Although there can be no doubt as to the continuity and great thickness of the deposit, I would not advise the company to erect plant for the treatment of the ore until at least a two years' reserve is blocked out.

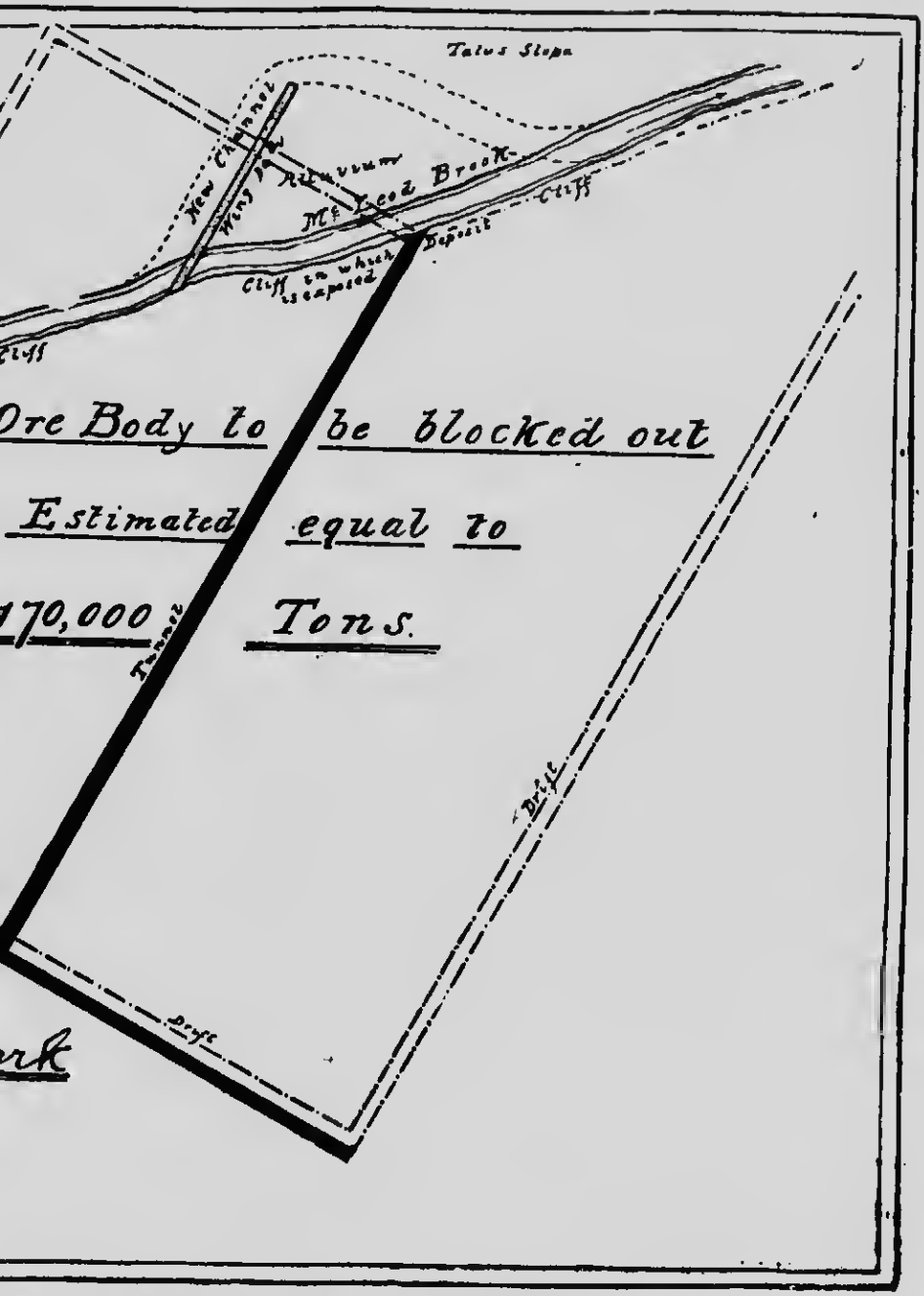

Prop.

PROPOSED DEVELOPMEN



The Iron Cap Ore Deposit is Beli

LOPMENT AT IRON CAP.



ork

is Believed to be Inexhaustible.

170,000 Tons of Ore. The deposit should be blocked out in approximate rectangles. For the first rectangle I would advise that an adit be driven from the outcrop S. 30° W. 500 feet into the deposit. At the end of the adit drifts should be driven 250 feet at right angles to it, to the right and left. **By this system of development, assuming the deposit to be only 9 feet thick, a body of ore 500 x 500 x 9 would be blocked out** and no expense for unwatering the mine would be incurred. **This would give approximately 170,000 tons of ore in sight,** which, putting the values as low as $7.50 per ton, would **represent a gross value of $1,275,000.**

MOUNTAIN TOP ADIT

The cost of drifting will not probably exceed $4.00 per foot. A small wing dam will be necessary at the south-west extremity of the outcrop in order to divert the stream from the works. The total cost of the development work here recommended, including road and wing dam, should not exceed $10,000.

Work will be in pay ore from the start.

Mountain Top. The exploratory work done on this deposit has **exposed a magnificent section of ore-bearing schists** and the data obtained is invaluable for further development work. Here, as at Iron Cap, the deposit should be blocked out into rectangles. I would advise that a slope be sunk on the pay-streak at the point A (see map), where the deposit outcrops in an almost vertical cliff, and

THE CHETICAMP RIVER.

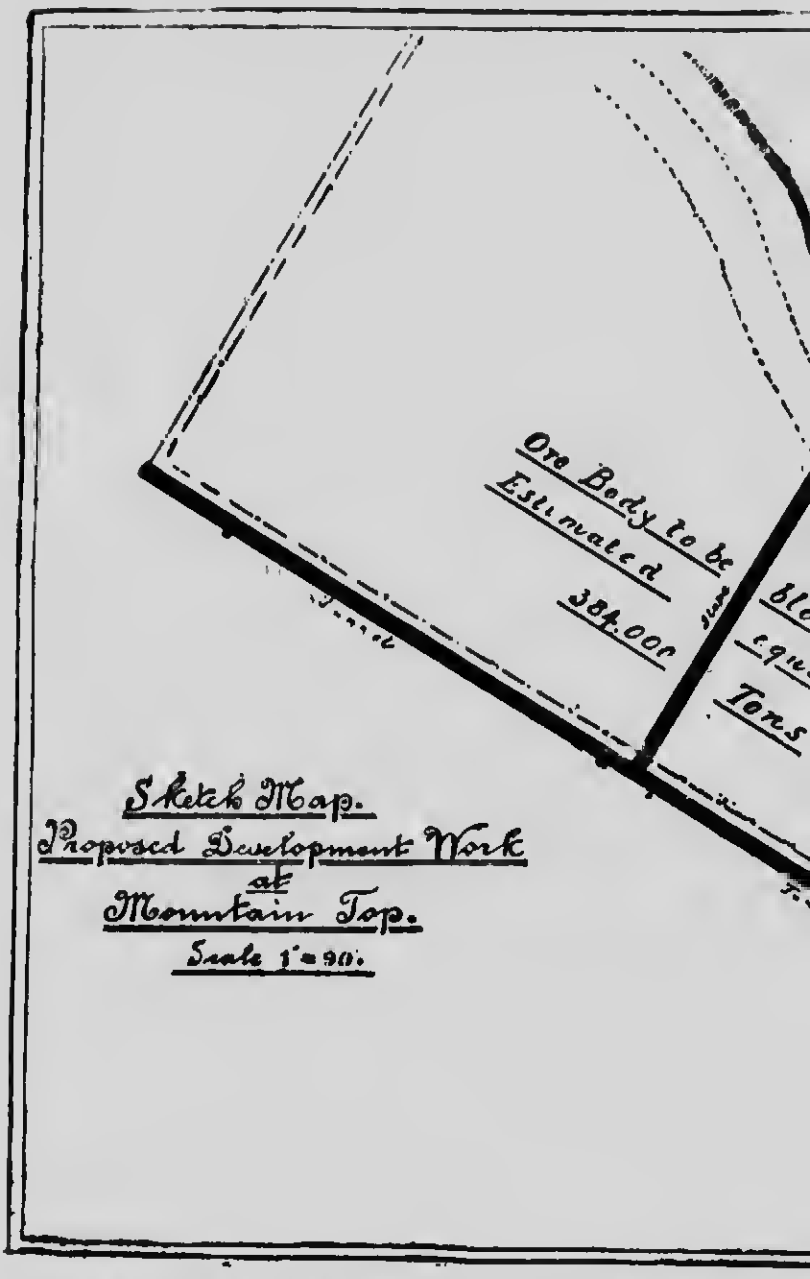
be driven S. 30° W. on the full pitch of the folds. At the end of the slope drifts should be driven to the right and left 250 feet at right angles to the slope. At suitable points cross-cuts should be made to determine the value of the over and underlying series.

Worth $1,728,000. A body of ore 500 feet x 200 feet x 50 feet, or approximately 384,000 tons of ore in sight, would thus be blocked out, which at the low estimate of $4.50 per ton represents a gross value of $1,728,000.

Sketch Map.
Proposed Development
at
Mountain Top.
Scale 1"=90'.

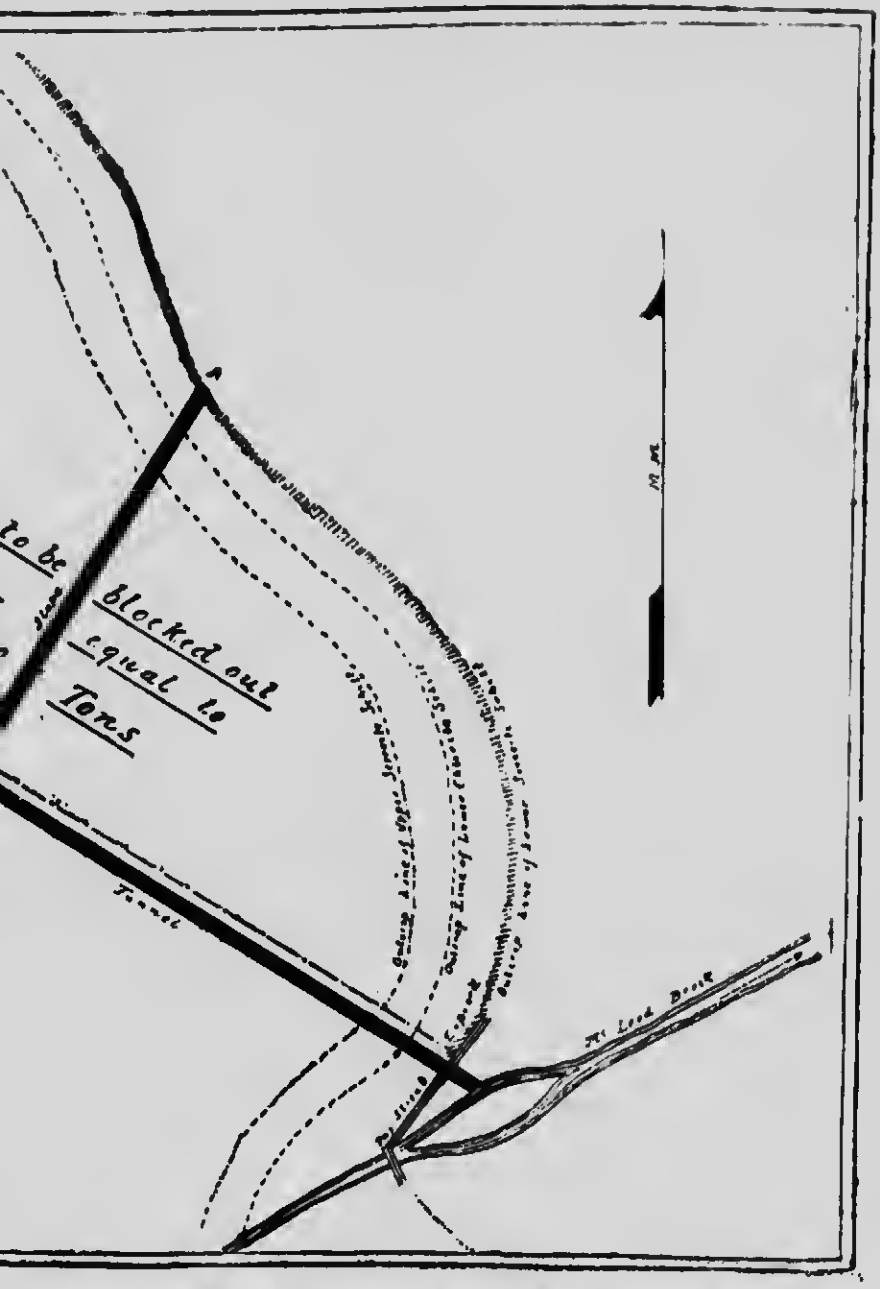
Extraordinary Values i

MOUNTAIN TOP DEVE



Extraordinary Values in Gold Have Been

P DEVELOPMENT PLAN.



e Been Obtained from Mountain Top Samples.

The cost of mining and driving would be more expensive than at Iron Cap, as much of the schist approaches quartzite in hardness. It would not, however, exceed $[illegible], including the making of a short road to connect with the Eastern National Copper Company's road.

Work, as at Iron Cap, would be in pay ore from the start.

Before carrying out the development work outlined for Mountain Top I would advise the Company to await the result of the typographical and geological survey of their property now being carried on, as a more favorable point of attack will probably be located to the east of the present openings.

Half a Million Tons. From what has been said above it will be seen that the Company, for the comparatively small investment of $30,000, will probably be able to show **over half a million tons of ore in sight, representing a gross value of over $3,000,000, besides** which it must be remembered **a great part of the cost of the exploratory work will be paid for by the ore mined during development.**

Timber and Water Power. The Company will have available abundant timber for mining and smelting purposes and unsurpassed water power for carrying on all branches of the work —mining, lighting, &c.

Mill Site and Treatment. There are good facilities within a short distance from the mines for the establishment of arsenic works. A good mill site has been located in close proximity to the Iron Cap Deposit.

Nature of the Ores. The principal ore found in the Company's deposits is arsenopyrite, commonly known as arsenical iron pyrites, or mispickel. It has the following average composition when pure :

Metallic Iron.	34.4%
Sulphur.....	19.6%
Arsenic	46.0%
	100.00

In the Company's deposits it invariably carries gold and silver values.

The following is a brief description of the most successful method of treating auriferous arsenical pyrites. The ore is first crushed by passing it through rock breakers and stamp batteries, then concentrated by means of hydraulic classifiers and Wilfley tables. The concentrates are transported to the leaching plant, where they are treated by the bromo-cyanide process. This consists of, (1), Extraction of gold by leaching the finely ground ore with a solution of potassium cyanide to which is added a small quantity of a solution of cyanogen bromide; (2), Precipitation of the gold from this solution by means of zinc; (3) Removal and smelting of the zinc-gold slimes, thus obtaining pure gold. The concentrates, after the extraction of the gold, are sent to the arsenic works, where they are calcined for their arsenical contents. The crude arsenic resulting from the roasting is refined and produces pure arsenious acid, which is more generally known by the name of White Arsenic.

Consumption of White Arsenic.

White arsenic enters into innumerable chemical compounds for the following purposes in the arts and trades: as a weed-killer, a vermicide, as a hardening substance in babbit metal and lead bullets, as a flux in making the finer grades of glassware, as a fixing and conveying substance for aniline dyes, as a dressing for rawhides in taxidermy, as pigments, &c., in painting and colouring, medical preparations, &c., &c.

The United States is not a producer of arsenic. The imports of arsenic for that country in 1900 were 5,765,559 lbs., and during the same year Canada imported 230,730 lbs.

In 1900 and 1901 the imports of arsenic into the United States were valued at $611,690.

Assays by Mason & Askwith.

F. H. MASON, F.C.S.
Member of the Federated Institute of Mining Engineers
Member of the American Institute of Mining Engineers
Late Chemist and Assayer to the Rhodesian Victoria Falls Gold Extraction Co. Ltd

QUEEN BUILDINGS.
HOLLIS STREET.

Halifax, Nova Scotia. May 3rd 01

The Richfield Mining Co. Ltd
Halifax Nova Scotia

Dear Sirs, The following are the results of assays made by the Halifax Assay Office from samples you marked Mountain Top & Iron Cap.

Gold per ton of 2000 lbs		Value of Gold at $20 per oz		Silver per ton of 2000 lbs		Value of Silver @ 60¢ per oz		Copper per cent	Value of Copper per ton of 2000 lbs @ $3.00 per unit		Total Value per ton of Ore per ton of 2000 lbs	
ounces	hundredths	$	cents	ounces	hundredths	$	cents		$	cents	$	cents
1	33.3	26	66	1	97	1	17	1.31	3	93	31	76
0	50	10	00	1	00	0	60	0.21		63	11	23
1	05	21	00	1	45	0	87	0.63	1	80	23	86
2	80	56	00	1	40	0	84				56	84
0	60	12	00	2	20	1	32				13	32
0	50	10	00	10	00	6	00				16	00
0	50	10	00	11	60	6	96				16	96
0	20	4	00	0	05			Not determined			4	00
0	13	0	70								3	00
4	50	90	00	4	30	2	58	1.40	4	20	96	78
0	60	12	00	4	30	2	38	ARSENIC 15.32%			34	35

The values were calculated from the market prices of the metals at the time the assays were made

Yours truly
F. H. Mason

The Arsenic Industry.

The United States Imports Its Entire Supply.

The world's supply of arsenic and arsenical compounds is derived almost entirely from England and Germany. A small quantity is produced in Spain from the quicksilver ores of Almaden, but it is used locally in the manufacture of colors. Turkey exports about 500 tons of orpiment annually from the mines of Allkhar, where it is associated with antimony; while deposits of realgar are worked in Persia. Italy, Austria, Japan and Canada are also small producers.

At present the United States depends entirely upon imports to supply its constantly increasing needs. The imports in 1900, including white and metallic arsenic and arsenic sulphides, amounted to 5,765,559 lbs. ($265,500), against 9,040,871 lbs. ($386,791) in 1899. The imports in previous years were: 1898, 8,686,681 lbs. ($370,347); 1897, 7,242,004 lbs. ($352,284); 1896, 5,813,387 lbs. ($215,281); 1895, 6,984,273 lbs. ($237,747); 1894, 7,063,442 lbs. ($218,636).

The entire output of Canada is made by the Canadian Gold Fields, Ltd., at Deloro, Ont., in connection with its gold extraction plant. The ores are concentrated and treated by the bromo-cyanide process, and after drying, pass through a revolving cylinder roaster. The fumes, which are collected in a series of brick chambers, are refined by re-roasting in a reverheratory furnace of special form and condensing in a second set of chambers. Bolting and packing are accomplished in sealed rooms. The Atlas Arsenic Co., Ltd., is operating a small plant on a tract known as "The Gatling five acres," one mile from Marmora Station on the Central Ontario Railway, and intends to erect an arsenic plant in the near future. Nearly all the Canadian arsenic is marketed at New York.

Inexpensive Method of Treatment.

Gold Values Successfully Extracted by the Bromo-Cyanide Process.

(COPY)

CHAS. D. MAZE,
ENGINEER OF MINES,
CENTRAL SCHOOL OF ARTS & MANUFACTURES,
PARIS, FRANCE.
REPRESENTING SULMAN-TEED
BROMO-CYANIDE PROCESS
FOR GOLD ORE TREATMENT.

CABLE ADDRESS—MAZE-HALIFAX.
BEDFORD-MCNEILL MINING CODE.

HALIFAX, CANADA, JUNE 8, 1908.

RICHFIELD MINING COMPANY, LIMITED,
Halifax, Canada.

GENTLEMEN :—The samples which you sent me from your mines nt Cheticamp were duly sampled and assayed by me in duplicate. I find the average of these two assays was $55.00 per ton of gold.

I also find that the ore can be concentrated, and the samples received contained from 19 to 20 per cent. of concentrates, which would enable you to reduce by four-fifths the bulk of the ore, should you decide to ship your concentrates. The concentrates are chiefly composed of mispickel (arseno-pyrite) and can be treated by bromo-cyanide. The arsenic can be recovered on the same lines which are followed at Deloro, Hastings County, Ont.

The samples received contained only traces of copper, and should you not find any ore shoots richer in copper, there would be no difficulty in bromo-cyaniding the whole product. Should, however, the copper contents become so high as to necessitate the saving of copper, roasting before gold extraction should be followed, arsenic being thus recovered first, and according to copper contents, the residue could be either chlorinated or smelted.

You therefore will have a choice of processes, all of which to-day are in successful operation, but until your copper contents increase materially, the bromo-cyanide treatment seems to me to be the only available process, and judging from my experiments with your ores you should obtain an extraction of about 90 per cent. of the entire gold contents, and 95 per cent. of the arsenic.

Yours respectfully,

(Sgd.) CHARLES D. MAZE.

An Expert's Opinion.

Mr. F. H. Mason, Mining Engineer, Found Pay Ore at Mountain Top and Iron Cap.

SHORTLY after the Iron Cap and Mountain Top properties came into the possession of the Inverness Mining Company, Limited, Mr. F. H. Mason, Mining Engineer, of Halifax, was engaged to make an examination of the At that time there had been practically no mining work performed on either. Mr. Mason in his report to the company stated :

Iron Cap. "The strata here is lying nearly flat, with a slight dip to the North-West. Since its deposition the strata has been subjected to lateral pressure, which has caused a buckling of the rock, forming a series of spaces which have been subsequently filled with complex metallic sulphides. These sulphides form the ore.

"The rock here is a schistos slate, and the ore occurs in lense-shaped masses irregularly through it. These masses vary in size from a thickness of half an inch up to seven or eight inches, while at times they will form a layer several feet in length. The thickness of the strata in which these lenses of ore occurs is from seven to nine feet, but there is every reason to suppose that there are other similarly metalliferous strata above and below this one.

A MINER'S CABIN.

Ore in Sight. "There is a bold bluff on the side of the stream which gives an excellent opportunity of studying the deposit. Your manager has cleaned off and exposed the ore bed in a number of places along this bluff.

"The minerals in these lenses are mispickle, which largely predominates in all cases—Pyhrrotite, Chalcopyrite Blende, Galena and Quartz.

Mountain Top. "Here there are a number of croppings up a small brooklet, which runs into the McLeod Brook, of a white talcos schist, underlying a black mica hornblende schist; both these show buckling as in the case of Iron Cap. I took a sample from a cropping which occurred in the stream about a couple of hundred feet north east of the openings which have been made, which gave on assay the following startling results:

"Gold ..... 4.50 ounces per ton.
"Silver ..... 4.30 " "
"Copper..... 1.40 per cent.

"Or a value of $96.60 per ton.

"I may say that I took this sample with a view of seeing if croppings other than those which had been prospected were auriferous, and did not for one moment expect to get the startling result the assay gave.

"The ore shows absolutely no gold on panning, but by panning and cleaning up the pannings with nitric acid the gold can be seen easily. I am of the opinion that it will not be a free-milling ore.

Origin of the Alluvial Gold. "It is a well known fact that in both the L'Abime and Cheticamp Rivers free alluvial gold is to be found, as well as in the Ledges on either side of them. The source of this gold has not as yet been discovered, but I am inclined to think that it is not improbable that they find their origin in these and similar deposits, which become eroded away from natural causes and the gold set free by subsequent oxidation.

Development Recommended. "At Iron Cap I advise starting a level at the north-east end of the bluff and driving in a south-south-east direction. This level should be driven at an outside cost of $4 per foot, inclusive. So if driven for one hundren feet and then cross-cut at right angles for 25 feet each way, a considerable body of ore would he blocked out and samples could be taken from three sides of it and the value of the whole block approximately determined.

CUTTING A ROAD.

A Handsome Profit. "This development . . should give you 3000 tons of ore technically in sight, which should be mined and milled easily for 2.50 per ton, while it will yield, judging by the face, about twenty per cent. of concentrates.

"The cost of extracting the precious metals, copper and arsenic from the same should not exceed $10.00 per ton, leaving (on the value of my selected samples) a profit of $10.00 per ton on concentrates or $2.00 per ton of ore treated. The cost of driving these levels should not exceed $4.00 per foot, and I am of the opinion it could be done for $3.00 per foot in this rock. So that the outside cost of the development work recommended here is $600.00.

A First Duty. "At Mountain Top your first duty is undoubtedly to follow up the rich find just below your present openings.

"At Iron Cap the openings are in pay ore, and here and at the new find at Mountain Top I should advise you to concentrate your attention for the winter."

Assayed by Ledoux & Co.

Highly Satisfactory Report on a Sample of Mountain Top Ore.

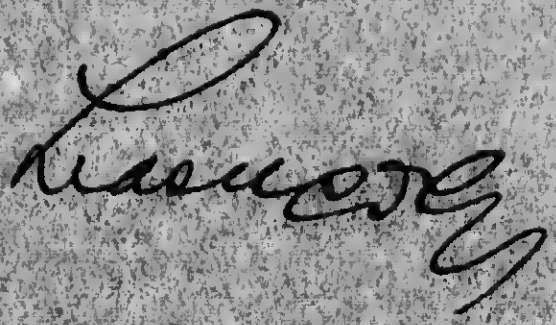
NEW YORK, Jan. 19, 1900

The sample of Ore submitted to us for assay contains:

AFTER DRYING:

Gold, 2.73 ozs. per ton of 2,000 lbs.—Gold value per ton (at $20.67 per oz.).....$56.43

Silver, 1.10 oz. per ton of 2,000 lbs.



The above report is on a sample of ore submitted to Messrs. Ledoux & Co. from the Mountain Top deposit now owned by the Richfield Mining Company, Limited.

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