

# RP 101(A)

REPORT OF THE MINISTER OF MINES OF THE PROVINCE OF QUEBEC FOR THE FISCAL YEAR 1935-36

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Énergie et Ressources  
naturelles

Québec 

REPORT  
OF  
THE MINISTER OF MINES  
OF THE  
PROVINCE OF QUEBEC  
FOR THE FISCAL YEAR  
1935-36

PART A

1936

To The Honourable E.-L. Patenaude, P.C., K.C., LL.D.,  
Lieutenant-Governor of the  
Province of Quebec.

May it please your Honour,

The undersigned has the honour to lay  
before you the report of the Bureau of Mines  
for the fiscal year 1935-36. It consists this  
year of two volumes, designated "Part A" and  
"Parts B, C, D and E" respectively.

This report is the seventh prepared in  
compliance with the amendments of the Mining  
Law establishing the Bureau of Mines.

Onesime Gagnon,

Minister of Mines and Fisheries.

Report of the Bureau of Mines  
for the fiscal year  
ending June 30th, 1936

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To the Honourable O. Gagnon,

Minister of Mines and Fisheries,

Quebec.

Sir,

In compliance with the provisions of article 183 of the Quebec Mining Act, I have the honour to transmit to you herewith, the Annual Report of the Bureau of Mines for the calendar year 1935.

This volume, like the preceding ones, consists of five separate parts designated respectively A, B, C, D and E.

In part A we presented the mineral statistics, the description of the important work done in actual mining and in the development of mineral deposit, and the general information relating to the progress of the industry in general in the Province of Quebec.

In the other parts, which are accompanied by maps, will be found the results of the geological field work accomplished during the year.

Part A of the annual report of 1935 is entitled Mining Operations and Statistics. It gives a detailed review of the exploitation and of the production of our mines and of our quarries during the year ending December 31st, 1935, with an analytical statement of the employment in the industry. It also presents a statement of the work done in prospecting and in developing our mineral resources, particu-

larly our metalliferous deposits of Western Quebec.

The other parts, B, C, D, and E, with accompanying maps, give the results of the geological field work which was done by the Bureau of Mines in 1936.

Therefore Part A covers the last half of the calendar year 1935 which is the first six months of the fiscal year 1935-36.

In order to complete the information, I beg to submit a short review and the principal data of the Mining Industry in the first semester of 1936. This will be followed by an account of the activities of the Bureau of Mines during the full fiscal year ending June 30th, 1936.

As a matter of record I wish to make a mention of certain changes made within the past few months, which have affected the "Status" of the Bureau of Mines. On March 13th, 1936, an Order-in-Council transferred the Bureau of Mines from the Department of Roads to the Department of Public Works, of which the Honourable J.N. Francoeur was Minister and who therefore was also Minister of Mines until his resignation on June 11th, 1936. He was replaced on June 27th, 1936, by the Honourable Césaire Gervais. Following the election of August 17th, 1936, the new Department of Mines and Fisheries was organized, and on August 27th, the Honourable Onesime Gagnon was sworn in as Minister.

#### Mineral production

The figures of the mineral production of the Province of Quebec during the first six months of 1936 show a marked improvement as compared with the corresponding period of the previous year.

The table on page 3, compiled from figures issued by the Federal Bureau of Statistics, gives the quantity and value of the production of our principal mineral products for the half of the year 1935 and 1936.

Production of certain minerals of the Province of Cuzco

Substances	January 1st, to June 30th, 1935.	January 1st, to June 30th, 1936.
<b>Metals:</b>		
Silver (fine).....	366,082	366,479
\$	233,834	165,945
Chromite.....	121	329
\$	1,858	5,138
Copper.....	42,125,614	33,600,651
\$	3,040,500	3,000,538
Magnetiferous iron ore.....	2,419	
\$	16,933	
Gold (fine).....	203,849	317,455
\$	7,155,100	11,142,670
Lead.....	1,304,000	1,070,133
\$	33,849	37,669
Selenium.....	91,817	87,500
\$	176,289	158,375
Tellurium.....		17,000
\$		30,600
Zinc.....	3,093,200	3,720,983
\$	86,628	123,165
<b>Totals:.....</b>	<b>\$ 10,745,000</b>	<b>14,664,100</b>
<b>Non-Metallics:</b>		
Asbestos.....	81,907	120,437
\$	2,777,057	4,016,912
Aceral Water.....	33,174	32,562
\$	9,551	6,258
Sulphur.....	1,268	4,085
\$	17,301	35,929
Magnesite and dolomite.....	216,216	295,277
\$	355,868	393,953
\$	40,399	29,057
Shale and iron oxide.....	2,072	1,548
\$	31,443	21,395
Graphite.....	2	382
\$	20	3,507
Pyrite (Sulphur content).....	1,755	9,146
\$	23,496	69,781
Quartz.....	21,530	34,697
\$	100,443	153,779
Soapstone.....	14,821	11,713
<b>Totals:.....</b>	<b>\$ 3,230,747</b>	<b>4,643,508</b>
<b>Building materials, (estimated).....</b>	<b>\$ 2,325,000</b>	<b>2,800,000</b>
<b>Grand totals.....</b>	<b>\$ 16,300,747</b>	<b>22,107,608</b>

The following table gives the asbestos shipments and bring out the remarkable recovery of this industry.

Shipments of Asbestos from the Province of Quebec from January 1st, to June 30th, 1935

Grouping of Grades	1935		1936	
	Tons	Value	Tons	Value
Crat.....	961	\$ 228,401	1,600	\$ 357,787
Lib/res.....	42,632	\$ 1,974,133	55,630	\$ 2,679,774
Shorts.....	38,314	\$ 574,523	63,207	\$ 979,351
<b>Totals:</b>	<b>81,907</b>	<b>\$ 2,777,057</b>	<b>120,437</b>	<b>\$ 4,016,912</b>
By-products (sand, gravel, etc.).....	1,129	\$ 975	1,746	\$ 1,515

Mining operations

At the end of June 1936, there were 15 metalliferous mines in production in the Province of Quebec; they were the Arntfield, the Beattie, the Horne, the McWaters, the Thompson Cadillac, the O'Brien, the Canadian Malartic, the Shawkey, the Siscoe, the Sullivan, the Greene Stabell, the Lamque, and the Perron mine in the Western Quebec; the Tetroault mine in Portneuf county and the Eustis mine operated by the Canadian Copper and Sulphur Co., near Sherbrooke.

The following table gives the precious metals production of individual mines.

Gold and Silver Production of Individual Mines of the  
Province of Quebec, from January 1st, to June 30th, 1936

ore Treated tons.	Producer	Gold ounces	Silver ounces
32,342	Arntfield	5,042	589
(1)	Beattie	33,757	—
(1)	Canadian Malartic	9,047	4,636
(1)	Consolidated Copper & Sulphur	—	4,668
(1)	Greene-Stabell	2,463	416
100,094	Lamaque	36,731	8,544
18,749	McWatters	8,746	1,447
(1)	Noranda	163,728	235,818
(1)	O'Brien	6,670	453
17,811	Perron	5,981	—
13,000	Shawkey	2,568	330
86,000	Siscoe	33,655	1,489
(1)	Sullivan	8,171	2,657
(1)	Tétreault	642	105,414
2,992	Thompson-Cadillac	254	18
<b>Totals:</b>		<b>317,455</b>	<b>366,479</b>

1) No data available.

During the first half of 1936, prospecting, exploration and mining operations were very actively carried on, and the results obtained fully justify the large sums actually spent in prospecting and development work on the mining properties. There is every reason to believe that in the course of the next twelve months the Quebec production of metals shall show a considerable increase particularly as regards the output of gold. However bright may be the results of prospecting and exploring for minerals it is fitting to advise the public as regards their investments of funds. It must be remembered that throughout the whole history of the discovery and development of mining comes the enthusiasm and optimism, inflated by the exaggeration of promoters, sometimes not over scrupulous, have frequently resulted in losses to shareholders who hastily put their money in mining ventures without first thoroughly investigating the companies.

The following notes, briefly reviewing the principal developments in Western Quebec, were prepared by R.A. Taschereau, inspector of mines.

#### PRODUCING MINES

During the period under review, Arntfield Gold Mines, Limited, increased its output from 170 tons of ore per day to over 200 tons per day. This ore was obtained from stopes and development headings in the no. 3 shaft workings. The shaft was deepened from the 525-foot level to 975 feet, and three new levels were established at 675-, 825-, and 975 feet.

Production from the McWatters mine continued at a rate of from 90 to 100 tons of ore per day. No new ore bodies were developed in this period, but some encouraging diamond drilling intersec-

tions were encountered in drilling below the 400-foot level.

During this period, the No.5 shaft at Noranda was completed at a depth of 3,000 feet, and preparations were made to continue it to the 4,000-foot horizon. The mine output remained constant at approximately 5,500 tons per day of direct-smelting ore, concentrating ore and silicious flux.

A high efficiency is now obtained in the utilization of the waste heat from the smelter gases. Three waste heat boilers, totaling 2,500 horse-power, have been installed. The steam generated in these boilers is used to heat plant buildings, and to drive a turbine, direct-connected to a 2,600 K.W. alternator generator. The generator supplies auxiliary current to the feeder lines, and this current may also be used to run the concentrator and coal plant equipment in case of failure of the main power supply.

Production at the Beattie mine continued at the rate of about 1,500 tons of ore per day. Exploration drifts were driven to the east end of property on the 3rd. and 6th. levels, and diamond drilling was commenced from these workings. Preparations were made to install a second crusher on the 6th. level, which will handle the ore to be mined from the east part of the "North" orebody.

The most spectacular mining development in this semester occurred at the O'Brien Gold mine in Cadillac township. During the first few months of the year, lateral work was continued on the new 625-, 750-, 875-, and 1,000-foot levels. Towards the end of April, very rich gold ore was encountered in the west drifts along the no.4 vein on the 750- and 1,000-foot levels, and this rich shoot was later found to extend continuously to within a short distance of the 400-foot level. It is from 150 to 200 feet in length, and is believed to

average about three ounces gold per ton across drift width.

During this period, production continued at a rate of about 75 tons of ore per day. Arsenic oxide dust, recovered in the roasting process, was stored for later disposal.

Lateral work was continued on the 150-, 300-, and 600-foot levels of the Thompson-Cadillac mine during the early part of 1936. The mill was reconditioned, and it was brought into operation in June. At the same time, stopes were cut out above the 150- and 300-foot levels. Some very rich free gold ore was encountered in drifting on the No. 1 vein on the 150-foot level, at a point about 1,000 feet to the west of the main shaft.

The milling process now employed at this property is a combination of amalgamation and flotation, resulting in the production of gold bullion and high grade pyritic concentrates; the cyanide unit has been dismantled; the plant is now treating about eighty tons of ore per day.

During the period under review, Canadian Malartic Gold Mines, Limited operated on a basis of 300 tons of ore per day. The main inclined shaft was enlarged to three compartments, and was continued from the 725-foot level to the 875-foot horizon. Encouraging results were obtained in diamond drilling, and a substantial increase in production is promised for this property.

In early January, 1936, the new shaft on the Hammell claims of Greene-Stabell Mines, Limited was completed to a depth of 430 feet, and a level was established at the 400-foot horizon. At this level, lateral work encountered the promising gold-bearing zone previously indicated by diamond-drilling.

The ore zone in the old mine workings has been depleted, and during a part of the period under review, the mill treated

ore obtained in development work at the new shaft.

In February, 1936, the construction of a 125-ton mill was completed at the Shawkey Gold Mines property, and production was immediately commenced: the first gold brick was poured in March. In this period, the shaft was completed to a depth of 600 feet, and new levels were established at the 450- and 575-foot horizons. Stopes were prepared above all levels.

Substantially increased ore reserves have been added to the Slacoc mine as a result of "K" zone developments at all levels. Ore lenses occur at random in this highly-altered zone, and there are indications that it may prove to be the main ore-channel of this promising area. In this period, the shaft was continued to the 1,600-foot horizon, and new levels were opened up at depths of 1,475 and 1,600 feet.

The mill continued to treat over 450 tons of ore per day, with a monthly gold output of approximately \$ 200,000. Additional milling equipment was installed to permit treatment of a larger percentage of "K" zone ore.

Sinking of the No. 2 inclined shaft at the Sullivan Consolidated mine was completed to the 5th level, and lateral work was commenced at two new horizons. During this period, the daily tonnage of ore treated in the mill was increased to 125 tons per day.

The Lanaque mill operated steadily at a rate of about 550 tons of ore per day, with grade averaging approximately 0.34 ounces gold per ton. This ore was for the most part, obtained in stoping above the 575-foot level. Lateral work below this horizon has responded favourably, and increased production is planned for 1937. The sinking of a new five-compartment vertical shaft was com-

menced in the early summer month.

The Percon mill was first turned over in February, 1936, and was quickly brought up to a production of 125 tons of ore per day. Results indicated that all the gold in the ore was readily amenable to cyanidation, and the flow sheet has been altered accordingly. The mill-feed is drawn from a number of stopes on the 175- and 352-foot levels.

#### Near-Production Mines

In the spring of 1936, the Aldermac Copper Corporation resumed operations at the Aldermac mine, and dewatering of the underground workings was immediately commenced. It is planned to recondition the milling plant, and to resume the production of copper and iron-sulphide concentrates before the end of the year.

Operation at the Stadscona Rouyn mine have been largely confined to preparation of the property for production. The erection of a 200-ton milling plant and subsidiary buildings was commenced in the spring of 1936; stopes have been prepared above the 450- and 600-foot levels, and it is expected that the mill will be operating at capacity by the end of the year.

O'Neill-Thompson Gold Mines, Limited continued underground exploration work on the Joannes township property, and prepared for the erection of a 25-50 ton test mill. The shaft was deepened to 170 feet, and a new level was established at the 160-foot horizon. The mill is operated by a diesel engine through belts and line shafting.

The McIntyre-Porcupine Mines property at Guillot lake has been rapidly developed from a new prospect to an assured producing mine. A three-compartment shaft was sunk to a depth of over 500 feet, and levels were established at the 125-, 250-, 375- and 500-foot horizons. Machinery and other equipment for a 100-ton cyanide mill was transported over the winter roads from the railhead. The construction

of buildings and the installation of the plant commenced in the spring. Electric power is generated at the property by two 200 H.P. diesel-driven generators, and a 150 H.P.T. boiler supplies steam to operate the hoist and the compressor.

During this six-months period, the shaft at Sigma Mines, was continued to a depth of 600 feet, and lateral work was carried out on the 530-, 475- and 600-foot levels. Diamond drilling and underground work have indicated the presence of a substantial ore deposit and plans have been prepared for the erection of a 300-ton mill. It is expected that this property will be in production in the spring of 1937.

Underground work at the Tiblemont Island Mines property was, for the most part, confined to drifting, crosscutting and diamond drilling on the 485-foot level. The results attained to date have prompted the operators to proceed with the erection of a 150-ton milling plant.

#### OTHER UNDERGROUND OPERATIONS

A headframe was erected and light mining equipment was installed on the Monarch Mines property in Dasserat township. A two-compartment shaft was carried to a depth of 125 feet, and lateral exploration work was commenced at this level.

During the first six months of 1936, Francoeur Gold Mines, Limited continued underground operations. The inclined shaft was deepened to 740 feet, and drifting was commenced on the bottom level. This work was rewarded with encouraging results, but taken as a whole, no substantial deposits of ore were developed, and operations were suspended. In the summer months, a diamond drilling program was carried out on another part of the property, and this resulted in the discovery of a hitherto unknown ore deposit.

Early in 1936, the shaft at the Adanac Gold Mines

property in Rouyn township was continued to a depth of 500 feet. A 1,500-foot diamond drilling programme was also carried out at this time.

In 1923-24, Hipissing Mining Co., Limited sank an inclined shaft on the properties now held by Powel Rouyn Gold Mines, Limited. In June 1936, dewatering of the old workings was commenced. New mine buildings and new headframe were erected, and light mining equipment was installed. Two miles of wagon road was cut out and ballasted with dump rock to provide access to the Perreault highway.

A small shaft was sunk with the aid of a light mining equipment on the Bouchard Clericy Gold Mines group in Clericy township. At a depth of 100 feet, about 100 feet of drifting was carried out; operations were then suspended.

In the spring of 1936, the shaft at the Mooshla Gold Mines property, in Bousquet township, was dewatered. New camp and mine buildings were erected, and heavier mining equipment was installed; the latter included two 60 h.p. boilers, and 8½ in. by 10 in. steam hoist and a 528 cu.ft. steam-driven compressor. Preparation were made to enlarge the shaft from two to three compartment size, and to deepen it to the 315-foot horizon.

Success attended the third attempt to reach bed-rock at the Lava Cadillac Gold Mines property in Cadillac Township. In this operation, steel sheet-piling was utilized, and bed-rock was reached at a depth of 35 feet. The collar for a three-compartment shaft was installed, and sinking in rock was under way at the end of this period.

In early 1936, Pan-Canadian Gold Mines, Limited was engaged in the erection of the necessary buildings and equipment to sink a three-compartment shaft. Operations were suspended before completion of this work.

Dewatering of the Pandora Gold Property in Cadillac township was commenced in June.

An electric power line was constructed to the East Malartic group in Fournière township. Mining equipment was installed, and a three-compartment shaft was completed to a depth of 325 feet, with stations at the 157- and 325 foot levels.

Early in 1936, mine and camp buildings were erected at the Stade-Malartic group in Fournière township, and preparations were made for the sinking of a three-compartment shaft. An electric mining plant was installed. In June, the shaft was completed to a depth of 236 feet, and crosscutting was in progress at the 200-foot level.

During the period under review, Siscoe Extension Gold Mines, Limited continued to explore the 350-foot level of its property. The south crosscut was advanced to a distance of 1,000 feet from the shaft. Several gold-bearing quartz veins were intersected by the crosscut, and these are being explored by drifting and by diamond drilling.

The shaft at the Gale Gold Mines group, in Dubuisson township, was continued to a depth of over 250 feet, and lateral work was carried out on the 125- and 250-foot levels. Two quartz veins were explored by drifting on the upper horizon.

Preparations were made to perform underground work at the Bovere Gold Mines property in Bourlamaque township. Substantial camps and mine buildings were constructed, and light mining equipment was installed. A headframe was erected, and the collar for a three-compartment shaft was prepared. Operations then were suspended.

The underground workings of Beaufor Gold Mines are connected to the Perron mine workings, and the new Perron shaft

is on Beaufor ground. Underground exploration of the Beaufor property is carried on under the direction of the Perron Gold Mines staff. So far, no developments of interest were reported.

During the winter months, a small shaft was sunk to a depth of 120 feet on the property of la compagnie minière Franco-Canadienne, in Duvernay township. No other work was reported.

In June 1936, the sinking of a two-compartment shaft was commenced on the Smith-Tiblenont group in Tiblenont township. The equipment installed included a 250 cu.ft. gasoline compressor, a 6" x 5" steam hoist and a 35 h.p. boiler.

During the first few months of the year, drifting was continued on the 100-foot level of the Avocalon Mining Syndicate's property in Vauquelin township. Following the suspension of these operations, a diamond drilling programme was carried out.

Lateral work was continued in the adit workings of the Prospector's Always group at Madeleine lake, in Currie township, now held by Lake Rose Mines, Limited. The adit was carried to a distance of 951 feet from the portal, and over 1,500 feet of drifting was carried out. A raise was completed to the surface on the main vein. This work has indicated that the vein is of a continuous nature, and carries gold values of ore grade. Sinking of an internal shaft was commenced to permit exploration at lower horizons.

A winter road was completed from Rouleau Siding on the Canadian National (Transcontinental) Railway to the Oonika Copper property in Lévy township, a distance of 133 miles. A complete mining plant was brought in over this road, before the break-up and the sinking of a three-compartment shaft was commenced. The shaft was completed to a depth of 300 feet, and lateral work was in progress on the 150- and 275-foot levels, at the end of this period.

Lateral work at the Consolidated Chiboumou Goldfields property at Hors Lake, has been confined to the 250- and 500-foot levels. The large amount of water met with in this work has impeded development. Additional plant equipment has been installed, and this includes a 62½ k.v.a. alternator generator driven by a 60 h.p. steam engine to provide power to operate electric mine pumps, and for lighting purposes.

Eng'ne Larochelle, inspector of mines, supplies the following notes on the mining operations in the Eastern Townships.

#### Asbestos

The first half of 1936 was a period of activity in the asbestos mines. The production of asbestos fibre reached 129,457 tons, valued at more than \$4,000,000. The figures for the corresponding period of 1935 were 81,907 tons valued at \$2,777,057.

Asbestos Corporation operates to full capacity the King mine and the Beaver mine at Thetford, and also the Viny Ridge at Coleraine. Work has also been resumed at the Bennet-Martin mine at Thetford and at the British-Canadian mine at Black Lake, both of which had remained closed for several years owing to the sluggish state of the asbestos market.

The Bell Mine at Thetford, operated by Kearsbey and Mattison, has also produced without interruption.

The Johnson's Company worked the two mines, at Thetford and at Black Lake respectively.

At East Broughton, the Quebec Asbestos Corporation Ltd. is operating at full capacity.

At Asbestos, the Canadian Johns-Manville has also been very active; they have erected annexes to the asbestos mills and put up new machinery.

Chromite

Some chromite was mined at the Beaver mine, which belongs to the Asbestos Corporation Limited. This company, during the first half of 1936 had also done some diamond drilling, in search of chromite, on the Caribou mine ground, which was formerly an active producer of chromite.

Copper and Sulphur.

The Eustis mine, produces copper concentrate and also pyrite concentrate used for its sulphur content. It has been in active operation during the period under review. At the end of June 1936, the inclined shaft had reached a length of 6,700 feet. The Eustis mine ships an average of 5,700 tons monthly of pyrite concentrate of which some 600 tons is shipped to pulp mills at Trois-Rivières. The balance is sent to the United-States for the manufacture of sulphuric acid.

Soapstone.

Three soapstone quarries were operated, but not very actively. The demand for soapstone blocks, used as furnace lining, in some industries, is not increasing. The figures of production for the first six months of 1936 are lower than for the corresponding period of 1935. This is owing to the improvements in the construction of the furnaces, which consume less lining material than formerly.

The following remarks were contributed by Paul Bourret, Inspector of mines.

The non-metallic mineral substances show increase in the fiscal year of 1935-36, as compared with the preceding year, 1934-35, with the exception of feldspar and mica, both of which are decreasing.

The production of silica and of magnesitic dolomite have been very active. Considerable work has been carried out at the magnesite mine of Canadian Refractories, Limited at Kilmar, Argenteuil county, for the purpose of substituting underground mining methods to the open-cast practice which has been followed heretofore.

There has been only minor changes in the mining practice and mining machinery of non-metallic mines.

The total value of building permits issued in the province during the fiscal year 1935-36 was \$52,445,200. compared with \$32,776,800 in the preceding year. All of the various classes of building materials benefitted by the improvement in the building trade.

Mineral Companies Incorporated in the Province of Quebec

in 1935

Name of Company.	Head Office.	Date of incorporation.	No of Shares.
Abibi-Or, Limited	Montreal	June 6th, 1935	3,000,000
Aron Mines, Limited	Rouyn	June 17th, 1935	49,550
Asbestos Gold Mines, Limited	Montreal	Jan. 25th, 1935	3,000,000
Asbestos Mining Corporation	Pascalis	June 22nd, 1935	3,000,000
Asbestos Development Co., Ltd.	Montreal	Sept. 6th, 1935	200
Chateau d'Or de Batiscan, Inc.	Joliette	June 19th, 1935	2,000
Colonial Gold Syndicat, Ltd.	Montreal	June 25th, 1935	5,000
Compagnie Minière Franco-Canadienne, Limited, (Inc.)	Amos	Oct. 17th, 1935	3,000,000
Compagnie Minière Kusevitch de Charlevoix, Ltd.	La Malbaie	Oct. 12th, 1935	5,000
Cornwall Consolidated Gold Mines, Inc.	Montreal	Oct. 13th, 1935	3,000,000
Cornwall Gold Mines, Limited	Rouyn	Oct. 21st, 1935	99,999
Cornwall-Cor Gold Mines Syndicate, Ltd.	Montreal	June 22nd, 1935	12,000
Cornwall Mining Claims, Limited	Montreal	Dec. 17th, 1935	1,000
Cornwall Basin Mining Company	Amos	Dec. 21st, 1935	2,000
Cornwall-Bousquet Gold Mines, Limited	Montreal	Jan. 7th, 1935	1,000,000
Cornwall Patrice Gold Mines, Limited (The)	Rouyn	June 20th, 1935	3,000,000
Cornwall Mines, Limited	Canton de Lacorne	Apr. 10th, 1935	340,000
Cornwall Mines, Limited	Toronto	Apr. 27th, 1935	3,000,000
Cornwall Iron Oxide Co. Limited	Montreal	Apr. 29th, 1935	16,000
Cornwall Mine Syndicate, Ltd.	Quebec	Jan. 7th, 1935	3,996
Cornwall Gold Fields Limited	Montreal	Jan. 4th, 1935	4,000,000
Cornwall (Quebec) Exploration, Ltd.	Montreal	Apr. 2nd, 1935	10,000
Cornwall Mining Syndicate (The)	Quebec	May 22nd, 1935	200
Cornwall Gold Mines, Limited	Rouyn	Mar. 22nd, 1935	19,500
Cornwall Mining Company Limited	St-Lambert	May 4th, 1935	3,000,000
Cornwall Prospector, Limited	Rouyn	Apr. 17th, 1935	20,000
Cornwall La Caze Gold Mines, Limited	Montreal	Feb. 9th, 1935	200
Cornwall Gold Mines, Limited	Amos	Nov. 6th, 1935	500,000
Cornwall Gold Mines, Inc.	Rouyn	Apr. 29th, 1935	20,000
Cornwall Development Company, Limited	Montreal	Feb. 16th, 1935	3,000,000
Cornwall-Lawrence Gold Mines, Limited	Quebec	June 15th, 1935	500,000
Cornwall Pedro Gold Mining And Prospecting Corporation	Montreal	Apr. 8th, 1935	9,500
Cornwall Mines, Limited	Montreal	Mar. 19th, 1935	50
Cornwall Extension Gold Mines, Limited	Montreal	Aug. 8th, 1935	3,000,000
Cornwall Charlevoix Radium Exploration, Ltd.	Quebec	Dec. 9th, 1935	148,000
Cornwall Radium Exploration Syndicate, Limited	Montreal	Mar. 22nd, 1935	49,990
Cornwall Launoy, Limited	Montreal	Jan. 28th, 1935	2,000
Cornwall Coalco, Inc.	Montreal	Nov. 21st, 1935	3,000,000
Cornwall Cassiac Mining Corporation	Montreal	May 4th, 1935	3,000,000

2,000 preferred shares of \$10.00 each.

The following Companies, Incorporated in 1935 by Letters Patent of  
the Federal Government, have acquired Mining Rights  
in the Province of Quebec.

Name of Company	Head Office	Date of incorporation	No. of shares
Canadian Shield Mining Syndicate, Ltd.	Ottawa....	Apr. 6th, 1935	5,000
Pascourt Developments, Limited.....	Ottawa....	Feb. 23rd, 35	50,000

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The following Companies, incorporated in 1935 in the Pro-  
vince of Ontario, have acquired mining  
rights in the Province of Quebec.

Name of Company	Head Office	Date of incorporation	No. of shares
Met Gold Mines, Ltd.....	Toronto...	Apr. 1st, 1935	3,000,000
Nelson Extension Syndicate, Ltd....	Toronto...	Jan. 22nd, 1935	2,500
New Exploration Limited.....	Ottawa....	Feb. 2nd, 1935.	250,000
Newnes Mines, Limited.....	Toronto...	Apr. 12th, 1935	5,000,000
Orser Gold Syndicate, Limited.....	Toronto...	Dec. 2nd, 1935	1,000
Parsons River (Quebec) Gold Mines, Limited.....	Toronto....	Oct. 11th, 1935	3,000,000
Pit Saiboug Gold Syndicate, Ltd....	Toronto....	May 21st, 1935	10,000
Pit Quartz Mining Corporation, Ltd.	Toronto....	Feb. 2nd, 1935	2,000,000
Pit Gold, Limited.....	Toronto....	Jul. 24th, 1935	40,000
Pit Gold Mines, Limited.....	Toronto....	May 11th, 1935	3,000,000
Pit Kansas Gold Mine, Limited....	Toronto....	Jul. 8th, 1935	3,000,000
Pit Lake Gold Mines, Limited.....	Toronto....	June 11th, 1935	3,000,000
Pit-Thomas Gold Mines, Ltd....	Ottawa....	Aug. 26th, 1935	3,000,000
Pit Exploration Co., Ltd.....	Ottawa....	Jul. 19th, 1935	250,000
Pit Tibbest Gold Mines, Ltd.....	Toronto....	Feb. 7th, 1935	2,500,000
Pit Mineral Holdings, Ltd.....	Toronto....	Sept. 5th, 1935	750,000

Mining Rights

The following tables, prepared by Mr. F. X. Mercier, chief of the Administrative Division, give the number of mining titles issued by the Bureau of Mines during the fiscal year 1935-36, and a statement of the assessment work done on the claims and under mining licences; Robert Samson, accountant, compiled the statement relating to revenue.

Number of various titles issued  
by the Bureau of Mines

Designation of Titles	1934-35	1935-36
Claims recorded, Amos.....	5,338	5,995
" " , Noranda.....	4,351	3,964
" " , Quebec.....	1,708	3,403
Miner's certificates.....	3,395	4,043
Mining licences issued.....	537	525
" " renewed.....	1,143	1,245
Mining concessions.....	9	5
Transfer of mining rights.....	987	1,078
Reports of work, days reported.....	538,362	528,202
Reports of work, diamond drilling, ft....	145,107	127,784

Titles Issued Yearly since 1920-21

Fiscal year	Numbers of miner's certificates	Number of claims recorded	Number of mining licences	Mining concessions		Transfer of mining rights
				Number	Acres	
20-21	493	335	212	5	464	41
21-22	509	321	195	4	801	33
22-23	1,973	1,183	238	8	602	210
23-24	1,528	1,750	635	9	1,517	430
24-25	2,339	5,143	1,045	17	3,698	729
25-26	3,315	9,407	1,074	8	1,733	1,152
26-27	3,799	12,686	1,467	33	7,249	1,155
27-28	4,090	13,707	2,290	20	6,640	1,227
28-29	3,086	9,544	2,177	16	5,803	839
29-30	2,500	8,245	1,607	2	1,049	640
30-31	1,981	6,034	1,341	3	967	855
31-32	2,324	8,108	906	4	1,940	425
32-33	3,178	11,211	1,065	4	2,578	908
33-34	3,022	10,915	1,557	4	2,627	940
34-35	3,395	11,397	1,680	9	3,541	987
35-36	4,043	12,962	1,770	5	2,233	1,078

COMPARATIVE STATEMENT OF EXPLORATION WORK, PERFORMED ON  
CLAIMS AND MINING LICENSES, IN THE FIVE LAST  
YEARS, ENDING DECEMBER 31st.

Year	Number of days work	Footing of diamond-drill holes
1931.....	124,050	23,486
1932.....	184,815	44,873
1933.....	263,900	49,899
1934.....	500,502	123,257
1935.....	542,094	146,425
1936.....	730,295	202,623

Comparative Statement of Revenue Collected by the  
Bureau of Mines.

	1933-34	1934-35	1935-36
Miner's Certificates.....	30,405.00	34,440.00	39,185.00
Mining Licenses.....	158,051.00	170,434.79	174,306.51
Mining Concessions.....	14,016.60	28,581.45	5,550.96
Transfer of Titles.....	9,400.00	9,870.00	10,780.00
Dues on Mining Concessions.....	1,976.92	2,026.68	1,742.77
Dues on village lots.....	9,405.39	5,677.13	16,701.25
Dues on Profits of Mines.....	321,276.02	370,895.26	619,341.70
Miscellaneous:			
Sole of maps.....	983.98	1,371.77	1,604.17
Mineral collections....	352.75	618.00	681.66
Fees of analyses.....	323.13	1,042.55	3,445.82
Casual revenue.....	2,009.23	32.35	.....

Geological Field Work

Since 1929, when its Division of Geology was organized, the Quebec Bureau of Mines has greatly expanded its programme of geological field work. It systematically studies the geology of areas favourable to mineralization and of the known mineral deposits they contain. From these examinations maps and reports are prepared to assist and guide the prospectors in the search for useful minerals. During the field season of 1935, the following regions were examined by geologists under the general direction of Dr. John A. Dresser. The results of these works, including maps, plans, and illustrations, are presented in parts B, C, D, and E, of the Annual Report of the Bureau of Mines.

- L.V. Bell- Northern Dubuisson Area, Abitibi county.
- Bertrand T. Denis- Guillet township, Témiscamingue county.
- I.W. Jones- Upper York River Area, Gaspé Peninsula.
- Carl Fessler- Headwaters of Mégiscane River Area, Abitibi Co.
- Abbi J.W. Lavardière- Marbleton and vicinity, Wolfe county.
- G.S. MacKenzie- Currie township, Abitibi district.
- H.W. McGerrigle- Eastern Township gold placer deposits.
- F.F. Osborne- Sainte-Agathe-Saint-Jovite Area, Terrebonne Co.
- H.W. Sannerman- Josselin-Delestre Area, Abitibi county.
- G.K. Lowther- Villebon-Denain Area, Abitibi, Témiscamingue and Pontiac counties.

For the field season of 1936, the following fields have been assigned to geologists:-

- L.V. Bell- Study of mining properties of the Rouyn-Bell River Area, Abitibi and Témiscamingue counties.
- Bertrand T. Denis- Devlin and Dubréuil townships area.
- I.W. Jones- Saint-John River Bassin, Gaspesia.

G.S. MacKenzie- Mines and prospects of Chibougamau, Openisca, Father lake, and Currie areas.

C.V. Douglas- Lake Kamshigama Area, Abitibi district.

W.W. Lowley- Florence and Wedding rivers area, Abitibi dist.

Abbé J.W. Lavardière- Limestone formations in Richmond and Beauce counties.

Earl Faessler- Parent township area, Laviolette county.

F. Fitz Osborne- Mineral deposits of Grenville region, Argenteuil county.

H.W. McGerrigle- Investigations of sand deposits of Bagot and Shefford counties.

With the object of conveying the results of these works to the knowledge of interested public as soon as possible, the Bureau of Mines deemed advisable in the fall of 1935 to publish advance reports of the investigations in the field during the preceding season.

The great many demands of prospectors justify the publishing these advance reports.

#### Mine Inspection.

The safety of workmen in mines and quarries has always received the keen attention of the Bureau of Mines. The mining of ore and minerals generally entails dangers of its own. The work in mining operations must be closely followed, guided and regulated in the interest of both workmen and mine operators. Part A of the Annual report contains an analysis of the accidents which occurred in our mines and quarries in 1935, as well as a brief description of measures of accident prevention adopted by Beattie Gold Mines, Limited at Beattie mine, in Abitibi county, and Quebec Asbestos Producers Association, and the results obtained.

There are four inspectors attached to the Quebec Bureau of Mines, and in conformity with the laws, all are mining engineers. Besides their functions relating to the safety of workmen, they closely follow the progress of the mining industry so as to be in a position to give, to the interested public, accurate and up-to-date information on the mineral resources in general, and on individual properties.

To facilitate the work of the mining inspection and to better follow the development of our mineral industry it has been deemed advisable to divide the province into four inspection districts. Eugène Larochelle has charge of the Eastern Townships district, including the Basque region; R.H. Taschereau, of Abitibi and Témiscamingue counties; Paul H. Bourret of the north shore of the St-Lawrence river and Henri Girard of the south shore.

During the fiscal year ending June 30th, 1936, 91 boilers of mines and quarries were inspected by the Bureau of Mines. Seventy-two certificates had been given to hoistmen.

The data and informations on the mining operations presented in part A of the Annual report have been mostly supplied by inspectors.

#### Chemical Research and Assay Laboratories

The Bureau of Mines maintains three laboratories for analysis, assays and researches. The main one, opened to the public in 1933, will be moved in December 1936 in the Parliament Building, annexe E. St-Augustin Street, Quebec; the second one, located at Ecole Polytechnique, 1430 St. Denis Street, functions since 1910; and the third is in connection with the office of the Mining Inspector at Thetford Mines.

The Quebec Laboratory serves the technical staff of the Bureau. Besides the assaying and analysis of sample submitted by the prospectors, this laboratory carries on rock analyses of great precision, of specimens collected by our geologists, makes microscope de-

terminations of minerals from thin sections and by optical methods and carries on research work on mineral substances.

The Montreal laboratory serves the public of that region interested in mining matters.

The Thetford laboratory operates a testing machine which is taken as the standard means of classification of the various products of the asbestos mines. It also serves to standardize the various testing machines which are used in the individual asbestos mines.

Statement of Laboratory Work Done During the year 1935-36

	Samples received	Assays and analysis	Qualitative examination
Bureau of Mines, Quebec.....	5,208	4,033	3,174
Ecole Polytechnique, Montreal....	689	1,065	509
Bureau of Mines, Thetford.....	520	1,115	-

The main special work carried on at the laboratory by M. Maurice Archambault and Raymond Loranger are as follows:

- Complete analysis, of special precision, of talc from Bolton.
- Analysis of eight samples of residual water from Siscoe, Sullivan, Greene-Stabell and Lamaque mines.
- Study under microscope of 151 samples of which 25 petrographic and 126 mineralogical determinations.
- A series of researches on metals and alloys to obtain the most suitable composition for claim-tags.

Draughting and Map-Making

The Draughting division employed four competent draughtsmen, under the direction of Marc Boyer, Mining Engineer.

The draughtsmen made the maps, sketches, drawings which accompany the reports on the geological expeditions, and entered on two hundred and forty township maps, on linen, the location of the 12,962 mining claims staked and recorded during the year. This work necessitated the tracing of about sixty new claim maps of townships.

A third printing of 2,500 copies of the map showing the mining properties in Western Quebec (map No. 335) was published during the year.

The Bureau distributed 5,918 copies of the prints of townships, showing the staking of the mining claims.

The following list gives the maps drawn during 1935-36, most of them to illustrate the Parts B, C, D, and E, of the Annual Reports of the Quebec Bureau of Mines.

- 323- Dartmouth River Map, Area, Gaspé County.
- 324- Deschambault Region, Portneuf county.
- 325- Sketch-map showing Belisle brook, Portneuf county.
- 326- Plan and section of formations on lot 207, parish of Portneuf.
- 327- Canadian-Arctic mine, main features of structure; surface and three levels.
- 328- Western Quebec, sketch showing the geological location.
- 329- Province of Quebec, sketch 200 miles by one inch.
- 330- Glacial lake Ojibway area.
- 331- Sigma mine. North-South section through shaft.
- 332- Lamaque mine, section through No. 3 shaft.
- 333- Lamaque mine, geology of the 200-foot level.
- 334- Lamaque-Sigma mines Area, Abitibi county.

- 335- Tomong properties in Western Quebec.
- 336- Josselin-Delestre Map-Area, Abitibi county.
- 337- Currie region [preliminary] Abitibi district.
- 338- Headwaters of Mégiscane River, Abitibi county.
- 339- Northern Dubuisson Map-Area [preliminary] Abitibi county.
- 340- Guillet Area [preliminary] Témiscamingue county.
- 341- Headwaters of Mégiscane River Map-Area [preliminary]
- 342- Northern Dubuisson Map Area, Abitibi county.
- 343- Sainte-Agathe-Saint-Jovite Map Area, Terrebonne county.
- 344- Villebon-Denain Map Area [ preliminary], Abitibi and Pontiac.
- 345- Villebon-Denain Map Area, Abitibi and Pontiac.
- 346- Index to mining District of Quebec.
- 347- Rouyn-Bell River mining District.
- 349- Stoke Mountain Area, Richmond, Sherbrooke and Compton counties.
- 350- Harricana mining District.
- 351- Glacial Lake Ojibway.
- 352- York River Area, Gaspé Peninsula.
- 353- Currie township, Abitibi district.
- 354- Marbleton Area, Wolfe county.
- 355- Guillet township, Témiscamingue county.
- 356- Winter Road, Lac-Saint-Jean--Chibougamau.
- 360- Popographical Map, Waswanipi-Chibougamau.
- 371- Gold placer deposits, Eastern Township.
- 372- Gold placer deposits on Grass Island brook, Sherbrooke county.
- 373- Gold placer deposits on Moe River, Compton county.
- 374- Gold placer deposits on Hall brook, Dudswell township.
- 375- Gold placer deposits on Rowe brook, Wolfe county.
- 376- Gold placer deposits on Kingsley brook, Dudswell township.

- 377- Schematic representation of the rocks of the Morin Series.
- 378- Sketched map of Ivory Mine.
- 379- Profiles of vertical magnetic intensity of Ivory Mine.
- 380- Outline of orebodies as suggested by magnetometer survey.
- 381- Magnetic map of part of Desgrosbois orebody.
- 382- Profiles of vertical magnetic intensity at Desgrosbois orebody.

### Statistics

The statistical division of the Bureau of Mines collects and compiles the necessary informations to establish the mineral production and other statistics which it publishes in the part A of Annual Report, among which are labour and employment statistics in the mineral industry of the Province.

The statistical division collects all the possible information necessary to keep up-to-date a complete list of individuals or companies who operate mineral deposits in the Province. In January of each year, operators are required to send a statement of their activities during the preceding year. Among other things they must furnish figures of the quantities of the substance mined and treated; the nature, quantity and value of the products sold; the average number of men employed; the total number of days of work represented and the total amount paid in wages; the number of salaried employees and the total amount of their salaries; also some details concerning the machinery used and the fuel and electricity consumed.

For the purpose of establishing the mineral statistics of 1935, we sent out 2,016 requests for reports, to individuals and companies on our list of producers. We received 1,780 answers, of which 1,062 reported mining operations during the year or,

shipments of products, 119 reported only some exploration or development work, and 579 stated that no work of any kind had been effected during the year. The balance of requests for information, 236 in number, remained unanswered. As the latter had been sent for the most part to small operators, it was deemed unexpedient to insist, as their operations would have been insignificant and would not appreciably affect our statistics.

The Bureau of Mines has continued during 1935 and still continues the publication of monthly figures of production, which was started in 1931, so as to help keeping in touch each month with the production of our mines of gold, copper and to follow the market and the demand for asbestos, brick and other clay products, lime and cement.

These statistics represent returns from 38 of the main producers of these mineral substances.

#### Lectures to Prospectors

During the fiscal year 1935-36, the Bureau of Mines organized another series of lectures on mineralogy applied to prospecting. Everywhere there was a numerous attendance and great interest was shown in the subjects treated.

The lecturers were Maurice Archambault, and L.V. Bell of the Bureau of Mines. To these were added Paul D'Agaron, mining engineer, professor A. Mailhot at l'Ecole Polytechnique, Montreal, professor Carl Faessler at l'Ecole Supérieure de Chimie, Québec,

To assist in the teaching of mineralogy, the Bureau of Mines continued the policy of distributing, at a nominal cost, mineral collections of forty common minerals, accompanied

by the Prospector's Handbook, and a small pamphlet entitled "Notions élémentaires de Minéralogie".

Lectures to Prospectors in 1935-36

Where given.	Number of lectures.	Total attendance.
Amos, Abitibi.....	20	274
Aulnier, ".....	12	75
Barrute, ".....	12	117
La Barre, ".....	12	86
Val d'Or, ".....	11	225
Villemontel, Abitibi.....	11	67
Magréville, Témiscamingue.....	12	176
Latulipe, ".....	9	122
Rouyn ".....	38	402
Mistassini, Lac-St-Jean.....	12	114
Péribonka, ".....	11	45
St-Michel, ".....	12	197
La Tuque, Chaplain.....	12	162
Parent, ".....	12	181
Euchemay, Portneuf.....	16	215
Montreal,.....	35	2,037
Quebec.....	12	1,043
Hull.....	12	678

Exhibitions

In the course of the fiscal year 1935-36, the Bureau of Mines took part in the eight exhibitions which follow.

The Eastern Township Agricultural Association fair, in Sherbrooke, June 20th, to July 9th, 1935.

Trois-Rivières regional exhibition from August 11th, to 16th, 1935.

Quebec Provincial Exhibition, August 31st, to Sept. 7th, 1935.

Salon Industriel organized by l'Evenement, Québec,  
October 22nd, to 26th, 1935.

Exhibition of "Association Canadienne-Française des  
Aveugles, held in Montreal, October 17th, to 31st, 1935.

National "Produced in Canada" Exhibition, held in  
Montreal, November the 6th, to 16th, 1935.

Commercial and Industrial Exhibition of Hull, May 24th,  
to 31st, 1936.

Commercial Exhibition of Joliette, Quebec, June 4th,  
to 13th, 1936.

Publicity

The Bureau of Mines endeavours to disseminate the knowledge of our mineral industry and its possibilities, by exhibitions and other means of publicity. Among the publications of the Bureau of Mines the main one is the Annual Report which, for 1935, consists of five volumes on mining operations and the statistics of the production and employment in mines on the the geology of various "mining fields"; the Bureau also publishes shortly after the close of the field season, advance reports containing the results of the field work, so that they may be used as early as possible by the prospectors and operators; the monthly bulletins give the figures of production of our mines and thus, the course of our mining industry may be followed month by month, by comparative figures given of the corresponding periods of the previous year. These bulletins are followed by a statistical preliminary report, giving provisional figures for the whole year. It is, later, followed by Part A which is more complete and detailed. All these publications are issued in English and in French, and they are sent free to any one, on request. Besides, the Bureau of Mines writes articles for papers and magazines, to spread information on our mineral resources and their development; in year 1935-36, 17 articles, containing about 21,000 words were published both in newspapers and technical magazines.

To satisfy the numerous requests for a map showing the location of mining properties in Western Quebec, the third edition of the No. 335 Map was brought up to date and 2,300 copies printed. The distribution was commenced in January 1936, and at the time of writing this report, it is already out of print.

Mine Roads

The development of our mineral resources in Abitibi and Témiscouingue counties, and the operating of the mines necessitate the construction of network of roads. The mining road programme which was started in 1929, has enabled the Bureau of Mines to open and improve a total of 530.55 miles of roads up to June 1936, at the total cost of \$ 2,551,764.64.

During the fiscal year ending June 30th, 1936, the Bureau of Mines expended a total sum of \$ 119,764.64 on mining road exploration, construction, improvement and maintenance in the counties of Abitibi, Témiscouingue, Matapédia and Portneuf and in Abitibi district as stated in the following list.

Lévy and Beaudin townships. - Road Bourmont to Opemiska  
Copper Mines.

Portland East township. - Road from National Highway to Bertrand mine.

Latalipe, Blondeau and Guillet townships. - Winter road from Latalipe to Guillet lake.

Rouyn township. - Road to Stadacona Rouyn Mines.

Avantjish township. - Road in Avantjish township.

Rouyn-Louvicourt townships. - Road Rouyn-Louvicourt to Shawkey  
Gold Mining Company.

Montauban township. - Road Tétrault mine.

Buffarin township. - Road Notre-Dame-de-la-Doré towards  
Chicoutimi.

I have the honour to be, Sir,

Your obedient servant,

A.O. Dufresne,