GENERAL REPORT

of the

MINISTER OF MINES

of the

PROVINCE OF QUEBEC

FOR THE YEAR ENDING MARCH 31st

1959

P. R. NO. 400

Quebec, July, 1959.

To the Honourable
Onésime Gagnon, P.C., Q.C.,
Lieutenant-Governor of the
Province of Quebec.

Sir,

I have the honour to submit to you, in accordance with Section 229 of the Quebec Mining Act, a summary report of the work carried out by the Department of Mines during the fiscal year ending March 31st, 1959.

Your respectful servant,

W.M. Cottingham,

Minister of Mines.

Quebec, July, 1959

To the Honourable W.M. Cottingham,

Minister of Mines,

Quebec, Que.

Sir,

In compliance with Section 229 of the Quebec Mining Act, Chapter 196, Revised Statutes of Quebec 1941, I have the honour to present a summary report on the work carried out by the staff of the Department of Mines, during the fiscal year of April 1st, 1958, to March 31st, 1959.

Your obedient servant,

A.-Ó. Dufresne,

Deputy Minister.

TABLE OF CONTENTS

ILLUSTRATIONS

GENERAL REPORT OF THE DEPARTMENT OF MINES

OF THE PROVINCE OF QUEBEC

FOR THE FISCAL YEAR ENDING MARCH 31st, 1959

THE MINING INDUSTRY OF THE PROVINCE OF QUEBEC

IN 1958-59

The mineral production of the Province of Quebec reached a value of $392,147,869 during the calendar year 1958. This total, subject to slight revisions, represents a decrease of 11 per cent in comparison with the total of $443,808,980 reached in 1957.

A glance at the accompanying table will show that this decrease was caused mainly by the lower values received for five substances, namely: iron, iron ore, zinc, asbestos, and titanium oxide.

However, the economic recession of 1958 did not dampen the enthusiasm of the mining leaders, as witnessed by the energy with which the search for and the development of mineral deposits were carried out, and by the opening of new producing mines, as will be seen below.

Table I. - SUBDIVISION OF THE VALUE OF THE MINERAL PRODUCTION OF THE PROVINCE OF QUEBEC, 1952 TO 1958

Year	Metals	Per Cent	Industrial Minerals	Per Cent	Building Materials	Per Cent	Total
1952	$120,283,133	44	$ 97,233,834	36	$53,222,585	20	$270,739,552
1953	103,278,622	41	96,392,456	38	52,683,103	21	252,354,181
1954	137,780,968	48	94,092,032	32	56,475,399	20	288,348,399
1955	215,781,654	56	105,890,962	27	66,990,217	17	388,662,833
1956	278,440,867	60	114,939,075	25	70,301,026	15	463,680,968
1957	238,173,290	54	120,606,214	27	85,029,476	19	443,808,980
1958	199,177,487	51	104,350,910	26	88,619,472	23	392,147,869*

*Subject to revisions.

MINERAL PRODUCTION

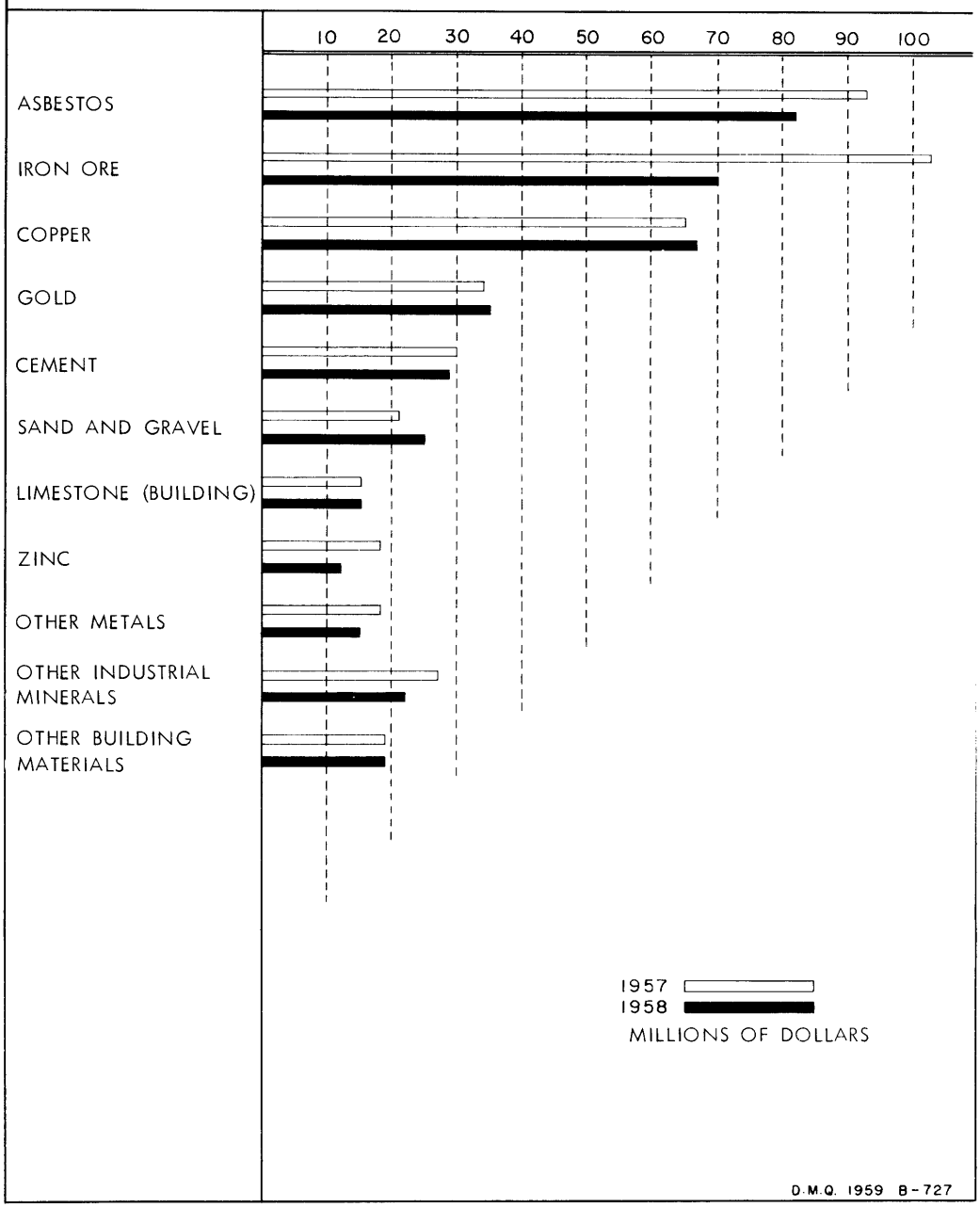

Table II.- VALUE OF THE MINERAL PRODUCTION OF THE PROVINCE OF QUEBEC FOR CALENDAR YEARS 1957 AND 1958

		Value 1958		Value 1957
METALLICS				
Bismuth		$ 436,420		$ 267,908
Copper		66,826,788		65,084,941
Gold	(b)	35,484,736	(b)	33,894,626
Iron		5,120,620		10,083,434
Iron ore (a)	(c)	69,975,540		103,125,303
Lead		715,620		756,324
Magnesium	(d)	683,200		487,853
Molybdenum		1,152,838		1,166,557
Selenium		1,345,478		1,851,190
Silver		3,391,506		3,185,657
Tellurium		50,077		40,124
Titaniferous iron ore		1,608,324		264,904
Zinc		12,386,340		17,964,469
Total metallics	(c)	$ 199,177,487		$ 238,173,290
NON-METALLICS				
I - Industrial Minerals				
Asbestos		$ 82,028,700		$ 93,616,875
Feldspar		359,966		393,284
Industrial lime		3,388,843		3,598,072
Industrial limestone		1,398,836		1,220,180
Lithium		2,047,880		2,827,143
Magnesitic dolomite and brucite		2,529,161		3,046,298
Marl		216,651		190,714
Mica	(c)	85,017		105,310
Mineral water	(c)	176,642		183,155
Ochre and iron oxide		113,390		187,211
Peat (moss and humus)		1,056,811		1,140,476
Quartz	(c)	1,404,552		1,321,830
Soapstone and talc	(c)	194,074		220,330
Sulphur	(c)	2,775,310		2,814,766
Titanium dioxide (in slag)		6,575,077		9,740,570
Total industrial minerals	(c)	$ 104,350,910		$ 120,606,214
II - Building Materials				
Building lime		$ 574,264		$ 670,916
Building limestone	(c)	14,986,243		15,039,045
Cement		28,686,095		30,267,092
Clay products - Brick		8,634,102		6,885,096
Clay products - Other products		2,039,813		2,012,508
Granite	(c)	6,542,373		6,170,316
Marble	(c)	102,519		117,562
Sand and gravel	(d)	24,885,192		20,584,404
Sand-lime products - Brick		295,656		311,107
Sand-lime products - Blocks		33,512		34,412
Sandstone	(c)	1,777,681		2,881,007
Slate and shale		62,022		50,011
Total building materials	(c)	$ 88,619,472		$ 85,029,476
Grand Total	(c)	$ 392,147,869		$ 443,808,980

(a) In view of the uncertainty as to the boundary line, it is impossible, under present conditions, to give exactly shipments of iron ore by Iron Ore Company of Canada having originated in Ungava. Figures given here include all the shipments by this company from Ungava and Labrador.

(b) Value in Canadian funds. The standard value at the rate of $20.671834 per ounce troy is $21,587,245 for 1958 and $20,884,175 for 1957.

(c) Subject to revision.

(d) Estimated.

IRON ORE

As in past years, iron ore is still in the limelight both for the vastness of the prospecting and development work done and for the amount of capital invested to perform this work and to bring new iron ore producing mines into operation.

During the fiscal year under review, Quebec Cartier Mining Company awarded contracts for the construction of a 193-mile railroad, and a concentrator, a hydroelectric plant, two townsites, and dock-loading facilities at Port Cartier. Work is progressing rapidly.

Apart from its mining operations around Schefferville, Iron Ore Company of Canada did a very large amount of prospecting and development work in Lake Wabush area. At the end of March 1959, the equipment and machinery necessary for the construction and operation of a pilot plant were being moved to the site.

Ungava Iron Ores Company announced that its production plans for the Ungava Bay deposits were in the final stage.

Great Whale Iron Mines Limited has announced the discovery of a large tonnage of medium-grade iron ore in the Great Whale river basin. Hull Iron Mines Limited conducted an underground development programme during the fiscal year under review, at its property in Hull township.

The Hilton Mines, at Bristol, in the electoral district of Pontiac, which had officially begun its operations on February 14th, 1958, reached and maintained its full productive capacity of 1,500 tons of concentrates per day during the fiscal year 1958-59.

COPPER

Two operators, Quebec Copper Corporation Limited and Rainville Mines Limited closed their doors. However, in the Chibougamau area, Merrill Island Mining Corporation Limited began operating shortly before the end of the previous fiscal year. Campbell Chibougamau Mines Limited and Opemiska Copper Mines (Quebec) Limited increased their rate of mining from 1,600 to 2,000 and from 800 to 1,600 tons per day respectively, whereas, in the Gaspé area, Gaspé Copper Mines Limited operated at its maximum capacity of 6,500 tons per day throughout most of the year.

GOLD

There was an increased activity both in the mining and the development of gold ore deposits. Sullivan Consolidated Mines Limited, near Val d'Or, reopened its mine closed since July 1956. Norlartic Mines Limited also renewed activity at its Vassan Township property. Barnat Mines Limited announced the discovery of a large gold-bearing orebody. Finally, in the basin of the Chaudière river, many companies carried on exploration work in placer gold deposits, mainly in the Rigaud-Vaudreuil seigneurie.

ZINC

In the Mattagami Lake area, more than 85 companies carried out exploration work in an area covering more than 600,000 acres. Important ore discoveries were announced by some companies, namely: Mattagami Lake Mines Limited, New Hosco Mines Limited, Orchan Mines Limited, and Garon Lake Mines Limited.

NICKEL

In the Lake Frotet area, 70 miles north of Chibougamau a nickel-copper discovery sparked a staking boom. Extensive exploration work was carried on throughout the winter of 1958-59.

ASBESTOS

Three new producers were added to the list of asbestos operators during the year under review, namely: Carey-Canadian Mines Limited, with its mine in the township of Broughton, Lake Asbestos of Quebec Limited, mining in the bed of Black lake, and National Asbestos Mines Limited, with a property east of Thetford Mines. The first company replaces Quebec Asbestos Corporation Limited, which terminated its operations at the end of June 1958. The second, which started operating in July 1958, has nearly completed the dredging of Black lake. To date, more than 37 million cubic yards of overburden have been removed. The last-mentioned company began operating its 3,000-ton-per-day mill also in the month of July 1958.

On the other hand, an over-supply of asbestos fibres on the world markets brought about a decrease in the sales of our asbestos producers; this over-supply was caused by an influx of fibres produced in other countries.

TITANIUM DIOXIDE

Owing to a lesser demand for titanium-bearing slag, Quebec Iron and Titanium Corporation Limited suspended its smelter operations in Sorel during the month of October 1958. However, at the beginning of March 1959, the company started rehiring part of its personnel and was planning to operate four of its eight electric furnaces.

BUILDING MATERIALS

Of the three groups of mineral substances produced in the Province, only the building materials group does not seem to have been affected by the 1958 economic recession.

LEGAL BRANCH

The Legal Branch of the Department of Mines was constituted during the fiscal year 1958-59. Robert Langevin, lawyer, was appointed chief of this Branch. The Division of Mining Claim Disputes and Investigations comes under the jurisdiction of the Branch.

The increasing number and complexity of legal problems made it imperative to co-ordinate the work of lawyers, who, up to that time, had acted as advisers to the Department.

The main function of the Branch is to survey the general application of the Quebec Mining Act and other related Acts. The Branch is also called upon to advise officers of the Department as to the interpretation to be accorded the provisions of the Act.

The Legal Branch is making a study of the concession titles of the seigneuries. It is responsible for the application of those provisions of the Act concerning the revocation of mining concessions and mining rights. It prepares a list of mining rights which have reverted to the Crown following the sale of lands for non-payment of municipal or school taxes. It advises on matters concerning transactions which may involve the Department and the public in general. It also advises the authorities as to the decisions to be taken to settle disputes that may arise between private parties on ground held as mining claims or under mining development licence.

DIVISION OF MINING CLAIM DISPUTES AND INVESTIGATIONS

The main function of this Division, which is under the direction of J.-René Dallaire, is to make investigations and inspections, to settle disputes on ground held as mining claims or under mining development license.

The Division had, as either permanent or part-time personnel, five investigators in Rouyn, five in Montreal and two in Québec.

The Rouyn office investigators dealt with 41 disputes which arose in the agency districts of Amos, Noranda, and Chibougamau. They have travelled 10,095 miles by plane, railway, autobus or car to make investigations, 17,321 miles to carry out claim inspections and walked some 929 miles in the woods to inspect claims.

The Québec and Montréal investigators worked on 31 disputes distributed in the territory of these two agencies. Their travelling included 8,966 miles by plane, railway, autobus and automobile to carry out inspections, 11,320 miles to make investigations, and they walked 447 miles in the woods to inspect claims.

MINERAL RIGHTS BRANCH

U. Roux, Chief of this Branch, reports as follows:

There was a record number of claims registered in the Province of Québec during the fiscal year 1958-59; a total of 60,704 claims was accepted, thus surpassing the former record of 60,315 claims established in 1955-56. The regions where the most intense staking activities occured were that of Lake Mettagami, located in the Amos agency district, and that of Lake Frotet in the Chibougamau agency district. Last year the total number of registered claims amounted to 45,901.

A total of 16,963 miner's certificates was sold in 1958-59, an increase of 25 per cent over the 13,608 certificates sold in 1957-58.

Three thousand two hundred and twenty-two development licenses were issued and 5,986 were renewed during the fiscal year in review, as compared with 2,714 licenses issued and 6,681 renewed during 1957-58.

The Branch granted ten mining concessions aggregating 2,500 acres, whereas last year, seven concessions totalling 2,220 acres were granted.

There was also a substantial increase in the number of transfers of mining rights, 5,239 as compared with 4,861 for the fiscal year 1957-58.

Reports of development work done to comply with the provisions of the Quebec Mining Act show that a total of 1,335,888 man-days of work and 624,106 feet of diamond drilling were done.

Two mineral exploration licenses and one special operation permit were issued during the fiscal year. These permits are the following:

1- One mineral exploration license for all minerals, in the Territory of New Quebec, covering an area of nearly 119.2 square miles.

2- One mineral exploration license for natural gas and petroleum, in the Saint Lawrence valley, covering approximatively 10,040 acres.

3- A special operation permit for peat in the townships of Bergeronnes and Escoumains, electoral district of Saguenay, covering an area of 191 acres.

By Order-in-Council, dated May 7th,1958, the area hereunder described was set aside and withdrawn from the staking of mining claims:

"All that part of the Province of Quebec located east and north of a broken line originating at the southern boundary of the Territory of New Quebec and following the parallel of longitude 67°30' West to the parallel of latitude 52°48' North; thence eastward to longitude 67°15' West; thence southward to latitude 52°33'; thence eastward to longitude 66°30' West; thence southward to latitude 51°30' North; thence eastward to longitude 59°00' West; thence northward to latitude 51°40' North; and thence eastward to the eastern boundary of the Province."

On January 1st,1959, the Branch inaugurated a new coding system to eliminate the multiplicity of numbers given to each mining title issued, from the miner's certificate to the development license.

Henceforth, with the new system, the claims and the development license will bear the same number as the miner's certificate by virtue of which these titles were issued. The "cardex and registers" of the Branch have been set up accordingly.

Table III. - NUMBER OF VARIOUS TITLES ISSUED

BY THE DEPARTMENT OF MINES

(Fiscal years 1957-58 and 1958-59)

Designation of titles	1957-58	1958-59
Mining claims registered at Amos	23,383	32,739
Mining claims registered at Noranda	7,457	7,373
Mining claims registered at Quebec	9,827	7,096
Mining claims registered at Chibougamau	3,467	11,761
Mining claims registered at Montreal	1,767	1,735
Total	45,901	60,704
Miner's certificates issued	13,608	16,963
Development licenses issued	2,714	3,222
Development licenses renewed	6,681	5,986
Mining concessions granted	7	10
Transfers of titles registered	4,861	5,239
Reports of work: man-days reported	1,867,291	1,335,888
Reports of work: diamond drilling in feet	1,206,896	624,106
Number of assay coupons delivered	24,746	32,177

Table IV. - MINING TITLES ISSUED SINCE 1948-49

Fiscal Year	Number of Miner's Certificates	Number of Mining Claims Recorded	Number of Development Licenses	Concessions		Transfers of Mining Rights
				Number	Acres	
1948-49	4,425	14,000	5,647	5	995	1,431
1949-50	4,608	14,398	5,168	6	994	1,115
1950-51	6,594	19,787	5,407	9	3,717	1,513
1951-52	7,531	22,807	5,407	8	1,019	2,396
1952-53	7,577	21,912	6,562	9	2,042	2,410
1953-54	10,558	23,667	6,905	8	908	2,154
1954-55	10,987	31,702	6,739	3	211	3,102
1955-56	20,193	60,315	9,564	14	2,674	5,402
1956-57	15,686	51,259	11,180	4	1,318	5,244
1957-58	13,608	45,901	9,395	7	2,220	4,861
1958-59	16,963	60,704	9,208	10	2,500	5,239

Table V.- COMPARATIVE STATEMENT OF EXPLORATION WORK ON MINING CLAIMS UNDER LICENSES DURING CALENDAR YEARS 1948 TO 1958

Year	Number of Work Days (Man-days)	Diamond Drilling (In feet)
1948	772,568	517,526
1949	595,581	345,818
1950	498,460	317,558
1951	956,451	705,570
1952	871,307	590,788
1953	672,900	394,194
1954	664,447	295,221
1955	1,107,712	417,144
1956	2,338,452	1,321,429
1957	2,298,128	1,511,580
1958	1,335,888	624,106

MINING OPERATIONS BRANCH

This Branch is concerned with all matters directly affecting the operations of all mines and quarries in the Province. It is supervised by R.H. Taschereau, Chief Mining Engineer. Its main duties may be summarized as follows:

1° Preparation of periodical reports on the development and operations of mines and quarries and on the state of the mining industry in general.

2° Application of the Quebec Mining Act with particular reference to the following sections:

a) Section 12: Collection of duties upon mines;

b) Section 13: Examination of sites of proposed treatment plants;

c) Section 35: Use of mining concessions for purposes other than mining;

d) Section 37: Use of Crown lands for works to facilitate mining operations;

e) Section 70: Erection of buildings on Crown lands;

f) Section 113: Compilation of mineral statistics;

g) Section 123: Inspection of tailings sites;

h) Section 198: Inspection of mines and quarries;

i) Section 199: Plans of mining properties;

j) Section 201: Reports to the Minister.

3° Application of the Unwrought Metals Sales Act and regulations enacted thereunder.

The most extensive part of the duties of the Branch concerns those outlined under Section 198. This Section deals with the inspection of mines and quarries to ensure the observance of the "Regulations for the Safety and Protection of Workmen in Mines and Quarries", enacted under Section 197 of the Quebec Mining Act.

This phase of the duties of the Branch is under the direct supervision of M.-O. Lafontaine, chief inspector of Mines, who submits the following report:

Duties:

a) Inspection of mining lands prior to the issuance of letters patent.

b) Studies of possible amendments to the Regulations in view of the increased mechanization and expansion of our mining industry.

c) Inspection and approval of electrical and mechanical installations.

d) Ventilation and dust surveys and testing of samples of dust and poisonous gases.

e) Enforcement of legislation requiring all workmen engaged in dust exposure occupations to undergo an X-ray examination each year.

f) Investigation of fatal and other serious accidents in mines and quarries, preparation of detailed reports thereon and distribution of those reports throughout the industry to assist in the prevention of similar accidents.

g) Study and classification of all compensable accidents and preparation of statistics as a

guide to improve accident prevention in the industry. Calculation of the frequency and severity rates of accidents.

h) Co-operation with national and international organizations devoted to the maintenance of the health and safety of workmen in mines and quarries.

i) Organization and direction of the Mine Rescue Training Plan and Annual Mine Rescue Competition.

For inspection purposes, the Province is divided into three districts:

No. 1 district comprises that part of the Province lying to the south of the St. Lawrence river and east of the Richelieu river.

No. 2 district extends from Pontiac electoral district, eastward to the north of the St. Lawrence river, including New Quebec, Anticosti Island and Magdalen Islands electoral district.

No. 3 district comprises the electoral districts of Abitibi-East, Abitibi-West, Rouyn-Noranda and Témiscamingue.

Activities:

a) The inspection of mines is carried out by fifteen mining, electrical, mechanical and ventilation engineers, and by three mine rescue superintendents conveniently located throughout the Province.

b) The study of the operation of friction hoists was continued throughout the year and some mines are now planning to install friction hoists.

c) There have been no changes during the period under review in the location or number of Main Mine Rescue Stations as noted in the General Report for the last fiscal year.

These Main Stations are located at Noranda, Bourlamaque and Thetford Mines. Sub-stations which are equipped with McCaa Oxygen Breathing Apparatus are located at the following mines:

Normetal Mining Corporation Limited;

Belleterre Quebec Mines Limited
(Will be closed soon);

New Calumet Mines Limited;

Canadian Johns-Manville Co. Limited;

Gaspé Copper Mines Limited;

Campbell Chibougamau Mines Limited;

Opemiska Copper Mines Limited;

Anacon Lead Mines Limited.

Sixty-eight new men have been trained in Mine Rescue Work during this year and active mine rescue personnel available for emergencies now number 359. Most of these men receive monthly refresher courses. The Annual Mine Rescue Competition was held in Val d'Or, September 27, 1958, and the three leading teams were entered by the following mines:

1st. Noranda Mines Limited;

2nd. Golden Manitou Mines Limited;

3rd. East Malartic Mines Limited;

As in former years, the co-operation shown by the companies with our Mine Rescue Superintendents has been of great assistance in maintaining the standard of training expected of Mine Rescue Personnel.

d) The method of computing accident frequency rates for the mining industry was changed for the year 1958 and is now based on the number of accidents per 1,000,000 man-hours worked, instead of, as before, on the number of accidents per thousand 300-day workers. The new method was considered to be a more accurate one and is the method in use in industry

generally. The accident frequency rate in mines and quarries of Québec, as estimated for 1958, will be in the neighborhood of 13 per 1,000,000 man-hours as compared to 14 the previous year. Once again this is one of the lowest in Canada, and is the result of untiring efforts and complete co-operation by the workmen of the mining industry, the officers of the mining companies, and our engineers.

e) The revision of the Regulations for the Safety and Protection of Workmen in Mines and Quarries which was commenced last year is now well advanced and should be submitted in the near future to the Commission appointed by the legislature to study the Quebec Mining Act, and recommend amendments thereto.

A partial summary of the work of the Mining Operations Branch for the period under review is presented in the following table with comparative figures for the previous period:

	1957-58	1958-59
Inspections of mines and quarries	339	346
Inspections of electrical installations	35	81
Underground ventilation surveys	93	102
Dust counts	975	961
Mine Rescue certificates issued	112	68
Active mine rescue personnel	378	359
Mine rescue station reports received	202	208
Hoistmen's medical certificates issued	293	264
Hoisting rope records received	252	209
Hoisting rope breakage tests	297	351
Pressure vessel inspection reports	71	94
X-ray examinations of miners	15,066	13,556

COLLECTION OF DUES ON MINES

Sylvio Drouin, in charge of this Division, submits the following report:

During the fiscal year 1958-59, the Department collected $4,144,854.70.* This amount was paid by 28 companies who supplied sworn statements covering their profits, together with supporting vouchers. This sum was collected by the Department on the net profits of the companies as defined under Division III of the Quebec Mining Act.

In addition, the statutory tax of $0.10 per acre was paid by 143 holders of mining concessions who remitted a total of $3,592.79. Affidavits were received from 151 holders of mining concessions stating that expenditures amounting to at least $200.00 had been incurred in the performance of development work, on each mining concession.

DIVISION OF MINERAL STATISTICS

The main task of this Division, under C.O. Beaudet, is to compile annual and monthly statistics on the mineral production and other activities of the mining industry in the Province. It also answers requests for information on the data on file.

As a rule, the Division works in collaboration with the Dominion Bureau of Statistics. Both organizations use the same source of information, compile separately the data received and compare results.

As part of its work, the Division keeps a list of the owners and operators of mines and quarries in the Province, obtains from them the monthly and annual reports covering the information it needs, and compiles that information.

The information it requires covers production and shipments; the labor force with the total hours worked and the salaries and

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* The difference between the figures given by the Assessor and the Accountant stems from the different accounting methods used. The Assessor bases his accounting on "receipts", whereas the Accountant bases his on "revenues".

wages paid; the fuel, electricity and other supplies consumed; the horse-power utilized, that is, the capacity of each type of motor employed; the cost of all supplies, machinery and tools bought; the payment of certain federal, provincial and municipal taxes; contributions to the Workmen's Compensation and Unemployment Insurance funds; timber used in the mine and for construction purposes, etc.

A major portion of the statistics prepared by the Division appears elsewhere in this report, in the annual report published by the Department of Mines under the title "The Mining Industry of the Province of Quebec", and in regular monthly and quarterly bulletins.

During the first part of the 1958-59 fiscal year, the Division completed the gathering of reports pertaining to the 1957 calendar year, most of which had been received during the last three months of the preceding fiscal year, and compiled them. Hereunder are the types of reports submitted for the statistics of that period:

	Number
Annual reports on activities of operators of mines and quarries:	
Reports on shipments of products	1,452
Reports on exploration and development work done on non-producing mining lands	473
Reports on inactive mining properties ..	1,521
Monthly reports on mineral production	689
Annual reports from building contractors on raw material used	98
Reports from mine operators on timber used in mines.....	101
Reports on expenditures, by mine operators for the welfare of their employees and families	51
Reports on the capital obtained by mining companies	956
Total	5,341

During the last part of the fiscal year, the Division began preparing the statistics for the 1958 calendar year. As of March 31st, 1959, it had sent requests for reports, with the required forms, to 3,800 operators or owners of mineral deposits; of these, 2,900 operators or owners answered. This work will be completed during the first few months of the coming 1959-60 fiscal year.

Among the many annual surveys conducted, one pertains to the capital received by mining companies operating in the Province, from the following financial transactions: sale of capital stock; sale of bonds or other titles; and other long term loans contracted. Compilation of reports submitted, for the year 1957, gives a total of $66,200,000, received from the above three sources. The results of a similar survey, for the year 1956, had been $60,800,000. Information for the year 1958 is not complete; reports on hand indicate that the total will be in the vicinity of $56,000,000, or $10,000,000 less than in 1957.

There were fewer companies incorporated in 1958 than during the preceding year. During this period, 57 companies were incorporated by Quebec charter. In addition, 21 companies, incorporated elsewhere (20 by Ontario charter and one by Federal charter), acquired mining properties in the Province. In all, 78 companies were organized to operate in Quebec. In 1957, there had been 194: 183 with a Quebec charter and 11 with an Ontario charter.

Following is a list of mining companies, for the year 1958, with the head office, date of incorporation, and capitalization of these companies:

MINING COMPANIES INCORPORATED

BY QUEBEC CHARTER IN 1958

Company	Head Office	Date of Incorporation	Number of Shares	Par Value
Alix Airborne Survey Limited .	Val d'Or	May 27	1,000	$100.
Allard Bay Mines Limited	Montreal	Oct. 15	3,000,000	$ 1.
Anglo-Canadian Nickel Corp. ..	Val d'Or	May 27	40,000	$ 1.
Arnark Minerals Limited	Montréal	June 20	3,000,000	$ 1.
Asbestos Excavations Ltée. ...	Disraéli	May 8	200	$100.
			(a) 200	$100.
Beauce Placer Mining Co. Ltd.:	Montréal	Feb. 1	3,000,000	$ 1.
Bell Mining Corporation	Montréal	Jan. 14	5,000,000	$ 1.
Carrière Beaudry Limitée	St-Michel	Apr. 30	1,000	None
(Beaudry Quarry Limited)			(a) 5,000	$100.
Carrière d'Acton Vale Ltée ...	Acton Vale	Oct. 6	60	$100.
(Acton Vale Quarry Ltd.)			(a) 340	$100.
Carrières Laurentiennes Ltée, (Les.....	Grande-Ile	Sept. 9	400	$100.
(Laurentian Quarries Ltd.)			(a) 600	$100.
Carrière Marchand Limitée	Shawinigan-Sud	Dec. 5	3,000	$ 10.
			(a) 100	$100.
Cartier Gas Corporation	Québec	Mar. 18	1,000	$100.
(La Corporation de Gaz Cartier)				
Chateauguay Sand Inc.	Montréal	Oct. 14	250	$100.
Danjou Mines Limited	Montréal	Dec. 29	5,000,000	$ 1.
Dauphin Iron Mines Limited ...	Chibougamau	Nov. 11	4,000,000	$ 1.
Dimock Construction Inc.	New Richmond	May 30	400	$100.
Durandal Entreprises Ltd. (The	Charlesbourg	Apr. 30	300	$100.
			(a) 100	$ 10.
Eagle Rock Corporation	Montréal	Jul. 23	500	$ 20.
			(a)10,000	$ 1.
Featherock Inc.	Sorel	May 14	35,000	$ 10.
			(a)20,000	$ 10.
Frandi Mining Corporation	Québec	May 29	5,000,000	$ 1.
Franksin Mines Limited	Montréal	June 5	5,000,000	$ 1.
Garon Lake Mines Limited	Montréal	Sep. 23	3,000,000	$ 1.
Golden Saturn Oil and Gas (Quebec) Limited	Montréal	Feb. 7	100,000	$ 1.
Granit Robert Parent, Limitée	Ste Agathe-des-Monts	Feb. 12	400	$100.
Groundhog Mining Corporation	Montréal	Nov. 24	7,500,000	$ 1.

(a) Preferred shares

Company	Head Office	Date of Incorporation	Number of Shares	Par Value
Heavy-Rock Mines Limited	Montréal	July 21	1,000,000	$ 1.
Kipawa Mineral Explorations Co.	Montréal	Sep. 2	4,000	$ 10.
Kukatush Mining Corporation ...	Montréal	Nov. 24	7,500,000	$ 1.
Lagacé Enterprises Limited	L'Abord - à -Plouffe	Apr. 17	250	$100.
(Les Entreprises Lagacé Ltée.)			(a) 750	$100.
Laurentide Graphite Corp.	Ville St-Pierre	Mar. 17	500,000	$ 1.
Laurentide Mineral Products Corporation	Ville St-Pierre	Mar. 19	200,000	$ 1.
Lavallée Company Limited	Sherbrooke	Feb. 28	50,000	$ 1.
Leran Copper Mining Co. Ltd. ..	Québec	Mar. 19	40,000	$ 1.
Lite-Stone Limited	Montréal	July 25	3,500,000	$ 1.
Lyster Lake Tungsten Limited ..	Montréal	Jan. 31	5,000,000	$ 1.
Main Exploration Co. Limited ..	Montréal	Feb. 25	100,000	$ 1.
Mattagami Explorers Corp.	Montréal	Aug. 13	5,000,000	$ 1.
Mattagami Lake Mines Limited ..	Québec	Oct. 9	6,000,000	$ 1.
Mine de Cuivre Frelighsburg Inc. (La ..... (Frelighsburg Copper Mine Inc.)	Montréal	Mar. 25	5,000,000	$ 1.
Monarch Stone Mfg. Co. Ltd. ...	Montréal	Dec. 10	200	$ 10.
			(a) 380	$100.
Nadelec Mines Limited	Hull	Sep. 20	100,000	$ 1.
North Mattagami Mines Limited .	Montréal	Aug. 7	5,000,000	$ 1.
Pétroles de Matane Ltée (Les ..	Grande-Anse	May 13	400	$100.
Prescott Iron Ore Corporation .	Montréal	Jan. 10	5,000,000	$ 1.
Quebec Silica Mine Limited .... (La Mine de Silica Québec Ltée)	Charlesbourg	Apr. 8	2,500,000	$ 1.
Rouyn Diamond Drilling and Development Co. Ltd	Rouyn	Oct. 27	2,500	$ 10.
			(a) 1,500	$ 10.
Sablières Universelles Ltée. (Les	Ste-Marie -Salomée	Apr. 22	8,000	$ 10.
			(a) 200	$100.
Scandia Mining and Explor. Ltd.	Beaconsfield	June 16	5,000,000	$ 1.
Sharlake Mines Limited	Montréal	Jan. 21	5,000,000	$ 1.
Silica (Grecel) Inc.	Montréal	May 23	80,000	$ 5.
			(a) 8,000	$ 25.
Stepal Corporation	Beebe Plain	Apr. 16	400	$100.
St. Helen Mining Explor. Ltd. .	Montréal	Oct. 22	4,000,000	$ 1.
Surimau Minerals Limited	Montréal	June 13	4,000,000	$ 1.
Val des Sables Limitée	St-Joseph-du-Lac	June 19	1,000	None
			(a) 1,400	$ 25.
Vanguard Explorations Limited	Montréal	Feb. 4	5,000,000	$ 1.
Watson Lake Mines Limited	Québec	Aug. 15	4,000,000	$ 1.
West Mattagami Mines Limited ..	Montréal	Oct. 15	5,000,000	$ 1.

(a) Preferred shares.

MINING COMPANIES INCORPORATED BY ONTARIO CHARTER IN 1958

AND HOLDING MINING RIGHTS IN QUEBEC

Company	Head Office	Date of Incorporation	Number of Shares	Par Value
Augustus Exploration Limited ..	Toronto	Nov. 26	10,000	$ 1.
Burland Explorations Limited ..	Toronto	Jan. 6	40,000	$ 1.
Cadamet Mines Limited	Toronto	Sep. 22	7,500,000	$ 1.
Camflo Mattagami Mines Limited	Ottawa	Jan. 6	5,000,000	$ 1.
Carlmand Mines Limited	Toronto	Sept. 22	5,000,000	$ 1.
Deranco Mines Limited	Toronto	Dec. 30	5,000,000	$ 1.
Du Maurier Mines Limited	Toronto	Dec. 31	3,000,000	$ 1.
Galinée Mattagami Mines Ltd. ..	Toronto	Mar. 19	5,000,000	$ 1.
Grasset Lake Mines Limited	Toronto	Nov. 14	5,000,000	$ 1.
Isle Dieu Mattagami Mines Ltd..	Toronto	Mar. 19	5,000,000	$ 1.
Kateri Mining Company Limited .	Toronto	Oct. 31	3,000,000	$ 1.
Kismet Mining Limited	Toronto	Jan. 23	40,000	$ 1.
Korich Mining Company Limited .	Toronto	July 15	3,500,000	$ 1.
Marban Gold Mines Limited	Toronto	Nov. 27	5,000,000	$ 1.
Negor Mines Limited	Toronto	July 8	3,000,000	$ 1.
Noront Mining Company Limited .	Toronto	Oct. 10	5,000,000	$ 1.
O'Donnell Mines Limited	Toronto	Dec. 15	5,000,000	$ 1.
Railhead Mines Limited	Toronto	Mar. 10	10,000,000	$ 1.
St. Mary's Explorations Ltd. ..	Toronto	May 22	3,000,000	$ 1.
Tamicon Iron Mines Limited	Toronto	Jan. 16	5,000,000	$ 1.

MINING COMPANIES INCORPORATED BY FEDERAL CHARTER IN 1958

THAT HAVE ACQUIRED MINING RIGHTS IN THE PROVINCE OF QUEBEC

Company	Head Office	Date of Incorporation	Number of Shares	Par Value
Cooksville-Laprairie Brick Limited	Montreal	Oct. 30	100	$ 10.

GEOLOGICAL SERVICES

The three branches forming the Geological Services, under the general direction of I.W. Jones, keeping pace with the expanding mineral industry in Québec, had the most active year in their history. These branches – the Geological Surveys Branch, the Mineral Deposits Branch and the Groundwater, Gas and Petroleum Branch - are under the immediate direction of, respectively, H.W. McGerrigle, J.-E. Gilbert and Roland DeBlois, whose separate reports on the functions and activities of their Branches follow.

GEOLOGICAL SURVEYS BRANCH

H.W. McGerrigle, acting chief of this Branch, reports as follows on the activities of the 1958-59 fiscal year:

At March 31, 1959, the resident staff at Québec City was comprised of 13 geologists, 3 technical assistants and clerks, and 5 secretaries and stenographers. During the fiscal year 3 geologists - Marcel Morin, R.A. Marleau, and J.H. Remick - joined the full-time staff, thereby raising the Branch's professional body to the highest numerical level yet attained.

The principal function of the Branch is to map the geology and explore the mineral possibilities of the Province, and to provide maps and reports that give the results of these investigations. In this work, qualified geologists examine the nature, distribution, structural relations, and economic mineral possibilities of the rock formations in various sections of the country. The geological reports and maps serve as guides to prospectors, geologists and mining companies in their search for mineral deposits. Furthermore, especially for new regions, they often prove useful to those engaged in other activities - such as road and railway builders, hydroelectric and forestry engineers, the military forces, agronomists, and sportsmen.

The 1958 field programme of the Branch set all-time records in both the number of mapping parties and in the amount of territory covered. A total of 26 parties mapped the geology of different areas in widely separated parts of the Province, an increase of 9 over 1957.

Two of the parties carried out broad-scale reconnaissance mapping. One of these covered some 3,235 square miles of the Cape Smith-

Wakeham Bay mineralized belt near the northwestern extremity of the Province, at a scale that will permit the publication of maps at 4 miles to 1 inch. The second team mapped about 1,250 square miles, in territory lying south of St. Lawrence river between Matapédia and Rimouski rivers, at a scale that will allow publication of maps at 2 miles to 1 inch.

The other 24 parties mapped a total of some 6,900 square miles at a scale that will permit the publication of maps at 1 mile to 1 inch; this figure is close to double the 3,625 square miles mapped in 1957. It is of interest to note that this year was the first in which more than 1 per cent (actually about 1.2 per cent) of the total area of the Province was covered at the 1 inch to 1 mile scale.

Ten of the 26 parties were led by geologists of the permanent staff; the other 16, by geologists on part-time employment, mainly ones pursuing post-graduate research at various universities. In addition, the acting chief of the Branch and two other geologists of the permanent staff were engaged in administrative and other duties. Also, one geologist on part-time employment supervised and aided in certain investigations in the southern part of the Province.

In addition to the 30 geologists whose duties have been outlined above, the 26 field parties collectively employed 28 other graduate geologists as senior assistants, 70 university and 14 secondary school students as junior assistants, and 59 other men (for varying periods of time) as canoemen, packers, or cooks.

The areas examined and the geologists in charge of investigations were as follows:

Northern Ungava (New Quebec)

Cape Smith - Wakeham Bay Belt

Robert Bergeron* carried out a one-inch-equals-four-miles reconnaissance mapping in the Cape Smith - Wakeham Bay mineralized belt which extends across the entire northwestern nose of the Province, about 1,100 miles north of Montréal. This was a continuation of work begun in 1957. The band stretches east-northeasterly for 235 miles from Cape Smith on Hudson bay to Wakeham Bay on Hudson strait, and ranges in width from a maximum of 60 miles at its western end to a minimum of eight miles

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* Indicates full-time, staff geologist.

or so at its eastern terminus. In all, it covers some 6,000 square miles. During 1958, Dr. Bergeron mapped the Povungnituk Range area covering 3,235 square miles delimited by latitudes 61°10' and 62°00' and longitudes 74°20' and 76°00'.

Geologically, the belt is underlain by Late Precambrian sedimentary, volcanic, and intrusive rocks. Interesting mineralization occurs at many places within the belt, and some nickel-copper zones of good grade have been outlined by mining companies carrying out more detailed investigations in the region.

Dr. Bergeron also gave general supervision to the following two parties that mapped areas within the belt at the 1 inch to 1 mile scale.

G.H. Beall mapped the Cross Lake area, which covers 195 square miles between latitudes 61°30' and 61°45' and longitudes 74°00' and 74°20', just east of Esker lake in the central part of the belt.

P.-A. DeMontigny covered the Upper Deception River area, comprising 195 square miles between latitudes 61°30' and 61°45' and longitudes 73°40' and 74°00', which lies immediately east of Beall's area.

Fort Chimo - Payne Bay Belt

Five parties under the general supervision of Dr. Pierre Sauvé mapped separate areas lying along or near the band of rocks occupying the northwestern extension of the Labrador geosyncline.

D.P. Gold mapped the Hopes Advance Bay area which borders the west coast of Ungava bay, about 85 miles northwest of Fort Chimo. The area is delimited by latitudes 59°00' and 59°35' and longitudes 69°00' and 69°50'. Much of this rectangle falls within Ungava bay, so that the actual land surface covered is about 500 square miles.

R.O. Freedman investigated the Ford Lake area, which lies immediately west of the above area. It is bounded by latitudes 59°00' and 59°45' and longitudes 69°50' and 70°15', and includes 500 square miles.

Jean Bérard mapped the Leaf Lake area to the south of the above area. The map rectangle is bounded by latitudes 58°30' and 59°00' and longitudes 69°45' and 70°15', and includes about 520 square miles of land surface at the mouth of Leaf river.

Pierre Sauvé* covered the Leaf Bay area lying immediately east of the above area and bordering Ungava bay about 55 miles northwest of Fort Chimo. The map-area is delimited by latitudes 58°30' and 59°00' and longitudes 69°00' and 69°45'. The actual land surface mapped is about 750 square miles.

Of the above four areas, the two western ones - those mapped by Freedman and Bérard - straddle the western contact of the Labrador geosyncline. In these areas Early Precambrian gneisses are overlain unconformably by mildly metamorphosed Late Precambrian sedimentary rocks intruded by gabbro sills. The two eastern areas - those mapped by Gold and Sauvé - lie along the eastern border of the Labrador geosyncline. They are underlain by moderately to highly metamorphosed sedimentary and volcanic rocks of Late Precambrian age mixed with gneisses of unknown age.

In all four areas, iron formations crop out at many places; these contain large tonnages of concentrating-type iron ore. Over a period of years, the deposits here and in nearby areas have been intensely investigated by several companies holding ground under license. One of these is readying plans for the construction of mills, mine villages, loading docks and other facilities, with a view to possible future large-scale production of iron concentrates.

Léopold Gélinas mapped the east half of Gabriel Lake area and the west half of Fort Chimo area. The map rectangle is bounded by latitudes 58°00' and 58°15' and longitudes 68°15' and 68°45'. It straddles Koksoak river at Fort Chimo and covers about 310 square miles. The area lies east of the Labrador geosyncline and is underlain by Precambrian gneisses and schists that may have been deformed at the same time as the younger rocks of the geosyncline.

Electoral District of Saguenay

Mount Wright - Mount Reed Region

During 1958, three parties mapped separate areas within a new iron-bearing district that lies in the northern part of Saguenay electoral district, roughly between 125 and 190 miles northwest of Sept-Iles. Geologically, the district is underlain mainly by Precambrian gneisses, schists, and altered sedimentary rocks, the latter including iron-bearing formations which in places contain large deposits of concentrating-type iron ore. Several companies and syndicates hold blocks of claims throughout the district. Some of the iron deposits of the region are at present being rapidly developed for large-scale

production, mainly by Quebec Cartier Mining Company. This company has completed a 150-mile access truck road from Port Cartier, recently located on the north shore of the St. Lawrence a few miles east of the village of Shelter Bay and about 300 miles below Quebec City, to Jeannine lake in the southern part of the district. Proposed developments include the construction of a private railroad (eventually totalling 312 miles of trunk and branch lines) from Port Cartier to the iron deposits of the district, hydroelectric power plant on Hart Jaune river, a new town and deep-sea docking facilities at Port Cartier, and a new town (Gagnonville) at the initial mine site near Jeannine lake, complete with ore-beneficiation installations.

D.L. Murphy mapped the Mount Wright area, which covers 180 square miles between latitudes 52°30' and 52°45' and longitudes 67°15' and 67°30', about 175 miles north-northwest of Sept-Iles.

L.S. Phillips mapped the east half of Peppler Lake area, which comprises 185 square miles bounded by latitudes 52°15' and 52°30' and longitudes 67°30' and 67°45'.

J.T. Jenkins investigated the southernmost sheet, the Mount Reed area, covering 185 square miles between latitudes 52°00' and 52°15' and longitudes 68°00' and 68°15', lying about 150 miles northwest of Sept-Iles.

During the course of the field-work Jenkins located, in the southeastern corner of the area, a band of hematite-quartz rock that obviously contained a considerable amount of concentrating-type iron ore. Pursuant to regulations in the Quebec Mining Act, Jenkins, after more detailed geological investigation of the showings in late September, staked for the Crown a block of 10 claims covering about 400 acres. These claims were recorded for the Government of the Province on October 3rd. The band of potential ore is apparently about 80 feet thick and probably extends for some 10,000 feet. The ore content of the zone may be as much as 25,000,000 tons, with overall grade averaging perhaps 35 per cent iron.

North Shore Region

D.S. McPhee mapped the Aguanish area, bordering on the north shore of the St. Lawrence at a point about 190 miles east of Sept-Iles. The area lies between longitudes 61°55' and 62°10', extends inland from the coast for some 20 miles to latitude 50°30', and covers about 190 square miles.

P.T. Moyer* investigated the east half of Vermette Lake area, which comprises 190 square miles bounded by latitudes 50°00' and 50°15' and longitudes 67°00' and 67°15'. The map-area lies about 10 miles northwest of Shelter Bay, a village on the north shore of the St. Lawrence, about 300 miles below Québec City. The area is underlain by Precambrian rocks of various types, mainly gneisses and granites.

Lac-St-Jean Region

Three parties carried out mapping assignments in this region, which during recent years has been receiving increased attention from prospectors and mining companies. This year the investigations were all within Roberval electoral district.

J.P. Berrangé examined the La Trappe-Hudon area, which straddles Mistassibi river about 25 miles north of lake St-Jean. The area is bounded by latitudes 49°00' and 49°15' and longitudes 72°00' and 72°15', and covers 195 square miles, including parts of La Trappe, Ménard, Hudon, Proulx and Pelletier townships. The southern third of the area is underlain by Grenville rocks, the northern part largely by intrusive anorthosite-gabbro rocks. There is a brucite prospect in La Trappe township, and in Hudon, a mica prospect, as well as a deposit of silica of some interest. Elsewhere, some of the rocks are relatively rich in iron.

F.W. Benoit* mapped the Béland-Paquet area, between latitudes 48°45' and 49°00' and longitudes 73°00' and 73°15'. The map-area straddles the Saint-Félicien - Chibougamau highway about 40 miles northwest of Saint-Félicien. This investigation is the southeastward continuation of a programme of mapping a strip of territory along that route (which more or less parallels the railway line at present being constructed to link the two towns), commenced some years ago at the Chibougamau end. The map-area covers 200 square miles, and includes parts of Béland, Paquet, Ailleboust and Chomedy townships. The area is underlain mainly by Precambrian gneisses, in places injected by granitic rocks.

J.G. Bray investigated the Lyonne area, which lies about 20 miles west-southwest of Roberval and is bounded by latitudes 48°15' and 48°30' and longitudes 72°30' and 72°45'. The map-area covers 200 square miles, including parts of Lyonne, Ross and Chabanel townships, as well as some unsubdivided territory. Precambrian gneisses of Grenville aspect underlie most of the area. However, a large body of

metagabbro with local concentrations of titaniferous magnetite intrudes these rocks in the northwest part, and smaller bodies occur elsewhere throughout the area. Many claims have been staked over these rocks. One company has carried out a considerable amount of exploratory work on one block, including geological mapping, ground magnetic surveys, and several thousand feet of diamond drilling.

Chibougamau Region

J.H. Remick* mapped the Margry-Prévert area, between latitudes 49°09' and 49°30' and longitudes 75°45' and 76°06'. The area is about 80 miles west-southwest of Chibougamau, 90 miles northeast of Senneterre, and 20 miles southeast of Bachelor lake. It covers 360 square miles of Abitibi-East electoral district, including all of Margry and Prévert townships and parts of several others. The new Barraute-Chibougamau railway line passes a few miles north of the map-area. The rocks underlying the area are Precambrian - predominantly granites, with a band of altered volcanic and sedimentary rocks extending across the northern part. Interesting values in copper, gold, and silver occur in sulphide zones at a number of places. Several companies holding blocks of claims within the map-area have carried out varying amounts of exploration.

Electoral District of Témiscamingue

H.B. Lyall mapped the McLachlin-Booth area, bounded by latitudes 46°45' and 47°00' and longitudes 78°30' and 78°52'30". The map-area is about 175 miles northwest of Hull and 25 miles northeast of Témiscamingue, a town on Ottawa river near the south end of Témiscamingue lake. It covers 310 square miles, including all of McLachlin township and parts of Booth, Sénezergues, Villedieu, Reclus and Atwater townships. Geologically, the area is underlain by Precambrian rocks, including a wide variety of gneisses and schists, and some quartzite, syenite, gabbro and other rocks. The discovery in the fall of 1957 of uranium-bearing showings in the northwest part of the area lead to an intensive staking rush. The original showing carried interesting amounts of uranium and gold. Several companies and individuals have carried out varying amounts of exploration on ground held at different places in the area, but no economic orebody has yet been found.

Electoral District of Pontiac

A.-F. Laurin* mapped the Gaillard-Lorrain area, between latitudes 47°00' and 47°15' and longitudes 76°45' and 77°00', about

125 miles northwest of Hull and 80 miles southeast of Val d'Or. The map-area covers 205 square miles, including most of Lorrain township and parts of Gaillard, Emard, Sbarretti, Auvergne and Kondiaronk townships. Most of the area is underlain by Precambrian gneisses of various types. During the fall and winter of 1956-57, following the discovery of disseminated magnetite in the area to the west, some claim staking was carried out, but all have since been allowed to lapse.

R.-A. Marleau* examined the Perche-Poitou area, between latitudes 46°15' and 46°30' and longitudes 76°30' and 76°45', about 75 miles northwest of Hull and 25 miles west of Maniwaki. The area covers 210 square miles, and includes parts of Perche, Poitou, Flandre, Isle-de-France, Gillies and Bourgogne townships. Much of the area is underlain by granite and granitic gneisses that have intruded older paragneisses of Grenville aspect. Some layers of rock here and there contain considerable magnetite.

Electoral Districts of Joliette, Berthier and Maskinongé

René Béland examined the west half of Saint-Gabriel-de Brandon area, between latitudes 46°05' and 46°30' and longitudes 73°15' and 73°30'. The map-area is about 50 miles north-northeast of Montréal and 40 miles west of Trois-Rivières. It covers about 350 square miles, including all of Peterborough township and parts of Brandon, Gauthier, Angoulême and De Calonne, as well as of several seigniories. Geologically, the area is underlain by gneisses and igneous rocks of various ages typical of the Grenville sub-province.

Electoral District of Laviolette

J.-A. Rondot* mapped Matawin-Mékinac area between latitudes 46°45' and 47°00' and longitudes 72°37'30" and 73°00'. The map-area covers 300 square miles straddling St. Maurice river some 20 miles north of Shawinigan Falls. It includes parts of Boucher, Mékinac, Lejeune, Matawin and Radnor townships, and of Batiscan and Cap-de-la-Madeleine seigniories. The area is underlain mainly by Grenville-type gneisses that have been injected and intruded by much granitic material. Molybdenite and graphite, both in small amount, occur at a number of places. Many of the pegmatite dykes of the area are slightly radioactive. Small showings of ilmenite and magnetite are fairly numerous.

Electoral Districts of Témiscouata, Rivière-du-Loup and Rimouski

P.-J. Lespérance mapped the west half of Squateck area,

between latitudes 47°45' and 48°00' and longitudes 68°45' (approximately) and 69°00'. The map-area is about 135 miles east-northeast of Quebec City and 30 miles east of Rivière-du-Loup. It covers some 230 square miles, including parts of Rondot, Bégon, Bédard, Biencourt, Robitaille and Hocquart townships, and of Madawaska seigniory. The area is underlain entirely by folded and metamorphosed Palaeozoic sedimentary rocks. In Range I of Robitaille township, pyrite-bearing sandstone contains some lead and zinc, as well as a little silver and copper.

Matapédia-Rimouski Region

Jacques Béland* commenced one-inch-equals-two-miles reconnaissance mapping in territory lying south of St. Lawrence river between Gaspé peninsula and the Témiscouata Lake valley. This investigation was initiated in order to obtain a general picture of the geology of the folded Palaeozoic sedimentary rocks of that segment of the Appalachian sub-province, knowledge of which was previously rather limited. During 1958 Dr. Béland mapped some 1,250 square miles lying between Matapédia river on the east and Mitis and Patapédia rivers on the west.

Geologically, it was found that the main structural units already known in Gaspé peninsula extend southwesterly across the newly-mapped territory. In the southern part of this sector, the rocks range in age from Ordovician to Silurian and are tightly folded. The Ordovician strata, composed mainly of limestone and calcareous shales, are in places intruded by dykes and sills of acidic rock. At one locality in Matapédia township, about 4 miles northwest of St. Alexis, copper mineralization is associated with these acidic intrusives. This prospect has undergone exploration intermittently since about 1900.

In the northern part, the rocks range in age from Silurian to Devonian and here, as far north as Matapédia lake, folding is much less pronounced. Some broad anticlines of Silurian rocks may prove to be worthwhile structures on which to drill for oil. A well bored in 1958 on one of these structures near Causapscal on Matapédia river unfortunately had to be abandoned (at a depth of close to 4,700 feet) before reaching what was expected to be the most promising horizon.

Dr. Béland also gave general supervision to two other parties that mapped areas in the same general district at the 1 inch to 1 mile scale - namely those lead by Lespérance and Stearn.

Gaspé Peninsula

C.W. Stearn mapped the east half of Causapscal area, between latitudes 48°15' and 48°30' and longitudes 67°00' and 67°15'. The map-area covers 200 square miles at the western end of Gaspé peninsula in the vicinity of Causapscal. It lies almost entirely within Matapédia electoral district, and includes large parts of Casault, Lepage, Casupscull and La Vérendrye townships, and small segments of others. The area is underlain almost entirely by more or less metamorphosed, folded, sedimentary rocks of Silurian and Devonian age. Some of the fold structures may have below-surface traps suitable for possible accumulations of gas and oil.

W.B. Skidmore* mapped the Escuminac area on the south coast of Gaspé peninsula at the head of Chaleurs bay. The map-area extends from latitude 48°15' southward to Chaleurs bay, between longitudes 66°00' and 66°30', and covers 230 square miles. It includes all of Carleton township, much of Nouvelle and Maria, and narrow strips of Dugal and Angers townships, all within Bonaventure electoral district. The map-area is underlain by slightly metamorphosed, folded, Palaeozoic sedimentary and volcanic rocks ranging in age from Ordovician to Carboniferous, but some sills and dykes of intrusive rock also occur. A thick bed of pure limestone of Silurian age crops out in Nouvelle township, and is quarried at one place.

Other Work

F.F. Osborne served in a supervisory and advisory capacity for geological investigations in the Appalachian region northeast of Québec City and in the Laurentian or Grenville section of the Province. He also reviewed certain of the geological reports and maps.

Dr. Osborne also organized and conducted through part of the Appalachian region a special week-long (Aug. 4-10) field-trip for Quebec and other Canadian and American geologists particularly interested in the geology of these strata. Commencing in the Weedon district of the Eastern Townships, the tour moved on to the Trans-Gaspésian highway east of Mount Albert, and thence to the Matapédia River and Témiscouata Lake valleys. Rocks of the Quebec group and Silurian and Devonian formations of the Gaspé group chiefly were studied. In all, some 15 geologists took part. In addition to Dr. Osborne, the Department of Mines was represented by Drs. Jacques Béland, P.-E. Grenier and C.W. Stearn, and Messrs. P.-J. Lespérance and Gilles Duquette.

This field-trip continued to bring the work of the Department to the attention of other Canadian and American geologists. Much interest was shown in the mapping done by Québec government geologists who, in turn, benefited by obtaining additional confirmation of many of their findings and conclusions.

Marcel Morin* reviewed and edited certain of the geological reports and maps for publication, and assisted in the administration of the Branch. Early in 1959 Dr. Morin commenced a new compilation (at one inch equal four miles) of the geology of the Province from available published and unpublished reports and maps.

M.M. Ritchie* assisted in the administration of the Branch.

Some of the Branch's geologists rendered assistance to the Mineral Deposits Branch by examining and reporting on various mineral occurrences, prospects and showings in different parts of the Province.

Geologists of the Branch represented the Department and presented papers at meetings of geological, engineering, prospecting, and other scientific organizations. Some of these contributions, as well as other articles, have been published in a variety of scientific journals.

In June, 1958, the Royal Society of Canada elected Dr. F.F. Osborne vice-president of Section IV (Geological Sciences). In November, Dr. Pierre Sauvé was elected treasurer of the Société Géologique de Québec.

During the course of the field-work, many of the parties were visited by geologists, engineers and prospectors, either as individuals or as company representatives. Throughout the year many others interested in the mining industry visited the Branch's offices at 31 d'Auteuil St. in Quebec City. From the staff they were able to obtain much information concerning the geology of many different parts of the Province. In addition, many inquiries and requests for information were answered by correspondence.

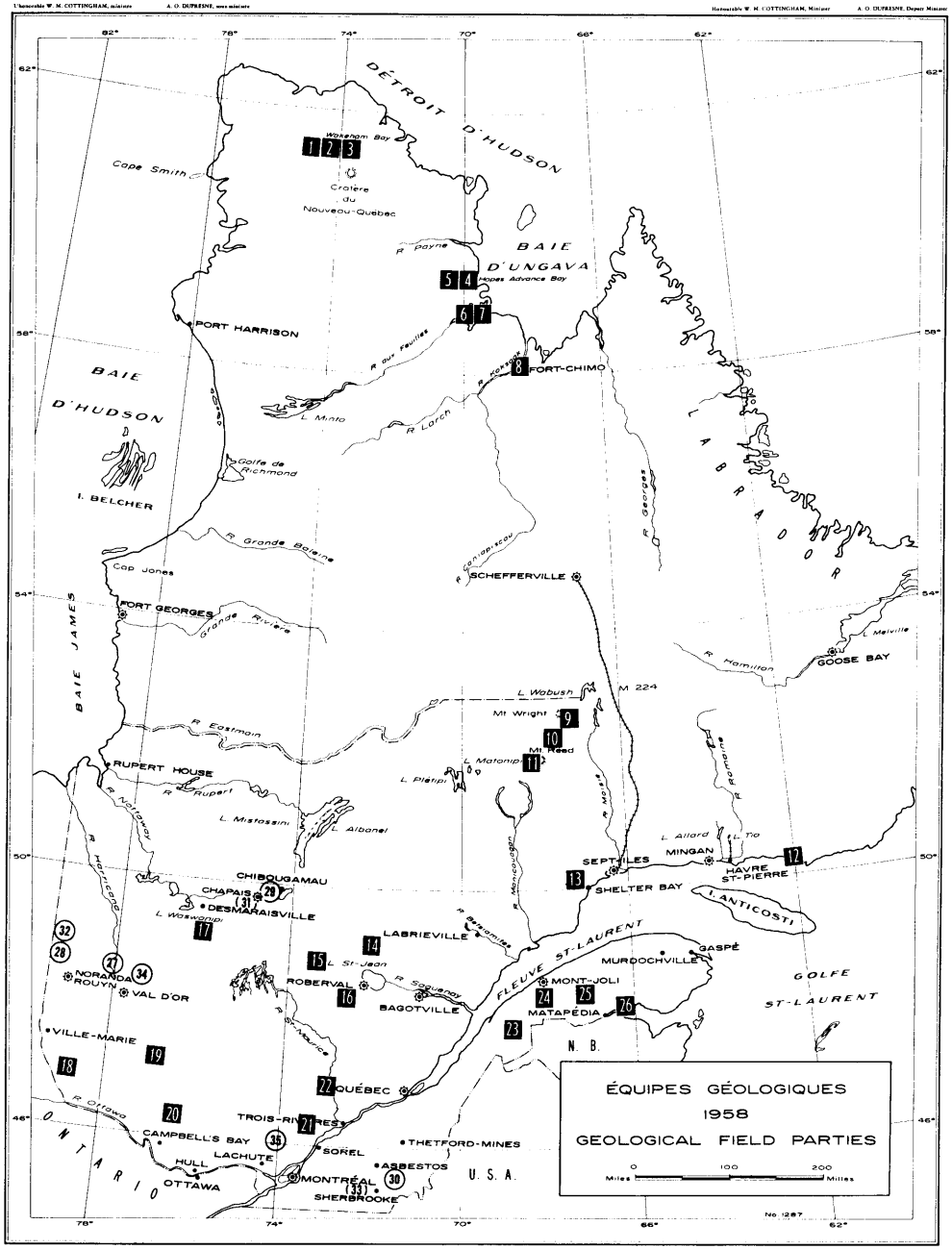
MINISTÈRE DES MINES

L'honorable W. M. COTTINGHAM, ministre — A. O. DUPRESNE, sous-ministre

PROVINCE OF QUEBEC

DEPARTMENT OF MINES

Honorable W. M. COTTINGHAM, Minister — A. O. DUPRESNE, Deputy Minister



ÉQUIPES GÉOLOGIQUES
1958
GEOLOGICAL FIELD PARTIES

0 100 200
Miles Milles

No. 1287

LIST OF GEOLOGICAL FIELD PARTIES - 1958

(Numbers refer to adjoining map)

A- Geological Surveys Branch

1	Povungnituk Range Area, New Quebec (1" = 4 miles)	Robert Bergeron
2	Cross Lake Area, New Quebec	G.H. Beall
3	Upper Deception River Area, New Quebec	P.-A. De Montigny
4	Hopes Advance Bay Area, New Quebec	D.P. Gold
5	Ford Lake Area, New Quebec	R.O. Freedman
6	Leaf Lake Area, New Quebec	Jean Bérard
7	Leaf Bay Area, New Quebec	Pierre Sauvé
8	Gabriel Lake (East Half) and Fort Chimo (West Half) Areas, New Quebec	Léopold Gélinas
9	Mount Wright Area, Saguenay Electoral District	D.L. Murphy
10	Peppler Lake Area (East Half), Saguenay Electoral District	L.S. Phillips
11	Mount Reed Area, Saguenay Electoral District	J.T. Jenkins
12	Aguanish Area, Saguenay Electoral District	D.S. McPhee
13	Vermette Lake Area (East Half), Saguenay Electoral District	P.T. Moyer
14	La Trappe-Hudon Area, Roberval Electoral District	J.-P. Berrangé
15	Béland-Paquet Area, Roberval Electoral District	F.-W. Benoît
16	Lyonne Area, Roberval Electoral District	J.G. Bray
17	Margry-Prévert Area, Abitibi-East Electoral District	J.H. Remick
18	McLachlin-Booth Area, Témiscamingue Electoral District	H.B. Lyall
19	Gaillard-Lorrain Area, Pontiac Electoral District	A.-F. Laurin
20	Perche-Poitou Area, Pontiac Electoral District	R.-A. Marleau
21	Saint-Gabriel-de-Brandon Area (West Half), Joliette, Berthier and Maskinongé Electoral Districts	René Béland
22	Matawin-Mékinac Area, Laviolette Elect. Dist.	J.-A. Rondot
23	Squateck Area (West Half), Témiscouata, Rivière-du-Loup and Rimouski Electoral Districts	P.-J. Lespérance
24	Matapédia-Rimouski Region, Matapédia and Rimouski Electoral Districts (1" = 2 miles)	Jacques Béland
25	Causapscal Area (East Half), Matapédia Electoral District	C.W. Stearn
26	Escuminac Area, Bonaventure Electoral District	W.B. Skidmore

B - Mineral Deposits Branch

27 - Southwest Quarter and Part of the Northwest Quarter of LaMotte Township, Abitibi-East Electoral District ..... W.R. Leuner

28 - Northeast Quarter of Montbray Township, Rouyn-Noranda Electoral District ..... Wm. A. Hogg

29 - Southeast Quarter of Barlow Township, Abitibi-East Electoral District ..... E.-H. Gaucher

30 - Weedon Area, Wolfe and Compton Electoral Districts ..... G. Duquette

31 - Southwest Quarter of Lévy Township, Abitibi-East Electoral District ..... G.M. Archibald

32 - North Half of Desmeloizes Township, Abitibi-West Electoral District ..... W.F. Gilman

33 - Stukely Lake Area, Shefford and Stanstead Electoral Districts ..... J.I. Sharpe

34 - Southeast Quarter of Fiedmont Township, Abitibi-East Electoral District ..... P.R. Van Loan

35 - South Half of Wexford Township, Terrebonne and Montcalm Electoral Districts ..... J.I. McGerrigle

MINERAL DEPOSITS BRANCH

J.-E. Gilbert, acting chief of the Mineral Deposits Branch, reports as follows on the activities of his Branch during the 1958-59 fiscal year.

On March 31st, 1959, the full-time professional personnel of the Mineral Deposits Branch consisted of 14 geologists and mining engineers. This personnel was assisted by 32 technical assistants, clerks, draughtsmen, secretaries, and stenographers. Two graduate geologists - W.A. Hogg and J.I. Sharpe - and one mining engineer - Conrad Paré - joined the permanent staff of the Branch during the fiscal year.

The principal responsibility of the Mineral Deposits Branch is to carry out detailed studies of mineral occurrences, mining properties, and mining districts with a view to helping the development

of the mineral industry in the Province. To facilitate the accomplishment of that purpose, eight graduate geologists are stationed in the five resident geologists' offices located at Bourlamaque, Chibougamau, Montréal, Québec, and Rouyn; two mining engineers and one geologist specialized in industrial minerals technology are stationed in Québec, and nine part-time geologists were engaged during the year in detailed geological mapping of economically important mineral-bearing areas or on other projects.

The amount, value, and importance of the technical advice given by the Branch's geologists and engineers to the various organizations and individuals engaged in the exploration and development of the mineral resources of the Province cannot be emphasized too much.

The Mineral Deposits Branch is also responsible for the study of prospectuses and reports as officially requested by governmental or other agencies; the acceptance of reports, plans, and diamond-drill logs submitted for credit towards statutory assessment work; the study of reports submitted in support of applications for mining concessions; and property examinations in connection with revocation of mining rights.

The Division of Technical Documentation of the Department also comes under the jurisdiction of the chief of the Mineral Deposits Branch, and the description of its functions and of its activities during the fiscal year 1958-59 appears below under a separate sub-heading. The Technical Library Section is likewise under his administration and the report of the activities of that Section is given on page 65.

The 1958 field programme of the Branch consisted of 18 different projects including geological mapping, mining property examinations, and special studies. Eight of these were undertaken by members of the permanent personnel and nine others were under the direction of part-time geologists, mainly post-graduate students doing research work in various universities. In addition, one engineer on part-time employment helped in the editing of geological and other reports, and the acting chief was engaged in administrative and other duties. The field programme provided employment, in addition to the geologists and engineers whose work is mentioned above, to eight graduate geologists or engineers and 26 students who acted as geological assistants and to four other men employed as cooks or canoemen.

G.M. Archibald mapped at the scale of 1,000 feet to the inch the southwest quarter of Lévy township, Chibougamau district. The producing

property of Opemiska Copper Mines (Quebec) Limited is located in the mapped area and important zones of sulphide mineralization are located in the immediate vicinity. Valuable information was obtained in the course of this geological survey.

J.R. Assad, resident geologist for the Chibougamau district, continued the compilation of the available geological information related to his district and reported on 18 mining properties on which exploration or development work was done during 1958. He also supervised the work of two geological field parties doing detailed geological mapping in his district.

P.-E. Bourret, senior mining engineer in charge of industrial minerals technology, visited 72 quarries or mining properties in the exploration, development or production stages collecting information and giving advice to prospectors, developers, and mine operators concerning the development of their deposits, their mining or ore-dressing problems, and the marketing of their products.

A.-N. Deland, resident geologist for the district of Montréal, visited and reported on 30 mining properties in his district. He also supervised the work of one geological field party operating in his district and completed various compilations of mineral occurrences in the Montréal and adjacent areas.

Jean Dugas, resident geologist for the district of Rouyn-Noranda, reported on 30 mining properties in his district on which exploration or development work was done. He also completed the compilation maps, at 1,000 feet to the inch, of Desmeloizes township and of the northeast quarter of Dufresnoy township and directed the field work of two geological field parties operating in his district.

Gilles Duquette initiated during the summer of 1958 a programme of geological mapping at the scale of 500 feet to the inch of the area surrounding the Weedon Pyrite and Copper Corporation Limited property in the electoral districts of Wolfe and Compton. This programme should contribute to a better understanding of the geological and mineralogical features of the region.

E.-H. Gaucher continued the programme of detailed geological mapping previously undertaken in the Chibougamau district and covered at 1,000 feet to the inch the southeast quarter of Barlow township.

W.F. Gilman undertook a detailed geological study of the township of Desmeloizes in which the producing property of Normetal Mining Corporation Limited is situated. A considerable amount of exploration and development work was recently done in that township and most of the north half of it was covered in 1958.

P.-E. Grenier, resident geologist for the district south of the St. Lawrence, reported on 16 properties visited by him in his district and north of the St. Lawrence river. He also supervised the field work of two geological parties doing geological mapping in the Eastern Townships and helped in the editing of their reports. Dr. Grenier, furthermore, undertook various studies and compilations and performed some administration and other duties in co-operation with the chief of the Branch.

W.A. Hogg continued during 1958 the detailed geological mapping of Montbray township, electoral district of Rouyn-Noranda, and covered the northeast quarter of the township at the scale of 1,000 feet to the inch. At the end of the field season, Mr. Hogg joined the permanent personnel of the Branch and was attached to the resident geologist's office for the district of Rouyn-Noranda.

Léo Lachance undertook for the Branch a special study of the rock formations traversed by a 7-mile long tunnel being driven at les Passes Dangereuses, some 100 miles north of Saint-Joseph d'Alma, in the Lake St. John district. Valuable information on the nature of the geological formations present in the tunnel and in its vicinity was gathered through this project.

M. Latulippe, resident geologist for the Val-d'Or district, visited 27 mining properties in his district and completed the compilation maps at 1,000 feet to the inch of the southeast and northeast quarters of Dalquier and of the northwest quarter of Bourlamaque township. He also supervised the work of two geological parties doing field work in his district and helped in the editing of their reports.

W. R. Leuner continued during the year the geological mapping of La Motte township and covered at 1,000 feet to the inch the southwest quarter and part of the northwest quarter of the township. Potentially important occurrences of metallic mineralization are present in the area studied by Mr. Leuner.

J.I. McGerrigle, junior geologist at the Montréal office, undertook a programme of detailed geological mapping of the iron-titanium-bearing

district north of Montréal and covered during the field season of 1958 the south half of Wexford township in which deposits of ilmenite and titaniferous magnetite have been discovered. He also visited eight other mining properties and made a series of compilations and maps of occurrences of metallic and industrial minerals in the Montréal district.

Raymond Paquet, in charge of the industrial minerals section of the Branch, visited 49 properties in various stages of exploration, development, or production and did the petrographic work on the special study done by Léo Lachance of the geology of the tunnel of Les Passes Dangereuses. Mr. Paquet also organized and supervised the annual series of elementary lectures on general geology and prospecting given at various localities throughout the Province.

Conrad Paré, mining engineer who joined the permanent staff of the Branch in the fall of 1958 to take charge of the section on building materials, visited two properties during the year. His main work was a compilation of the available information on building materials and the planning of his future field activities.

J.I. Sharpe continued the mapping undertaken in 1956 north of Magog, in the Eastern Townships, and covered at 500 feet to the inch parts of Stukely and Orford townships in the electoral districts of Shefford and Stanstead. In the fall of 1958, Mr. Sharpe joined the permanent staff of the Branch as junior resident geologist for the Bourlamaque - Val-d'Or district.

P.R. Van Loan continued the mapping at 1,000 feet to the inch of Fiedmont township in the Barraute district, north of Val-d'Or and studied its southeast quarter. Interesting molybdenite and auriferous sphalerite occurrences are present in the area covered by Mr. Van Loan's survey.

G.W. Waddington, mining engineer and part-time employee of the Branch, helped in the editing of three geological reports for the Branch. Mr. Waddington also undertook the compilation of all the known occurrences of iron in the Province which is to be published in the near future.

Division of the Economy of the Laws

J.-L. Pouliot, mining engineer, chief of this Division, and his assistant, J. Boily, mining engineer, report that,during the year under review, 121 geological and 301 geophysical plans and reports and 236 diamond drilling reports were examined for credit towards statutory assessment work. In addition, 189 reports and prospectuses were studied upon request from

the Québec Securities Commission. Four reports submitted by engineers in support of applications for mining concessions were also examined. The following table, which gives the number of reports received annually by the Department since 1955, shows an appreciable increase of activities in mining exploration in the Province during the 1958-59 fiscal year.

Table VI - COMPARATIVE TOTALS OF THE NUMBER OF REPORTS RECEIVED DURING THE YEARS 1955 to 1959

	1955	1956	1957	1958	1959
Geological	64	109	194	93	121
Geophysical	120	248	567	270	301
Diamond drilling	128	264	491	312	236
Quebec Securities Commission	138	101	207	144	189
Mining Concessions	3	13	3	4	4

To arouse greater interest in the search for economic minerals throughout the Province, a series of lectures on general geology and prospecting was given in French or in English in eight different localities of the Province.

At each place, nine lectures were given of which four were on identification of rocks and minerals. The lecturers were J.R. Assad, André Deland, Maurice Latulippe, and Raymond Paquet, all geologists of the Branch.

The following list gives the average attendance in each of the localities where the course was given:

Amqui	44	Joliette	55
Bonaventure	10	Lachute	40
Chibougamau	16	La Sarre	26
Hébertville Station ...	16	Senneterre	22

Special lectures on general and applied geology were also given by Raymond Paquet at the summer camp of 'Les Jeunes Naturalistes' at Port-au-Saumon, electoral district of Charlevoix.

Division of Technical Documentation

The Division of Technical Documentation is responsible for the safe-keeping of all the technical data pertaining to mineral

deposits, to development work done by operators, as well as of other information concerning the mineral industry of the Province. It also supplies prospectors, mine operators and others with technical information on these subjects.

François Baby, chief of this Division, submits the following report on its activities:

a) Number of requests for information on mine operators ... 764

b) Number of requests for technical information concerning the mineral industry of the Province 217

c) Number of requests pertaining to minerals technology ... 53

d) Number of requests related to mining properties in the Province 575

During the period under review, the revision of the classification of the already filed reports and plans pertaining to exploration and development work done in the Province, which had been undertaken in 1957, was continued and about 1,200 such documents were re-classified.

For the purpose of obtaining a collection as complete as possible of the publications prepared by mine operators for the benefit of their shareholders, requests were made to 720 operators who, directly or through subsidiary companies, hold mining rights in the Province.

There was a considerable increase in the number of documents received by the Division during the year under review and they comprise the following:

a) Documents pertaining to mining properties.....

reports	876
plans	1,408

b) Mining company annual reports to shareholders 501

c) Reports of inspection by officers of the Department 273

d) Documents concerning minerals technology 306

The compilation of monthly notes summarizing the progress of the mining industry in the Province was continued by the Division. These notes are distributed to the officers of the Department for their personal information.

The Technical Documentation Division also prepared during the 1958-59 fiscal year the texts for nine advertisements and of 13 articles which were published in various technical newspapers and magazines and in the national or foreign press. Most of the literature and the rock specimens used in the various exhibits displayed by the Department in industrial or regional exhibitions held in the Province during the year were also provided by the Division.

GROUNDWATER, GAS AND PETROLEUM BRANCH

Roland DeBlois, chief of this Branch, submits the following report on the services rendered by the Department on matters pertaining to ground water, petroleum and natural gas.

On March 31st, 1959, the technical personnel of the Quebec office was composed of four engineer-geologists. Furthermore, a part-time geologist studied the samples obtained through drilling for gas and petroleum. Finally, four special officers followed, in the field, the various types of work involved in the search for petroleum and natural gas besides making a survey of gas wells privately operated by persons in certain areas.

Groundwater

This Division conducts groundwater surveys and does some experimental work. Its technical personnel comprises three engineer-geologists who have specialized in groundwater technology.

The main function of this division is to help municipalities, aqueduct operators and public institutions find adequate underground water supply, whether for new installations or for existing ones that can no longer satisfy present needs owing to increase in population, lowering of the water table or like factors.

In order to give the required services, the personnel of this division has adopted a two step procedure:

a) a geological map of the areas concerned is compiled in order to find adequate water storing strata, with emphasis, in most cases, on the study of pleistocene formations.

b) tests are conducted to ascertain the potential of the aquiferous formations.

Raymond Roy, Claude Grenier and Roland DeBlois made 34 groundwater surveys in the following electoral districts: Beauce, Bellechasse, Champlain, Charlevoix, Chicoutimi, Dorchester, Joliette, Kamouraska, Lac Saint-Jean, Matapédia, Montmorency, Portneuf, Québec, Rivière-du-Loup, Roberval, Rouville, Saint-Maurice, Témiscouata and Terrebonne.

Petroleum and Natural Gas

The main function of this Division is to guide in their search companies and individuals who are drilling for gas and petroleum. To this end, drilling samples are studied to establish geological relations between the various rock formations encountered. Engineers measure all the important flows of gas, both as to pressure and volume. They follow the operations closely and make sure that all the regulations are adhered to. All the drilling data is recorded and indexed; this procedure makes it possible to obtain, in the minimum of time, all the data either on one drilling operation or on all operations.

Drilling for petroleum and natural gas, in 1958, was not as extensive as in 1957. This is probably due to the general recession in the petroleum industry and maybe also to the fact that there has not been any major gas discovery in the Province since the strike made by Bald Mountain Oil Limited, at Batiscan, in March 1957.

Six companies have bored or deepened 14 wells for a total of 21,340 feet of drilling.

Paul-P. Simard followed the drilling, giving all the technical services required. He examined the drilling samples of a few wells and indexed the data covering all the work done. He also headed a survey party which established the elevation of all the wells drilled to-date for petroleum and natural gas in the St. Lawrence Lowlands and in the Lake St. John area.

T.H. Clark made a geological study of the samples obtained through well drilling in the St. Lawrence Lowlands.

Four special officers watched the drilling operations at the site, and collected information on gas flows in many localities.

LABORATORIES BRANCH

The Laboratories Branch comprises the following sections:

I - Laboratories for mineralogical and metallurgical research:

II - Laboratories for analysis and assays established at Québec, Montréal and Thetford Mines:

III - Sampling and ore dressing plant at Québec,

IV - Elementary courses in prospecting given to university students.

The director of this Branch is Maurice Archambault and his assistants are: P.-E. Pelletier, assistant-director; Henri Boileau, chief-chemist; Jean Girault, mineralogist and chief petrographer; Fernand Claisse, chief physicist.

I - Research Laboratories

The mineralogical and metallurgical research work carried out during the course of the year was centered on:

a) technical assistance to prospecting;

b) chemical extraction of columbium;

c) extraction of manganese,

d) increasing the market value of asbestos;

e) discovery and perfection of different processes of extracting lithium from spodumene;

f) production of mineral salts of lithium;

g) use of ultrasonic vibrations in flotation;

h) chemical utilization of peat;

i) elimination of magnesia in titaniferous ores;

j) concentration of ores of lead, gold, silver, iron, titanium, tungsten, lithium, columbium, rare earths, paragonite and pyrochlore.

Project No. 8:- Claude Fremont kept up his research on the construction of a micromagnetometer, small enough to be lowered into a diamond-drill hole. His works consisted mainly in the study and the building of new electronic circuits which will make the

apparatus more portable, handier, more sensitive and less subject to interferences. These circuits include an audio-frequency oscillator producing a pulsating wave, a frequency-doubling multiplier, a tuned amplifier, a phase-shifting circuit, and a phase detector. The only thing left to be done is the construction of the apparatus.

Project No. 114:- M. Archambault and C.-A. Olivier have studied, in the liquid phase, the effects of the dilution of sulphuric acid on the solubility of lithium in spodumene. A comparative study, in the gas phase, has also been done. Results are very interesting.

Project No. 118:- F. Claisse and F. East have completed a study on the geological correlation of elements occurring at various depths in wells drilled for oil. The results of a few thousand spectrographic analyses remain to be completed in order to give a final interpretation to the project.

Project No. 122:- P.-E. Gagnon, with the help of Y. Laflamme,has continued his research work on the chemical extraction of columbium from the concentrates of the ores found in the Oka region. In addition to the chlorine treatment which gives good results, other methods will be studied to reach a final extraction stage by means of organic Ketones. Concurrently with the laboratory work, they have compiled a bibliography on the abundance of lithium, its properties, uses and methods of extraction; this work will be published soon.

Project No. 126:- J.U. MacEwan and H.P. Lemay have studied the recovery of manganese dioxide by the electrolysis of manganese sulphate solutions. The electrolytic deposit varies according to the composition of the receiving electrode, the current density, the acidity of the solution and the addition of chemical products. Each of these factors has a bearing on the quantitative output of the electrolysis process, and on the quality and purity of the manganese deposit.

Project No. 128:- L.-P. Bonneau has continued to make the studies and to take the steps necessary to the securing of Canadian and American patents on an air separator he invented while working on research projects Nos. 38 and 94. This separator may be used as a concentrating apparatus for many substances and particularly to remove dust from asbestos fibres. His work is fairly well completed and the separator will be offered to industry in the near future.

Project No. 129:- M. Archambault and C.-A. Olivier have pursued their attempts at the sulphating of spodumene with the idea of

adapting in a special way the rotary kiln and the Herreshoff-type hearth furnace. Either of these industrial furnaces work very well but under different conditions. J.U. MacEwan worked in co-operation with M. Archambault and C.-A. Olivier to prepare various applications for patents resulting from project No. 129.

Project No. 130:- M. Archambault and C.A. Olivier have pursued their studies of changing ores of lithium into lithium sulphide. They have specially studied low cost methods of regenerating and recycling the chemical products used to make soluble the lithium content of the spodumene.

Project No. 131:- H. Zaruba continued his investigations of the use of ultrasonic vibrations in ore flotation. It seems possible that these vibrations will shorten the conditioning time, and reduce the amount of reagents normally used in flotation. However, the fineness of grinding, the pulp density and the dispersing agents used will require careful selection.

Project No. 132:- M. Archambault and C.-A. Olivier have continued their study of the conditions most suitable to the exchange of monovalent cations for the lithium in the spodumene. It seems as if the rate of progress of the reaction is more affected by the temperature than by the lenght of the heating period.

Project No. 136:- J. Risi, with the help of F. Simonyi, began investigating the oxidation mechanics of the peat, specially when diluted nitric acid is used. The hope to find practical ways and means to manufacture, in the Province, a few polycarboxyl aromatic acids which are imported to-day in large quantities to make certain polyesters, synthetic resins and bulk plastics used in various ways.

Dr. Risi had previously established that humic compounds are clearly predominant in Quebec peat, as they constitute more than 50 per cent of this peat.

Project No. 140:- M. Archambault and H.P. Lemay have studied ways of eliminating the magnesia contained in the ilmenite used by Quebec Iron and Titanium Corporation. Their problem is compounded by the fact that the process to be found must be integrated with the one already used by the Company at Sorel.

Special studies on the following ore dressing projects were conducted by B.J. Walsh, Jean Girault, and J.-P. Bolduc:

Research on Ore Dressing

Project No.		
72	Lithium	Quebec Lithium Corporation
87	Iron	Cyrus S. Eaton, Jr. International Iron Ore Ltd.
88	Iron and titanium	Laurentian Titanium Ore Ltd.
108	Columbium and rare earths	Molybdenum Corp. of America
113	Placer gold	Standard Gold Mines Limited
117	Columbium and rare earths	Oka Rare Metals Mining Co. Ltd.
135	Lead, tungsten, pyrite, silver	St. Roberts Metals Corporation
137	Paragonite	Dome Exploration Limited
138	Iron	Hull Iron Mines Limited
141	Pyrochlore	St. Lawrence River Mines Ltd.

II - Laboratories for Analyses and Assays

During the fiscal year 1958-59, the laboratories for analyses and assays received 12,304 samples on which 51,490 analyses and determinations were performed. This includes quantitative chemical and flame photometric analyses, determinations by microscope spectrograph (optical and fluorescent X), X-rays (diffraction) and radioactivity measurements.

Table VII - SUMMARY OF ANALYSES AND ASSAYS

	Laboratories		Total
	Québec	Montréal	
Samples received	10,916	1,388	12,304
Quantitative analyses	15,479	3,662	19,141
Semi-quantitative analyses	4,971	-	4,971
Research analyses	7,923	-	7,923
Mineralogical and petrographic determinations	16,498	-	16,498
X-ray examinations	2,811	-	2,811
Radioactivity tests	146	-	146
Total	47,828	3,662	51,490

There were no samples accepted at the laboratory for classification of asbestos fibres located in Thetford Mines during the period of equipping and installation of the new laboratory, rebuilt after the fire of 1957.

The Montréal laboratory located in the Ecole Polytechnique was moved, in September 1958, from 1430 St. Denis Street to 2500 Guyard Street, when Ecole Polytechnique took possession of its new local in the University City on the mountain.

Québec Laboratories

The main laboratories of the Department are located at Québec and, besides the mineralogical and metallurgical divisions mentioned above, they include: 1.- a division of mineralogy and petrography; 2.- a division of physics; 3.- a division of chemistry; 4.- a division of metallurgy.

Division of Mineralogy and Petrography

During the fiscal year ending March 31st 1959, 10,916 samples were submitted to our laboratories. The study of these various samples required 16,498 mineralogical determinations. Included in these numbers were 573 samples of sand, gravel and stones to be used as paving materials, submitted by the Roads Department for identification.

The personnel of the Division wrote 1,904 letters. Of these, 1,807 letters dealt mainly with the samples submitted and consisted mostly of detailed reports of their nature and value. In addition, the mineralogists answered 519 verbal requests for information.

It is also the function of this division to examine samples submitted for analysis and to forward them to the different laboratories according to the nature of the samples submitted and the analyses required.

For the third consecutive year, the preparation of rock and mineral collections, for educational purposes, reached a record high; this work is the responsibility of the division of mineralogy and petrography. The fact that the demand kept pace with the increased production is very gratifying; it shows interest on the part of the public, specially students.

The quality of the samples has greatly improved since 1951, when it was decided that they would be prepared by the Department instead of being purchased elsewhere as was the practice before. The samples are chosen with great care; Reverend Henry Derville, S. J., mineralogist, made many trips in 1958, to choose, in place, quantities of rocks and minerals. The importance of this procedure cannot be too highly stressed, as it allows the use of the most typical samples possible, to the greater advantage of those persons who employ our collections as references in their first studies of rocks and minerals.

Table VIII - ROCK AND MINERAL COLLECTIONS

Fiscal Year	1951-56	1956-57	1957-58	1958-59	Total
Mineral collections	1,669	851	1,000	1,200	4,720
Rock collections	1,002	451	600	900	2,953
Small fragments of minerals ..	739	500	512	900	2,651
Small fragments of rocks	645	460	550	1,100	2,755
Total	4,055	2,262	2,662	4,100	13,079

The mineralogists have done many mineralogical studies as preliminary steps to ore concentration tests. They have also participated in research projects Nos. 117, 135, 137 and 139.

Towards the end of the year, this Division moved into new, larger and better quarters. This moving had become imperative for some time, owing to the large number of samples to be examined and the exiguity of the former local.

Division of Physics

The Division of Physics, comprising the sections of spectrography X-ray fluorescence spectrography, radiocrystallography, and radioactivity, did 11,025 analyses and determinations distributed as follows:

Optical and X-ray fluorescence spectrography .. 8,068
Radiocrystallography 2,811
Radioactivity 146

The very specialized instruments of this divisions are forever used to study particular problems either by other divisions or by outside organizations. The figures quoted above also include 563

analyses for research or for very special problems. Furthermore, there were 265 analyses of quartz, cristoballite and trydimite done at the request of the Industrial Hygiene Division of the Department of Health.

The resignation of two spectrographers was a severe loss for the Division.

Division of Chemistry

Despite the varying conditions in both prospecting and mining, the work of this Division remained fairly constant throughout the year. There were 16,465 duplicate qualitative analyses, 7,360 for research purposes and 3,855 for precious metals. The figures include five analyses of mineral waters and nine complete analyses of typical rocks.

There is an increasing call upon the services of the laboratories for prospection purposes: hence the demand for analyses for traces of metals as a guide in certain investigations of economic geology. This practice is also followed in the inventory of arable soils; the Department of Agriculture submits to the Chemistry Division investigations in the geochemistry of soils with the object of finding nourishing microelements of biochemical reaction catalysts.

Another interesting problem solved by the Division of Chemistry has been the discovery of rhenium in certain molybdenites of the Province.

Division of Metallurgy

The investigation of lithium extraction from spodumene concentrates on a semi-industrial scale was carried out through many experiments with a Herreshoff furnace and a rotary kiln. Besides establishing the exact requirements for the reaction the point in question was to demonstrate the flexibility and the economic advantages of the Department's process insofar as efficiency and production costs are concerned.

Mention should be made of the metallurgical studies on iron ores submitted by Hull Iron Mines, G.A. Blair of Montréal, and S. Pileggi of Kipawa, respectively. These particular problems of concentration were the subject of special reports.

III - Sampling and Ore-dressing Division

St-Malo Pilot-plant:

The organization of the pilot-plant and the installation of the required machinery have reached the final stage. This work was again this year under the direction of J.U. MacEwan.

During the year, the ore-dressing laboratories treating metallic ores and industrial minerals were set up. These laboratories, on the mezzanine floor include the following facilities: crushing, grinding and screening units; gravity, magnetic and electrostatic concentration and flotation rooms. A second division houses the asbestos ores treatment laboratory, with sections where fibres classification and tests of their physical properties will be conducted.

On the main floor, where sampling and treatment of bulk samples will take place, the asbestos treatment unit has been completed and is ready for normal use.

Although the St-Malo pilot-plant is not ready for normal operation, mining engineers and mining companies are already showing a great interest in this project, and ore shipments have been sent for treatment.

Table IX - ORE SHIPMENTS TO THE ST-MALO PILOT-PLANT

Shipper	Lots	Weight (pounds)	Type of Ore
Bornite Copper Corporation	1	1,488	Gold
St. Lawrence River Mines Ltd.	1	23,454	Pyrochlore
P.-E. Auger, Quebec	1	60	Asbestos
Asbestos Corporation Limited	50	3,299	Asbestos
Golden Age Mines Limited	2	133	Asbestos
Total	55	28,434	

Of the 55 lots received, the asbestos treatment laboratory is completing its studies on 26 lots representing a combined weight of 1,531 pounds.

Thetford Mines Laboratory

The organization of the laboratory for asbestos fibres classification was completed during the year. A Quebec Standard Machine is in the process of being standardized; this takes several weeks of testing in order to obtain results tallying with those of the Quebec Asbestos Mining Association.

IV - Elementary Courses on Mineral Prospecting

Inquiries from other provinces and from the United States show the great popularity of the courses on mineral prospecting sponsored by the Department of Mines and given at l'Ecole Polytechnique at Montréal and at the Department of Geology of the Faculty of Sciences, Laval University at Québec. Usually registrations surpass by far the number of attendants because of the shortage of professors and the limited space of the classrooms normally used for regular courses of the academic year.

During the year under review, 31 students followed the courses at l'Ecole Polytechnique in Montréal, from March 25th to May 1st,1958, and 22 others from the Québec region followed the complete course, at Laval University, from March 3rd to 26th,1959.

It is a noteworthy fact that some prospectors come back, after a few years of practice, and register as regular students in geology and other related subjects.

Table X - ELEMENTARY COURSES ON MINERAL PROSPECTING GIVEN BETWEEN 1947 and 1959

Fiscal Year	Number of Students		Total
	Québec	Montréal	
1947	28	-	28
1948	17	21	38
1949	9	15	24
1950	-	23	23
1951	29	28	57
1952	23	17	40
1953	-	27	27
1954	29	20	49
1955	32	-	32
1956	40	24	64
1957	25	35	60
1958	25	41	66
1959	22	31	53
Total	279	282	561

DRAUGHTING AND CARTOGRAPHY BRANCH

Léon Valois, P. Eng., is the chief of this Branch and A. Blanchette is assistant chief. The Branch employs sixteen draughtsmen, one secretary, two clerks and one messenger, a total of twenty-two persons.

The Draughting and Cartography Branch supplies the documents needed by the geological survey parties of the Department, namely aerial photos and compilations, to the desired scale, of base maps made from topographical surveys and aerial photos. In some cases, areas are photographed and mapped to supply an adequate basis of information to these geological parties.

The Branch keeps up to date two sets of tracings on linen, of the various townships. On one are drawn all the stakings of the mining claims; on the other, all the boundaries and marks of identification of lands held by mining companies. The first series, showing the staked claims, consists of 1,016 tracings on which were outlined the boundaries of the 60,704 new claims staked during the fiscal year. The second series contains 578 tracings. From all these tracings, 29,545 blue prints were struck off to fulfill requests from the public.

The folowing geological maps were prepared by the Branch which also supervised their printing:

Final maps (coloured)

a) Completed during the year:

No. 1175 - Bourget Area
No. 1180 - Bignell Area
No. 1210 - Rinfret Area
No. 1225 - Madeleine River Area
No. 1230 - Index map to geological maps
No. 1247 - Thetford Mines

b) In the press:

No. 1235 - Dollier-Charron Area
No. 1236 - Queylus Area
No. 1237 - Fancamp-Hauy Area
No. 1238 - Brongniart-Lescure Area
No. 1239 - Rohaut Area
No. 1240 - Gamache Area
No. 1241 - Surprise Lake Area
No. 1242 - Gradis-Machault Area

c) In preparation:

No. 1243 - Céloron-Carqueville Area
No. 1244 - Chaste-Mazarin Area
No. 1253 - Richard-Gravier Area
No. 1254 - Richard-Gravier Area (Sections)
No. 1263 - Chertsey Area
No. 1264 - Rawdon Area
No. 1265 - Doncaster Area
No. 1270 - New Glasgow - St-Lin Area

Preliminary Maps

a) Completed during the year:

No. 1074 - Mineral Map of the Province of Quebec (5th Edition)
No. 1214 - St. Joseph Area
No. 1215 - Thévenet Lake Area (East Half)
No. 1216 - Armstrong Area
No. 1218 - Northeast of Fiedmont Township
No. 1219 - Marin-Picquet Area
No. 1220 - Louvigny-Bochart Area
No. 1221 - Southwest of Roy Township
No. 1222 - West of Honorat Township
No. 1223 - Beaumouchel-Houdet Area
No. 1224 - West of Duprat Township
No. 1226 - Eric Lake Area
No. 1227 - Gabriel Lake Area
No. 1228 - Orford Lake Area
No. 1229 - Boucher-Carignan Area
No. 1232 - Oak Bay Area
No. 1234 - Tuttle Lake Area
No. 1257 - Turgeon-Matagami Area
No. 1258 - Waswanipi-Chibougamau Area
No. 1259 - Plessis-Lartigue Area
No. 1260 - Mount Wright Area
No. 1262 - East of Çausapscal Township
No. 1272 - Leaf Lake Area
No. 1274 - Perche-Poitou Area
No. 1276 - Northeast of Montbray Township

b) In the press:

No. 1255 - Southeast of Roy Township

c) In preparation:

No. 1273 - Squateck Area
No. 1277 - Lyonne Area
No. 1278 - McLachlin-Booth Area
No. 1279 - Mounts Povungnituk Area
No. 1280 - Saint-Hippolyte Area
No. 1281 - Margry-Prévert Area

Our draughtsmen traced on linen two other geological maps, nine figures to illustrate reports published by the Department, together with fourteen various plans, such as graphs, speical maps, etc. A few of these documents have been lithographed for the use of the Department.

The Draughting and Cartography Branch has compiled and published an entirely different edition of the index map of the "Areas Covered by the Geological Maps of the Department of Mines"; it bears the number 1230. The scope of the mapping done by the Department of Mines made this new presentation necessary; it has been well received by the public and the Branch intends to keep it up to date every year.

Table XI - COMPARATIVE TOTALS FOR THE FISCAL YEARS ENDING MARCH 31st 1956, 1957, 1958, 1959

	1956	1957	1958	1959
Personnel	12	18	20	22
Mining claims tracings	769	845	904	1,016
New claims indicated	60,315	51,259	45,901	60,704
Mining companies tracings	441	441	489	578
Copies distributed	24,540	34,192	25,372	29,545
Final maps (coloured)	8	7	8	6
Preliminary maps	20	15	23	25
Geological plans	8	15	6	2
Miscellaneous plans	5	24	9	14
Figures	29	24	36	9

CIVIL ENGINEERING BRANCH

This Branch, under L.-A. St-Pierre, P. Eng., is made up of two distinct divisions: a) Division of Mine Roads; b) Division of Mine Villages.

a) Division of Mine Roads

During the fiscal year 1958-59, the Department of Mines built 24.2 miles of new mine roads, bringing to 1,564.7 the total mileage of gravel roads built by the Department to date. In addition, a 50-mile winter access road to the Mattagami Lake area was opened. The expenditures, during the year, for the construction, improvement and completion of mine roads, bridges included, amounted to $1,506,134.02, bringing the total spent since 1925 to $31,910,448.15.

Table XII - SUMMARY OF PROJECTS OF THE MINE ROADS DIVISION FOR THE LAST THREE YEARS

Designation of Project	1956-57	1957-58	1958-59
New construction, distance in miles:			
a) gravel roads	28.15	26.17	24.20
b) winter roads			50.00
Improvement to roads: distance in miles	103.10	31.00	
Permanent bridges, number		1	1
Maintenance by the Department, distance in miles	248.00	266.00	278.17

Construction of new roads

Electoral District	Designation of new roads
Abitibi-East	From Chapais westward, in the township of Daubrée.
Abitibi-East	Quebec Lithium mine road, township of Lacorne.
Gaspé-North	Link road between Murdochville and the Sainte-Anne-des-Monts - Cascapédia road (additional sections)

Construction of concrete bridge

Electoral District	Name of River	Length of Span
Gaspé-North	des Béland river	40 feet

Completion of last year's projects

Begun last year, the construction of a section of road, between Desmaraisville and Chapais, was completed during the fiscal year under review.

List of roads maintained in 1958-59

a) Continuous maintenance from April to December

Electoral District	Designation of roads
Abitibi-East and Roberval	Chibougamau road and vicinity
Abitibi-East	Senneterre - Desmaraisville road, north of the Taschereau river

b) Occasional maintenance

Electoral District	Locality	Designation of roads
Charlevoix	La Baleine	Ile-aux-Coudres peat bog road
Chicoutimi	Bagotville	Bagotville peat bog road
Megantic	Thetford Township	Flintkote mine road
Megantic	St-Antoine-de-Pontbriand	Range IV, to Flintkote mine
Papineau	Portland (West)	Cameron mine road
Rouyn-Noranda	Duprat Township	Eldrich mine road

Projects under study

Reconnaissance, preliminary and final surveys, draughting and costs estimates have been made on the following road projects:

Murdochville - Lac Sainte-Anne road, in Lemieux and de Lesseps townships,

Desmaraisville to Chapais road, approaches of the Waswanipi river.

Amos - Mattagami Lake road,

Henderson mine and Portage Island mine roads, Roy township.

b) Division of Mine Villages

Belleterre

Since the beginning of March, the operations of the gold mine and of its 350-ton-per-day mill have definitively been stopped; 50 people have been left without work. This town, 35 miles east of Ville-Marie, Temiscamingue electoral district, has a population of nearly 1,000 inhabitants.

Bourlamaque

Municipal works to the value of nearly $100,000.00 have been done during the year. At the end of the year, the Municipality had started to lay water and sewer lines in a new subdivision.

Chapais

This town possesses, since the past few months, a very modern and well equipped hospital built by Opemiska Copper Mines Limited.

Chibougamau

The municipal corporation has improved the roadway of Commercial Street and built 7-foot-wide sidewalks. Evaluation of taxable properties is now exceeding $8,000,000.00. The first municipal election took place April 14th, 1958.

In November 1957, there occurred an event which is a milestone in the history of this town: the official inauguration of the Canadian National Railways line connecting Beattyville to Chibougamau. This rail line carries the copper concentrates of the four producing mines in the area to the Noranda smelter.

In addition to the claim recorder's, and the resident geologist's offices, the town has, since the beginning of this calendar year, a Health Unit, under the jurisdiction of the Department of Public Health.

Murdochville

This town possesses now one of the best equipped recreational locals where hockey, curling and bowling can be played; it also has a swimming pool and a number of halls for social events.

Schefferville

There are now 486 dwellings in Schefferville, New-Quebec. The combined Catholic and Protestant population of schools numbers 406 children. The Q.N.S. and L. railway has built a new terminal for passengers and freight, and the municipality has made remarkable progress in its sidewalk building programme.

Val-d'Or

House construction was more active in 1958 than it had been the year before. Sidewalk construction has been started on Bourlamaque Boulevard. There are 850 property owners listed on the evaluation roll and the taxable value of all properties has reached $25,657,868.

Peat Bog Drainage

During the year, peat bogs were operated in the following electoral districts: Charlevoix, Matane, Portneuf, Rimouski, Rivière-du-Loup.

A total contribution of $15,000.00, appropriated in the budget for this purpose, was distributed among all the peat bog operators, who did a total volume of 181,050 cubic yards of drainage.

SECRETARIATE

This Branch, under the direction of Raymond Cormier, is responsible for the personnel and the Divisions of Editing and Printing, of Equipment, of Purveyor, of Distribution of Publications, and of Publicity.

Division of Editing and Printing

Maurice Brunet, chief of this Division, submits the following list of the publications of the Department of Mines edited and printed during the fiscal year 1958-1959. All the publications have been issued in French and in English.

Geological Report No. 77 - Madeleine River Area, H.W. McGerrigle

Geological Report No. 82 - Dollier - Charron Area, E.R.W. Neale

Geological Report No. 83 - Queylus Area, P.-E. Imbault

Preliminary Report No. 375 - Oak Bay Area, Jacques Béland

Preliminary Report No. 376 - Boucher - Carignan Area, M.A. Klugman

Preliminary Report No. 377 - Tuttle Lake Area, L.S. Phillips

Preliminary Report No. 378 - General Report of the Minister of Mines of the Province of Québec for the year ending March 31st, 1958

Preliminary Report No. 379 - Southeast Quarter of Roy Township, Edwin-H. Gaucher

Preliminary Report No. 380 - Mount Wright Area, D.L. Murphy

Preliminary Report No. 381 - Plessis - Lartigue Area, L. Lachance

Preliminary Report No. 382 - Causapscal Area (East Half), C.W. Stearn

Preliminary Report No. 383 - Perche - Poitou Area, R.-A. Marleau

Preliminary Report No. 384 - Leaf Lake Area, Jean Bérard

Preliminary Report No. 385 - Squateck Area (West Half), Pierre-J. Lespérance

Preliminary Report No. 386 - Gaillard-Lorrain Area, A. Laurin

Preliminary Report No. 387 - Lyonne Area, J.V.G. Bray

Preliminary Report No. 388 - Description of Mining Properties in the Chibougamau, Bachelor Lake, and Waswanipi Regions, G.M. Archibald.

Preliminary Report No. 389 - Northeast Quarter of Montbray Township, Wm. A. Hogg

Preliminary Report No. 390 - Description of Mining Properties Examined in 1956 and 1957 by Officers of the Québec Department of Mines

Preliminary Report No. 391 - The McLachlin - Booth Area, H.B. Lyall.

S-44 - The Quebec Mining Act (New French Edition)

S-45 - Outline of Progress of the Mining Industry of the Province of Québec in 1958

S-46 - Tables for Calculating Salaries

The Mining Industry of the Province of Québec for the Year 1957.

Division of Distribution of Publications

The personnel of this Division, under Noé Lamontagne, sent out 74,431 publications in answer to requests for information concerning the geology and the mineral resources of the Province. In addition, 19,868 publications were distributed according to the regular mailing lists, making a grand total of 94,299 publications.

This last total represents an increase of nearly 9 per cent over the total of 86,634 publications distributed during the fiscal year of 1957-58.

Division of Equipment

C.R. Staniforth, chief of this Division, reports that, during the fiscal year 1958-59, forty-six parties were equipped for the Geological Surveys Branch, the Mineral Deposits Branch, and the Residential Geologists Division, as well as three parties for the Civil Engineering Branch. Two hundred and fifty men were equiped and supplied with all the equipment for camping purposes, instruments for field work, tents, canoes, outboard motors, kitchen utensils, etc.

The Department of Mines operated a fleet of 44 motor vehicles, and all these, comprising, station-wagons, jeeps, trucks and tractors, were kept in good condition for the staff of the Department.

The Department of Mines also takes part, each year, in the various industrial and regional exhibitions held in the Province. During the fiscal year 1958-59, displays of mineral exhibits were presented at:

Professional Engineers Convention - Mount Royal Hotel - March 1958,
International Trade Fair in Montréal - Show Mart - May 1958,
Lachute Fair - June 1958,
Rouyn Fair - June 1958,
Trois-Rivières Fair - August 1958,
Sherbrooke Fair - August 1958,
Val d'Or Fair - September 1958.

Division of Publicity

To keep the public informed concerning new developments in mineral resources and in the mining industry of the Province of Québec, officials of the Department prepare lectures and papers which are presented to groups and societies. They also write articles for technical reviews, trade journals as well as the daily press. The numerous publications of the Department on geology and the mining industry also keep the public up to date on the progress realized from year to year.

Speeches Delivered by Honourable W.M. Cottingham

1958

September 12th	Chemical Institute of Canada, Hawkesbury
September 19th	Lions Club, Syracuse, New York
December 5th	Radio Station C.B.M., Montréal, - "Provincial Affairs".
December 8th	Radio Station C.B.M. Montréal, - "Provincial Affairs".
December 14th	Inauguration of Lachute Skating Rink, Lions Club

1959

January 13th	Station C.B.M.T. - T.V. - "Provincial Affairs"
February 12th	Radio Station C.K.A.C. "Nos Gouvernements"

Articles under the Signature of Honourable W.M. Cottingham

1958

May	Le Devoir - "Revue de l'Industrie Minière du Québec"
September	Western Miner and Oil Review: "Québec's Frontier Moves North"

1959

January	The Gazette - "Year Review"
February	Precambrian - "A Survey of the Mining Industry in the Province of Québec during 1958"

March — Chronicle-Telegraph: "Survey of the Mining Industry in the Province of Québec during 1958"

Other Articles and Lectures

By Jacques Béland, Geologist:

"Peintures et Outils de Pierre Indiens au Lac Wapizagonke, Québec": article published in Le Naturaliste Canadien, Vol. 86, No. 2, February 1959.

"Géologie de la Région de Montmagny-Kamouraska, Québec": lecture to the Faculty of Agriculture, Laval University, at Sainte-Anne-de-la-Pocatière, February 21, 1959.

"Géologie de la Vallée de Matapédia, Québec": lecture to the Faculty of Agriculture, Laval University, at Sainte-Anne-de-la-Pocatière, February 28, 1959.

By René Béland, Part-time staff Geologist:

"Some Features of the Northern Labrador Trough": lecture to the Société Géologique de Québec, at Québec, January 21, 1959.

By Fernand Benoît, Geologist:

"Géologie de la Région de Saint-Sylvestre et de la Moitié Ouest de Saint-Joseph": lecture to the Société Géologique de Québec, at Québec, December 12, 1958.

By Robert Bergeron, Geologist:

"The Cape Smith- Wakeham Bay Belt": article published in Can. Min. Jour., Vol. 79, No. 4, April, 1958.

"La Carte Géologique de la Province de Québec": summary published in Cahiers de Géographie de Québec, Laval University Press, 2nd Year, No. 4, April-September, 1958.

"Ungava Bay - Ungava Peninsula": article published in Can. Geograph. Jour., Vol. 57, No. 1, July, 1958.

"Québec, A Future Iron Kingdom": article published

in The Educational Record of the Province of Québec, Vol. 74, No. 3, July-September, 1958.

By T.H. Clark, Part-time staff Geologist:

"Stratigraphy of the Trenton Group, St. Lawrence Lowland, Québec": Presidential Address to the Twelfth Annual Meeting of the Geo. Assoc. Can., at Toronto, March 2, 1959.

By André Laurin, Geologist:

"Relationships Between the Chibougamau - Abitibi Region and the Grenville Region, Québec": article published in Can. Min. Jour., Vol. 79, No. 4, April, 1958.

By R.-A. Marleau, Geologist:

"Géologie des Régions de Woburn, Mégantic-Est et d'Armstrong, Québec": lecture to the Société Géologique de Québec, at Québec, October 30, 1958.

"Age Relations in the Lake Mégantic Range, Southern Québec": paper presented to the Joint Annual Meetings of the Geol. Assoc. Can., the Prospectors and Developers Assoc., and the Mineralogical Assoc. Can., at Toronto, March 3, 1959.

By J.H. Remick, Geologist:

"Geology of the Opawica River Anorthosite, Northeastern Abitibi, Québec": paper presented to the Joint Annual Meetings of the Geol. Assoc. Can., the Prospectors and Developers Assoc., and the Mineralogical Assoc. Can., at Toronto, March 3, 1959.

By Pierre Sauvé, Geologist:

"The Geology of the Eastern Border of the Labrador Trough Near Fort Chimo, Northern Québec": article published in Can. Min. Jour., Vol. 79, No. 4, April, 1958.

By André Deland, Resident Geologist, Montréal District:

"Basic Intrusive Rocks of Southern Québec": talk given to the Montréal Gem Club, January 13, 1959.

By Jean Dugas, Resident Geologist, Rouyn-Noranda District:

"Mining in Northwestern Québec": article published in the programme of the Northwestern Québec Regional Exhibition, June 1958.

By Maurice Latulippe, Resident Geologist, Val-d'Or District:

"Geological Features of the Val-d'Or District": talk given to 'La Société des Artisans de l'Abitibi', April 1958.

"Mattagami Area of Northwestern Québec": paper presented to the Joint Annual Meetings of the Geol. Assoc. Can., the Prospectors and Developers Assoc. and the Mineralogical Assoc. Can., at Toronto, March 6, 1959.

"Same paper repeated for the Harricana Branch of the C.I.M., at Bourlamaque, March 20, 1959.

By Fernand Claisse, Chief Physicist:

"Sample Preparation Technique for X-ray Fluorescence Analysis": paper presented to the Pittsburgh Conference of Analytical Chemistry and Applied Spectroscopy", Pittsburgh, March 4th, 1959.

By Jean Girault, Chief Mineralogist:

"Connaissez-vous le mica? article published in ' Le Jeune Naturaliste ' November 1958.

Division of Purveyor

The Purveyor of the Department, J.-Roland Tanguay, acts as a liaison officer between the Department and the Purchasing Division of the Executive Council, and is responsible for the work necessary for the issuance of purchasing orders.

LIBRARY

The Department librarian, A. Champagne, reports that during the fiscal year 1958-59, the library's contents were increased by 3,597 units, which may be detailed as follows: 1,770 reviews and magazines, 313 books, 610 reports or bulletins, 593 pamphlets and 291 maps. These acquisitions bring the total of documents held to 17,013 units.

The purchase of 266 books during the year has brought the total to 6,666. About thirty books have been acquired through exchange.

The library has received 2,288 maps, geological as well as topographical; this is an increase of 291 over last year's receipts, which totalled 1,997.

Fifty reviews and eight reports were bound and 126 maps mounted on linen.

The public is still showing some interest in subjects pertaining to mining; more than 200 visitors came to consult our sources of information.

The library has a good collection of technical books dealing mainly with the mining industry, geology, mineralogy, physics, chemistry and metallurgy. It has publications, reports and maps published by the Department of Mines of Québec, of Ottawa, and of various provincial governments, as well as a large number of periodicals and bulletins published in the United States, the United Kingdon, France, and other countries.

The library of the Department of Mines is mainly used by the personnel of the Department: engineers, geologists, etc., but the public is most welcome either to use its reference facilities dealing with the mining industry, or to consult our engineers. Although volumes may not be taken out, all can be consulted there. Our catalogue contains more than 40,000 cards, where everything is indexed according to the Dewey system as to subject, title, and author to ease the work of looking for references.

SCHOLARSHIPS

Following the practice established since 1936, the Legislative Assembly included in the 1958-59 budget of the Department of Mines an amount of $60,000.00 enabling the Minister to grant scholarships to students in geology, metallurgy and mining.

As was his practice, the Minister named a committee to whom evolved the task of recommending to his attention the most deserving candidates for these scholarships. The committee was composed of the following:

Chairman: Eugène Larochelle, General-Secretary, Quebec Metal Mining Association;

Ignace Brouillet, President, Corporation de l'Ecole Polytechnique;

J.U. MacEwan, Director, Department of Metallurgy, McGill University:

Reverend J.-W. Laverdière, Director, Department of Geology, Laval University;

Gérard Letendre, Director, Department of Mining and Metallurgy, Faculty of Sciences, Laval University;

H.G. Young, Inspector General, Protestant School Board;

Secretary: Miss Gisèle Landreville.

The files of students wishing to undertake advanced studies were reviewed first, then came those of students having complied with conditions for renewal of their scholarships, then lastly, requests of new candidates.

The Minister of Mines granted in 1958-59 eighty-seven scholarships distributed as follows:

Candidates to post-graduate courses	35
Students entering final year in science faculties	18
Students in less advanced years	34

The members of the scholarship committee wish to thank the Government of the Province of Quebec, and in particular the Minister of Mines, for their generosity to students in the mining field.

TABLE XIII COMPARATIVE STATEMENT OF REVENUE COLLECTED BY THE DEPARTMENT OF MINES DURING THE FISCAL YEARS 1956-57 to 1958-59*

	1956-57	1957-58	1958-59
Miner's certificates	$ 163,645.00	$ 135,635.00	$ 167,545.00
Development licenses	1,171,048.82	704,100.27	764,252.16
Exploration licenses	- -	323,405.79	162,257.16
Exploitation leases	100,000.00	100,000.00	100,000.00
Sales of mining concessions	34,427.69	25,678.13	9,784.54
Acreage tax on mining concessions	3,032.02	3,522.94	3,587.79
Fees for transfer of mining titles	51,825.00	46,955.00	68,897.00
Rights on townsite lots	18,463.81	10,111.54	12,899.82
Annual rentals on townsite lots	1,873.02	5,442.00	1,817.00
Rentals of land on townsite lots			
a) village lots	6,338.67	2,152.00	100.00
b) others	- -	- -	7,994.00
Water and sewage tax	1,246.00	- -	- -
Dues on yearly profits	5,962,175.76	6,706,749.01	4,161,604.57
Sales of permits for unwrought metals	14.00	2.00	6.00
Sales of maps, blueprints, etc.	11,566.64	7,012.85	8,607.88
Sales of mineral collections	2,508.75	2,656.60	3,165.00
Fees for assays	11,354.20	3,352.90	4,788.50
Miscellaneous	14,112.92	17,431.67	- -
Fees for abstracts of records	- -	- -	1,001.10
Provincial tax on gasoline .	- -	- -	6,419.76
Sale and excise tax	- -	- -	5,384.08
Exchange on cheques	- -	- -	35.27
Casual revenue	3,396.62	40,335.24	2,960.08
	$7,557,028.92	$8,134,542.94	$5,493,106.71

*Prepared by Gérard Gagnon, Chief Accountant.