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PROVINCE OF ONTARIO
DEPARTMENT OF MINES

HON. PAUL LEDUC, *Minister of Mines*

T. F. SUTHERLAND, *Deputy Minister*

Bulletin No. 99

Mines and Metallurgical Works of Ontario in 1934

By

Chief Inspector of Mines: D. G. SINCLAIR, Toronto
Inspectors: E. C. KEELEY, Kirkland Lake; D. F. COOPER, Sudbury;
E. B. WEIR, Timmins; A. R. WEBSTER, Toronto

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1935

TO THE HONOURABLE PAUL LEDUC,
Minister of Mines

SIR,—I beg to hand you herewith the report by the Inspectors of this Department on the mines and metallurgical works of Ontario during the year 1934.

I have the honour to be, Sir,

Your obedient servant,

T. F. SUTHERLAND,
Deputy Minister of Mines

DEPARTMENT OF MINES,
Toronto, June, 1935.

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MINES OF ONTARIO IN 1934

By

Chief Inspector of Mines, D. G. Sinclair, Toronto; Inspectors, E. C. Keeley, Kirkland Lake; D. F. Cooper, Sudbury; E. B. Weir, Timmins; A. R. Webster, Toronto

CHROMIUM

Chromium Mining and Smelting Corporation, Limited

The Chromium Mining and Smelting Corporation, Limited, was incorporated in May, 1934, succeeding the Chromium Alloy Company, Limited. It has a capitalization of 3,000,000 shares of no par value.

The officers and directors are: A. R. Globe, president; R. S. Hart, vice-president; R. O. Denman, secretary-treasurer; Scott Misener and F. J. Maw, directors. The head office is 700 Bank of Commerce Building, Hamilton.

The company's property consists of 44 claims, about 1,800 acres, situated 26 miles south of Collins on the main line of the Canadian National Railways, in the Obonga Lake area, Thunder Bay district.

Development to date on the property includes one 2-compartment shaft, 350 feet deep, and about 600 feet of lateral work on the 100-foot level; a second shaft, 25 feet deep; about 3,000 feet of surface trenching; and 33 diamond-drill holes, with a total footage of 6,150 feet.

Two carloads of ore have been shipped to Niagara Falls for test and demonstration purposes, and 1,400 tons of high-grade ore are now stock-piled at the mine for shipment, awaiting completion of a road from Collins to the mine. A gang of men were cutting the road early in January and were expected to finish that part of the work about the end of the month. A caterpillar tractor, run by a Diesel oil engine, capable of hauling 35 tons per load is used for transporting the ore from the mine to the railway.

The mine plant equipment consists of the usual early-stage boiler, compressor, hoist, etc. Buildings include 6 camps, with accommodation for 40 men, laboratory, boiler-house, and compressor-house.

An average of 38 men was employed at the property during the last seven months of the year. Operations were suspended at the property early in January, 1935, until the road from Collins is completed. No work was done underground in 1934. A. R. Globe is mine manager. The mine address is Collins.

GOLD

Algold Mines, Limited

Algold Mines, Limited, was incorporated in February, 1934, with an authorized capital of 2,500,000 shares of no par value. A first mortgage bond issue of \$270,000, issued by New Goudreau Mines, Limited, stands against the property. The officers and directors were: W. R. Knox, president; J. G. Merrick, secretary-treasurer; M. C. Van der Voort, J. J. Gray, and J. A. McAndrew, directors. The head office is at 45 Richmond Street West, Toronto.

The property acquired included that of the New Goudreau Mines, Limited, located in township 28, range 26, district of Algoma. It is about 6 miles west of Goudreau station on the Algoma Central railway. The post-office address is Goudreau.

Previous operators sank a 425-foot and a 200-foot shaft, both of which are 2-compartment, 70-degree shafts. They established levels at 100, 200, and 400 feet, and sublevels at 130 and 160 feet. A 50-ton amalgamation mill was constructed in 1925.

Work was started in July, 1934. The underground workings were dewatered and a small amount of development work accomplished by the end of the year.

The plant used included an 1,100-cubic-foot Ingersoll-Rand electric compressor, and an 8½-by 10-inch air hoist. Electric power is obtained from the High Falls plant of the Great Lakes Power Company.

An average of 7 men was employed under the direction of R. F. Mitchell.

Algoma Summit Gold Mines, Limited

Algoma Summit Gold Mines, Limited, was incorporated in May, 1934, with an authorized capitalization of 5,000,000 shares of \$1 par value. The officers and directors were: F. A. Brant, president; J. J. Gray, vice-president; E. O. Slingsby, secretary; J. J. Marth, treasurer; R. A. Hutchison and S. D. Terry, directors. The head office is at 514 McKinnon Building, Toronto. The mine office is at Goudreau.

On incorporation the company acquired the assets of McCarthy-Webb-Goudreau Mines, Limited, which included a group of 7 claims located in township 27, range 29, district of Algoma, about 5 miles east of Goudreau. Considerable surface work had been done on this property, and a small test mill had been constructed late in 1933, with which several test runs were made early in 1934.

This company started surface work in June. The mill was enlarged to 25-ton capacity and was operated intermittently on surface ore. The total tonnage milled during the entire year amounted to 421 tons.

Shaft-sinking was started late in December with a portable gasoline compressor, and by the end of the year the shaft was down 18 feet.

The mill equipment included a Bramor mill, small classifier, corduroy blanket tables, and amalgamation plates. It was operated by a 25 h.p. Diesel engine. Buildings included two bunk-houses, office, two dwelling-houses, cook-house, mill, garage, blacksmith shop, and powder-house.

An average of 12 men was employed under the direction of F. A. Brant.

Alschbach Gold Mining Company, Limited

The Alschbach Gold Mining Company, Limited, owns 6 claims in Grenfell township, district of Timiskaming. The officers are: Clarence Alschbach, president; F. W. Hendry, vice-president; F. L. Hutchinson, secretary-treasurer; Wesley McKnight, Donald McLellan, Frederick Lawrence, and W. A. Taylor, directors. The head office is at New Liskeard. The company is capitalized at 2,500,000 shares of \$1 par value, of which 1,621,539 have been issued.

The property was operated in 1935 for three months; work was discontinued in November. The total amount of work done to the end of 1935 was: the sinking of a 2-compartment shaft to 250 feet, with levels at 125 and 250 feet; 875 feet of drifting and crosscutting on the 125-foot level; and 40 feet of crosscutting on the 250-foot level. An average of 15 men was employed under the direction of Clarence Alschbach while the property was in operation. The mine address is Goldthorpe.

Amalgamated Gold Fields Corporation, Limited

Amalgamated Gold Fields Corporation, Limited, is capitalized at 5,000,000 shares of no par value. The company took over the assets of the Blue Quartz

Gold Mines, Limited, for 2,000,000 shares pooled for an indefinite period. The company owns 600 acres in Beatty township, district of Cochrane; and 24 men were employed from May, 1933, to August 31, 1934, when the property was closed down.

The plant consisted of an Atlas Diesel engine, an Ingersoll-Rand belt-driven compressor of 700-foot capacity, and a 10- by 12-inch single-drum steam hoist. A 50-ton cyanide mill, driven by a Diesel engine, was constructed.

The development work done previous to 1933 was as follows: shaft, 500 feet; winze, 250 feet; raise, 400 feet; crosscuts and drifting, 6,000 feet. The development work done in 1934 was: stoping, 100 tons; tons milled, 1,768.

The officers and directors are: H. C. Crow, president; Dr. J. A. Tuck, vice-president; A. D. Van Horne, secretary-treasurer; H. W. Laird, A. G. Parker, and Lewis Payne, directors. C. D. Salkeld was mine manager. The mine office is at Painkiller Lake, via Matheson.

Anglo-Huronian, Limited

Anglo-Huronian, Limited, was incorporated in October, 1933. Its authorized capitalization is 2,000,000 shares of no par value. The total number of shares issued is 1,252,605, of which 927,063 shares were issued at the time of the formation of the company for properties and assets received from predecessors. These companies were the Huronian Mining and Finance Company, Limited; Keeley Silver Mines, Limited; and Vipond Consolidated Mines, Limited. Shareholders of each of these companies received one share of the new company for each five shares of the old companies.

The officers and directors of the company were: R. Home Smith, Toronto, president; Andre Dorfman, Toronto, vice-president and managing director; J. Ingram, Toronto, secretary-treasurer; J. H. Black, Toronto, F. H. Hamilton, Eric Turk, Sir A. Hamilton Grant, London, England, directors. The head office is 80 King Street West, Toronto.

The holdings of Anglo-Huronian now include all the assets of its predecessors and their subsidiaries, as follows: the Vipond property of 320 acres adjoining the Hollinger mine at Timmins; a three-quarter interest in 6 Ridgeley claims in the same area adjoining Coniaurum mine; Keeley mine and Keeley Extension in South Lorrain; and other claims of lesser importance. They hold 889,612 shares of the 1,150,000 issued shares of Inspiration Gold Mines, which has 3 claims adjoining the Vipond property; nearly half of the issued shares of the Minto Gold Mines, Limited, in the Michipicoten area; and interests in Gilgreer Mines, Limited, Prospectors Airways Company, Limited, and McWatters Gold Mines. The latest acquisitions are large interests in Porcupine Peninsular Gold Mines, Limited, and options on a large block of shares of Bousquet Gold Mines, Limited, in the Sudbury area, 65 miles west of Sudbury. J. Ingram, secretary-treasurer of Anglo-Huronian, has recently been made treasurer and director of Bousquet Gold Mines.

In 1934 the old Vipond mine was the only wholly owned property under production. This property has been developed to a vertical depth of 1,450 feet. It has a mill capable of handling 300 to 325 tons per day. During the fiscal year ending July 31, 1934, the mill treated 101,347 tons and produced bullion to the value of \$647,015.87, an average of \$6.38 per ton. During the same period the development work done at the mine was as follows: crosscutting, 1,630 feet; drifting, 2,847 feet; raising, 1,739 feet; diamond-drilling, 17,525 feet.

Robert E. Dye was mine manager at the Vipond property, employing an average of 179 men. The mine address is Timmins.

During the fiscal year ending July 31, 1934, the Anglo-Huronian's first year of operations, a surplus of \$1,249,698, or \$0.997 per share was earned.

The revenue and expenditures for the same period were as follows:—

STATEMENT OF REVENUE AND EXPENDITURE

for the year ended July 31, 1934

REVENUE:			
Metal recoveries, including premium.....	\$647,015.87		
Dividends received.....	81,639.50		
Net profit on foreign exchange.....	38,381.81		
Interest earned, less interest paid.....	64,560.39		
Sundry earnings.....	3,128.08		
			\$834,725.65
EXPENDITURE:			
Mine operating expense, including development.....	\$521,091.87		
Insurance.....	4,898.50		
Municipal taxes.....	2,115.29		
General, administration, and organization expense, less portion charged to mine operations.....	90,463.33		
Examinations written off.....	\$1,700.36		
Reserve for depreciation.....	10,560.32		
		12,260.68	
			630,829.67
Profit carried to surplus account.....			\$203,895.98
SURPLUS ACCOUNT:			
Profit for the year ended July 31, 1934.....	\$203,895.98		
Profit realized on investments.....	1,239,315.42		
			1,443,211.40
Deduct: reserved for taxes, etc.....			193,513.39
Surplus, July 31, 1934, carried to balance sheet.....			\$1,249,698.01

Ardeen Gold Mines, Limited

Ardeen Gold Mines, Limited, was incorporated in December, 1933, with an authorized capitalization of 3,000,000 shares of \$1 par value. The officers and directors were: H. G. White, president; A. R. Miller, Jr., vice-president; W. A. Williams, secretary-treasurer; C. G. Greenshields, J. J. McInerney, and J. H. Kitchen, directors. The head office is at 132 St. James Street, Montreal, Que.

On incorporation this company took over the property and assets of Moss Gold Mines, Limited, which had gone into receivership in September, 1933. The property is located in Moss township, district of Thunder Bay, and is 18½ miles by road from the Fort Frances branch of the Canadian National railway. The post-office address is Tip Top Spur, via Port Arthur.

Underground operations were carried on continuously throughout 1934, but were suspended on January 5, 1935, owing to lack of finances.

The lateral work accomplished from January 1, 1934, to January 5, 1935, and the total done to the latter date, on the various levels, was as follows:—

Level	Drifting		Crosscutting	
	January 1, 1934, to January 5, 1935	Total	January 1, 1934, to January 5, 1935	Total
125-foot.....	feet	feet	feet	feet
250-foot.....	549	1,499	64	222
375-foot.....	1,014	2,369	100	393
500-foot.....	119	3,341	33	710
625-foot.....		1,506	10	192
750-foot.....		1,906		289
875-foot.....	1,156	1,561		240
1,000-foot.....	468	1,156	190	190
		468	299	299
Total.....	3,306	13,806	696	2,535

During the year the 3-compartment vertical shaft was sunk an additional 268 feet to a total depth of 1,038 feet, and levels were established at 875 and 1,000 feet. When operations were suspended stoping had just been started on the 875-foot level. A total of 37,298 tons of ore and 10,763 tons of waste were hoisted from January 1, 1934, to January 5, 1935.

The 200-ton cyanide mill was operated until January 9, 1935, and treated a total of 39,072 tons of ore from January 1, 1934.

An average of 165 men was employed, of whom 89 were underground. N. O. Lawton was general manager, J. D. Tolman was mine superintendent, and J. E. Sullivan was mill superintendent.

Ashley Gold Mining Corporation, Limited

The Ashley Gold Mining Corporation, Limited, has a capitalization of \$3,000,000, in shares of \$1 par value. The officers and directors are: J. P. Watson, president; G. C. Ames, secretary-treasurer; E. H. Rose, H. A. Millman, C. E. Trafford, and J. G. Watson, directors. M. F. Fairlie is managing engineer. The head office is at 350 Bay Street, Toronto. The mine address is Elk Lake.

The mine in Bannockburn township, district of Timiskaming, was operated continuously throughout the year.

The following is taken from the report of the managing engineer for the year ending December 30, 1934:—

The tonnage treated at this property was increased over that of the previous year, with the double object of maintaining gold production and reducing the per-ton cost, in the face of lowered grade of ore.

Development

The fault conditions which govern vein occurrence were described in the last annual report, but it might be repeated that the original Ashley vein, striking north and south, is the normal-faulted section of a vein situated to the west, and this section extends only from the 5th level to the surface; a second faulted section of the same vein extends from the 5th level to above the 2nd level; and a 3rd faulted section extends from an unknown depth to above the 5th level. To reach the 3rd section, long crosscuts to the west from present workings are necessary, and this work was deferred during the year until the Ashley vein and its second section had undergone further development to the north and south. Any new ore so found would be much more cheaply developed and extracted.

A drift on the Ashley vein on the 250-foot level was advanced north of the porphyry dike for a distance of 700 feet, showing a strong quartz vein, but with the exception of one rich ore shoot, 50 feet in length, the values were generally below profitable grade. Recently raises have been put up at intervals, and values disclosed above the level show considerable improvement over those shown in drifting, but as yet this section cannot be included in ore reserves.

Long drifts were run north on the second vein section on the 375-foot level, also south on both the 375- and 500-foot levels, but were generally unproductive of ore. Late in the year a crosscut was started west to intersect the 3rd vein section on the 625-foot level, but the vein has not yet been reached. The Ashley vein has to date been proven to a total length of 2,000 feet, by underground work. Drifting and crosscutting completed during the year totalled 4,500 feet.

Ore Reserves

Development work failed to maintain the ore reserve position of approximately 50,000 tons at the beginning of the year. After extraction of 43,532 tons, the ore reserves at December 31 were 31,000 tons of slightly over 0.3-ounce grade.

Production

The tonnage treated during the year was 43,532 tons with average grade of 0.315 ounces, as compared with 37,975 tons with average grade of 0.456 ounces in the previous year. Gold bullion shipments for the year realized \$456,831.86 in Canadian funds, compared with \$497,969.00 in 1933. Total bullion shipments from inception of operations to December 31, 1934, have netted \$1,024,942.27.

The average cost per ton, including mining, development, milling, and administration, was \$8.68 per ton of ore milled, and in late months was further reduced below \$8.00 per ton. Conditions at this property do not lend themselves to low costs and include exceedingly hard rock with high mining and grinding costs, excessive water with high pumping costs, as well as narrow vein and fault conditions, which increase development charges.

An average of 148 men was employed. Eric Hargreaves is resident manager.

Bankfield Gold Mines, Limited

Bankfield Gold Mines, Limited, was incorporated in April, 1934, with an authorized capitalization of 3,000,000 shares of \$1 par value. The officers and directors were: C. D. H. MacAlpine, president; T. H. Stinson, vice-president; F. J. Bailes, secretary-treasurer; Jos. Errington, D. M. Morin, and J. H. C. Waite, directors. The head office is at 1006 Concourse Building, Toronto.

The property acquired by this company consists of a group of claims, totalling about 730 acres, in the Magnet Lake section of the Little Long Lac area, Thunder Bay district. It is reached by a 3-mile road from a siding on the Port Arthur-Long Lac branch of the Canadian National Railways, 1½ miles west of Bankfield station. The post office address is Geraldton.

Work was started on June 1, 1934. Following diamond-drilling and trenching a 3-compartment vertical shaft was commenced in August on claim T.B. 10,213. Shaft-sinking was still in progress at the end of the year, at which time the shaft had reached a depth of 158 feet, and a station had been cut at 150 feet. A total of 7,398 feet of diamond-drilling had been accomplished.

The plant installed included two 90 h.p. boilers, an 8- by 11-inch Ingersoll-Rand double-drum steam hoist, and a 750-cubic-foot Ingersoll-Rand steam compressor. Buildings erected included a power-house, blacksmith shop, dry-house, assay office, 2-storey bunk-house, 2 storey cook-house, stable, powder-house, office, and manager's residence.

An average of 68 men was employed, of whom 11 were underground, during the period of work. J. W. McKenzie was in charge of operations.

Barry-Hollinger Mines, Limited

Barry-Hollinger Mines, Limited, is capitalized at 4,000,000 shares of \$1 par value. The officers and directors are: Dr. E. Herbert Greene, president; J. P. Patterson, vice-president; D. McKinnon, secretary-treasurer; H. K. Wood, director. The head office is at 57 Bloor Street West, Toronto.

The mine, in the township of Pacaud, district of Timiskaming, was operated throughout the year with an average force of 68 men.

The value of the production for the year was as follows:—

Value of production at \$20.67 per ounce.....	\$91,139.68
Plus premium on exchange.....	60,936.58
Total.....	\$152,076.26

Underground development work during the year was as follows:—

	Feet
Drifting.....	822
Crosscutting.....	399
Diamond-drilling.....	2,343
Raising.....	1,171
	Cu. ft.
Diamond-drill stations.....	539
Shaft station.....	5,376

Douglas Bryden is mine manager. The mine address is Boston Creek.

Bathurst Gold Mines, Limited

Bathurst Gold Mines, Limited, was incorporated in 1934 with an authorized capitalization of 4,000,000 shares of no par value. This company succeeded Bathurst Mines, Limited. The officers and directors are: T. W. Bathurst,

president; E. P. Gleeson, vice-president; Dr. F. P. Quinn, secretary-treasurer; Leon Murr and P. Smith, directors. The head office of the company is at 51 Sparks Street, Ottawa. The mine office address is Narrow Lake.

The property of Bathurst Gold Mines is located in Skinner township, district of Kenora, Patricia portion. Gold was discovered on this property during the active prospecting season of 1926. Surface exploration was carried on, and in 1929 a plant was installed and a 10-ton Tremaine stamp mill was put in operation. The value of bullion sold amounted to \$3,107, being production from a rich pocket on the surface and a small amount of ore from underground. Operations were suspended the same year. The property had then been explored to 300 feet, with levels established at 200 and 300 feet. Only about 300 feet of lateral work was done on the lower level. Nearly 4,000 feet of drifting and crosscutting was done on the first level.

Late in 1934, Bathurst Gold Mines started to deepen the shaft to 600 feet and intend to open up two more levels.

Bidgood Kirkland Gold Mines, Limited

Bidgood Kirkland Gold Mines, Limited, has an authorized capitalization of \$2,000,000, in shares of \$1 par value. The officers are: A. L. Herbert, president; S. H. Whitfield, vice-president; N. W. Byrne, secretary-treasurer; Harry Korson, Harry Koza, E. G. Budd, and Joseph Nichols, directors. Both the head office and mine office are at Kirkland Lake.

The company owns 753 acres in the township of Lebel, in the East Kirkland Lake area, district of Timiskaming.

A 100-ton mill was built and put into operation in July at the rate of 50 tons a day.

The following development work was done during the year in the Bidgood mine: raising, 10 feet; drifting, 870 feet; crosscutting, 697 feet; diamond-drilling, 2,382 feet. There were 2,560 tons of ore hoisted and 2,433 tons milled, which yielded a total value of \$6,804.93.

Oscar Knutson was mine manager, employing an average of 45 men during the year.

In August, 1934, the company took a lease on 10 acres of the Moffat-Hall property, which is also in Lebel township. Further details regarding this operation will be found on page 62 of this report.

Bob Tough Gold Mines, Limited

Bob Tough Gold Mines, Limited, was incorporated in September, 1933, with an authorized capitalization of 3,000,000 shares of no par value. The officers and directors were: R. R. Tough, president; H. J. Tiedt, vice-president; E. B. Ratcliffe, secretary-treasurer; F. H. Gage, R. E. Thompson, J. H. Stevens, and H. J. Simons, directors. The executive office is at 207 Turner Building, Hamilton.

The property is located in McKinnon township, district of Sudbury. There is a 16-mile winter road from Massey station on the Canadian Pacific railway. The post-office address is Massey.

Surface work was started in April, 1934. During April, May, and June, 2,500 feet of diamond-drilling was done. In September, the company started work on a 3-compartment, vertical shaft, using a gasoline compressor. By the end of the year the shaft had been sunk to a depth of 30 feet, a headframe was being erected, and a steam plant was being installed.

An average of 16 men was employed under the direction of E. B. Ratcliffe.

Bousquet Gold Mines, Limited

Bousquet Gold Mines, Limited, was incorporated in 1920, with an authorized capital of 2,000,000 shares of \$1 par value. The officers and directors were: Lionel Brooke, president; C. H. Hitchcock, vice-president; W. B. McPherson, secretary-treasurer; L. P. Wood and H. P. Snelgrove, directors. The head office was at 171 Yonge Street, Toronto. The mine address is Willisville.

The property consists of 20 mining claims located in two groups in township 11, district of Sudbury. It is 7 miles by winter road from West River on the Algoma Eastern railway.

Operations were carried on throughout 1934. The sinking of the 2-compartment, vertical shaft was continued to the 150-foot level, where considerable lateral work was accomplished. Towards the end of the year the shaft was deepened to the 300-foot level, and development work started at that horizon.

The plant used included an 80 h.p. boiler, a 500-cubic-foot steam compressor, and an 8- by 10-inch steam hoist. Buildings included a power-house, blacksmith shop, stable, bunk-house, and cook-house.

An average of 25 men was employed under the direction of Lionel Brooke.

Buffalo Ankerite Gold Mines, Limited

Buffalo Ankerite Gold Mines, Limited, incorporated in 1932, has an authorized capitalization of \$1,000,000, in shares of \$1 par value, of which 577,307 shares have been issued.

The officers and directors are: Geo. R. Feine, president; G. R. Loesch, vice-president; H. Kobler, treasurer; R. P. Kinkel, assistant-treasurer; E. G. Kinkel, secretary and managing director; H. J. Tiedt, J. Betz, A. J. Baldeck, directors. The head office is at 902 Lumsden Building, Toronto. The mine address is South Porcupine.

The property, which consists of 3 claims, adjoining the property of the Paymaster Consolidated Mines, Limited, is situated in Deloro township, district of Cochrane. It has been developed by shafts and winzes to a depth of 1,000 feet. Prior to the formation of the present company the property had produced \$862,115 worth of bullion. From 1932 to the end of 1934 the present company has produced \$1,107,006 worth of bullion (old gold value). The mill has a rated capacity of 500 tons, which will allow a step-up in tonnage of about 100 tons above the highest monthly average milled to date.

The following is taken from the report of the managing director for the fiscal year ending December 31, 1934:—

Although diligent effort was made by the management to increase the milling capacity to 500 tons per day during the year 1934, it was found that the development work had not progressed sufficiently to enable the withdrawal of this amount of tonnage. The actual average tonnage treated during the year per day was 345.6, and the tons treated per 24 hours running time was 363.8. The daily average during the year 1933 was 321 tons; the average daily during the month of December was 401 tons.

In December, 1934, over \$2,000 in precipitates were stolen from the mill, which theft was covered by insurance and which loss has been paid.

During the year 1934, Revere P. Kinkel acted as assistant to the managing director and was recently appointed assistant treasurer of the company. Mr. Kinkel spends practically his entire time at the property.

The winze was placed in operation in the early part of 1934 from the 600-foot level to the 1,000-foot level, but considerable difficulty has been encountered with unusual pressure of soft rock on the winze-frame from the 875-foot level to the 1,000-foot level, and the management intends to abandon this part of the winze as a safety element. However, crosscutting and drifting had already taken place on the 1,000-foot level enabling the company to utilize this level at a later date.

A substantial body of ore encountered in the No. 7 vein, north area of the property, made it advisable to construct a haulage drift directly from this ore body to the vicinity of the winze

station, and two Mancha locomotives and additional 2-ton mining cars were purchased and are now in operation. Although the ore in this area has not been definitely proven our mine manager has estimated that there is possible and probable ore from the surface to the 800-foot level in the No. 7 zone amounting to 369,000 tons with an assay value of \$8.80, giving a total value of \$3,247,200.00 (valued at \$20.67 per ounce).

Because of the difficulty encountered in the sinking of the winze and the opening up of the ore bodies in the north zone of the property no further effort was made during the year 1934 to sink the main shaft, as the management desires a further study of the vein system before proceeding.

The management has decided to defer a part of its development costs to the year 1935, as it is anticipated that the recoveries will materially increase during the year 1935, the recoveries during the month of December, 1934, having been the largest for any month during the year.

The plant and equipment are in excellent condition, as considerable money was expended for this purpose during the year.

The following is taken from the mine manager's report for the year ending December 31, 1934:—

Production

Some 126,450 dry tons of ore were treated, yielding \$712,898.29. The average value of all ore treated was 0.182 ounces per ton, with a recovery of \$5.64 per ton (market price of gold).

Mining

	Tons
Ore broken in stopes.....	105,038
Ore broken in development.....	16,520
Ore hoisted and transferred.....	133,499
Waste hoisted.....	13,745

The major tonnages for the year were obtained from stopes on the Nos. 1, 2, and 5 veins on the 200-, 250-, 350-, 475-, and 600-foot levels. Stopes were started late in the year on the Nos. 5 and 7 structures on the 600-, 725-, and 875-foot levels. Minor tonnages were hoisted from these workings. Vein widths vary from 3 to 60 feet. The Nos. 784 and 884 stopes show maximum widths of from 50 to 60 feet. The No. 690 stope averages 3 feet.

Development

	Feet
Drifting.....	4,564
Crosscuts.....	1,104
Raises.....	573
Winzes.....	51
Total.....	6,292
	Cu ft.
Stations.....	7,368
Sumps.....	3,024
Total.....	10,392

Winze-sinking was finished early in January, 1934. The 1,050-foot level station and pump sump were completed and ore passes raised through to the 725-foot level. The objectives for the period were the development of the Nos. 5 and 7 vein structures on the 600-, 725-, 875-, and 1,050-foot levels. Lateral workings on the 725-, 875-, and 1,050-foot winze levels partially developed the No. 5 structure. Lengths of ore on this vein on these horizons total 429 feet. On the upper levels, i.e. 250, 365, 475, and 600 feet, the Nos. 2 and 7 structures development shows ore lengths of 534 feet. On the 600-foot level the No. 7 ore zone is 170 feet wide and includes four structures (Nos. 689, 690, 691, and 693). The deepest working at the end of 1934 was the No. 1 winze at a vertical depth of 1,035 feet.

New ore areas, as developed on all horizons, are indicated to be of a better grade than the tonnage milled during 1934.

Diamond-Drilling

CONTRACT DRILLING:		Feet
Surface.....	1,012	
Underground.....	5,095	
Total.....	6,107	
COMPANY DRILLING:		
Underground.....	9,743	
TOTAL DRILLING.....	15,850	

Surface drilling prospected the No. 6 vein north and east of the main shaft. Results were negative. Underground drilling proved the downward and lateral extensions of the Nos. 2 and 5 veins. Results were favourable.

Milling

The mill treated 126,450 dry tons during the period at a cost of \$0.871 per ton.

Percentage of total possible running time.....	95.11
Tons treated per day.....	345.6
Tons treated per 24 hours running time.....	363.8
Average mill head (at \$20.67).....	\$3.68
Average mill tailings.....	\$0.30
Indicated extraction	per cent. .92

Tonnage milled for 1934 was obtained from the Nos. 1, 2, and 5 vein workings on the 200-, 250-, 350-, 475-, and 600-foot levels.

Plant Additions

The following installations were made in the mill: a Hardinge 6- by 14-foot counter-current classifier, operating in closed circuit with the Hardinge ball mill; pumps and air lifts, so that thickeners could be operated in either series or parallel circuits; a 10- by 16-foot string filter placed in mill circuit, having a capacity of 500 tons per day.

In the mine, the additions included 2 motor trammers; mine cars for main haulageway; drill machines; centrifugal pump having a capacity of 250 gallons per minute at 700-foot head, installed on the 600-foot level; pump installed on the 1,050-foot winze level.

A 2,620-cubic-foot Ingersoll-Rand compressor was installed, and three k.v.a. transformers were purchased and installed.

General

The main haulageway on the 600-foot level from the main shaft to the Nos. 690 and 691 stope areas was completed. The 600- and 400-foot level pockets were slashed to increase storage.

Development is at present behind production. It is planned to remedy this condition during 1935.

MINE OPERATING STATEMENT

for year ended December 31, 1934

EARNINGS:

Gold bullion recovery (including premium)..... \$707,118.72

COST OF PRODUCTION:

Mining.....	\$261,165.67
Milling.....	85,896.20
Power and sundry.....	61,122.93
General supervision.....	6,491.26
Workmen's compensation.....	8,446.84
Plant heating.....	7,164.01
Miscellaneous.....	5,242.19
Stable operation.....	2,796.10
Insurance, fire, etc.....	4,872.57
Repairs to buildings.....	7,460.37
Repairs to machinery and equipment.....	9,089.59
Surface improvements and fire protection.....	2,479.44
Hospital fees.....	1,883.50
Box-holes.....	682.10
Loading pocket.....	1,599.54
Sump.....	1,986.63
Air and water.....	289.47
	468,668.41

GROSS PROFIT FROM MINING OPERATIONS..... \$238,450.31

Martin Knutson was mine manager until November, when he was succeeded by Chas. L. Hershman. An average of 277 men was employed.

Canadian Kirkland Mines, Limited

Canadian Kirkland Mines, Limited, owns 6 claims in Teck township, district of Timiskaming. The company is capitalized at \$4,500,000, in shares of \$1 par value. The officers and directors are: George Tough, president; F. J. Carew, vice-president; W. B. McPherson, secretary-treasurer; B. L. McLean and W. J. Beckett, directors. The head office is at 171 Yonge Street, Toronto. The mine office is at Kirkland Lake.

The following is a summary of the work done to January, 1935, when the property closed down. The No. 1 shaft had been sunk to a depth of 816 feet, and drifting and crosscutting done as follows: 80-foot level, 100 feet; 250-foot level, 120 feet; 400-foot level, 440 feet; 800-foot level, 1,442 feet. In addition, 20 feet of raising had been done.

No. 2 shaft had been sunk to a depth of 150 feet, and stations cut at 65 and 125 feet. On the 65-foot level, 25 feet of crosscutting had been accomplished; and on the 125-foot level, 375 feet of drifting and crosscutting.

Hugh Jardine is mine manager. An average of 20 men was employed during the year.

Canusa Gold Mines, Limited

Canusa Gold Mines, Limited, was incorporated in 1932. It is capitalized at 1,500,000 shares of \$1 par value. The officers and directors for 1934 were: D. D. Wessels, president; Geo. Neukom, vice-president; Robt. Schram, treasurer; Thos. R. Deacon, secretary; H. Kendrick, P. Du Bois, R. E. Olds, and C. C. Drake, directors. The business office is at 3400 Union Guardian Building, Detroit, Mich. The mine address is South Porcupine. E. Y. Dow is in charge of operations. The property, which consists of 440 acres in Tisdale and Whitney townships, district of Cochrane, was bought from Canusa Mining and Exploration Company, Limited, in 1932.

The mine, formerly known as the Scottish-Ontario, has a 2-compartment shaft to the 100-foot level and a 3-compartment shaft from the 100-foot level to the 320-foot level. About 2,300 feet of lateral work was done on these levels by former owners.

No work had been done on the property for some time prior to the reopening of the mine in May, 1934, by the present company. In 1934, the mine was pumped out, the buildings and machinery were reconditioned, a 24-ton Myers mill was installed, and an assaying laboratory and machine shop were built.

Up to the end of the year the tonnage treated by the mill was small, the whole procedure being more or less an experiment.

About 14 men were being employed at the end of the year.

Casey Summit Gold Mines, Limited

Casey Summit Gold Mines, Limited, is capitalized at 5,000,000 shares, of no par value, 2,962,848 of which have been issued. The controlling interest is held by Maple Leaf Mines, Limited. The following were officers in 1934: R. G. Williamson, president; C. S. Kennedy, secretary-treasurer; Fraser D. Reid, managing director; R. S. Banbury, W. R. M. Williamson, Fraser Raney, and J. A. Wilson, directors. In November, 1934, C. S. Kennedy was succeeded as secretary-treasurer by Fraser Raney. The head office is at 465 Bay Street, Toronto.

The property consists of 800 acres at Casummit lake, about 100 miles north of Sioux Lookout, in the district of Kenora, Patricia portion. The plant is on claim K. R. L. 9,681. The first work on the property was done in 1931, when a shaft was sunk 85 feet and 140 feet of lateral work was done at the 75-foot level. The property was idle from the fall of 1931 until the late summer of 1933. The shaft was then deepened to 325 feet, and stations were cut at the 200- and 300-foot horizons.

The property held by this company includes a group of claims in the Sapawe Lake area, Rainy River district, 125 miles west of Fort William on the Fort Frances branch of the Canadian National Railways, on which a 2-compartment vertical shaft had been put down to a depth of 92 feet in 1930.

Operations were resumed in the spring of 1934. Following a considerable amount of diamond-drilling a small steam plant and a 25-ton amalgamation mill were installed. The old shaft was cleaned out and timbered, and a small amount of lateral work done on the 92-foot level. The mill was used for test runs only.

The plant used included a 80 h.p. boiler, a steam hoist, and a 150-cubic-foot steam compressor. The mill equipment included a 50 h.p. boiler, a Dodge crusher, and a double Tremaine stamp.

Work was suspended in January, 1935, pending further financing.

Central Patricia Gold Mines, Limited

Central Patricia Gold Mines, Limited, was incorporated in 1931, succeeding Central Patricia Mines, Limited, formed in 1927. It has an authorized capitalization of 2,500,000 shares of \$1 par value.

The officers and directors are: F. M. Connell, president; W. H. Connell, vice-president; Alan Cockeram, secretary-treasurer; J. H. Rattray, L. Cohen, and G. B. Webster, directors.

The mine is situated in the Crow River area, district of Kenora, Patricia portion. The mine camp is about 110 miles north of Savant Lake Station on the Canadian National railway. It lies about 6 miles west of the property of the Pickle Crow Gold Mines, Limited. The holdings include 85 claims, which lie in several large groups in the surrounding district.

Most of the underground work was done in 1930. When the property was closed down in the fall of that year, the shaft had been sunk to a depth of 527 feet and lateral development on four levels at 125-foot intervals to the extent of 994 feet of crosscutting and 1,713 feet of drifting had been accomplished. This work disclosed in three ore zones approximately 45,000 tons of ore, having a gross value of about \$600,000, averaging about \$13.25 per ton (based on gold at \$20.67).

Operations were again started in 1932, but the loss of much mill equipment through the ice delayed matters, and it was not until the winter of 1933-34 that the mill was finally finished. Production began in the spring of 1934 from a 50-ton cyanide unit powered by steam. Late in the summer the company decided to put in a second 50-ton unit. The equipment for this was taken into the property over the winter roads and will be put into operation when the Hydro-Electric Power Commission line from the Albany river to the property is completed. It is believed that electrical power will be available for the mine about the middle of March, 1935.

At the end of the year the 50-ton unit was producing about 1,000 ounces of gold per month.

The following is taken from the president's report to the shareholders for the year ending December 31, 1934:—

Production

Milling operations were commenced on May 27, 1934, with a 50- to 60-ton cyanide mill. During the period under review, 11,536 tons of ore were treated, the recovery therefrom amounting to \$219,562.56. In the profit and loss statement you will notice an item of \$38,159.43 (undistributed to mining and milling). This represents the cost of steam power during the period. This item will be greatly reduced when the hydro-electric power is available. You will also notice that after making allowances for depreciation and taxes there remains a net profit of \$42,127.38.

The Coniaurum mine in Tisdale township, district of Cochrane, adjoins the McIntyre property on its east boundary. Two additional claims purchased in 1934 make the total number of claims now held 19, or approximately 760 acres.

The following is taken from the president's report on behalf of the directors for the year ending December 31, 1934:—

Following the policy of active development in depth, your directors have authorized the erection of a new steel headframe and a large hoist capable of handling 1,500 tons per day from the 3,500-foot level. It is expected that this new plant will be in operation by next fall. Sinking from the present depth of 3,150 feet will commence shortly to open up a main working level at a depth of 3,500 feet. From this horizon it is planned to establish an interior hoisting plant to permit opening up the property to still greater depths. Geologically and structurally, the indications are that our most productive areas will be found in depth.

During the year, 138,114 tons were milled and, in spite of a heavy programme of mine development, an operating profit of \$216,228.98 was realized. After making the necessary write-offs for taxes, deferred development, and depreciation, and taking credit for non-operating revenue, we show a net profit for the period of \$17,693.32. Working capital was increased to approximately \$745,000.

Two more claims lying between the Canadel claim (acquired last year) and your most southeasterly claim were purchased for the modest sum of \$10,000. These purchases now make a row of four contiguous claims along your southern boundary.

Reviewing the past year, it may be said that your company has made marked progress in opening up the property to depth, in adding materially to its indicated ore reserves, and at the same time making a fair profit. During the coming year development work in depth will be pushed actively, as well as active exploration in the area between the 2,000-foot and 3,000-foot levels.

The following is an extract from the mine manager's report for the year ending December 31, 1934:—

Development

The year's development has been confined chiefly to Nos. 15A and 7A vein systems. Lateral development and raising have been extensively carried forward on the 1,000-foot, 1,250-foot, 1,500-foot, 2,000-foot, 2,750-foot, and 3,000-foot levels. The results of this work have been very gratifying, and all the different horizons have responded quite liberally to exploration. Of the two vein systems, No. 15A has been more fully developed.

SUMMARY OF DEVELOPMENT

	Feet
Drifting.....	3,593
Crosscutting.....	6,350
Raising.....	3,599
Diamond-drilling.....	17,757

The footage driven in ore amounted to 3,384 feet, with an average value of 5.1 penny-weights per ton over a width of 5.3 feet. Vein No. 15A has been developed on the 1,000-, 1,250-, and 1,500-foot levels, and development is still in progress on the 2,000-foot level.

Exploration

The 3,000-foot level is being extensively explored by means of a main crosscut known as No. M2. This extends westerly from No. 10 crosscut to the east boundary of the McIntyre-Porcupine Mines. This crosscut has been driven parallel to our vein system. Vein No. 7A has been driven on for a length in ore of 483 feet. When this ore shoot is fully developed it will add considerably to our present ore reserves. It is not considered advisable to make any definite estimate of the tonnage and grade of this ore body until it has been further developed.

Nos. 20 and 22 veins are also under exploration on the 3,000-foot level. These two veins promise to be of considerable importance and will enlarge the reserves. They are new discoveries and are located in the northwest portion of the Goldale claim and somewhat north of the Pearl lake porphyry mass.

Diamond-drilling has been carried on quite extensively. The major portion of this work, or 56.9 per cent., has been done on the 3,000-foot level. The remainder is distributed between the 1,000- and 2,000-foot levels. Sixty-three holes were drilled, and 22 per cent. indicated ore.

Broken Ore Reserves

Broken ore reserves have been somewhat increased since last year and are now 134,113 tons. Stopping supplied 125,549 tons and development another 28,356 tons of ore. The mill drew 138,102 tons, leaving a carry-forward of 134,113 tons of ore available at the end of the year.

Milling

During the year the mill treated 138,114 tons of ore, with an average recovery of \$7.108 per ton, extracting 95.14 per cent. of the gold content, operating 348.96 days, or 95.60 per cent.

Darwin Gold Mines, Limited

Darwin Gold Mines, Limited, was incorporated in August, 1934, with an authorized capitalization of 3,000,000 shares of \$1 par value. The officers and directors were: Geo. Royce, president; H. H. Lang, R. E. Hore, Robert Fennell, and R. A. Darwin, directors. Corporation Management & Executives, Limited, is secretary-treasurer. The executive office is at 357 Bay Street, Toronto. The mine address is Wawa.

The company took over the property of the United Algoma Mines, Limited, which includes the old Grace mine. It is located in township 29, range 23, in the Michipicoten area, district of Algoma, and is about 7 miles by road from Wawa station on the Algoma Central railway.

Previous operators sank a 2-compartment, 60-degree shaft to a depth of 443 feet, and established four levels at 100-foot intervals. Stoping was done on the first three levels, the 100-foot level being stoped out.

The company started work in August, 1934, which consisted of surface construction and shaft-timbering until December, when underground development was started. No work had been done since 1930.

The development work accomplished during 1934, and the total to the end of 1934 on the various levels was as follows:—

Level	Drifting		Crosscutting		Raising	
	1934	Total	1934	Total	1934	Total
	feet	feet	feet	feet	feet	feet
200-foot.....		640		106		50
300-foot.....	22	759		226		115
400-foot.....	35	1,304	25	381	78	118
Total.....	57	2,703	25	713	78	353

The plant used included a 750-cubic-foot Sullivan electric-driven compressor, and an electric hoist. Electric power is obtained from the High Falls plant of the Great Lakes Power Company. There is a 50-ton amalgamation-flotation mill on the property, which was constructed in 1929.

Buildings constructed in 1934 included a combined office and staff-house, two dwelling houses, and a stable.

An average of 16 men was employed, of whom 4 were underground from August. M. H. Frohberg was in charge of operations.

Delnite Mines, Limited

Delnite Mines, Limited, was incorporated in November, 1934, to develop the former La Roche property. This property was optioned by Erie Canadian Mines, Limited (a subsidiary exploration company wholly owned by Sylvanite Gold Mines, Limited) from July, 1934, until the new company was able to take it over. The company has an authorized capitalization of 3,000,000 shares of \$1 par value, of which 2,999,990 shares are common and 10 are preferred. There were 840,000 shares issued to La Roche Mines, Limited, for the property. Sylvanite Gold Mines, Limited, has an option on 1,200,000 shares.

The officers and directors are: E. L. Koons, Buffalo, president; W. L. Marcy, Buffalo, vice-president; W. V. Moot, Buffalo, managing director; C. L. Ingham, Buffalo, treasurer; W. S. Walton, Toronto, secretary; Jas. E. Day,

The following statement gives particulars of revenue and expenditure for the year under review:—

OPERATING STATEMENT
for the year ended December 31, 1934

EARNINGS:

Bullion production (after deduction of Dominion Government gold tax —\$504,365.40).....	\$6,672,721.08
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OPERATING AND MAINTENANCE EXPENDITURE:

Development and exploration.....	\$440,776.84
Mining, including hoisting.....	802,717.15
Crushing and conveying.....	100,385.15
Milling.....	538,072.47
Bullion expense.....	28,152.15
Fire protection.....	7,407.36
Warehouse expense.....	11,680.84
Auditing expense.....	2,695.53
Administrative expense:	
Mine office.....	82,794.29
Executive office.....	59,063.19
Registrar and transfer fees and expenses.....	13,812.15
Municipal taxes.....	18,706.09
Insurance.....	15,627.97
Ontario corporation capital tax.....	1,213.00
	2,123,104.18

NET OPERATING PROFIT FOR THE YEAR..... \$4,549,616.90

Development

The following table gives details of the development accomplished during the year:—

SUMMARY OF DEVELOPMENT BY LEVELS FOR YEAR 1934

Level	Sta- tions	Drifts	Cross- cuts	Drifts and cross- cuts, slash- ing	Raises	Winzes	Box- holes	Raises, winzes, and box- holes, slash- ing	Total	Dia- mond- drilling
	feet	feet	feet	feet	feet	feet	feet	feet	feet	feet
1st.....		571	117	169	26	6	580	84	1,553	.....
3rd.....				14	42		462	261	779	3,281
5th.....		39		24	15		39	9	126	2,058
6th.....		7		2	247		75	177	508	.....
10th.....		113	56	27	194	25	125	57	597	.....
11th.....		322	82	11	249	104	463	183	1,414	.....
12th.....		366	455	79	285	40	694	318	2,237	2,346.5
13th.....		320	28	28	478	73	275	67	1,269	4,326.5
14th.....		360	363	23	220		627	295	1,888	2,732
15th.....		468	592	53	128		26		1,267	560
16th.....			8				44		52	2,135
17th.....		248	272	12					532	.....
18th.....		96		18	11				125	4,254.8
23rd.....		45	70	46	388			95	644	.....
24th.....		870	452	156	139				1,617	2,732
25th.....		611	160	62	113	120		34	1,100	7,250.9
26th.....	26	1,172	192	161	246	150		23	1,970	1,365
27th.....	26	733	655	80	197	122		23	1,836	419
Total..	52	6,341	3,502	965	2,978	640	3,410	1,626	19,514	33,460.7

Approximately 19,500 feet of drifting, crosscutting, raising, winzing, and box-holing, and 34,000 feet of diamond-drilling have been done in the course of searching for and opening up the various ore bodies.

Duport Mining Company, Limited

Duport Mining Company, Limited, was incorporated in 1929, with an authorized capitalization of 2,000,000 shares of no par value. The officers and directors are: J. G. Cross, president; Thayer Lindsley, vice-president; W. J. Matthews, secretary-treasurer. The head office is at the Public Utilities Building, Port Arthur. The mine address is Box 591, Kenora.

The property held by this company includes Cameron Island, located in Shoal lake, Lake of the Wood sarea, district of Kenora, on which is situated the old Damascus mine. Former operators sank a 2-compartment inclined shaft to a depth of 132 feet in the early days, and established levels at 61 and 124 feet, where they accomplished 80 and 232 feet of drifting, respectively.

During the winter of 1933-34 a considerable amount of diamond-drilling was done through the ice around the island, and in July a mining plant was taken in to the property and the construction of buildings started. Underground work was begun in December, and by the end of the year 30 feet of drifting had been accomplished on the 124-foot level.

The plant included an 84 h.p. boiler, 40 h.p. boiler, 300-cubic-foot steam-driven compressor, and a 7- by 9-inch hoist. Buildings constructed during the year included a shaft-house, power-house, office, and cook-house.

J. G. Cross was in charge of operations, employing about 20 men, 9 of whom are underground.

Ed. Hargreaves Kirkland Gold Mines, Limited

Ed. Hargreaves Kirkland Gold Mines, Limited, is capitalized at 3,000,000 shares of \$1 par value, 1,300,000 of which have been issued. The officers and directors are: Floyd J. Zuck, president; C. W. Zuck, vice-president; Harvey M. Willis, secretary-treasurer; S. A. Waugh, J. A. MacVichie, and D. R. Dewart, directors. The head office and mine office are at Kirkland Lake. A business office is maintained at 1007 Bank of Hamilton Building, Toronto.

The company owns 5 claims in Lebel township, district of Timiskaming, on which a shaft had previously been sunk to a depth of 162 feet. The present company began underground operations in December, 1934, driving a crosscut on the 160-foot level.

The plant consists of a 60 h.p. locomotive-type boiler, a 300-cubic-foot steam-driven compressor, and a 6- by 8-inch steam hoist.

J. A. MacVichie is mine manager, employing 20 men.

Excello Mines, Limited

Excello Mines, Limited, was incorporated in December, 1933. It is capitalized at 3,000,000 shares of \$1 par value. The officers and directors are: John R. Serson, president; John J. Gardner, vice-president; Hugh Dougherty, secretary-treasurer; J. E. Dougherty, H. R. M. Turner, and Eric Horwood, directors. The head office is at 159 Bay Street, Toronto.

The property consists of 5 claims bordering on the boundary line between Deloro and Shaw townships, district of Cochrane, two claims being in the former township and three in the latter. The property was at one time held by Furness Mines, Limited, and later by the Dougherty Syndicate. It is 3 miles south of the town of South Porcupine, which is the post-office address.

A shaft has been sunk on the property to a depth of 185 feet and one level at the 125-foot level developed to the extent of about 1,200 feet of lateral work.

Prior to taking over the property in 1934, a considerable amount of work had been done. No. 1 shaft had been sunk to a depth of 79 feet and the following lateral work done: on the 39-foot level, 80 feet; on the 50-foot level, 10 feet; on the 79-foot level, 65 feet. No. 2 shaft had been sunk to a depth of 165 feet. On the 160-foot level 700 feet of lateral work had been done, and from this level a winze had been sunk 90 feet; from the bottom of the winze on the 250-foot level 670 feet of lateral work had been done and 20 feet of raising.

No. 3 shaft has not been pumped out by Foley O'Brien Corporation, Limited, but it is said to be 235 feet in depth, and on the 80-foot level 145 feet of lateral work is said to have been done, and 130 feet more at the 230-foot level. The property has had no production.

Foley O'Brien started active work in July, 1934, and for the balance of the year employed an average of about 25 men.

Their work has consisted principally of diamond-drilling from surface and from underground, and of surface exploration work. About two-thirds of the labour has been employed at the former work. Two machines have been kept in operation on three shifts per day. The only other drilling done underground was the drilling of short raises to make room to set up the diamond-drills underground. Surface exploration has consisted of deep trenching, much of which has been done by mechanical shovels.

There is a small mining plant on the property. P. C. Benedict is superintendent in charge of the work.

Foley Syndicate

In November, 1932, British Canadian Mines, Limited, turned over their Foley mine near Mine Centre, in Rainy River district, to the Foley Syndicate, under an operating agreement.

This syndicate continued operations at the old south shaft until March 25 1934, when the agreement was cancelled. From January 1, 1934, until operations were suspended, about 300 tons of ore was obtained from open stoping on the 50-foot level, and milled in the small amalgamation mill on the property.

The property remained dormant until August 1, when British Canadian Mines, Limited, turned it over to Russell Cone, to whom they owed wages. Cone operated the mine until October 25, during which period about 200 tons of ore was obtained from underhand stoping on the 50-foot level, and milled for sufficient profit to pay his back wages.

About 8 men were employed during both periods of operation under the direction of Russell Cone.

Four Nations Consolidated Gold Mines, Limited

Four Nations Consolidated Gold Mines, Limited, own 6 claims (250 acres) in Gauthier township and 11 claims (416 acres) in Grenfell township, district of Timiskaming. Four Nations acquired a 90 per cent. interest in these claims for \$100,000, payable over a period of 5 years. The company is capitalized at \$5,000,000, in shares of \$1 par value, and 2,673,261 shares are issued. The officers and directors are: H. W. Waters, president; W. G. Rook, vice-president and general manager; E. M. Williamson, secretary; Max Kaplan, treasurer; Sam Harris and Fred Killer, directors. J. F. R. Akehurst was mine manager. The executive office is at 372 Bay Street, Toronto.

Previous to 1933 a shaft was sunk 500 feet, with levels at 125, 250, 375, and 500 feet, and considerable lateral work had been done. Operations were resumed

Algoma. It is 6 miles southwest of Lochalsh station on the Canadian Pacific railway. H. C. Miller, 29 Melinda Street, Toronto, is trustee of the syndicate, which has a capitalization of \$33,000.

Underground operations were suspended at the end of January, 1934, at which time 60 feet of crosscutting had been accomplished on the 100-foot level. Surface work was carried on until July. At the end of the year the property was optioned to Orecana Trusts, Limited, who then started examination work.

Gold Range Mines, Limited

Gold Range Mines, Limited, was incorporated in July, 1934, with an authorized capitalization of 3,000,000 shares of \$1 par value. The officers and directors were: M. L. Piper, president; A. V. Hannam, vice-president; and E. Duguid, secretary-treasurer. The head office is at 1604 Royal Bank Building, Toronto.

The property acquired by this company consisted of a group of 47 claims, located about 2 miles east of Schreiber, on the main line of the Canadian Pacific railway, in Thunder Bay district. On claim T.B. 3,326 previous operators drove two adits, in which they accomplished a total of 190 feet of development work.

This company started work in August and suspended operations in December. A total of 45 feet of drifting was done in the old No. 2 adit.

The plant installed included a 20 h.p. vertical boiler, and a 220-cubic-foot Ingersoll-Rand gasoline compressor. Buildings on the property consisted of a power-house, warehouse, powder-house, 2 bunk-houses, 4 dwelling houses, cook-house, and office.

About 14 men were employed, under the direction of A. V. Hannam.

Golden Gate Mining Company, Limited

Golden Gate Mining Company, Limited, is capitalized at 3,000,000 shares of \$1 par value. The officers and directors are: F. G. Fitzgerald, president; C. H. Kemp, secretary-treasurer; both of 59 Yonge Street, Toronto. S. A. Pain was mine manager. The mine address is Kirkland Lake. The property consists of 250 acres in the township of Teck, district of Timiskaming, which was acquired from Kirkland Gateway Gold Mines, Limited, through the Lucky Cross Leasing Syndicate, in return for the issue of 850,000 shares of Golden Gate to Kirkland Gateway and 250,000 shares to the syndicate.

The mine was dewatered by the Lucky Cross Leasing Syndicate in February, 1934, and sampled. The Golden Gate Mining Company, Limited, took over operations in August, 1934, and kept the mine dewatered for the balance of the year while financing was in progress. Two drills were put into operation underground on March 1, 1935; and 150 feet of drifting had been completed on the 200- and 350-foot levels when operations were suspended on March 24, 1935. The mine is being kept dewatered, and it is planned shortly to start diamond-drilling underground.

Golden Star Consolidated Mines, Limited

Golden Star Consolidated Mines, Limited, was incorporated in February, 1934, with an authorized capitalization of 2,000,000 shares of \$1 par value. The officers and directors were: W. J. Beckett, president; Brig.-Gen. C. L. Hervey, vice-president; L. J. Vetter, secretary-treasurer; J. V. Ronaldson and T. S. Ronaldson, directors. The head office was at 306 Sterling Tower, Toronto.

The property acquired included the old Golden Star mine, which produced \$161,000 in gold prior to 1901. It consists of three claims located about two miles south of Mine Centre, on the Fort Frances branch of the Canadian National railway, in the district of Rainy River. In addition, an option was taken on the adjoining Ferguson property.

Previous operators of the Golden Star mine sank a 2-compartment, 65-degree shaft to a depth of 480 feet on the incline, and established levels at 75, 155, 231, 306, 337, and 431 feet. Stopping was done on the first four levels. They left a small amalgamation mill on the property.

Work was started in March, 1934, and suspended in November. A mining plant was installed, and the old workings were dewatered and sampled. The old amalgamation mill was used intermittently from March until October, during which period it treated a total of 260 tons of ore. The major part of this ore was obtained from the surface dumps on the Ferguson property, and the balance from those on the Golden Star property.

The plant installed included two 30 h.p. boilers, a 175-cubic-foot compressor, and a 9- by 12-inch steam hoist. Buildings constructed included a power-house, hoist-house, blacksmith shop, cook-house, and bunk-house.

The mill equipment included a jaw-crusher, 5 gravity stamps, concentrating table, cone regrinder, and amalgamation plates. It was operated by steam.

An average of 26 men was employed under the direction of C. N. Thompson.

Golden Summit Mines, Limited

Golden Summit Mines, Limited, has a capitalization of 2,500,000 shares of \$1 par value, of which 1,551,152 have been issued. The officers and directors are: Wm. J. Simpson, president; Benjamin Kerr, Jr., vice-president; Gordon Belyea, secretary-treasurer; John M. Calder, J. G. Jarvis, Dr. J. J. Matheson, and Theodore G. Miller, directors. The head office is at 2374 Bloor Street West, Toronto. The mine office is at Sesekinika.

The company owns 460 acres in the townships of Maisonville and Grenfell, district of Timiskaming.

The shaft was sunk from 142 feet to 405 feet during 1934. Lateral work consisted of 307 feet of crosscutting on the 250-foot level, and 330 feet of crosscutting and 50 feet of drifting on the 375-foot level.

During the year a new hoist, compressor, two 60 h.p. boilers, air-receiver, cage, and several mine cars were added to the equipment.

Wm. J. Simpson was manager, employing an average of 28 men.

Goodfish Mining Company, Limited

Goodfish Mining Company, Limited, owns 16 claims in Morrisette township, district of Timiskaming. The present company was formed as a reorganization of the Goodfish Gold Mines, Limited, and old shareholders were given 1,749,629 shares, on the basis of one of the new shares for two of the old. The company is capitalized at 3,500,000 shares of \$1 par value. The directors are: A. J. Perron, president; Melvin G. Hunt, vice-president and secretary-treasurer; George Cooper, Jessie L. Hunt, and Ida Larkin, all of Kirkland Lake, directors. The head office and mine office are at Kirkland Lake.

Operations were resumed in July, 1934. Nos. 1 and 3 shafts were dewatered and sampled, and approximately 370 feet of drifting was done on the 200-foot level of No. 3 shaft. The mine was closed down in November, 1934.

I. E. Mosher was manager, employing an average of 12 men.

Greenlaw Gold Mines, Limited

Greenlaw Gold Mines, Limited, was incorporated in 1933, with an authorized capitalization of 3,000,000 shares of \$1 par value. The officers and directors were: J. J. Byrne, president; W. B. McPherson, secretary-treasurer; M. J. Shunsby, J. C. Byrne, and M. D. Gray, directors. The head office is at 244 Bay Street, Toronto.

The property of the company includes a group of 19 claims in Greenlaw township, in the Swayze area, district of Sudbury.

In January, 1934, a 7- by 9-foot, 75-degree shaft was started. Operations were suspended in March after sinking the shaft to a depth of 50 feet and accomplishing about 50 feet of lateral work at that horizon. This work was done by hand-steel and windlass. Buildings consisted of a blacksmith shop, bunk-house, cook-house, and powder-house.

Three men were employed under the direction of Martin Shunsby.

Halcrow-Swayze Mines, Limited

Halcrow-Swayze Mines, Limited, was incorporated in 1932, with an authorized capitalization of 2,500,000 shares of \$1 par value. The officers and directors were: Horace F. Strong, president; H. A. Butt, vice-president; J. B. Allen, secretary-treasurer; W. J. Yeoll and Martin Shunsby, directors. The head office is at 25 King Street West, Toronto.

The company continued operations throughout 1934 at their property in Halcrow township, in the Swayze area, district of Sudbury. The 2-compartment vertical shaft was sunk an additional 159 feet to a total depth of 371 feet, and a sublevel was established at 270 feet and a level at 354 feet.

The total development work accomplished to the end of 1934 on the various levels was as follows:—

Level	Drifting	Crosscutting	Raising
	feet	feet	feet
200-foot.....	1,198	420	30
270-foot sub.....	40	40	30
354-foot.....	306	170	42
Total.....	1,544	630	102

A total of 4,330 feet of diamond-drilling had been done to the end of 1934, of which 2,328 feet was from underground.

A 25-ton test mill was constructed on the property in the fall of 1934, and a total of 270 tons of ore was treated by the end of the year. The mill equipment included a jaw-crusher, ball mill, drag-classifier, and flotation cell. A 38 h.p. Diesel engine was installed as motive power but was found unsatisfactory and replaced by a gasoline engine.

The plant used included two 25 h.p. boilers, an 8¼- by a 10-inch steam hoist, and a 310-cubic-foot GD gasoline compressor.

An average of 24 men was employed during the year, of whom 8 were underground. Horace F. Strong was in charge. The mine address is Chapleau.

Hard Rock Gold Mines, Limited

Hard Rock Gold Mines, Limited, was incorporated in January, 1934, with an authorized capitalization of 2,500,000 shares of \$1 par value. The officers

and directors were: T. H. Rea, president; Jos. Errington, vice-president; W. S. Walton, secretary-treasurer; A. B. Gordon and H. R. Aird, directors. The head office is at 603 Royal Bank Building, Toronto.

This company was formed to take over the property of the Hard Rock Syndicate, which comprises 15 claims, totalling about 810 acres, in Ashmore township, in the Little Long Lac area, Thunder Bay district. It is reached in summer by boat from Hardrock station, and in winter by road from Geraldton station. The post-office address is Geraldton.

During the spring and summer of 1934 a total of 10,109 feet of diamond-drilling was accomplished. A 3-compartment vertical shaft was started in September on claim T.B. 9,985, and sinking was still in progress at the end of the year, at which time the shaft had reached a depth of 140 feet.

Buildings erected included a power-house, boiler-house, blacksmith shop, warehouse, bunk-house, cook-house, powder-house, and manager's residence. The plant installed included a 100 h.p. boiler, a 9- by 8-inch Ingersoll-Rand double-drum hoist, a 530-cubic-foot Ingersoll-Rand Diesel compressor, and a 300-cubic-foot Ingersoll-Rand semi-Diesel portable compressor.

An average of 36 men was employed from August, under the direction of J. C. Dumbrille.

Harkness-Hays Gold Mines, Limited

Harkness-Hays Gold Mines, Limited, was incorporated in July, 1934, with an authorized capitalization of 3,000,000 shares of \$1 par value. The officers and directors were: A. M. Nielsen, president; and H. L. Van Norstrand and Herbert Duncan, directors. The head office is at 372 Bay Street, Toronto.

The property acquired by this company consisted of a group of 8 claims, situated two miles east of Schreiber, Thunder Bay district, which included the property of Harkness-Hays Gold Mining Company, Limited. Three adits were driven by the latter company on claims T.B. 3,327 and 3,354, in which they accomplished a total of 1,270 feet of development work.

Operations were started by the present company in July. Two new adits were started, in which a total of 255 feet of development work was accomplished by the end of 1934. This work was done with a 220-cubic-foot Ingersoll-Rand gasoline compressor.

Buildings on the property consisted of a power-house, blacksmith shop, oil storage, 2 bunk-houses, and a cook-house.

About 10 men were employed, under the direction of J. F. Anderson. The mine address is Schreiber.

Hillside Gold Mines, Limited

Hillside Gold Mines, Limited, was incorporated in August, 1934, with an authorized capitalization of 3,000,000 shares of \$1 par value. E. V. McMillan was president; G. E. McMillan, 45 Queen Street East, Sault Ste. Marie, was secretary-treasurer.

The property consists of 35 mining claims, located in the northeast part of township 29, range 23, in the Michipicoten area, district of Algoma.

Work was started on claim S.S.M. 4,925 in September and suspended early in December, during which period an adit was driven for a distance of 400 feet, using a gasoline compressor. Buildings erected included a power-house, blacksmith shop, office, 3 small bunk-houses, and a cook-house.

An average of 15 men was employed under the direction of D. S. Baird. The mine address is Wawa.

Hollinger Consolidated Gold Mines, Limited

The authorized capital of Hollinger Consolidated Gold Mines, Limited, is \$25,000,000, in 5,000,000 shares of \$5 par value; 4,920,000 shares were outstanding on December 31, 1934. The head office is at Timmins.

The officers of the company are: Noah A. Timmins, president; Jules R. Timmins, vice-president; John B. Holden, secretary-treasurer; A. F. Brigham, consulting engineer; John Knox, general manager. The directors are: Noah A. Timmins, John B. Holden, Jules R. Timmins, Wilson Bell, Senator W. L. McDougald, Leo H. Timmins, Allen A. McMartin, James Y. Murdoch, and John I. Rankin.

The following is taken from the general manager's report for the year ending December 31, 1934:—

PROFIT AND LOSS STATEMENT for year ending December 31, 1934

SOURCES OF 1934 INCOME:		
Net proceeds from gold and silver (after deducting amount of Dominion bullion tax, \$1,091,626.26)		\$13,988,824.04
Interest on investments and other income		188,438.89
		\$14,177,262.93
DISPOSAL OF 1934 INCOME:		
General charges	\$648,070.62	
Mining charges	5,650,091.93	
Milling charges	1,131,857.10	
		7,430,019.65
		\$6,747,243.28
DEDUCT:		
Taxes—		
Province of Ontario	\$237,335.35	
Royalty to Town of Timmins	60,873.43	
Municipal to Town of Timmins	58,554.93	
Royalty to Township of Tisdale	12,126.91	
Municipal to Township of Tisdale	2,296.03	
Municipal to City of Toronto	33.82	
Dominion, provincial, and municipal, reserve for	282,406.33	
	\$653,626.80	
Silicosis assessment, 1934	35,257.19	
		688,883.99
Net profit from operations before depreciation		\$6,058,359.29
Depreciation:		
Plant	\$15,017.60	
Investments in other companies and properties written down	2,662.76	
Expenditures on properties abandoned	48,234.09	
		65,914.45
NET PROFIT FROM OPERATIONS CARRIED TO SURPLUS ACCOUNT		\$5,992,444.84

SURPLUS ACCOUNT

BALANCE BROUGHT FORWARD, JANUARY 1, 1934	\$5,439,325.79
NET PROFITS FROM OPERATIONS	5,992,444.84
NET PROFITS FROM THE SALE OF SECURITIES AND OTHER ASSETS	512,917.83
TRANSFERRED FROM CONTINGENT RESERVE	246,324.33
	\$12,191,012.79
PAID OUT IN DIVIDENDS	6,888,000.00
BALANCE CARRIED FORWARD, DECEMBER 31, 1934	\$5,303,012.79

BULLION STATEMENT

INVENTORY, JANUARY 1, 1934:

Solutions.....	\$104,257.24
Slags, litharge, and miscellaneous.....	880.00
Precipitates held over.....	2,435.00
Gold in process to scavenger.....	14,500.00
Silver.....	11,802.83
	<u>\$133,875.07</u>

VALUES PRODUCED IN 1934:

Ore milled.....	\$14,601,036.80	
Tailings loss.....	612,212.76	
		<u>13,983,824.04</u>
		\$14,122,699.11

INVENTORY, DECEMBER 31, 1934

Solutions.....	92,403.20
Slags, litharge, and miscellaneous.....	880.00
Precipitates held over.....	3,671.00
Gold in process to scavenger.....	4,500.00
Silver.....	3,987.94
	<u>\$105,442.14</u>

BULLION SHIPPED DURING 1934..... 14,017,256.97

\$14,122,699.11

YEARLY AVERAGE COSTS

Account	Sundries	Labour	Stores	Total	Per ton ore milled
General miscellaneous charges and administration.....		\$248,614.27	\$129,807.49	\$378,421.76	\$0.1991
Surface services.....		53,073.00	37,690.00	90,763.00	.0478
Fire insurance.....	\$18,328.46			18,328.46	.0096
Group insurance.....		53,399.80		53,399.80	.0280
Marketing bullion.....	33,448.74			33,448.74	.0176
Workmen's compensation.....		73,708.86		73,708.86	.0388
Milling charges.....		446,471.30	685,385.80	1,131,857.10	.5956
Mining charges.....		3,983,770.85	1,666,321.08	5,650,091.93	2.9730
Silicosis assessment.....		35,257.19		35,257.19	.0186
Total charges.....	\$51,777.20	\$4,894,295.27	\$2,519,204.37	\$7,465,276.84	\$3.9281

Employees

The average number of men employed during the year has been 2,660, distributed as follows:—

MINERS:	MECHANICS:	GENERAL:
Exploration..... 31	Operation..... 112	Mill and refinery.. 213
Development..... 441	Maintenance..... 190	Technical..... 77
Production..... 1,386		Clerical..... 39
		Miscellaneous.... 133
		Outside properties. 38
Total..... 1,858	Total..... 302	Total..... 500

There were also employed at outside properties on December 31, 1934, a total of 116 men, as follows: Hislop, 39; Cochenour-Willans, 37; Gold Island, 26; Long Lake, 14.

The Mill

Milling results were as follows:—

Ore milled.....	tons	1,900.490
Average value per ton.....		\$7.68
Gross value.....	\$14,601,036.80	
Deduct loss in tailings.....	612,212.76	
Net value received.....		<u>\$13,983,824.04</u>

Average tons per day.....	5,236
Per cent. of possible time run.....	90.8
Tons per 100 per cent. running time.....	5,767
Solution precipitated per ton ore.....	tons 0.98
Value per ton tailings.....	\$0.32
Cyanide consumed per ton of ore.....	lbs. 0.482
Zinc consumed per ton of ore.....	lbs. 0.045
Zinc consumed per ton of solution.....	lbs. 0.046
Lime consumed per ton of ore.....	lbs. 2.170
Lead acetate per ton of ore.....	lbs. 0.007
Average value of pregnant solution.....	\$7.54
Average value received per ounce of gold sold.....	\$32.16

Ore Reserves

Our ore reserves on the 31st of December, 1934, consisted of 7,061,926 tons, of a total value of \$51,440,260, having an average value of \$7.28 per ton. These figures compare with 6,487,559 tons of a total value of \$48,430,451.00, having an average value of \$7.47 per ton, at the end of 1933.

In the calculations dealing with ore reserves, the statutory price of gold, namely \$20.67 per ounce, has been taken as the basis of value, and the same minimum ore grade as used in former years continued.

Hollinger Mill

During the year investigations have been carried on to determine the possibility of improving the extraction, having in mind the greater loss in tailings due to the increase in value of gold. As yet these investigations have not been productive of any positive results.

Hollinger Mine

As stated in the last annual report, operations have been carried on on all levels from the surface to the 3,950-foot level. About 35.8 per cent. of the ore milled came from above the 800-foot level. During the year 877,837 tons of backfill were placed. There has been a further increase in exploration in the backfilled areas mentioned in the last report, and as a result you will note that the total percentage of ore mined above the 800-foot level is slightly in excess of the figure of last year.

Operations in the block between the 2,750-foot level and the 3,950-foot level are still confined to development. It is gratifying to note that there has been a further increase of \$3,000,000 in the ore reserves.

The drift west from the Schumacher shaft, mentioned in the last annual report, has been extended, and some interesting ore occurrences disclosed. Investigations have as yet not proceeded far enough to give these discoveries any weight in the general picture.

The shaft below the 3,950-foot level, known as No. 25 shaft, has been sunk to 50 feet below the 4,250-foot level, but no development commenced as yet.

Young-Davidson Mine

As noted in the president's remarks, the Young-Davidson mill went into operation September 8, 1934, and has continued to operate with a surprisingly small number of adjustments. There was some difficulty with the crushing due to the toughness of the ore; this has been overcome and the daily tonnage is now about 625 tons.

The open-pit operation has continued throughout the winter, but under many difficulties, and our experience indicates that underground mining will be more satisfactory during the winter months. Plans are under way for this development.

To date the gold content in the Young-Davidson ore has been \$1.76 on \$20.67 basis, or \$2.88 on the new price. Bullion shipments are being regularly made. Some 51,842 tons had been treated to the end of the year, and operating profits amounted to \$53,604.99.

The minor changes and alterations in methods have prevented us from arriving at a true cost, but operations to date have been conducted at a profit.

Hislop Property

A shaft was sunk to a depth of 150 feet and a crosscut driven to intersect the east ore body. In drifting on this level some encouraging assays have been obtained, but the work has not proceeded sufficiently to justify any definite statements as to average values and widths of ore body. The crosscut on the same level being driven to the west has not advanced sufficiently to intersect the west ore body.

The following is taken from the consulting engineer's report on outside properties as at December 31, 1934:—

During 1934, 108 prospects were examined, 96 in the province of Ontario, 10 in the province of Quebec, and one each in Manitoba and Nova Scotia. In many cases the properties were examined in considerable detail, but none showed sufficient merit to warrant our further interest.

The immediate vicinity of the Young-Davidson and Hislop Township properties were given very thorough investigations in order that similar occurrences of ore should not be overlooked.

Prospecting, development, and exploration work on outside properties (except the Young-Davidson) involved an expenditure of \$320,000.

Cochenour-Willans

An option was obtained on the Cochenour-Willans property in the Red Lake area, district of Kenora, Patricia portion. This property consists of about 500 acres adjoining the claims of McKenzie Red Lake Gold Mines. Work commenced late in the fall of 1934, and by the end of the year a 3-compartment shaft had been sunk to a depth of 150 feet and 80 feet of lateral work had been done on the 150-foot level.

Gold Island

An option was obtained on the Gold Island property at Night Hawk lake, township of Cody, district of Cochrane. Work commenced late in the year and continued until about the end of January, 1935. At the time of cessation of operations a shaft had been sunk 180 feet and a station had been cut at the 170-foot level.

Horseshoe Mines, Limited

Horseshoe Mines, Limited, was incorporated in 1929, with an authorized capital of 4,500,000 shares of \$1 par value. The officers and directors were: W. A. Lamport, president; A. Kelly Evans, vice-president; C. M. Chandler, secretary-treasurer; J. H. Lumbers, W. B. Kendall, and G. G. Goodelle, directors. The head office is at 302 Royal Bank Building, Toronto.

The property of this company includes the old Regina mine in the Lake of the Woods area, district of Kenora. It is 45 miles southeast of Kenora.

Operations at the Regina mine were carried on from July, 1933, until early in February, 1934. During July and August, the mine was again dewatered and a small amount of work done, following which operations were again suspended.

Howey Gold Mines, Limited

Howey Gold Mines, Limited, was incorporated in March, 1926. It has an authorized capitalization of 5,000,000 shares of \$1 par value, all issued. The officers and directors are: R. T. Birks, president; W. S. Cherry, vice-president; H. C. McCloskey, secretary-treasurer; J. E. Hammell and John A. Northway directors. Fraser D. Reid is general manager, and Edward Futterer is resident manager. The head office and mine office are both at Red Lake. The executive office is at 717 Federal Building, Toronto.

The company holds approximately 900 acres in the Red Lake area, district of Kenora, Patricia portion. Transportation to the property is by water route from Hudson, on the Canadian National railway, or by airplane. The average number of men employed per month during 1934 was 231.

The following is taken from the general manager's fiscal year ending December 31, 1934:—

SUMMARY OF WORK ACCOMPLISHED

	1934	1933	1932
Drifts, crosscuts, raises, etc..... feet	3,955	1,879	3,562.5
Shafts and winzes..... feet	177	200	430.5
Shaft stations, slashing, etc..... cu. yds.	296	3,860	1,550
Diamond-drilling (underground)..... feet	3,629	1,837.6	1,856.6
Diamond-drilling (outside exploration)..... feet	851	.....	701
Box-holes..... feet	972	1,883	830.5
Ore broken..... tons	481,492	414,611	339,675
Low-grade material discarded by sorting..... tons	85,648	53,170	44,585
Milled after sorting..... tons	396,109	290,965	284,664
Broken reserves in stopes (Jan. 1, 1935)..... tons	301,990	276,526	206,150

EARNINGS STATEMENT

	1934	1933	1932
Total receipts from sales of gold and silver	\$1,594,222.51	\$1,158,470.03	\$1,268,780.07
Total operating cost, including Toronto office expenses	881,869.52	770,010.56	813,368.11
Operating profit	\$712,352.99	\$388,459.47	\$455,411.96

MISCELLANEOUS OPERATING DATA

	1934	1933	1932	Total from start of operations
Tonnage milled and sorted	481,757	344,135	329,249	1,493,247
Tonnage discarded by sorting	85,648	53,170	44,585	199,519
Tonnage milled	396,109	290,965	284,664	1,293,728
Value a ton hoisted	\$2.20	\$2.73	\$3.70	\$3.12
Value a ton material discarded by sorting	\$0.21	\$0.54	\$0.42	\$0.387
Value a ton of ore milled	\$2.64	\$3.12	\$4.21	\$3.54
Loss in tailings a ton milled	\$0.214	\$0.24	\$0.27	\$0.257
Loss a ton of ore hoisted (in milling and sorting)	\$0.213	\$0.286	\$0.29	\$0.274
Net percentage recovery a ton of ore hoisted	90.3	89.5	92.4	91.2
Total net recovery of gold and silver . . .	\$1,594,222.51	\$1,158,470.03	\$1,268,780.07	\$5,396,191.55

N.B.—All values are figured on gold at \$20.67 per ounce.

ANALYSIS OF COSTS

	1934 (481,757 tons)		1933 (344,135 tons)		1932 (329,249 tons)	
	Total cost	Cost per ton milled and sorted	Total cost	Cost per ton milled and sorted	Total cost	Cost per ton milled and sorted
Mine operation	\$497,155.74	\$1.032	\$445,033.50	\$1.293	\$425,094.74	\$1.292
Outside exploration	2,389.43	.005	484.39	.002	2,089.95	.006
Crushing and conveying	44,902.88	.093	34,918.07	.102	38,866.59	.118
Ore sorting	23,485.72	.049	15,612.00	.045	12,820.98	.039
Milling	217,909.85	.452	198,877.14	.578	216,049.24	.656
General expense	63,993.85	.133	48,277.67	.140	59,337.36	.180
Total plant cost	\$849,837.47	\$1.764	\$743,202.77	\$2.160	\$754,258.86	\$2.291
Toronto office salaries and general expense	32,028.69	.066	27,578.92	.080	45,313.19	.138
Interest and exchange	3.36				13,796.06	.042
Total operating expenses before depreciation, Dominion and provincial taxes, and pre-operating charges	\$881,869.52	\$1.830	\$770,781.69	\$2.240	\$813,368.11	\$2.471
Dominion and provincial taxes	43,284.59	.090	13,016.83	.038		
Depreciation (on 10 per cent. basis)	132,749.76	.276	119,108.64	.346	115,333.90	.350
Pre-operating charges	96,351.40	.200	103,240.50	.300	197,549.40	.600
Total cost	\$1,154,255.27	\$2.396	\$1,006,147.66	\$2.924	\$1,126,251.41	\$3.421

CAPITAL EXPENDITURES

BUILDINGS:		
New change-house	\$6,676.54	
New bunk-house	6,065.43	
Addition to hospital	323.03	
Total		\$13,065.00
EQUIPMENT:		
X-ray	\$2,418.54	
Telephone system	3,488.78	
Tractor	2,182.96	
Rotomill, etc.	716.32	
Fire-fighting equipment, etc.	569.11	
Miscellaneous	2,796.82	
Total		12,172.53
ADDITIONS IN CONNECTION WITH INCREASED TONNAGE AND DEPTH DEVELOPMENT:		
Aldrich pump on 1,300-foot level	\$5,671.81	
Mine electric power—light and signal system	3,273.88	
Mill equipment	638.00	
Total		9,583.69
TOTAL CAPITAL EXPENDITURES		\$34,821.22

Ore Reserves

The broken ore reserves in the mine as of December 31, 1934, amounted to 301,990 tons, compared to 276,526 tons the previous year. The unbroken reserves amounted to 1,853,097 tons, compared to 1,751,755 tons the previous year. The value of the broken and unbroken reserves is estimated to be approximately \$3.50 per ton, based on the current price of gold.

Exploration

During the year the 500-foot level and the 750-foot level west drifts were extended to points 710 feet and 630 feet, respectively, west of the shaft. This development added a substantial tonnage of slightly lower than average-grade ore to the unbroken reserves.

The 1,000-foot level east drift was driven to a point 1,430 feet east of the shaft. A narrow ore body was encountered, having a length of 110 feet, width of 5 feet, and an average assay value of \$8.40 per ton, at current gold prices. It was found that this vein does not extend upward to the 875-foot level. The 1,175-foot level east drift is being driven to explore its possible downward extension.

The main shaft was sunk to the 1,500-foot level and a crosscut started. During the year 1935 the winze also will be sunk to the 1,500-foot level and connected at that elevation to the shaft by an exploration drift, from which drift the dike will be systematically explored.

Further exploration work in the dike beyond the present most easterly workings can be carried on more economically by diamond-drilling from the surface.

Operating Costs

It was estimated in January, 1933, that the recommended increase in tonnage would reduce the cost per ton of ore treated to \$1.85. The actual cost for 1934 was \$1.83 per ton. This outstanding achievement is a direct result of the skill and efficiency of Mr. Futterer and his staff.

Hudson Patricia Gold Mines, Limited

Hudson Patricia Gold Mines, Limited, has an authorized capitalization of 2,500,000 shares of \$1 par value. The company was organized to take over the property of the Metals Development Company, Limited, in the Woman Lake area, district of Kenora, Patricia portion. The holdings consist of 26 patented claims, totalling 1,140 acres, in the townships of Goodall and Dent.

The officers and directors of the company are: W. R. Salter, president; C. H. Ackerman, vice-president; B. A. R. Dignam, secretary-treasurer; M. H. Lebel, P. A. Lavallee, J. L. A. Tetreault, B. R. Hepburn, G. Cockerill, directors. The executive office is at 112 Yonge Street, Toronto.

This property has been operated intermittently since 1929. When Hudson Patricia Gold Mines took it over in April, 1934, the following work had been

done: No. 1 shaft, inclined, had been sunk to the inclined depth of 100 feet; from it 15 feet of crosscutting had been driven and 312 feet of drifting done. No. 2 shaft, vertical, had been sunk 237 feet, and a station cut at the 211-foot level; about 900 feet of lateral work had been done at this level.

From April to the end of November, 1934, Hudson Patricia Gold Mines crosscut 849 feet and drifted 1,061 feet on the 210-foot level; they also drove 169 feet of raise from the 211-foot level to the 100-foot level, and were sinking a winze from the 2nd level, with the 325-foot level as their objective. This winze was down 75 feet on December 11, 1934.

The plant includes an 80 h.p. locomotive-type boiler, a 500-cubic-foot compressor, a 7- by 6-inch reversing steam hoist, a steam generator for the electric-lighting system, a C.I.R. drill-sharpener, and an oil furnace.

The buildings include a fully equipped assay office, blacksmith shop, cookery, bunk-houses for 50 men, 6 dwelling houses, stable, and powder magazine.

J. M. Thompson is manager at the property. The mine address is Narrow Lake, via Sioux Lookout.

J-M Consolidated Mines, Limited

J-M Consolidated Mines, Limited, was incorporated in February, 1932, with a capitalization of 2,500,000 shares of \$1 par value. The officers and directors are: J. E. Day, Toronto, president; Charles Taylor, St. Catharines, vice-president; T. J. Day, Toronto, secretary-treasurer; Hon. J. D. Chaplin, St. Catharines, and J. B. Tudhope, Waubaushene, directors. The head office of the company is at 1116 Federal Building, Toronto.

The company acquired the assets of Jackson-Manion Mines, Limited, and Mint-Ore Mines, Limited. The holdings consist of 34 claims, 21 of which are in the main mine group. All are located in the Woman Lake area, Patricia portion of Kenora district.

The mine was idle from August, 1929, to October, 1933. During the previous operation a shaft had been sunk to a depth of 404 feet, and levels had been established at the 125-, 250-, and 375-foot levels. At the end of 1934 the total lateral work was as follows: 890 feet on the 125-foot level, 1,020 feet on the 250-foot level, 50 feet on the 200-foot sublevel, and 760 feet on the 375-foot level. A winze had been sunk 30 feet from the 375-foot level, and 340 feet of raises had been driven.

A cyanide mill capable of handling 30 tons a day was put into operation in May, 1934, and at December 10 had treated 3,066 tons of ore, having a value of \$31,200.

The mill equipment includes a 6- by 8-inch jaw-crusher, a 5- by 3-foot ball mill in closed circuit with cone classifier, thickener, Pachuca tank, clarifiers, and filters.

D. M. Thomson is in charge of operations, employing an average of 46 men. The mine address is Jackson Manion.

Kenora Prospectors and Miners, Limited

The capitalization of Kenora Prospectors and Miners, Limited, was increased from 500,000 shares to 1,000,000 shares of \$1 par value in 1934. The officers and directors were: Thayer Lindsley, president; I. A. Lindsley, vice-president; Geo. H. Ince, secretary-treasurer; I. M. Machin and Jos. Errington, directors. The executive office is at 25 King Street West, Toronto. The mine office is at Kenora.

The property held by this company includes the old Mikado mine and the Cedar Island mine, both of which are located at Shoal lake, in the Lake of the Woods area, district of Kenora. They are about 45 miles by water from Kenora.

Mikado

Underground work was carried on at the Mikado mine from January 1 to about July 20, 1934. During this period 212 feet of drifting was done on the old 10th level, which is 560 feet vertically from surface. Also a total of 2,760 feet of diamond-drilling was accomplished from underground.

Cedar Island

In May, 1934, work was resumed at the Cedar Island mine, which had been idle since October, 1932. Operations were transferred farther inland to the old Cornucopia shaft, as the workings from the inclined shaft beside the lake were making considerable water. The Cornucopia shaft had been sunk vertically to a depth of 81 feet in the early days, and about 100 feet of lateral work accomplished at that depth. In 1934 this shaft was timbered, a headframe and plant were erected, and sinking was carried on to a depth of 393 feet. A level was established at 284 feet, where 1,066 feet of drifting and 836 feet of crosscutting was accomplished. A total of 1,800 feet of diamond-drilling was done from surface.

The plant used included a 55 h.p. boiler, an 8 $\frac{1}{4}$ - by 10-inch Ingersoll-Rand divided-drum hoist, and a 600-cubic-foot Ingersoll-Rand Diesel compressor. New buildings erected included a power-house, dry-house, blacksmith shop, and powder-house.

An average of 45 men was employed by this company during the year, of whom 11 were underground. Geo. H. Ince was in charge, with H. Johnson as contractor.

Kenty Gold Mines, Limited

Kenty Gold Mines, Limited, is capitalized at 3,000,000 shares of \$1 par value. The officers are: F. L. Trethewey, president; S. W. Black, secretary-treasurer. The executive office is at 8 Wellington Street East, Toronto.

The company suspended all operations at its property in Swayze township, district of Sudbury, in July, 1934, following unfavourable results.

The development work accomplished during 1934, and the total to the suspension of operations, on the various levels, was as follows:—

Level	Drifting		Crosscutting	
	1934	Total	1934	Total
No. 1 SHAFT	feet	feet	feet	feet
250-foot	64	434	.....	74
375-foot	382	840	335	518
500-foot .....	.....	166	.....	202
Total	446	1,440	335	794
No. 2 SHAFT				
290-foot	1,533	1,991	701	1,277
525-foot	417	554	189	705
Total	1,950	2,545	890	1,982

No. 1 shaft was sunk to a depth of 510 feet, and No. 2 shaft to 534 feet. Both are vertical 2-compartment shafts; they are about 1,800 feet apart.

The total footage of diamond-drilling done on the property from the commencement of operations was 7,401 feet, of which 6,298 feet was from underground. No changes were made in the plant during 1934.

An average of 37 men was employed, of whom 22 were underground. E. T. Corkill was in charge, with R. M. Williams as assistant.

Kirkland Consolidated Mines, Limited

Kirkland Consolidated Mines, Limited, is capitalized at 7,000,000 shares of \$1 par value. There are issued 4,675,706 shares, of which 3,250,000 shares are pooled until July 1, 1935. The officers and directors are: J. W. Rudhard, president; Ferdinand Frohe, vice-president; C. C. Tyx, Tonawanda, N.Y., secretary-treasurer; Geo. F. Pfeiffer, Kevin Killeen, Norman R. Davis, Richard W. Langford, directors. The head office is at 1717 Metropolitan Building, Toronto.

The company owns 1,200 acres: 4 claims in McVittie township, 14 in Gauthier township, and 14 in Grenfell township, district of Timiskaming. A 2-compartment shaft has been sunk to a depth of 265 feet, with levels at 150 and 250 feet. During 1934 the following work was done on the 250-foot level: drifting, 820 feet; crosscutting, 1,280 feet; sinking, 50 feet; diamond-drilling underground, 2,270 feet; diamond-drilling from surface, 1,488 feet. Diamond-drilling on surface from January 1 to February 20, 1935, was 1,398 feet. Underground work was stopped on November 10, 1934.

Ralph Hurd is mine manager, and employed an average force of 25 men. The mine address is Sesekinika.

Kirkland Gold Belt Mines, Limited

Kirkland Gold Belt Mines, Limited, is capitalized at 4,000,000 shares of no par value. The officers and directors are: George W. Morris, president; Jas. E. Day, vice-president; M. C. Smith, treasurer; Roy Weldon, secretary; Dr. W. H. Bennett, H. B. Anderson, and Walter B. Robb, directors. Howard Brassaw is mine superintendent. The mine address is King Kirkland.

The property consists of 292 acres in Lebel township, district of Timiskaming. The average number of men employed during the year was 21.

The development work on the property is as follows:—

	1934	Total to date
	feet	feet
Shaft-sinking	250	768
Crosscutting	265	727
Drifting	1,237	3,529

The mine closed on December 31, 1934. On January 23, 1935, work was again started by Morris Kirkland Mines, Limited, a new company formed to take over the property.

Kirkland Lake Gold Mining Company, Limited

The officers and directors of the Kirkland Lake Gold Mining Company, Limited, are: J. B. Tyrrell, president; R. G. O. Thomson, vice-president;

R. Graham, secretary; V. H. Emery, managing director; A. C. Matthews, J. A. Dalton, J. C. Haight, R. V. Le Sueur, and W. S. Walton, directors. The company owns 465 acres in the township of Teck, district of Timiskaming, and is capitalized at 5,500,000 shares of \$1 par value. The head office is at the Bank of Commerce Building, Toronto. The mine address is Kirkland Lake. Wm. Sixt was mine manager until the latter part of the year, when he resigned. An average of 139 men was employed during the year.

The following is taken from the president's report to the shareholders for the year ending December 31, 1934:—

The total income for the year amounted to \$717,005.03, of which \$702,720.20 was bullion produced. This is \$181,310.14 more than was produced in 1933. Of the above income, \$297,629.56 was paid in wages, and \$193,790.00 for equipment and supplies, almost all of which was purchased from Canadians or Canadian companies. In addition \$65,990.00 was paid for hydro-electric power and \$10,545.47 in taxes.

The profit derived from operations for the year was \$163,512.88, after allowing depreciation but before providing for income tax. In December last an interim dividend of 3 per cent. on the issued stock of the company was paid, which called for an expenditure of \$157,173.60.

The following is a summary of the work done in the mine during the year:—

Ore mined and hoisted to mill.....	tons	64,952
Drifting.....	feet	5,524
Crosscutting.....	feet	750
Sinking.....	feet	408
Raising.....	feet	983
Station-cutting.....	cu. ft.	10,200
Slashing.....	cu. ft.	28,833
Diamond-drilling.....	feet	5,904

The No. 2 winze was sunk to 5,885 feet, and levels were begun or partly opened at 5,600, 5,725, and 5,850 feet. One hundred and forty-five feet of crosscutting and 1,445 feet of drifting was done here, but with the exception of a ventilation and second exit raise from the 5,600- to the 5,450-foot level, work has been discontinued on these levels while the intensive exploration of the upper levels is in progress.

In co-operation with the management of the Teck-Hughes mine, a connection was made from our 5,200-foot level to their 42nd level, in order to provide an escapement way for the men of one mine into and through the other mine in case of emergency.

The 2,475-foot level, which, at the request of Macassa Mines, Limited, had been driven into their property, was cleared out, so that there is now a free passage westward at this level into their mine, as well as the passage eastward at the 5,200-foot level into the Teck-Hughes mine.

During the year two independent mining engineers, namely Messrs. V. H. Emery and S. N. Graham, were engaged to make a thorough examination of your mine. Their extended report, with plans and sections, was received on the 4th of September, 1934. On the 21st of September, a synopsis of this report, approved by these engineers, was mailed to all registered shareholders, and notices were inserted in the newspapers advising all shareholders, whether registered or not, that the original report was open to inspection at the head office of your company. A number of persons, including representatives of several newspapers, came to the office and examined the report.

As a result of such report a more thorough and intensive programme of lateral exploration and diamond-drilling was undertaken in the mine, including the upper portions, which had not been worked for some years. This lateral exploratory work was in progress at the end of the year and was beginning to show very favourable results, and it is the intention to continue it during the present year.

Since the above report was submitted, a decided improvement has been made in the operation of the mill. Following the recommendations therein contained, the capacity of the primary rock crushers was increased by the installation of larger motors, which enables the ore to be ground finer throughout the circuit, and the result has been to increase the amount of gold precipitated by the cyanide solution. This, with a general tuning-up of the mill, has, without large expenditure or material increase of costs, raised the percentage of gold extracted from the ore in the mill higher than previously attained with the tonnage now being treated.

Mr. Emery was subsequently appointed consulting engineer to supervise and watch the operations undertaken as the result of the report.

Lake Caswell Mines, Limited

Lake Caswell Mines, Limited, was incorporated in April, 1934, with an authorized capitalization of 3,000,000 shares of \$1 par value. The officers and directors were: F. J. Sullivan, general manager; M. F. Millward, secretary;

T. A. Burke, G. Cockerill, A. Godfrey, L. J. Layden, and A. E. Dawson, directors. The head office is at 2201 Sterling Tower, Toronto.

The property of this company includes the old Westree or Champion Reef mine in Macmurchy township, in the West Shiningtree area, district of Sudbury. It consists of a group of four claims, on which previous operators put down two shafts, one to 500 feet and the other to 100 feet. They established levels at 240 and 500 feet, where they did 325 and 780 feet of lateral work, respectively. In addition a station was cut at a depth of 92 feet.

This shaft was dewatered in July, 1934, and 70 feet of lateral work was accomplished on the 500-foot level. Underground work was then suspended in favour of surface work for the balance of the year.

The old mining plant was used, which included a 95 h.p. boiler, a 10- by 12-inch hoist, and a 460-cubic-foot Ingersoll-Rand steam compressor.

An average of 19 men was employed under the direction of F. J. Sullivan. The mine address is Westree.

Lake Shore Mines, Limited

Lake Shore Mines, Limited, is capitalized at \$2,000,000, in shares of \$1 par value. The executive officers and directors are: Harry Oakes, president; W. H. Wright, vice-president; A. L. Blomfield, managing director; Dr. W. P. St. Charles, treasurer; Kirkland Securities, Limited, secretary; Albert Wende and Ernest Martin, directors. The mine and works are at Kirkland Lake, Teck township, district of Timiskaming.

An average of 1,299 men was employed during the year. E. W. Todd is mine superintendent.

The following is taken from the report of the superintendent for the fiscal year ending June 30, 1934:—

During the period, receipts from bullion amounted to \$16,382,274.27, from 836,991 tons of ore milled, giving a value per ton of \$19.57. The production in ounces amounted to 485,384 gold and 99,041 silver.

PRODUCTION RECORD

Period	Months	Tons milled	Bullion production ¹	Dividends paid
Mar. 1, 1918, to Nov. 30, 1918.....	9	14,948	\$369,680.31	\$100,000
Dec. 1, 1918, to Nov. 30, 1919.....	9	11,907	294,513.72	100,000
Dec. 1, 1919, to Nov. 30, 1920.....	12	18,889	483,701.93	80,000
Dec. 1, 1920, to Nov. 30, 1921.....	12	21,681	460,186.37	120,000
Dec. 1, 1921, to June 30, 1923.....	19	36,825	833,664.89	160,000
July 1, 1923, to June 30, 1924.....	12	24,223	578,242.59	160,000
July 1, 1924, to June 30, 1925.....	12	96,838	1,812,494.66	600,000
July 1, 1925, to June 30, 1926.....	12	125,676	2,235,184.40	700,000
July 1, 1926, to June 30, 1927.....	12	214,335	3,105,047.85	1,200,000
July 1, 1927, to June 30, 1928.....	12	237,962	3,629,317.57	1,600,000
July 1, 1928, to June 30, 1929.....	12	367,015	5,504,858.64	2,000,000
July 1, 1929, to June 30, 1930.....	12	467,648	6,576,780.45	2,600,000
July 1, 1930, to June 30, 1931.....	12	698,624	9,152,935.08	3,600,000
July 1, 1931, to June 30, 1932.....	12	834,434	12,356,759.00	6,000,000
July 1, 1932, to June 30, 1933.....	12	797,673	11,306,307.59	6,000,000
July 1, 1933, to June 30, 1934.....	12	836,991	10,026,451.00	6,000,000
Total.....		4,805,669	\$68,726,126.05	\$31,020,000

¹At \$20.67 per ounce.

SUMMARY OF ORE HOISTED

Level	Ore from development	Ore from mining
	tons	tons
200-foot.....		3,250
400-foot.....	153	21,051
600-foot.....	2,191	71,587
800-foot.....	1,101	141,991
1,000-foot.....	762	49,035
1,200-foot.....	1,153	32,828
1,400-foot.....		3,124
1,600-foot.....	586	1,416
1,800-foot.....	1,741	5,315
2,000-foot.....	2,047	29,078
2,200-foot.....	2,226	167,159
2,325-foot.....	1,921	143,671
2,450-foot.....	3,710	105,683
2,575-foot.....	1,215	34,472
2,700-foot.....	809	218
2,825-foot.....		
2,950-foot.....		
3,075-foot.....	1,707	
3,200-foot.....	3,048	
3,325-foot.....	2,183	
3,450-foot.....	14	
3,575-foot.....	350	
3,700-foot.....		
3,825-foot.....	1,538	
3,950-foot.....		
4,075-foot.....		
4,200-foot.....		
4,325-foot.....		
4,450-foot.....	1,116	
Total.....	29,571	809,878

DEVELOPMENT FOOTAGE FOR THE YEAR

Level	Drifting	Cross-cutting	Raising	Shaft-sinking	Shaft-raising	Box-holing	Sub-drifting	Ore and waste passes	Total footage	Diamond-drilling	Station-cutting
	feet	feet	feet	feet	feet	feet	feet	feet	feet	feet	cu. ft.
200-foot.....			28				64.9		92.9		
400-foot.....	141.1		392.4				221		754.5	324.9	
600-foot.....	712.7	68.9	536.1			420.5	873.2		2,611.4	599.2	
800-foot.....	830.1		1,129			378.7	831		3,168.8	203.6	
1,000-foot.....	212.3		542.3			109.2	1,217.9		2,081.7	1,296.7	
1,200-foot.....			857.6			14.1	1,093.4	32.5	1,997.6	470.7	
1,400-foot.....			275.2				87.8		363	92	
1,600-foot.....	210.7	133.7	413.7						758.1	407.3	
1,800-foot.....	435.2		251.9			23.5	121.7		832.3	287.1	
2,000-foot.....	1,355.5	55.8	181.2				88		1,680.5	324.1	
2,200-foot.....	2,246.5	568.9	1,222.2			42.5	546.6		4,626.7	826.6	
2,325-foot.....	1,121.9	418	1,118				233.1		2,891	1,678.4	
2,450-foot.....	1,317.7	399.7	757.3				43.2		2,517.9	401.5	
2,575-foot.....	15	209.7	314.2				16		554.9	41.9	
2,700-foot.....		22	206.5						228.5	619	
2,825-foot.....										1,520	
2,950-foot.....		83.2									
3,075-foot.....	664.8								83.2		
3,200-foot.....	1,402.9								664.8	1,879	
3,325-foot.....	966.4	60.4							1,402.9	1,974.8	
3,450-foot.....									1,026.8	65	
3,575-foot.....	257.9	15.3									
3,700-foot.....		125							273.2		
3,825-foot.....	576.3	328.2							125		
3,950-foot.....		74.5						95.7	1,000.2	560.5	
4,075-foot.....		192.7	89.2						74.5		
4,200-foot.....		367.3						252.1	534		1,416
4,325-foot.....		92.9	94.2		65.5			194.3	561.6		
4,450-foot.....	527.6	693.3		15	93			233.3	485.9	386	28,640
Total.....	12,994.6	3,909.5	8,409	15	158.5	988.5	5,437.8	1,319.4	33,232.3	14,139.6	34,436

SUMMARY OF DEVELOPMENT WORK PERFORMED SINCE THE
BEGINNING OF OPERATIONS

	Feet
Drifting.....	112,565
Crosscutting.....	28,654
Raising.....	73,495
Subdrifting.....	11,714
Ore and waste passes.....	11,365
Shaft-sinking.....	7,998
Shaft-raising.....	1,340
Shaft-slashing.....	761
Winze-sinking.....	1,151
Diamond-drilling.....	90,740
Box-holing.....	329,968
Station-cutting.....	753,305
Sumps.....	57,068

STATEMENT OF COSTS FOR THE YEAR

	Cost per ton milled
Development.....	\$0.551
Mining.....	2.965
Milling and refining.....	1.210
Marketing bullion.....	.072
General and administrative expense.....	.272
Operating cost.....	\$5.070
Depreciation.....	.979
	\$6.049
Provision for taxes (exclusive of bullion tax).....	1.119
Total cost.....	\$7.168

Development

During the year, particular attention was paid to further development of levels above the 2,000-foot horizon, and especially to more intensive exploration of No. 1 vein, with the result that the proportion of mill feed derived from this vein had gradually increased from 14 per cent. at the beginning to 40 per cent. of the total at the end of the period. Much of the ore recovered from upper levels was opened up with a very limited amount of development work. In general the result was achieved by means of short drifts, crosscuts, raises, subdrifts, and exploration in the walls of old drifts and stopes.

The very considerable tonnage of lower-grade material made available for mining, to a large extent by the increase in the world price received for gold, has removed, for the immediate future, the necessity of intensive exploration in lower horizons of the mine.

During the period, 7,593 feet of drifting was done in the No. 1 vein zone, principally between the 1,800- and the 2,450-foot levels. Included in this footage is 4,513 feet driven partly on line, in unfavourable sections of the vein, for the purpose of providing additional entrances into the west part of the No. 2 vein zone. This work developed 1,966 lineal feet of ore in No. 1 vein, having an average width in the drifts of 60 inches containing 0.65 ounces of gold per ton.

During the early part of the year, 3,306 feet of drifting was done on No. 2 vein between the 3,075- and 3,825-foot levels, resulting in opening up 1,852 feet of ore, showing a width in the drifts of 60 inches, and containing 0.56 ounces per ton.

The continuation of favourable structure and the persistence of values to greater depths is indicated by the results obtained in opening the No. 1 vein at the 4,450-foot level. At this horizon, 528 feet of drifting disclosed 432 feet of ore, having an average gold content of 0.93 ounces across 5 feet.

Preparations were completed in lower levels for continuing sinking operations below the 4,450-foot level, when the proper time is at hand. A hoist-room, 62 feet by 24 feet, was constructed at the 4,325-foot level. A permanent ventilation system of large raises, driven mostly in waste, was completed to the 2,700-foot level. A zinc chloride treatment plant was installed on surface for the purpose of treating, against decay, all timber going into the lower part of the mine.

Stoping

All of the ore mined was extracted by cut-and-fill methods, or over stulls in narrow sections of No. 1 vein. Backfill to the extent of 407,835 tons was placed during the period. Much work was done in connection with re-establishing old levels in the upper part of the mine.

Broken ore reserves stood at 230,858 tons, with a value of 0.81 ounces per ton. Reserves of ore in place, available for immediate mining, were fully maintained.

Milling

Extensive experimental work was conducted throughout the year. Adjustments were made to the plant, involving minor alterations and resulting in gradually increasing efficiency.

Lakeland Gold, Limited

Lakeland Gold, Limited, was formed to take over the assets and liabilities of Lakeland Gold Mines, Limited. The shares of the old company were exchanged at the rate of four shares of the old company for one of the new. The company owns 1,120 acres at Wolf lake, Maisonville township, district of Timiskaming. The company is capitalized at 2,000,000 shares, of which 1,100,000 are issued. The officers and directors are: F. A. Pollard, president; M. D. Wynman, secretary-treasurer; A. R. Timms, first vice-president; B. Thornber, second vice-president; Robert Johnston, T. Brittain, Thos. Pope, Bruce Mason, directors. Geo. Schmelzle is mine manager. The head office is at 19 Sun Life Building, Hamilton. The mine address is Bourkes.

The following work was done from March 24 to May 15, 1934: crosscutting, 80 feet; drifting, 412 feet; and raising, 89 feet. The mine is being kept pumped out.

Lakeside-Kirkland Gold Mines, Limited

Lakeside-Kirkland Gold Mines, Limited, owns 7 claims in Lebel township, district of Timiskaming. The original company, Queen Lebel Gold Mines, Limited, sold its assets to the Queen Lebel Gold Mining Company, Limited, the shareholders to receive one share of the new company for two of the old. Later, in 1934, the name of the company was changed to Lakeside-Kirkland Gold Mines, Limited, the exchange of shares being made on a basis of one for one. The capitalization is 3,000,000 shares of \$1 par value. A permanent directorate has not yet been appointed. At present E. B. Knapp is managing director; and E. B. Wood, director.

The mine operated from May 2 to November 2, 1934, with an average force of 22 men. During that time 600 feet of drifting and crosscutting and 1,700 feet of diamond-drilling were done on the 300-foot level.

The plant consists of: 2 locomotive-type boilers, of 40 h.p. each; a 400-cubic-foot compressor; and an 8- by 10-inch single-drum steam hoist.

Richard Callin was superintendent. The mine address is Kirkland Lake.

Lebel Oro Mines, Limited

Lebel Oro Mines, Limited, was incorporated in 1920, and the present authorized capitalization is 3,000,000 shares of \$1 par value. The officers and directors are: W. J. Green, president; F. E. Pentz, vice-president; P. Fahrenholtz, secretary-treasurer; W. H. Englebright and J. R. Hetherington, directors. The executive office is at 703 Northern Ontario Building, Toronto.

The property of this company includes the old Long Lake mine, located in township 69, district of Sudbury.

Operations at this mine were suspended at the end of February, 1934, following the dewatering and sampling of the old workings. Late in June the construction of a 200-ton mill was started, which was completed at the end of October. Work was then suspended, but is expected to be resumed in the spring of 1935, when it is planned to start milling the tailings from the original operation.

Lee Gold Mines, Limited

Lee Gold Mines, Limited, was incorporated in 1931, with an authorized capital of 3,000,000 shares of \$1 par value. The officers and directors were: J. J. Byrne, president; W. B. McPherson, secretary; D. A. Ampleford, treasurer; M. J. Shunsby, M. D. Gray, and E. M. Howells, directors. The head office is at 244 Bay Street, Toronto.

In 1933 the company acquired a group of 17 claims in Greenlaw township, in the Swayze area, district of Sudbury. Surface work was started in April, 1933, followed by 2,000 feet of diamond-drilling. The installation of a mining plant was started in January, 1934.

A 2-compartment vertical shaft was started in March. It was sunk to a depth of 275 feet, and levels were established at 125 and 250 feet. Underground work was suspended in November. A total of 480 feet of drifting, and 624 feet of crosscutting was accomplished on the 125-foot level, and a total of 35 feet of drifting and 400 feet of crosscutting was done on the 250-foot level. The property was closed down at the end of January, 1935.

The plant installed included two 33 h.p. boilers, an 8- by 12-inch AC hoist, and a 52.5-cubic-foot Ingersoll-Rand steam compressor. Buildings erected included a power-house, blacksmith shop, 2-storey office, 2-storey bunk-house, cook-house, stable, and powder-house.

An average of 21 men was employed during 1934. A. Jamieson succeeded R. E. Miller as manager.

Little Long Lac Gold Mines, Limited

Little Long Lac Gold Mines, Limited, was incorporated in January, 1933, with an authorized capitalization of 2,000,000 shares of no par value. The officers and directors are: Jos. Errington, president; Thayer Lindsley, vice-president; L. A. MacDonald, secretary-treasurer; W. S. Morlock, A. B. Gordon, and D. M. Morin, directors. The executive office is at 25 King Street West, Toronto. The mine address is Geraldton.

The property is in the Little Long Lac area, district of Thunder Bay, two miles south of the Long Lac-Port Arthur branch of the Canadian National Railways.

During 1934 the 3-compartment vertical shaft was sunk an additional 269 feet to a total depth of 719 feet, and levels were established at 445, 570, and 695 feet.

The development work accomplished during the year on the various levels was as follows:—

Level	Drifting	Crosscutting	Raising
	feet	feet	feet
204-foot.....	156	.....	250
325-foot.....	740	.....	80
445-foot.....	756	442	.....
570-foot.....	380	.....	.....
695-foot.....	120	.....	.....
Total.....	2,152	442	320

In September a 48-mile hydro-electric power line was completed from the Northern Empire mine to the property. The original hoist and compressor

were replaced by an Ingersoll-Rand double-drum electric hoist and a 1,250-cubic-foot Ingersoll-Rand electric compressor. The boiler plant was retained for heating and standby service.

A 150-ton mill was constructed and put in operation on November 24, 1934. A total of 5,485 tons of ore had been milled by the end of the year, which was obtained from the ore dump and from back-slashing, in preparation for stoping, on the 204-, 325-, and 445-foot levels.

The mill equipment includes a 15- by 24-inch jaw-crusher, a 5-inch New-house crusher, a 7- by 5-foot ball mill, a 54-inch Akins classifier, a 5- by 16-foot tube mill, a 36-inch duplex Akins classifier, two 28- by 12-foot Dorr tray thickeners, four 20- by 15-foot Dorr agitators, one 16- by 12-foot Dorr agitator, two 8- by 10-foot Oliver filters, a Merrill-Crowe continuous precipitation unit, six corduroy blanket tables, and amalgamation equipment. Approximately 60 per cent. of the gold is obtained by amalgamation, which is used on the primary classifier overflow and the tube-mill discharge.

Buildings erected during 1934 included a new dry-house, new general office, new 2-storey cook-house, hospital, school, a second 2-storey bunk-house, nine dwelling houses, mill, refinery, and assay office.

An average of 142 men was employed, of whom 27 were underground. A. A. Barton was in charge of operations, with A. Rennick as mill superintendent.

Lucky Cross Leasing Syndicate

The Lucky Cross Leasing Syndicate is capitalized at 700 units of \$50 each. The officers are: W. J. Cook, president; Gerald D. O'Meara, secretary-treasurer S. A. Pain, managing director; R. J. Carter and Dr. R. J. Neelands, directors. The secretary's office is at the Bank of Commerce Building, Kirkland Lake.

In 1933 the syndicate obtained a lease on the Lucky Cross property in Teck township, district of Timiskaming. A further report regarding the work on the property is given under Golden Gate Mining Company, Limited, on page 30.

Lucky Kirkland Gold Mines, Limited

Lucky Kirkland Gold Mines, Limited, was incorporated in April, 1934, with an authorized capitalization of 3,000,000 shares of \$1 par value, 1,600,905 of which are issued. The officers and directors are: T. B. Armstrong, president; S. L. MacDonald, vice-president and manager; J. J. Gray, secretary-treasurer; G. C. Kirkpatrick, director. The head office is at 159 Bay Street, Toronto. The mine address is Swastika.

Operations were carried on during May and June, 1934, on the property in Eby township, district of Timiskaming, with an average force of 15 men. About 100 feet of drifting was done on the 400-foot level, making a total of 4,000 feet of lateral work to date. The shaft is 415 feet deep.

The mining plant consists of a 60 h.p. boiler, a 6- by 8-inch Jenckes hoist, and a 300-cubic-foot Ingersoll-Rand compressor. There is a camp to accommodate 30 men.

Macassa Mines, Limited

The capitalization of this company is 3,000,000 shares of \$1 par value. The officers and directors are: Robert A. Bryce, president; L. Soliague, secretary-treasurer; John D. Perrin, Henry M. Porteous, Thomas Riggs, and Arthur G. Slaght, directors. G. A. Howes is mine manager. The head office is at 85 Richmond Street West, Toronto. The mine office is at Kirkland Lake. About 143 men were employed at the mine during the year.

The company owns 6 claims, adjoining the Kirkland Lake Gold mine on the west, in Teck township, district of Timiskaming. On November 1, 1934, the company paid its initial dividend at the rate of 5 cents per share.

The following is an extract from the report of the mine manager for the twelve months ending March 31, 1935:—

Production

During the year 66,534 tons of ore were treated, from which \$1,058,958.29 was recovered, or \$15.91 per ton. The daily average milling rate was 182.3 tons at 91.95 per cent. running time. The average extraction was 93.89 per cent.

Construction

To bring the original plant and equipment in line with the rate of production and the amount of underground development work required, several additions were made during the year. The principal expenditures consisted of four cottages, air compressor, large hoist motor, raising headframe, underground equipment, new steel shop and small mill additions, as follows:—

Staff residences (4).....	\$11,605.10
Hoist and compressor-house equipment.....	18,152.92
Carpenter and electrical shop.....	257.03
Raising headframe, ore and waste bin, etc.....	7,102.97
Mill and sprinkler system additions.....	7,465.00
Mine equipment.....	17,650.55
New steel shop and equipment.....	3,615.77
Miscellaneous.....	6,400.45
Total.....	\$72,249.79

Development

While hoisting ore and waste with cages, new exploration and development was limited. To correct this condition, it was decided to change over to skip-hoisting which necessitated cutting underground loading pockets and raising the headframe. These additions were made during the first five months of the fiscal year, since which time we have had ample hoisting capacity. Since the main shaft has now reached 3,000 feet in depth, this will permit the opening up of new levels at 2,575, 2,675, 2,825, and 3,000 feet. The drift on the 2,475-foot level, west of the shaft, has followed the main break, which has been strong and persistent so far. The face of this drift is now half way between the shaft and the western boundary of the property. Work here has disclosed short sections containing commercial values, but no workable ore shoot in this section has yet been found. The summary of development work is as follows:—

	1934-35	1933-34
	feet	feet
Drifting.....	5,988	3,483.5
Crosscutting.....	1,033	349
Raising.....	1,409	744
Shaft-sinking.....	481	.....
Station-cutting.....	91	30
Total.....	9,002	4,606.5
Diamond-drilling.....	3,489	2,701.5

Ore Reserves

To date, no level has been fully explored, but new ore shoots have been opened up on the 1,400-, 1,500-, 1,750-, 1,850-, and 2,675-foot levels during the past six months. Some of these shoots are not sufficiently developed to be included in the ore estimate. Taking only positive ore and not making any estimate of a partially developed good tonnage of similar grade nor including indicated lengths of lower grade, the following is an estimate:—

	Tons	Ounces per ton	Value per ton at \$35
Unbroken ore.....	56,900	0.44	\$15.40
Broken ore.....	11,600	.49	17.15
Surface dump.....	3,490	.43	15.00

PRODUCTION SINCE THE BEGINNING OF MILLING OPERATIONS IN 1912

Period	Months	Tons milled	Value per ton	Gross value	Recovery per ton	Total value
1912.....	12	14,500	\$7.00	\$101,555.16	\$5.25	\$76,166.38
1913.....	12	31,979	7.85	251,314.45	7.05	225,752.25
Jan. 1, '14, to Mar. 31, '15..	15	85,654	8.87	760,232.16	8.39	718,331.71
Apr. 1, '15, to Mar. 31, '16..	12	105,758	7.71	815,345.49	7.38	779,990.94
Apr. 1, '16, to June 30, '17..	15	195,307	10.00	1,954,793.28	9.55	1,864,914.28
July 1, '17, to June 30, '18..	12	178,327	10.05	1,793,197.55	9.61	1,714,258.00
July 1, '18, to June 30, '19..	12	179,874	9.78	1,759,627.40	9.29	1,671,646.03
July 1, '19, to June 30, '20..	12	188,835	11.52	2,175,891.31	11.02	2,080,178.44
July 1, '20, to June 30, '21..	12	171,916	11.67	2,005,672.00	11.08	1,904,326.36
July 1, '21, to June 30, '22..	12	193,971	10.69	2,074,088.40	9.99	1,937,105.07
July 1, '22, to June 30, '23..	12	240,615	9.96	2,397,303.00	9.35	2,249,741.63
July 1, '23, to June 30, '24..	12	360,140	9.69	3,488,863.00	9.14	3,291,178.22
July 1, '24, to June 30, '25..	12	400,259	9.43	3,774,068.00	8.86	3,546,637.52
July 1, '25, to June 30, '26..	12	460,909	8.72	4,020,326.00	8.25	3,804,774.90
July 1, '26, to Mar. 31, '27..	9	385,409	8.08	3,113,500.07	7.67	2,957,060.97
Apr. 1, '27, to Mar. 31, '28..	12	520,460	8.09	4,207,553.00	7.66	3,987,634.94
Apr. 1, '28, to Mar. 31, '29..	12	538,165	8.24	4,433,378.00	7.83	4,212,624.82
Apr. 1, '29, to Mar. 31, '30..	12	550,495	8.46	4,657,188.00	8.05	4,433,626.45
Apr. 1, '30, to Mar. 31, '31..	12	558,115	8.84	4,934,122.00	8.30	4,633,140.73
Apr. 1, '31, to Mar. 31, '32..	12	655,030	8.47	5,548,278.10	8.10	5,305,475.29
Apr. 1, '32, to Mar. 31, '33..	12	736,300	8.45	6,224,493.40	8.12	5,981,714.69
Apr. 1, '33, to Mar. 31, '34..	12	776,845	10.68	8,296,704.60	10.24	7,957,252.54
Apr. 1, '34, to Mar. 31, '35..	12	862,100	10.23	8,819,660.27	8.85	7,622,671.10
Total.....		8,390,963	\$9.25	\$77,607,154.64	\$8.70	\$72,956,203.26

Mining

Ore broken in stopes.....	Tons	760,334
Ore from development.....		112,587
Total.....		872,921
Ore hoisted.....		858,179

Development

Development work amounted to 28,240 feet. This includes 15,803 feet of drifts, of which 2,063 feet was on line and 13,740 feet in vein material; of this, 6,980 feet was in ore averaging 0.300 ounces per drift width.

ORE RESERVES, 1934-35

	Tons	Fine ounces gold	Value at \$20.67
Estimated.....	3,219,460	1,046,226	\$21,625,486
Broken.....	211,021	57,600	1,190,320
Total.....	3,430,481	1,103,826	\$22,815,806
Average per ton.....		0.3217	\$6.65

SUMMARY OF DEVELOPMENT AND EXPLORATION, 1934-35

Period	Drifts	Crosscuts	Raises	Winzes	Shafts	Stations	Sumps	Pockets and passes	Total footage	Total excavation	Diamond-drilling
	feet	feet	feet	feet	feet	cu. ft.	cu. ft.	feet	feet	cu. ft.	feet
1,369.5	413	165	.....	.....	.....	2,736	.....	.....	1,947.5	2,736	2,554
1,225	528	23	.....	.....	.....	16,431	.....	.....	1,776	16,431	3,084
811	984	30	.....	.....	.....	2,165	.....	.....	1,825	2,165	3,231
1,275	893	.....	.....	.....	.....	.....	.....	.....	2,168	.....	2,961
1,155	956	68	.....	.....	.....	.....	.....	.....	2,179	.....	4,124
1,026	1,322	46	.....	.....	.....	.....	.....	.....	2,394	.....	4,189
1,546	1,342	179	.....	.....	.....	.....	.....	.....	3,067	.....	4,502
1,424	1,230	54	.....	.....	.....	.....	.....	.....	2,708	.....	3,533
1,330	690	76	.....	.....	.....	.....	.....	.....	2,096	.....	3,674
1,415	1,112	.....	.....	.....	.....	.....	.....	.....	2,527	.....	3,851
1,427	1,188	189	.....	.....	.....	.....	.....	.....	2,804	.....	4,072
1,799	812	137	.....	.....	.....	.....	.....	.....	2,748	.....	4,705
Total previous to date.	15,802.5	11,470	967	.....	.....	21,332	.....	.....	28,239.5	21,332	44,480
Total to date.	216,854.3	102,255.8	21,592.9	612.7	14,549.4	992,250	55,039	139,699	355,865.1	1,186,988	393,148
Total to date.	232,656.8	113,725.8	22,559.9	612.7	14,549.4	1,013,582	55,039	139,699	384,104.6	1,208,320	437,628

Operating Costs

	Total cost	Cost per ton ore milled
MINING:		
Exploration.....	\$79,495.17	\$0.0922
Development.....	441,489.81	.5122
Breaking and stoping.....	2,367,449.37	2.7461
	\$2,888,434.35	\$3.3505
Drilling.....	619,581.39	.7187
Administration and general expense.....	102,880.62	.1193
Total.....	\$3,610,896.36	\$4.1885

ANALYSIS OF MINING COSTS PER TON MILLED

	Stoping	Drifting	Cross-cutting	Raising	Shafts and winzes	Stations and sumps	Total cost	Cost per ton
Labor.....	\$1,154,985.22	\$137,487.85	\$84,047.38	\$7,366.67	\$181.61	\$9,521.57	\$1,393,590.30	\$1.6165
Explosives.....	112,936.41	44,593.08	34,181.76	1,776.64	.....	176.14	193,664.03	.2246
Supplies.....	99,633.86	5,242.48	6,511.44	362.20	672.06	6,254.21	118,676.25	.1377
Power.....	74,983.03	13,788.38	7,360.87	1,740.79	.....	81.44	97,954.51	.1136
Timbering.....	234,571.00	.....	.....	.....	7,267.26	273.00	242,111.26	.2808
Shaft repairs.....	4,781.30	.....	.....	.....	.....	.....	4,781.30	.0055
Rockfilling.....	214,720.79	.....	.....	.....	.....	.....	214,720.79	.2492
Steel-sharpening.....	36,199.72	12,025.96	7,396.65	779.32	.....	93.79	56,495.44	.0655
Drill repairs.....	24,639.51	4,711.93	2,497.13	552.06	.....	36.84	32,437.47	.0376
Surveying and engineering.....	33,385.43	6,261.57	3,300.53	780.50	.....	42.42	43,770.45	.0508
Sampling and assaying.....	42,934.89	3,255.38	1,713.62	399.27	.....	.....	48,303.16	.0560
Stamping.....	10,807.43	1,926.85	1,043.40	247.81	29.22	133.25	14,187.96	.0165
Ventilating.....	6,198.23	1,073.25	542.50	127.69	.....	8.90	7,950.57	.0092
Fire protection.....	209.64	.....	.....	.....	.....	.....	209.64	.0002
Underground lighting.....	5,077.78	.....	.....	.....	.....	.....	5,077.78	.0060
Stamping.....	89,269.28	14,016.69	7,678.50	1,705.36	.....	.....	112,669.83	.1307
Underground crushing.....	7,262.15	919.30	.....	.....	.....	.....	8,181.45	.0095
Hoisting.....	214,853.70	24,075.00	.....	.....	470.57	4,426.98	243,826.25	.2828
Total.....	\$2,367,449.37	\$269,377.72	\$156,273.78	\$15,838.31	\$8,620.72	\$21,048.54	\$2,838,608.44	\$3.2927
Less undistributed development.....	.....	.....	.....	.....	.....	.....	29,669.26	.0344
Exploration.....	.....	.....	.....	.....	.....	.....	\$2,808,939.18	\$3.2583
	.....	.....	.....	.....	.....	.....	79,495.17	.0922
Total.....	\$2,808,939.17	\$2,808,939.17	\$2,808,939.17	\$2,808,939.17	\$2,808,939.17	\$2,808,939.17	\$2,888,434.35	\$3.3505
Unit cost per ton	\$2.7461	\$0.3125	\$0.1813	\$0.0184	\$0.0100	\$0.0244	\$3.3505	\$3.3505

Drifting on the 1st level had then showed 320 feet, averaging 0.38 ounces of gold per ton across 5 feet; and on the second level, 304 feet, averaging 0.36 ounces across 5.4 feet. The distance between levels on the dip of the vein is 140 feet. At the end of 1933 the estimated ore in sight was 37,819 tons, containing 13,992 ounces of gold.

In 1934 work was actively carried on throughout the whole year. The following extract is from a progress report made to the shareholders on November 22, 1934:—

Under date of November 12 last, Mr. Shaw, our general manager, estimates ore reserves of 97,900 tons, having an average value of 0.437 ounces per ton (\$15 at present gold price). This does not include the ore in the dump, nor any ore from drifting on the 450-foot level.

The mine development work has been continued on the 150-foot and 250-foot levels, and according to Mr. Shaw's report, this work has added to the ore lengths on these levels, so that we now have on the 150-foot level, one block of 400 feet with an average width of 5.4 feet, and another length of 150 feet with a width of 5.2 feet. On the 250-foot level there is continuous ore over a length of 580 feet and 5-foot width, containing ore of mine average, and also a short section 100 feet long and 5.2 feet wide of somewhat lower grade. Drifting in ore on the 250-foot level is proceeding at present.

Following the satisfactory results on these two levels, and in accordance with the recommendations of our engineer, it was decided to proceed with development to greater depth in order to obtain information to guide us regarding mill installation. This work has been accomplished by the sinking of an inclined winze on the vein from the 250-foot level, and the opening up of a 3rd level at a vertical depth of 350 feet. A limited amount of lateral work on the 350-foot level gave several good ore sections, and in doing this work we encountered a new vein branching from the main shear and striking west. This new vein was drifted on for a distance of about 165 feet in ore of mine average grade and width.

The winze was continued and has now reached a depth of 450 feet vertically, where a new level is being opened up. The results encountered in the sinking of the winze were highly satisfactory, and with the exception of a few places where the vein flattened or rolled, there was continuous ore from a point in a raise above the 250-foot level down to the present depth at the 450-foot level, making a total length on the dip of the vein of about 350 feet. The average width of the vein in the winze is 4.7 feet, and the values are higher than the mine average, with the best results encountered below the 350-foot level.

Following the milling tests, to which reference is made in the general manager's supplementary report presented at our annual meeting, your directors made arrangements for the design and preparation of plans for a cyanide mill, which should give maximum extraction at minimum cost. Hydro-electric power being available, negotiations were entered into with the Hydro-Electric Power Commission of Ontario for a supply of power for operating purposes, and work was commenced on the construction of a power transmission line of about 5½ miles in length. This work is about completed and the power should be turned on at our plant in December. During the summer, preparations were made to replace our steam plant by the installation of electrically driven equipment. New buildings to accommodate increased forces were erected, and in the meantime orders were placed for all materials, machinery, and supplies necessary for mill construction and operation. We were very fortunate in being able to effect delivery at the mine of everything needed before the close of navigation.

The construction of the mill, which is of steel frame with steel tanks and bins, all on concrete foundations, is now well advanced, and the roofing and sheeting of the main building is almost completed. A new steel headframe and mine ore bin are being erected. The initial capacity of the mill is estimated at 125 tons daily, and the design of the building and layout is such that additional units can be added at comparatively low cost to increase the capacity to at least 200 tons. According to the present plans of our manager, the mill should be turned over in February.

The electric power line mentioned in the above quotation was completed at the end of the year, and the 125-ton mill was nearing completion.

W. P. Mackle has been superintendent at the property since the beginning of operations. John W. Shaw is general manager.

MacLaren-Porcupine Gold Mines, Limited

MacLaren-Porcupine Gold Mines, Limited, has an authorized capitalization of 3,000,000 shares of no par value, of which 2,300,000 have been issued.

The officers and directors are: Dr. W. M. McLaren, president; J. M. McLaren, vice-president and managing director; J. J. Gallagher, treasurer; N. W. Kingsland, Gerald Ruel and Robt. D. McLaren, directors. The head office and mine office are at South Porcupine. Stanley Saxton is manager

The property consists of seven patented claims comprising about 300 acres in Deloro township, district of Cochrane. The property is one mile south of the Marbuan mine and about five miles from South Porcupine. During 1934 a small number of men were employed prospecting and mining from an open pit. A 3-ton Kennedy Nutt mill was operated for part of the summer on ore from this open pit. A 15-ton mill of the same type was installed late in December. Sixteen men were employed at the mine at the end of the year.

Power is supplied by a portable Sullivan compressor. Two Climax drills are used. The material from the pit is handsorted before being sent to the mill. By crushing to finer size than the Kennedy Nutt mill calls for, the tonnage being handled has been raised to between 20 and 25 tons per day.

MacLeod-Cockshutt Gold Mines, Limited

MacLeod-Cockshutt Gold Mines, Limited, was incorporated in September, 1933. It has a capitalization of 3,000,000 shares of \$1 par value. The officers and directors are: F. G. MacLeod, president; W. H. Connell, vice-president and managing director; A. H. Cockeram, secretary-treasurer; A. Cockshutt and G. B. Webster, directors. The head office of the company is at 1001 Federal Building, Toronto. The mine-office address is Geraldton.

The property consists of 22 claims lying south and east of the Little Long Lac mine in the Little Long Lac area, Thunder Bay district. In the summer of 1933 the Connell Mining and Exploration Company held an option on the property and did 8,780 feet of diamond-drilling and a considerable amount of trenching and sank two pits to 15 and 30 feet.

In the spring of 1934, the company installed a mining plant consisting of two 60 h.p. locomotive-type boilers, a 520-cubic-foot compressor, and an 8- by 6-inch hoist with a 24-inch drum. Sinking was started early in the summer. A 3-compartment shaft was put down and one level opened at the 150-foot level. Work done on the level consisted of: main crosscut north and south, 231 feet; north zone exploration crosscutting and drifting, 662 feet; central zone exploration crosscutting and drifting, 163 feet; and south zone exploration crosscutting and drifting, 726 feet. The results obtained were disappointing and underground operations ceased in December. A diamond-drilling campaign, started about the time of suspension of underground operations, has been planned as a further test of the north zone, which had provided the most favourable results.

Work on the property has been carried out under the management of C. H. E. Stewart. An average of 37 men was employed during the period of operation.

J. Bruce McMartin

On October 10, 1934, J. Bruce McMartin of Montreal, acquired the property of the Dikdik Exploration Company, Limited, situated at Atigogama lake, Rickaby township, district of Thunder Bay. This property consists of a group of 9 claims, and is about 12 miles northwest of Kinghorn station, on the Port Arthur-Long Lac branch of the Canadian National Railways.

Work was commenced on this property in December, 1933, and a narrow high-grade vein was mined by an open cut on claim T.B. 11,071 to a depth of 50 feet over a length of 80 feet. In March a 2-compartment vertical shaft was started from the bottom of the open cut, and continued to a depth of 160 feet below surface. A level was established at 150 feet.

Underground operations were suspended from July until October. In December shaft-sinking was resumed, and the shaft had reached a depth of 233

feet by the end of the year. A total of 218 feet of drifting was accomplished on the 150-foot level during 1934.

Two shipments of sorted ore, totalling about 293 tons, were made to the Flin Flon smelter early in 1934. The recovery from this ore was 1,081 ounces of gold and 600 ounces of silver.

The plant installed included a 310-cubic-foot gasoline compressor, and a 6- by 5-inch Ingersoll-Rand single-drum air hoist. Buildings on the property consisted of a power-house, office, bunk-house, cook-house, stable, and powder-house.

An average of 12 men was employed, of whom 5 were underground. K. W. Fritzsche was in charge of operations. The mine address is Jellicoe.

McMillan Gold Mines, Limited

McMillan Gold Mines, Limited, was incorporated in 1926, with an authorized capitalization of 3,000,000 shares of \$1 par value. The officers and directors were: R. L. Patterson, acting president; G. A. Foot, vice-president; Dr. F. C. Fraser, secretary-treasurer; C. B. Goldsborough, J. M. R. Corbet, W. J. Hussey, C. A. Durkee, G. M. Miller, and R. Martin, directors. The head office is at Sudbury.

The property is about 60 miles southwest of Sudbury, in Mongowin township, district of Sudbury, and is within 2 miles of the Little Current branch of the Canadian Pacific Railway. The mine address is Footbanks.

In the spring of 1934 work was started on the construction of a 125-ton cyanide mill, which was put in operation on August 13, 1934. An electric power line was constructed from Espanola to the property.

Underground operations were carried on throughout the year with the exception of June and July, when electric equipment was installed.

The development work accomplished during 1934, and the total to the end of 1934, on the various levels, was as follows:—

Level	Drifting		Crosscutting		Raising	
	1934	Total	1934	Total	1934	Total
	feet	feet	feet	feet	feet	feet
225-foot.....	340	365	.....	.....	32	32
325-foot.....	.....	1,355	.....	504	302	302
425-foot.....	.....	333	30	95	32	32
525-foot.....	.....	1,609	.....	639	45	45
625-foot.....	412	768	108	143	50	50
Total.....	752	4,430	138	1,381	461	461

Shrinkage stoping was started on the 225- and 325-foot levels.

The new plant installed included a 1,000-cubic-foot electric compressor, and an Ingersoll-Rand double-drum electric hoist. Buildings constructed included a mill, refinery, assay office, dry-house, manager's residence, office, and cook-house. The mill equipment installed included a 12- by 20-inch jaw-crusher, Newhouse crusher, 7- by 5½-foot ball mill, 5- by 26-foot Dorr classifier, two 30- by 12-foot Dorr thickeners, three 16- by 16-foot Dorr agitators, two 8- by 8-foot Oliver filters, and a Merrill-Crowe continuous precipitation unit. Up to the end of the year the mill treated a total of 12,313 tons of ore.

An average of 84 men was employed during the year. L. H. Heidenreich was succeeded by J. G. McGregor as manager. George Dunn was mine superintendent, and W. R. Dennis was mill superintendent.

Manitoba and Eastern Mines, Limited

Manitoba and Eastern Mines, Limited, is capitalized at 5,000,000 shares, of which 3,100,006 were issued, 2,000,000 shares being optioned to Bobjo Mines, Limited, for \$202,500.

The property consists of 16 claims in Strathy township, district of Nipissing. The head office is at 25 King Street West, Toronto. The officers of the company are: W. E. Hurd, president; W. G. Chipp, treasurer; T. M. Mungovan, secretary; R. J. Jowsey and L. K. Fletcher, directors. The mine address is Timagami.

The following development work was done during the year: shaft, 323 feet, with levels at 200 and 300 feet; 495 feet of crosscutting; 1,322 feet of drifting; and 2,243 feet of diamond-drilling. The plant consists of a new 700-foot Rand compressor, driven by a 160 h.p. Atlas Polar Diesel engine; a 50 h.p. boiler, locomotive-type, for heating; and a 7 h.p. Diesel D.C. lighting unit. A new double-drum, 6- by 8-inch hoist, air or steam, was installed.

An average of 16 men was employed during 1934.

Marbuan Gold Mines, Limited

Marbuan Gold Mines, Limited, was incorporated in 1933 with a capitalization of 1,000,000 shares of \$1 par value, of which 732,898 are issued. The officers and directors are: E. G. Kinkel, president; Jacob Betz, vice-president; Henry Kobler, treasurer; R. P. Kinkel, assistant treasurer; G. R. Feine, secretary; Gustave R. Loesch, Henry J. Tiedt, and Clarence Leo, directors. The head office is at 902 Lumsden Building, Toronto. The mine address is South Porcupine. Charles L. Hershman is mine manager.

The property, which consists of 5 claims adjoining the Buffalo Ankerite, in Deloro township, district of Cochrane, formerly belonged to March Gold, Limited, and was sold for the benefit of the bondholders when that company went into bankruptcy in 1933.

March Gold had sunk the main shaft to the 425-foot level, sunk a winze from 425 feet to 675 feet, and opened up four levels. In 1926 a 150-ton mill was installed; it was operated until the mine was shut down in 1932, during which time production totalled \$1,023,759. Milling was resumed by Marbuan Gold in July, 1934.

The following is taken from the report of the mine manager for the year ending December 31, 1934:—

Production

Dry tons treated.....	25,715
Mint returns.....	\$113,484.06
Average value per ton..... ounces	0.135
Recovery per ton milled.....	\$4.41
Ore broken in stopes..... tons	23,007
Ore broken in development..... tons	4,170
Ore hoisted..... tons	26,787
Waste hoisted..... tons	5,305

Tonnage milled in 1934 was obtained from the Nos. 3, 5, and 6 vein workings on the 170-, 300-, 475-, 800-, and 1,050-foot levels.

Development

Drifting.....	1,478
Crosscuts.....	371
Raises.....	517
Winze.....	380
Total.....	2,746
	cu. ft.
Stations.....	24,838
Sumps.....	3,125
Total.....	27,963

No. 1 winze was completed in November to the 1,050-foot level. Stations were cut on the 800-, 925-, and 1,050-foot levels, and crosscuts started toward the No. 5 vein on the 800-foot level and the No. 3 structure on the 925- and 1,050-foot levels. The 405 sublevel was driven west for approximately 600 feet. Indicated stope extensions were prospected by a series of raises.

Milling

The mill treated 25,712 tons during the year at a cost of \$1.177 per ton.

Percentage of total possible running time.....	89.5
Tons treated per day.....	152
Tons treated per 24 hours running time.....	170
Average mill heads (figured at \$20.67).....	\$2.59
Average mill tails.....	\$0.21

Tonnage milled in 1934 was obtained from abandoned stopes and lateral extensions in the Nos. 3, 5, and 6 veins on the 170-, 300-, and 425-foot levels.

MILL RECORD

Month	Tons milled	Daily average, tons	Heads per ton	Tails per ton	Total value, heads and tails	Bullion	Premium
July.....	4,356	150	\$3.03	\$0.203	\$13,198.68	\$9,418.76	\$6,259.31
August.....	4,889	157	2.41	.205	11,782.49	12,971.75	8,439.24
September.....	4,492	149	3.01	.220	13,520.92	13,294.24	8,606.00
October.....	4,331	139	2.64	.230	11,433.84	11,863.23	7,779.31
November.....	4,625	154	2.22	.190	10,267.50	10,174.70	6,620.45
December.....	4,707	151	2.30	.190	10,826.10	10,782.22	7,274.85
Total.....	27,400	150	\$2.59	\$0.21	\$71,029.53	\$68,504.90	\$44,979.16

N.B.—All values are figured on gold at \$20.67.

Ore Reserves

There are no positive ore reserves in the mine at present. Possible ore can be calculated in the Nos. 603 east and 505 east stopes on the basis of past production in these sections and check-sampling results obtained.

Level	Tons	Assay value	Total value
Back of stope to 475-foot (No. 3 vein).....	8,093	\$7.80	\$63,125.40
550- and 475-foot (No. 5 vein).....	3,775	1.55	18,346.50
Total.....	11,867	\$6.85	\$81,471.90

N.B.—All values are figured on gold at \$20.67.

BROKEN ORE

	Tons	Assay value	Total value
No. 5 vein.....	12,375	\$3.75	\$46,439.72

N.B.—All values are figured on gold at \$20.67.

Operating Costs

Month	Mining	Milling	Development	Total
July.....	\$2.859	\$1.274	\$1.289	\$5.422
August.....	2.543	1.142	1.647	5.332
September.....	3.384	1.053	1.577	6.014
October.....	3.319	1.333	1.808	6.460
November.....	2.666	1.102	1.571	5.339
December.....	2.833	1.155	1.539	5.527
Average cost per ton.....	\$2.934	\$1.177	\$1.572	\$5.682

Drifting per foot.....	\$13.32
Raising per foot.....	11.67
Sinking and stations per foot.....	78.30

Plant

The mill machinery and general equipment were overhauled and placed in operation. The mine pump was placed on the 1,050-foot level. The hoist was installed on the 475-foot level. Cars, cages, drill machines, and accessory equipment and supplies were purchased.

General

The main haulageway on the 475-foot level was retimbered and widened, and the existing 16-pound rail was replaced by 20-pound rail. Crosscuts were started on the 800-, 925-, and 1,050-foot levels toward the Nos. 5 and 3 structures.

Martin Bird Syndicate

The Martin Bird Syndicate owns 9 claims in Hearst township, district of Timiskaming. The officers and directors are: S. J. Bird, president; G. O'Meara, secretary-treasurer; Dr. R. Armstrong, J. Martin, and D. Lough, directors. John Campbell was mine manager.

During 1934 a shaft was sunk 125 feet, and about 358 feet of lateral work was completed. Operations ceased in November.

Matachewan Consolidated Mines, Limited

Matachewan Consolidated Mines, Limited, owns 21 claims, comprising 840 acres, in Powell and Cairo townships, district of Timiskaming. The authorized capital is 3,000,000 shares of no par value, of which 1,200,000 shares are issued to the Matachewan Canadian Gold, Limited, shareholders. The balance of the stock is optioned to Ventures, Limited, and Sudbury Basin Mines, Limited, to be taken up as money is expended on development. The officers and directors of the company are: Thayer Lindsley, president; H. H. Sutherland, vice-president; H. Whittingham, secretary-treasurer; W. J. Boland and Jos. Errington, directors. Ernest Craig is manager, and Thos. L. Wells is superintendent. The head office is at 25 King Street West, Toronto. The mine address is Elk Lake.

During the year a 100-ton mill was built and put into operation. In November 4,680 tons were milled, from which 679.39 fine ounces of gold and 99.49 ounces of silver were recovered. The following development work was done: raising, 478 feet; drifting, 1,780 feet; crosscutting, 703 feet; box-holing, 318 feet. The ore stoped amounted to 121,620 feet, or 6,081 tons.

An average of 56 men was employed during 1934.

Miller Independence Mines (1924), Limited

Miller Independence Mines (1924), Limited, successor to Miller Independence Mines, Limited, is capitalized at 3,500,000 shares of \$1 par value, of which 3,100,000 shares are issued.

The officers and directors are: F. L. Smith, Nantucket, Mass., president and treasurer; George McSherry, vice-president; D. E. Cushing, secretary; W. M. Byers, F. A. Robinson, and Angus Smith, directors. M. W. Hotchkin, consulting engineer, resigned at the end of the year. The head office is at 39 New Bank of Toronto Building, London, Ont. The mine office is at Boston Creek.

In 1932 the company acquired the property of the Allied Gold Mines, Limited, for 1,000,000 shares. The property consists of 560 acres in Pacaud township, district of Timiskaming.

The property was reopened in February, 1934, and shut down again in August. During the period of operation 185 feet of crosscutting and 1,049 feet of drifting were done on the 100-foot level. An inclined winze was sunk to a depth of 221 feet below the 100-foot level. After the underground work was stopped 400 feet of diamond-drilling was done from surface.

An average of 21 men was employed.

Minto Gold Mines, Limited

Minto Gold Mines, Limited, was incorporated in 1930, with an authorized capitalization of 8,000 shares of no par value. The officers and directors were: John Knox, Jr., president; M. E. Knox, secretary-treasurer; A. Dorfman and J. Ingram, directors.

The property was formerly owned by Cooper Gold Mines, Limited, from whom it was leased and later purchased. It includes the Minto, Jubilee, and Cooper mines, all of which are located in township 29, range 23, in the Michipicoten area, district of Algoma.

Underground operations at the Minto mine were suspended in May, 1934. During the period of operation in 1934 a total of 10,243 tons of ore was mined and milled, of which 3,412 tons was obtained from the 1st level, 1,560 tons from the 2nd level, and 5,271 tons from the 3rd level. No development work was done. Later in the year a total of 1,035 feet of diamond-drilling was done from surface.

Following the suspension of underground operations at the Minto mine, the mining plant was transferred to the Jubilee mine, where underground work was started late in July. Stopping was commenced on the 3rd level, from which 11,946 tons of ore was obtained. This ore was given a preliminary crushing and transported by truck to the 80-ton cyanide mill at the Minto mine, where it was milled.

The plant included a 720-cubic-foot Ingersoll-Rand electric-driven compressor, and an electric hoist.

An average of 42 men was employed throughout the year under the direction of John Knox, Jr. The mine address is Wawa.

Moffatt-Hall Mines, Limited

Moffatt-Hall Mines, Limited, has a capitalization of \$5,000,000, in shares of \$1 par value. The officers are: L. R. Moffatt, president; and C. F. Tuer, Haileybury, secretary-treasurer. The mine office is at Swastika. The company owns 15 claims in Lebel township, district of Timiskaming.

In February, 1934, the property was leased to Hugh Jardine, who carried on operations until September 21, with an average force of 18 men. During this period a total of 3,178 tons of ore was hoisted and shipped.

On September 21 the Bidgood Kirkland Gold Mines, Limited, took over the lease on the property. From September 21 to the end of the year the latter company hoisted and milled 5,298 tons of ore. The total value of the ore milled during the year was \$87,084.08.

The following development work was done by the Bidgood Kirkland Gold Mines, Limited:—

	Feet
Raising.....	310
Drifting.....	70
Winze-sinking.....	16
Diamond-drilling.....	643

Munro Croesus Mines, Limited

Munro Croesus Mines, Limited, owns 160 acres in Munro township, district of Cochrane, 12 miles east of Matheson. The authorized capital is 40,000 shares of \$1 par value. The officers of the company are: Robert Coffey, president; J. E. Grant, Haileybury, vice-president and general manager; L. A. Lillico, secretary-treasurer.

During the latter part of 1934 the mill treated 205 tons, of which 25 tons was taken from the old surface dump. The value recovered was \$10,351.76. The property was closed in December, 1934.

Naybob Gold Mines, Limited

Naybob Gold Mines, Limited, was formed in 1932 to take over the property of Hayden Gold Mines, Limited, in Ogden township, district of Cochrane. It is capitalized at 3,500,000 shares of \$1 par value. The officers and directors are: R. J. Naylor, Rochester, N.Y., president and manager; Richard N. Clarke, vice-president; H. J. Haddleton, secretary-treasurer; Geo. E. Beggs, John G. Jones, Sherman J. Le Pard, and Jos. Montgomery, directors. The executive office is at 808 Genesee Valley Trust Building, Rochester, N.Y.

During 1934 the mine was kept pumped out until December, when underground work was started on the 300- and 700-foot levels.

Work on the 700-foot level is being confined to No. 703 vein. This is the most southerly vein of a group of three, which strike roughly southeast and dip to the southwest at about 55 degrees. On the 300-foot level a crosscut is being driven south to intersect the same vein.

About 44 men are employed. The mine address is Timmins.

Neville Canadian Gold Mines, Limited

Neville Canadian Gold Mines, Limited, was incorporated in February, 1934, with an authorized capitalization of 3,000,000 shares of \$1 par value. The officers and directors were: E. H. Dickenson, president; R. R. Brown, vice-president; W. G. Caulfield, secretary-treasurer; T. M. Mungovan and Paul Fisher, directors. The head office is at 710 Concourse Building, Toronto.

The property acquired by this company consists of a group of 9 claims in Churchill and Macmurchy townships, in the West Shiningtree area, district of Sudbury. It is about 23 miles by road from Westree station on the Canadian National railway, and was formerly known as the Wasapika-Ribble property.

Former operators sank a 2-compartment vertical shaft to a reported depth of 300 feet, with levels at 100, 200, and 300 feet, on which a total of 730 feet of lateral work is believed to have been accomplished.

Work was started on August 4 and suspended on December 15, 1934. A new headframe was erected, and the old buildings on the property, including a power-house, blacksmith shop, assay office, dry-house, bunk-house, cook-house, and office, were repaired. The old steam plant, including two boilers, totalling 81 horse-power, an 8- by 10-inch Jenckes hoist, and a 350-cubic-foot Ingersoll-Rand steam compressor, was overhauled and put in shape for use. The mine had been dewatered to the 100-foot level when operations were suspended.

About 14 men were employed under the direction of G. F. Milne.

North Shores Gold Mines, Limited

North Shores Gold Mines, Limited, was incorporated in November, 1933, with an authorized capitalization of 3,000,000 shares of \$1 par value. The officers and directors were: R. N. Palmer, president; E. E. Watts, vice-president; W. G. Bennett, secretary-treasurer; J. A. Ross and L. P. Wood, directors. The executive office is at 44 Victoria Street, Toronto.

The property held by this company consists of 600 acres located about 3½ miles south of Schreiber, on the main line of the Canadian Pacific railway, district of Thunder Bay.

When this property was taken over it had a 500-foot adit, from which some stoping had been done on a narrow high-grade vein. Underground work was started by this company in April, 1934, and during the balance of the year the old adit was driven an additional 400 feet. A second adit was started 180 feet below the first, and driven in 400 feet from the portal.

In July, equipment was taken into the property for a 25-ton amalgamation mill and construction started. Milling was started on November 10, and a total of 602 tons of ore was treated during 1934. The ore was obtained from stoping from the 1st level adit. The mill was erected on the shore of Lake Superior at a point about half a mile distant, and 400 feet below, the 1st level adit. The ore was transported to the mill by truck.

The mill equipment included a 19- by 24-inch jaw-crusher, 10- by 14-inch jaw-crusher, 2 Kennedy Nutt mills, ball mill, Akins classifier, Wilfley table, D. S. A. flotation cell, corduroy-blanket tables, and amalgamation plates.

A power plant was erected, and the equipment installed included a 75 k.v.a. generator, driven by a 104 h.p. Diesel engine, and a 1,052-cubic-foot Ingersoll-Rand compressor, driven by a 240 h.p. Diesel engine.

An average of 27 men was employed under the direction of R. N. Palmer. The mine address is Schreiber.

Northern Empire Mines Company, Limited

The Northern Empire Mines Company, Limited, was incorporated in 1932, with an authorized capitalization of 10,000 shares of \$10 par value, which was increased in 1933 to 500,000 shares of \$1 par value. The officers and directors are: Fred Searls, Jr., president; H. E. Dodge, secretary-treasurer; G. B. Agnew and D. E. Thomas, vice-presidents; Carroll Searls and A. Douglas, directors. The executive office is at 14 Wall Street, New York. The mine address is Empire.

The property of this company is located at Empire, on the Port Arthur-Long Lac branch of the Canadian National Railways, district of Thunder Bay.

The development work accomplished during 1934 on the various levels, was as follows:—

Level	Drifting	Crosscutting	Raising
	feet	feet	feet
150-foot.....			190
300-foot.....	1,260	63	143
450-foot.....	1,006	133	79
Total.....	2,266	196	412

Shaft-sinking was in progress at the end of the year, by which time the 2-compartment shaft had been sunk an additional 107 feet, giving it a total depth of 609 feet, and a station had been cut at the 600-foot level.

The 125-ton mill was completed and put in operation on March 13, 1934. A total of 22,507 tons of ore was treated during 1934, which was obtained from cut-and-fill stoping on the 150-, 300-, and 450-foot levels.

The equipment installed in the mill included a 9- by 12-inch jaw-crusher, 30 gravity stamps, amalgamation plates, an 8- by 18-foot Dorr classifier, a 4- by 7-foot Hardinge ball mill, a Denver Sub-A flotation unit, a 16- by 8-foot Dorr thickener, a 6- by 3-foot Dorr filter. Later in the year cyanide equipment was added, which included an 8- by 8-foot thickener, a 4- by 4-foot ball mill, Akins classifier, three 8-foot Denver agitators, and Merrill-Crowe continuous precipitation equipment.

An average of 83 men was employed, of whom 46 were underground. R. J. Hendricks was in charge of operations; P. E. Corrin was mine captain; and J. M. Cartan succeeded H. D. Hunt as mill superintendent.

O'Connell Gold Mines, Limited

O'Connell Gold Mines, Limited, is capitalized at 3,000,000 shares of no par value, of which 1,200,000 shares are issued. In 1934 the officers and directors were: J. J. Hollinger, president and manager; G. B. O'Connell, vice-president; A. G. Plaxton, secretary-treasurer; R. O. Wheatley, director. The head office is at 100 Adelaide Street West, Toronto.

The company owns 180 acres in Powell township, Matachewan area, district of Timiskaming. In 1934 a plant was installed consisting of a new semi-Diesel oil compressor of 350-cubic-foot capacity, a single-drum hoist, and a 60 h.p. boiler. During June and July a shaft was sunk 50 feet.

An average of 20 men was employed. The mine address is Elk Lake.

Oreana Trusts, Limited

The head office of Oreana Trusts, Limited, is at 1689 Board of Trade Building, Chicago. R. C. Orton is president.

Kozak Property

The company took over the Kozak property, which is located in township 28, range 26, district of Algoma, in 1933. It is less than a mile west of South Goudreau station on the Algoma Central railway.

A 6- by 8-foot vertical shaft was started late in 1933. Underground operations were suspended in the spring of 1934. The shaft was sunk to a depth

of 110 feet, and a level established at 100 feet, where a small amount of lateral work was accomplished.

The plant used included a gasoline compressor and an air hoist. R. Tallack was in charge.

Michael-Boyle Property

The company took over the Michael-Boyle property, located in township 27, range 25, district of Algoma, and started operations in March, 1934. There is a 5-mile road from mileage 171½ on the Algoma Central railway to the property.

Previous operators had driven an adit for a distance of 300 feet, from which they did 200 feet of drifting. A shaft had been put down to a depth of 45 feet.

Underground work was started in April and suspended in July, 1934. The adit was driven an additional 33 feet, and 367 feet of drifting was accomplished, using a gasoline compressor. Surface work was done for the rest of the year. An average of 14 men was employed under the direction of J. A. S. Roussac.

Pamour Porcupine Mines, Limited

Pamour Porcupine Mines, Limited, was incorporated in March, 1934. It has a capitalization of 3,500,000 shares. The officers and directors are: G. H. Rainville, president; R. M. Macauley, vice-president; A. Lafontaine, secretary-treasurer; M. Kendall, W. Meen, A. D'Amour, P. Gelines, directors. The head office of the company is at 221 Notre Dame Street West, Montreal.

The holdings of Pamour Porcupine Mines, Limited, are an amalgamation of the properties of La Palme Porcupine Mines Company, Limited, the Three Nations Mining Company, Limited (which has recently been held by private interests), and Porcupine Grande Gold Mines, Limited. The company is controlled and operated by the Quebec Gold Mining Corporation, which held an option on 2,000,000 shares of the company when it was incorporated. The holdings consist of 20 claims, all in the northeast quarter of Whitney township, district of Cochrane. The claims lie about 7 miles northeast of the Dome mine. The mine address is South Porcupine.

Work was started on the property in May, 1934. Diamond-drilling was commenced in June. During the year 5,966 feet of drilling was done, all from surface, making a total of 12,536 feet of diamond-drilling done on the property to the end of 1934.

Underground work was started in October. Prior to this time the shaft-sinking had amounted to 200 feet, plus the sump, and the following additional underground work had been done:—

	100-foot level	200-foot level
	feet	feet
Crosscutting.....	713	637
Drifting.....	1,018	737
Raising.....	140	100
Winze.....		33

During 1934 underground work was confined to the 200-foot level, 97 feet of crosscutting being done, and 523 feet of drifting.

At the end of the year there were 34 men employed at the mine. About half this number were employed underground, 7 at diamond-drilling, and the rest on surface. C. D. Stevenson is mine manager.

Parkhill Gold Mines, Limited

Parkhill Gold Mines, Limited, was incorporated in 1929, with an authorized capitalization of 3,000,000 shares of \$1 par value. The officers and directors are: Sir Thomas Tait, president; G. F. Elderkin, vice-president; G. F. Racine, secretary-treasurer; G. M. McKee, Chas. Adams, and Dr. C. A. Peters, directors. The executive office is at 1835 Beaver Hall Building, Montreal, Que. The mine office is at Wawa.

The property is located 6 miles from Wawa in the Michipicoten area, district of Algoma.

During 1934, the 2-compartment 40-degree shaft was sunk an additional 276 feet to a total depth of 1,253 feet on the incline, and levels, the 8th and 9th, were established at 1,000 and 1,200 feet.

Development footages accomplished on the various levels during 1934 were as follows:—

Level	Drifting	Crosscutting	Raising
	feet	feet	feet
1st.....			108
3rd.....	232		
4th.....	608	106	124
5th.....			156
6th.....	43	73	113
7th.....	1,051	168	245
8th.....	1,413	207	355
9th.....	368	104	.....
Total.....	3,715	658	1,101

A total of 19,455 tons of ore was obtained from the mine during 1934, of which 15,170 tons was from stoping and the balance from development. Stopping was done by open-stoping methods on all levels from the 3rd to the 8th, inclusive, though the major production was from the 7th and 8th levels.

The cyanide mill was operated for 318 days during 1934, and treated a total of 19,431 tons of ore.

An average of 96 men was employed, of whom 62 were underground. R. E. Barrett was in charge.

Paymaster Consolidated Mines, Limited

Paymaster Consolidated Mines, Limited, was incorporated in 1930 and has an authorized capitalization of 9,000,000 shares of \$1 par value. The head office is at 204 McKinnon Building, Toronto. The officers and directors are: A. S. Fuller, president; E. H. Walker, vice-president and managing director; E. L. O'Reilly, secretary-treasurer; Chas. E. Cook, H. D. Rothwell, A. W. Hodgetts, C. J. O'Brien, directors.

The principal holdings of this company total about 1,600 acres. The properties are situated in Tisdale township, district of Cochrane, south and west of the Dome mine, the two properties being contiguous. Paymaster Consolidated Mines' holdings include property formerly held or controlled by the following companies: West Dome Mines, Limited; Dome Lake Mining and Milling Company, Limited; Standard Gold Mines, Limited; McLean Gold Mines, Limited; Consolidated West Dome Lake Mines, Limited; Premier Paymaster Mines, Limited; Bison Gold Mines, Limited; West Dome Lake Gold Mines, Limited; United Mineral Lands Company, Limited.

Paymaster Consolidated Mines have numbered the various shafts on their property from west to east. The following is a list with their depths and the approximate amount of development work done from each shaft:—

Shaft	Depth	Lateral workings
	feet	feet
No. 1 (old Paymaster).....	80	} 19,202
No. 2 " ".....	813	
No. 3 " ".....	400	
No. 4 (old United Mineral).....	253	1,545
No. 5 (old Dome Lake).....	1,097	23,537
No. 6 (old West Dome or Heinze).....	456	6,946

From the 1,050-foot level of No. 5 shaft, a winze has been sunk, and levels have been established at 1,200 and 1,325 feet.

There are two mills on the property, the old West Dome Lake cyanide mill of 150-tons capacity, not in use, and the former United Mineral Lands mill of 470 to 500 tons capacity, now in use.

Mining operations were started by the Paymaster Consolidated in November, 1933, in the No. 6 shaft area. By July, 1934, the No. 5 shaft workings were pumped out, and work was also started in this area.

In September, 1934, the ore reserves of the company were stated to include: in the No. 6 shaft area above the 400-foot level, indicated and probable, 35,000 tons, averaging \$11 per ton; in the No. 5 shaft area, in the old workings above the 1,050-foot level, indicated, about 10,000 tons, averaging \$9 per ton; surface dump, 6,000 tons of low-grade ore. Former production at various times since 1915, from these two shafts, totalled \$1,114,821. Past production from the old Paymaster section totalled \$384,647.

Milling operations were started by Paymaster Consolidated on September 24, 1934. During the remainder of the year there were treated 13,824 tons of ore, derived from the following sources: from surface dump, 6,786 tons; from No. 5 shaft, 514 tons; from No. 6 shaft, 6,524 tons. From this tonnage production amounted to \$77,949.08.

Feed from the surface dump was stopped in December for the winter months. Tonnage was then stepped up from the Nos. 5 and 6 shafts. At the end of December the mill was handling about 140 tons per day, about 20 per cent. of which was coming from No. 5 shaft and 80 per cent. from No. 6 shaft. The ore from these shafts is hauled by trucks to the mill.

During 1934 No. 6 shaft, inclined at 62 degrees, was deepened 125 feet, from 331 feet to 456 feet, and the following additional underground work and diamond-drilling was done:—

	Drifting	Cross-cutting	Raising	Diamond-drilling
	feet	feet	feet	feet
From No. 6 shaft.....	2,037	368	287	1,271
From No. 5 shaft.....		28	21	1,055
From surface.....				602
Total.....	2,037	396	308	2,928

An average of 72 men per month was employed at the mine during 1934. Of this number 56.3 per cent. were employed underground; 25.9 per cent. on surface; 10.9 per cent. in the mill; and 6.9 per cent. in general construction work.

Chas. Cook is mine manager. The mill superintendent is D. Robinson. The mine superintendent during 1934 was G. R. McLaren, who resigned in January, 1935. His successor has not yet been named. The mine address is South Porcupine.

Pickle Crow Gold Mines, Limited

The property of the Pickle Crow Gold Mines, Limited, is located in the Pickle Lake-Crow River area, in the district of Kenora, Patricia portion. There are 59 claims in the group, comprising approximately 2,300 acres. The property lies about 6 miles east of that of Central Patricia Gold Mines, Limited. The mining camp is situated on claims Pa. 746 and 747. Transportation to the mine in summer is from Hudson or Collins on the Canadian National railway, by air route, or from Hudson by water. Scows starting from Hudson pass through Lac Seul and are taken across into Lake St. Joseph by means of Root river and a marine railway. These scows are then taken across Lake St. Joseph to a point about 20 miles from the mine, from which point supplies are delivered to the mine either by tractor or plane. Winter transportation starts from Savant Lake on the Canadian National railway, a distance of about 115 miles from the mine, and is entirely by tractor train except for supplies taken in by air from Hudson.

The company is capitalized at 3,000,000 shares of \$1 par value. It was incorporated January 8, 1934, and purchased property from Northern Aerial Canada Golds, Limited. The latter company had previously taken over the property from Northern Aerial Minerals Exploration, Limited.

The officers and directors are: J. E. Hammell, president; A. L. Smith, vice-president; Robert Fennell, secretary-treasurer; G. A. Cavin, assistant secretary-treasurer; Mrs. Eola Hammell, director. The mine manager is Alex. G. Hattie. The head office is at 1406 Concourse Building, Toronto. The mine address is Pickle Lake, via Sioux Lookout.

Work was first done on the property in 1928. It was then dormant until 1933, when a steam plant, consisting of two 60 h.p. locomotive-type boilers, was installed. Other equipment included an 800-cubic-foot Canadian Ingersoll-Rand compressor, an 8¼- by 10-inch Canadian Ingersoll-Rand reversible steam hoist, and drill sharpener.

Shaft-sinking was commenced in September, 1933, and the same fall was carried to a vertical depth of 380 feet, with stations cut at the 125-, 250-, and 375-foot levels. The shaft has three compartments. Underground development has been carried on continuously since the shaft was finished. Up to November 30, 1934, the following underground work had been accomplished:—

Level	Drifting	Crosscutting	Raising
125-foot.	feet 614	feet 80	} 170 ¹ 35
250-foot.	1,179	185	
375-foot.	1,378	264	
Total.	3,171	529	205

¹From the 2nd to the 1st level.

Buildings on the property include a power-house, 125-ton mill, steel head-frame, blacksmith shop and steel sharpening shop, assay office, mine office, refinery, pump-house, switch-house, change-house, 3 warehouses, bunk-house, cookery, and residences. The average number of men employed at the mine during 1934 was 53.

Porcupine Peninsular Gold Mines, Limited

Porcupine Peninsular Gold Mines, Limited, was incorporated in July, 1921. The following year the holdings of the company, along with those of Porcupine Night Hawk Mines, Limited, Night Hawk Lake Mining Company, Limited, and Callinan-McKay Exploration Company, Limited, were merged into Night Hawk Peninsular Mines, Limited. In 1933, the assets of the Night Hawk Peninsular Mines were transferred to Porcupine Peninsular Mines, Limited.

The officers and directors of Porcupine Peninsular Mines, Limited, are: J. Albert McKay, Pittsburgh, Pa., president; J. H. Black, Toronto, vice-president; J. Ingram, Toronto, secretary-treasurer; J. R. Dodsworth, Jr., Pittsburgh, and G. A. Grover, Toronto, directors.

The company has an authorized capitalization of 3,000,000 shares of \$1 par value, of which 1,100,000 were issued in December, 1933. The head office is at 80 King Street West, Toronto. The mine address is Connaught.

The mine is located 10 miles from Connaught on the T. and N.O. railway, in the townships of Cody and Macklem, district of Cochrane.

Late in 1933, Anglo-Huronian, Limited, took an option on an unstated number of treasury shares, the shares to be received in return for work to be done on the property. Management of the property was taken over by Anglo-Huronian, who commenced a diamond-drilling campaign, which continued to the end of December, 1934. Over 30,000 feet of diamond-drilling was completed. No drifting or crosscutting was done at the property by Anglo-Huronian. In past years the main shaft had been sunk to 440 feet, with levels at 80, 180, 300, and 425 feet. A winze had also been sunk from the 425-foot level, and from it levels opened at 525 and 625 feet.

On the property there is a 200-ton mill, which produced bullion valued at \$566,885 from 1924 to 1926. The property was inactive except for pumping operations from 1926 until 1933.

During 1934, Robert E. Dye, manager at the Vipond property of Anglo-Huronian, supervised drilling operations at the Porcupine Peninsular.

Ramore Gold Mining Company, Limited

The property of the Ramore Gold Mining Company, Limited, consists of a block of 20 claims in the township of Playfair, district of Cochrane, about two miles southwest of Ramore. Work on the property has been carried on since July, 1933. The present company was incorporated in September, 1934. The capitalization is 2,000,000 shares of \$1 par value, of which 800,000 shares have been issued.

The officers and directors are : C. W. Anderson, president; H. R. Grant, secretary-treasurer; H. N. Van Camp, Dr. S. Evelyn and Alex. C. Smith, directors. W. V. Hocken is mine manager. The head office address is Room 314, C.P.R. Building, Toronto. The mine address is Ramore.

Numerous test pits have been dug, and a shaft has been sunk to a depth of 60 feet.

An average of 10 men was employed.

Red Crest Gold Mines, Limited

Red Crest Gold Mines, Limited, has an authorized capitalization of 3,000,000 shares of no par value. It was incorporated in May, 1934, with a Dominion charter. Officers and directors are: Horace G. Young, president; W. S. Lightball, vice-president; C. G. Macartney, secretary-treasurer. The head office is at 1002 McGill Building, Montreal, Que.

The property, located in Todd township, Red Lake area, district of Kenora, Patricia portion, was formerly known as the Rowan Discovery.

The following paragraph from M. E. Hurst's "Preliminary Report of Developments in the Red Lake Area during 1934," indicates the work being done since the formation of the company:—

On the Red Crest property, formerly known as the Rowan Discovery, considerable trenching and diamond-drilling have been done along a fracture zone that strikes in a northwesterly direction along a greenstone-granodiorite contact. Several quartz veins having, in places, a combined width of 20 feet, occur within this zone. Exploration to date is said to have indicated an ore shoot 222 feet in length containing 0.65 ounces gold over an average width of 5.1 feet. The auriferous portions of the vein matter appear to be intimately associated with narrow, fine-grained diorite dikes that intersect both greenstone and granodiorite. A mining plant is now being assembled on the property.

Financial difficulties resulted in operations being suspended late in the year, before the proposed shaft was started. J. M. Wilson was manager at the property during 1934. The mine office is at Golden Arm, Red Lake.

Red Lake Gold Shore Mines, Limited

Red Lake Gold Shore Mines, Limited, is capitalized at 5,000,000 shares of no par value. The officers and directors are: Charles E. St. Paul, president; Dr. Robt. W. Breuls, vice-president; Harry A. Newman, secretary-treasurer; Charles W. Gallagher, and Ira E. Hough, directors. The executive office is at 244 Bay Street, Toronto. The mine office is at Red Lake.

The property consists of about 1,100 acres and, as the name implies, is located on the shore of Red Lake, Kenora district, Patricia portion. It is adjacent on the west side to the property of Howey Gold Mines, Limited. McIntyre-Porcupine Gold Mines, Limited, holds ground adjacent on the south side. The property was staked in the early Red Lake rush and considerable surface work was done then, but it was not until 1934 that a mining plant was installed, consisting of 2 locomotive-type boilers, 60 horse-power each, one 3-drill steam-driven compressor, a reversible steam hoist, air receiver, and pumping equipment. An office, combined cookery and bunk-house, manager's residence, pump-house, dry-house, hoist-house, boiler-house, blacksmith shop, shaft-house, and a 13,000-gallon water-tank have also been erected.

A shaft has been sunk to 187 feet, and 130 feet of crosscutting to the vein completed. On December 18, 45 feet of drifting on the vein had been accomplished. M. L. Bouzan is manager in charge at the property.

Richelieu Gold Mines, Limited

Richelieu Gold Mines, Limited, was incorporated in May, 1934, with an authorized capitalization of 3,000,000 shares of \$1 par value. The officers and directors were: A. B. Stodart, president; G. C. Ames, secretary-treasurer; W. J. McDonough, W. R. Parker, R. Spreckels, and H. R. Drummond-Hay, directors. The head office is at 350 Bay Street, Toronto.

The property acquired by this company consists of a group of 15 claims in the Thunder Bay district, located on the northeast arm of Sturgeon lake, about

10 miles southeast of Savant Lake station on the main line of the Canadian National railway. It is about 4 miles northeast of the St. Anthony mine. The mine address is Savant Lake.

Surface work was started in May, and early in December, 1934, the sinking of a 2-compartment vertical shaft was undertaken. By the end of the year the shaft had reached a depth of 115 feet.

The plant installed included a 70 h.p. boiler, 600-cubic-foot Ingersoll-Rand steam compressor, and an 8- by 6-inch Ingersoll-Rand hoist. Buildings erected included a power-house, hoist-house, blacksmith shop, powder-house, office, bunk-house, and cook-house.

J. G. Harkness was in charge of operations.

Roche Long Lac Gold Mines, Limited

Roche Long Lac Gold Mines, Limited, was incorporated in May, 1934, with an authorized capitalization of 2,500,000 shares of \$1 par value. The officers and directors were: J. H. Rae, president; P. J. Roche, vice-president; W. H. Beatty, secretary-treasurer; P. J. Graham, director. The executive office is at 200 Sterling Tower, Toronto.

This company acquired 57 claims in the eastern end of the Little Long Lac area, Thunder Bay district, in 1934. In the fall a 2-compartment vertical shaft was put down to a depth of 115 feet. Underground work was then suspended in favour of diamond-drilling.

The plant used included a 20 h.p. boiler, a small steam hoist, and a 220-cubic-foot gasoline compressor.

The mine address is Hardrock.

St. Anthony Gold Mines, Limited

St. Anthony Gold Mines, Limited, was incorporated in 1921. The authorized capitalization was increased from 3,000,000 to 3,300,000 shares of \$1 par value in March, 1934. The officers and directors were: H. P. Bellingham, president; R. F. Taylor, vice-president; T. S. Giles, secretary; R. F. Cairns, treasurer; D. K. E. Fisher and D. M. Bellingham, directors. The head office is at 159 Bay Street, Toronto. The mine address is Savant Lake.

The property of the company is located at Sturgeon lake, 12 miles south of Savant Lake station on the main line of the Canadian National railway, in Thunder Bay district.

The 125-ton cyanide mill was completed and put in operation on May 12, 1934. Power is supplied by the company's hydro-electric plant, which is located about 8 miles from the mine.

Underground work was started in June for the first time since 1929. The development work accomplished up to the time operations were suspended in 1929 was as follows:—

Level	Drifting	Crosscutting
	feet	feet
100-foot.....	1,060	695
150-foot.....	950	385
250-foot.....	745	185
350-foot.....	1,037	200
500-foot.....	185	.....
Total.....	3,977	1,465

This work was done from a vertical 2-compartment shaft from surface to the 150-foot level, a vertical 2-compartment winze from the 150- to the 350-foot level, and another similar winze from the 350- to the 500-foot level. Some stoping had been done on the first four levels, and the ore treated by amalgamation. It is believed that there were about 50,000 tons of tailings left from this work, which could be re-treated at a profit in the new mill.

During 1934 the mine was dewatered to the 350-foot level only. No lateral work was undertaken. The ore in an old shrinkage stope on the 100-foot level was pulled, and some stoping done on the 150- and 250-foot levels.

Up to the end of the year the mill had treated a total of 21,618 tons, of which about 4,800 tons came from underground and the balance from the old tailings and ore dumps.

The steam hoist on surface was converted to electricity, and an electric hoist obtained for No. 1 winze. An 800-cubic-foot electric compressor was installed.

New buildings completed during the year included the hydro-electric plant, dry-house, refinery, assay office, and 2 bunk-houses.

During the year H. A. Darling, L. Weldon, and R. P. Teare were successively in charge of operations. An average of 70 men was employed.

Sakoose Gold Mines, Limited

Sakoose Gold Mines, Limited, was incorporated in June, 1934, with an authorized capitalization of 3,000,000 shares of \$1 par value. The officers and directors were: A. H. Acres, president; M. J. Maloney, vice-president; D. McGrory, secretary-treasurer; M. S. Shulman, director. The head office is at 231 St. James Street West, Montreal, Que.

The property acquired by this company includes the old Sakoose mine, which is located about 6 miles south of Dymont, on the main line of the Canadian Pacific railway west of Fort William, district of Kenora.

In July work was started to dewater and sample the old workings, which are located on claim H.W. 416, and completed in October. In September diamond-drilling was started from surface and a total of 3,000 feet accomplished. The old workings were permitted to flood, and a new 2-compartment shaft was started at a point about 500 feet southwest of the old No. 1 shaft. By the end of the year the new shaft had been sunk to a depth of 30 feet and a plant was being installed, which included a 45 h.p. boiler, a 480-cubic-foot Sullivan steam compressor, and a 9- by 12-inch Jenckes hoist. Buildings erected during the year consisted of a power-house, blacksmith shop, office, bunk-house, cook-house, manager's residence, and powder-house. D. H. Traynor was in charge of operations, succeeding W. C. Hood. The mine address is Dymont.

Saundry Syndicate

The Saundry Syndicate suspended work at the old Headlight mine, located 2 miles west of Mine Centre, district of Rainy River, at the beginning of February, 1934. About 30 tons of ore was mined on the 50-foot level, of which 13 tons was milled.

Three men were employed under the direction of A. E. Saunders.

Selected Canadian Golds, Limited

Selected Canadian Golds, Limited, was incorporated in March, 1932, with an authorized capitalization of 10,000 preferred shares of \$100 par value, and

15,000 common shares of no par value. The officers and directors were: D. M. Hogarth, president; G. G. Blackstock, secretary-treasurer; Halstead Lindsley, R. Livermore, W. T. McEachern, Quincy Shaw, and C. D. MacAlpine, directors. The head office is at the Bank of Commerce Building, Toronto.

In the summer of 1934 the company obtained an option on the old Sultana mine, located about 7 miles southeast of Kenora, in the Lake of the Woods area, district of Kenora. Work was started on October 1 to dewater and sample the old workings, following which diamond-drilling was started from underground.

Between 1891 and 1906 previous operators sank an 80-degree, 8- by 15-foot shaft to a vertical depth of 560 feet, and established eight levels, on which they did a total of 1,535 feet of lateral work. Stopping was done on all levels except the 8th. A 30-stamp mill was operated, and a production of between \$700,000 and \$1,000,000 obtained during the period of operation.

Between October 1, 1934, and the end of the year the company accomplished 1,809 feet of diamond-drilling. A total of 90 feet of lateral work was done on the 4th level, and 147 feet on the 7th level, for drill locations.

The plant used included two of the old 100 h.p. boilers, the old 700-cubic-foot steam compressor, and a new 9- by 11-inch Ingersoll-Rand steam hoist.

About 20 men were employed under the direction of Cameron McDonald.

Sinclair Mines Syndicate

The Sinclair Mines Syndicate holds a group of 16 mining claims in township 23, range 10, district of Algoma. It is about 8 miles east of Searchmont station on the Algoma Central railway.

During the early part of 1934 a 2-compartment vertical shaft was sunk to a depth of 50 feet, and 50 feet of drifting done at that level. The plant used included a 220-cubic-foot Ingersoll-Rand gasoline compressor and a gasoline hoist. Buildings consisted of a bunk-house, cook-house, blacksmith shop, and powder-house.

Dr. Alexander Sinclair, Sault Ste. Marie, was manager of the syndicate.

S. B. Smith

In 1933 S. B. Smith acquired the Van Sickle property, claim S.S.M. 301, located in township 29, range 23, in the Michipicoten area, district of Algoma. It adjoins the Parkhill property on the east side.

Operations were commenced in April, 1934, and a 2-compartment, 45-degree shaft was started in May. By the end of the year the shaft was at a depth of 140 feet on the incline, and a level had been established at 119 feet. A total of 430 feet of drifting and 119 feet of raising was accomplished on this level.

A 15-ton mill was constructed during the year. The equipment included a Telsmith crusher, Kennedy-Nutt mill, Wilfley table, and amalgamation plates. It was operated only a few hours at a time in October for the equivalent of about four days continuous operation.

The mining plant installed included a 175-cubic-foot electric compressor and a small electric hoist. Electric power was obtained from the High Falls plant of the Great Lakes Power Company. Buildings erected included a power-house, blacksmith shop, bunk-house, cook-house, manager's residence, and powder-house.

An average of 22 men was employed under the direction of J. C. Canfield. The mine address is Wawa.

South Vermillion Gold Mines, Limited

South Vermillion Gold Mines, Limited, was incorporated in April, 1934, with a capitalization of 1,500,000 shares of \$1 par value. The officers and directors were: A. Pacitto, president; A. E. Broadley, vice-president; M. F. Burrows, secretary-treasurer; F. J. McFarlane and G. McLaughlin, directors. The head office is at 21 King Street East, Toronto.

The property held by this company consists of a group of three claims located on Bad Vermilion lake, about 3 miles southwest of Mine Centre, Rainy River district.

Work was commenced on April 16, and shortly afterwards a 7- by 12-foot vertical shaft was started. During the rest of the year a headframe, powerhouse, blacksmith shop, powder magazine, and office were constructed. A 50 h.p. boiler and a 125-cubic-foot steam compressor were installed but not used. By the end of the year the shaft had reached a depth of 40 feet, and sinking was still in progress with hand-steel and windlass.

About 10 men were employed under the direction of A. Pacitto. The mine address is Mine Centre.

Stanley Gold Mines, Limited

Stanley Gold Mines, Limited, was incorporated in 1933, with an authorized capitalization of 300,000 shares of \$1 par value. Stanley E. Siscoe was president. The head office is at 231 St. James Street West, Montreal, Que.

The property is located in township 29, range 23, in the Michipicoten area, district of Algoma. It is about 5 miles by road from Wawa station on the Algoma Central railway.

Operations were continued throughout 1934. In January a mining plant was installed, and the electric power line was completed. Shaft-sinking was started in February. The 7- by 12-foot shaft, which had been sunk to a depth of 30 feet by hand-steel in 1933, was put down to a depth of 300 feet. Levels were established at 123 and 256 feet. The shaft has an inclination of 33 degrees to the 1st level, and one of 47 degrees from there to the bottom.

To the end of 1934 a total of 1,425 feet of drifting and 168 feet of crosscutting, had been accomplished. Operations ceased the end of December.

The plant included 2 electric compressors having a total capacity of 750 cubic feet, a 10- by 12-inch steam or air hoist, and a 48 h.p. boiler. Buildings erected during the year included an assay office and manager's residence.

An average of 23 men was employed, of whom 8 were underground. O. H. Adams was in charge of operations.

Stellar Gold Mines, Limited

Stellar Gold Mines, Limited, was incorporated in Manitoba in July, 1934, with an authorized capitalization of 3,000,000 shares of no par value. The officers and directors were: C. H. Miles, president; W. H. Lavery, vice-president; S. E. Fairs, secretary; and W. J. Hoover, director. The executive office is in Winnipeg.

A group of claims was acquired near Mine Centre in Rainy River district, and in September a 3-compartment shaft was started. Operations were suspended in October after sinking 68 feet.

The plant used consisted of a 15 h.p. vertical boiler, a 5- by 7-foot steam hoist, and a 310-cubic-foot GD gasoline compressor.

Straw Lake Beach Gold Mines Syndicate, Limited

Straw Lake Beach Gold Mines Syndicate, Limited, was formed in August, 1934, with an authorized capital of 115,000 shares of no par value. The officers and directors were: W. E. Segsworth, president; E. J. Kerswill, secretary-treasurer; R. J. Jowsey, J. D. Conover, L. L. Steindler, and J. A. Gairdner, directors. The head office is at 67 Yonge Street, Toronto. The mine address is Emo.

This syndicate acquired a group of 9 claims at Straw lake, which is 35 miles north of Fort Frances by air. It is 70 miles by winter road from Emo, which is 20 miles west of Fort Frances on the Canadian National railway.

Following surface work, a 2-compartment vertical shaft was started late in October, 1934, and sunk to a depth of 105 feet. A level was established at 100 feet, on which 187 feet of drifting was accomplished by the end of the year.

The plant installed included a 310-cubic-foot Ingersoll-Rand gasoline compressor and a gasoline hoist. Buildings erected consisted of a power-house, blacksmith shop, office, bunk-house, cook-house, and stable.

Frank Carnegie was in charge of operations.

Swayze-Huycke Gold Mines, Limited

Swayze-Huycke Gold Mines, Limited, was incorporated in 1933 with an authorized capitalization of 3,000,000 shares of \$1 par value. The officers and directors were: W. L. Doyle, president; F. G. Huycke, vice-president; A. B. Drake, secretary-treasurer; L. Guertin, W. C. Ryckman, and C. H. Martin, directors. The head office is at 372 Bay Street, Toronto.

The property of this company includes a group of 6 claims located in Cunningham township, in the Swayze area, district of Sudbury. It is 17 miles by road from Sultan on the main line of the Canadian Pacific railway.

A mining plant was installed in March, 1934, and shaft-sinking started. Operations were suspended in May, recommenced in July, and again suspended in September. The 2-compartment vertical shaft was sunk to a depth of 150 feet and a level established at 125 feet. When operations were suspended in September about 31 feet of drifting and 100 feet of crosscutting had been accomplished on this level.

The plant used included a 310-cubic-foot CP compressor, driven by a 50 h.p. Diesel engine, and an 8- by 10-inch air hoist. Buildings constructed included a power-house, blacksmith shop, powder-house, office, cook-house, and two bunk-houses.

An average of about 8 men was employed under the direction of W. McClintock.

Sylvanite Gold Mines, Limited

Sylvanite Gold Mines, Limited, has an authorized capital of 3,300,000 shares of \$1 par value. The officers and directors of the company are: Edward L. Koons, president; William L. Marcy, vice-president; W. S. Walton, secretary; Clark L. Ingham, treasurer; Welles V. Moot, managing director; C. E. Rodgers, general manager; Alfred H. Sharpe and Harry Yates, directors. The head office is at Kirkland Lake, and the executive office is at 300 Erie County Bank Building, Buffalo, N.Y.

The property is situated in the township of Teck, district of Timiskaming. An average of 263 men was employed during the year.

The following is taken from the general manager's report for the fiscal year ending March 31, 1934:—

Production

TONS MILLED AND YEARLY PRODUCTION FOR FISCAL YEARS ENDING MARCH 31

Year	Tons	Production	Average recovery, Troy ounces per ton
1930	75,408	\$690,400. 14	0.44
1931	83,034	837,013. 97	.49
1932	94,276	948,926. 13 ¹	.49
1933	96,140	912,377. 15 ¹	.40
1934	98,311	1,558,912. 87 ¹	.52
1935	124,956	1,584,817. 39 ²	.41

¹Included exchange on bullion.

²Including exchange on bullion, after bullion tax is deducted. Average price received for year ending March 31, 1935, was \$31.32 per ounce.

Mining

Year	Ore broken			Waste broken			Total ore and waste broken
	In stopes	From development	Total	Hoisted to surface	Used for backfill	Total	
1932	80,678	27,417	108,095	6,658	16,369	22,937	131,032
1933	66,130	37,467	103,597	21,774	5,347	27,121	130,718
1934	54,423	31,971	86,394	25,457	5,838	31,295	117,689
1935	93,883	37,161	131,044	11,812	10,623	22,435	153,479

Some 3,328 feet of work was done through ore, in drift and subdrift work.

Ore Reserves.—Broken reserves at the end of the year amounted to 82,990 tons. This was almost exactly equal to the amount shown at the beginning of the period.

Operating Costs

	Total cost	Cost per ton ore milled
1931:		
Development and exploration	\$212,792. 08	\$2. 563
Mining	267,376. 14	3. 220
Milling	106,575. 54	1. 283
General charges	34,187. 94	.412
Administrative charges	21,213. 75	.255
Total	\$642,145. 45	\$7. 733
1932:		
Development and exploration	\$184,936. 28	\$1. 962
Mining	285,365. 41	3. 026
Milling	112,630. 68	1. 194
General charges	49,478. 61	.525
Administrative charges	24,594. 16	.261
Total	\$657,005. 14	\$6. 968

Operating Costs—Continued

	Total cost	Cost per ton ore milled
1933:		
Development and exploration.....	\$227,278.95	\$2.364
Mining.....	249,907.58	2.599
Milling.....	105,168.81	1.094
General charges.....	48,907.65	.509
Administrative charges.....	23,437.97	.244
Total.....	\$654,700.96	\$6.810
1934:		
Development and exploration.....	\$235,067.63	\$2.391
Mining.....	217,517.25	2.213
Milling.....	111,849.51	1.138
General charges.....	48,073.77	.489
Administrative charges.....	34,774.84	.353
Total.....	\$647,283.00	\$6.584
1935:		
Development and exploration.....	\$242,173.47	\$1.938
Mining.....	263,644.48	2.109
Milling.....	151,620.64	1.213
General charges.....	44,840.04	.359
Administrative charges.....	39,000.00	.312
Total.....	\$741,278.63	\$5.931

By study of the above yearly figures it will be noted that the average operating cost, 1931 to 1935, inclusive, was \$7.023, or \$1.092 above 1935, with a reduction of 0.653 cents per ton in 1935 as against 1934.

Development and Exploration

Class of work	Year ending March 31, 1933	Year ending March 31, 1934	Year ending March 31, 1935	Total from beginning of operations to March 31, 1935
	feet	feet	feet	feet
Drifting.....	6,681	4,399.5	8,985	48,390.5
Crosscutting.....	4,201	2,347	2,688	24,825.5
Raising.....	3,029	2,464.5	1,905.5	13,738.5
Sublevel drifting.....	1,436	1,473.5	1,268.5	9,290.5
Box-hole raising.....	1,179	429	352	6,644.5
Winzing.....		97.5		97.5
Shaft-sinking.....		612		5,654
Total.....	16,526	11,823	15,199	108,641
Per cent. of crosscutting to total of crosscutting and drifting.....	38.7	34.8	23.2	34
Shaft stations and sump excavations.....	cu. ft. 5,610	cu. ft. 19,140	cu. ft. 840	cu. ft. 205,858
Diamond-drilling.....	feet 11,945	feet 6,713	feet 15,952	feet 77,026

No. 2 Shaft.—The greatest volume of exploration and development work done during the year was in the area north of the shaft, although a considerable amount was completed in the medium- to low-grade sections of the south vein system.

Mining operations were conducted on 15 of the 28 levels established at this shaft. The scope extended from 250 to 3,600 feet. The greatest concentration of effort was, however, immediately below, on, and extending to several levels above the 875- and 2,500-foot horizons. From these chief bases an extensive horizontal area was profitably explored. This work continued to confirm what past history has indicated, namely, that ore occurrences in your mine are widespread and are not confined to main veins or definite zones.

Stoping and development to an increasing degree was done along contacts of sediment with porphyry, or altogether in sedimentary formation near the porphyry. General results here were such as to indicate that these ore bodies can be regarded as important producers when the area is more fully developed. Veins occurring in porphyry are, nevertheless, still the chief source of production.

No. 4 Shaft.—From this section 29.1 per cent. of total mill feed for the year was obtained. A fair tonnage of known ore remains, and further exploration of the more favourable ground is planned. This includes upper-level areas of Sylvanite's original claim, L. 2,227, and the recently purchased Rose Fraction, or claim L. 11,398.

Mill Addition

The mill increase to 350 tons per day, mentioned in the last annual report, was put in effect August, 1934. Since that time capacity has been further increased to about 400 tons, with continued satisfactory operation. Milling equipment was installed with a view particularly to fine grinding, and treatment of the lower-grade ore, made profitable by the increased price of gold.

Additional Buildings and Equipment

Exclusive of the mill enlargement, this includes the purchase of certain experimental units in the mill, a fireproof addition to the refinery, a building addition to the assay office, and the installation of a dust-collecting system. An addition was also made to the miners' change-house.

Summary

Tonnage milled for the year represented an increase of 26,645, or 27.1 per cent. over that treated in 1934, while tons of broken reserves were not decreased.

Production, after deduction of bullion tax, was slightly in excess of 1934; operating costs were reduced 65.3 cents per ton milled; milling costs were 7.5 cents higher. This last is chiefly due to the fact that an abnormal amount of mill alteration and experimental work was charged to operation.

As mentioned above, mill capacity was increased chiefly to handle ore of lower grade than that treated during past years. In consequence it is planned to develop to a greater extent than previously the low- to medium-grade ore now indicated, the tonnage of which appears to be highly important in lengthening the life of your mine.

Diamond-drill and other exploration carried on during the year in large volume in both igneous and sedimentary formation, indicated extensive and promising areas. Development of these will be continued. It is further confidently expected that the mining of such ore, coupled with a continued and comprehensive programme of exploration in large and favourable sections as yet but slightly prospected, will lead to other important sources of ore.

Talisman Gold Mines, Limited

Talisman Gold Mines, Limited, is capitalized at \$1,000,000, in shares of \$1 par value. The property consists of 242 acres in Guibord township, district of Cochrane, situated about 13 miles east of Matheson, and is part of the property formerly known as the Gardner Guibord. The officers and directors are: James E. Grant, Haileybury, president; Hugh McIntyre, vice-president; J. W. Beilby, secretary-treasurer; R. J. Lillico, B. H. L. Symmes, and R. G. Meech, directors. The head office is at 364 Bay Street, Toronto.

During 1934 the following development work was done in the old shaft, which was sunk some years ago to 100 feet, with stations at 60 feet and 100 feet: crosscutting, 694 feet; raising, 30 feet; drifting, 374 feet. An average of 19 men was employed.

The plant consisted of two 60 h.p. return tube boilers, a 500-cubic-foot steam compressor, and a 6- by 8-inch steam hoist. The mine was closed down in the early fall of 1934.

Tashota Goldfields, Limited

Tashota Goldfields, Limited, was incorporated in November, 1932. It has an authorized capitalization of 3,000,000 shares of \$1 par value. The officers and directors are: H. H. Vaughan, Montreal, president; Thomas Arnold, Montreal, vice-president; P. W. Ogden, Montreal, secretary-treasurer; W. A. Eden, R. J. Stokes, J. C. Rogers, J. A. Lindsay, and J. A. Griffith, directors. The head office is at Tashota.

The property is located 16 miles south of Tashota on the transcontinental line of the Canadian National Railways, in the Onaman Lake area, district of Thunder Bay. This property was formerly known as the Tashota Gold Mines, Limited.

The property has been worked intermittently since 1928, when shaft-sinking was first started. When operations were begun again in April, 1934, a total of 1,700 feet of lateral work had been done on the 100- and 200-foot levels, and the shaft was down 230 feet. Since then the shaft has been sunk to 366 feet, and a 3rd level is now being developed at the 325-foot horizon. Total later work done underground to December 11, 1934, has been reported to be 2,483 feet, divided as follows: on the 100-foot level, station and crosscutting 80 feet, drifting 430 feet; on the 200-foot level, station and crosscutting 326 feet, drifting 1,647 feet.

J. D. Cumming is superintendent in charge of operations at the property.

Teck-Hughes Gold Mines, Limited

Teck-Hughes Gold Mines, Limited, has an authorized capital of 5,000,000 shares of \$1 par value, of which 4,807,144 shares are issued. The officers and directors are: Albert W. Johnston, chairman of the board; D. L. H. Forbes, president and general manager; George C. Miller, vice-president; Conrad E. Wettlaufer, secretary; K. P. Emmons, treasurer; P. Nugent Tapley, assistant-treasurer; J. W. Stephenson, assistant-secretary; John F. Lash, William W. Reilley, John F. Thompson, and H. C. McCloskey, directors. R. J. Henry is general superintendent. The head office is at Kirkland Lake, and the executive office is at 25 King Street West, Toronto. An average of 738 men was employed during 1934 at the mine in Teck township, district of Timiskaming.

The following is an extract from the president's report for the 12 months ending August 31, 1934:—

During the fiscal year ended August 31 last, the tonnage of ore treated was practically the same as during the two previous years. The price of gold and its realizable value per ounce to your company (after deducting the new bullion tax levied by the Dominion Government) fluctuated between the limits of \$30.50 per ounce at the beginning of the fiscal year to a peak of \$34.80 per ounce during the early part of March, and was approximately \$30.80 at the end of the period. The average for the bullion sold during the fiscal year was \$32.394 per ounce. The average cost of producing gold increased from \$11.04 to \$15.04 per ounce.

The estimate of gold in "positive ore" decreased from 375,495 ounces at August 31, 1933, to 323,088 ounces at August 31, 1934, although the total footage of drifting increased during the period from 9,974.5 lineal feet to 11,163.5 lineal feet. The tonnage of ore produced from development decreased from 29,151 tons in the previous year to 21,749 tons.

At September 1 last, the mine ore tonnage to be milled during the current fiscal year was placed upon a reduced basis of approximately 1,050 tons per day, instead of approximately 1,300 tons per day during the previous year. Re-treatment of tailings which were sorted out and saved several years ago has been commenced and will partly offset this reduction of mine ore tonnage.

Mine workings within the ore zone were deepened from 5,074 feet to 5,735 feet, a vertical distance of 661 feet, which figure compares with 463 feet during the previous fiscal year. Taken as a whole and compared with the new level development results of other recent years, the new levels that were opened up during the year below the 40th show a diminution in both average grade and total tonnage per level, although results on the 45th level seem to indicate a return to better ore conditions. It now seems probable that the limit of depth for profitable mining

will be reached sometime within the next three years. New ore in addition to that from deep levels is being developed in the older portions of the mine, where mining had ceased to be profitable under former conditions.

While decreasing earnings from gold production may be expected, present indications are that the Teck-Hughes mine can be profitably operated for several years to come. There is also the possibility of more favourable ore discoveries than were disclosed during the last fiscal year.

Liquid assets, consisting of cash, Dominion of Canada bonds, and gold bullion, amounted to \$3,572,734.52 at August 31, which compares with \$3,898,468.76 at the end of the previous fiscal year. The decrease in liquid assets is more than accounted for by the investment of over \$800,000 in the capital stock and bonds of Lamaque Gold Mines, Limited. Your company owns 70.8 per cent. of the capital stock of Lamaque Gold Mines, Limited, and all of its issued first mortgage bonds. The financing of the Lamaque enterprise is now being done entirely through the purchase of its bonds by your company. Mining and construction work to develop and equip the Lamaque mine for a capacity of 450 tons per day is planned for completion before the end of next October, while 225 tons per day of this capacity is expected to be available by the end of next June.

The following is taken from the general superintendent's report for the fiscal year ending August 31, 1934:—

During this period 474,700 tons of ore were treated. The recovery of bullion and precipitate was the equivalent of 181,453.51 troy ounces of fine gold, which realized \$5,877,973.88. After the addition of other income the gross revenue was \$5,983,525.03, or \$12.60 per ton of ore milled.

Including the sum of \$253,005.96 charged for depreciation on buildings and fixed plant, the total operating cost was \$2,730,010.72, or \$5.75 per ton. After making provision of \$224,016.30 for taxes, and adding \$19,104.50, a profit derived from the sale of bonds, the surplus was \$3,048,602.51.

Following is an analysis of operating costs:—

	Total cost	Cost per ton of ore treated	Cost per ounce of gold produced
Development and exploration.....	\$442,813.22	\$0.93	\$2.44
Mining.....	1,322,603.21	2.79	7.29
Milling.....	457,355.19	.96	2.52
General expense.....	229,881.44	.49	1.27
Examination of new properties.....	24,351.70	.05	.13
Depreciation.....	253,005.96	.53	1.39
Total.....	\$2,730,010.72	\$5.75	\$15.04

At the end of the fiscal year the deepest working was the No. 3 winze, at a vertical depth of 5,735 feet. Lateral development on the block of levels from 35 to 40 was practically complete by the end of January, 1934, and the total length of ore found amounted to 2,596 feet, with an estimated average grade of 10.01 dwt. per ton. The block from 40 to 45 was partially developed on September 1, and the total length of ore found up to that time was 1,505 feet, with an estimated average grade of 8.91 dwt. per ton.

Classified under the usual headings the year's development was as follows:—

	Feet
Drifting.....	11,167.5
Crosscutting.....	3,529
Raising.....	5,862.5
Winzing.....	1,391.2
Total development.....	21,950.2

Diamond-drill exploration amounted to 12,179.8 feet. Ore produced from development amounted to 21,749 tons.

The technical estimate of "positive ore" reserve at September 1 is as follows:—

	Tons	Gold content in troy ounces	Average grade in pennyweights per ton
Broken ore.....	302,520	114,599	7.58
Blocked ore.....	460,843	208,489	9.05
Total.....	763,363	323,088	8.46

Teddy Bear Valley Mines, Limited

Teddy Bear Valley Mines, Limited, has a capitalization of \$10,000,000, in shares of \$1 par value, 5,000,000 of which are outstanding. The company was formed to take over the properties held by the Teddy Bear Valley Syndicate and Abitibi Mines, Limited.

The property consists of 1,500 acres in Holloway and Harker townships, district of Cochrane. Finances for development are furnished by the Teddy Bear Valley Syndicate. The syndicate has an office at 503 Royal Bank Building, Toronto. C. Ellwood Hoffmann is managing director.

During 1934 a shaft was sunk 300 feet and stations were cut at the 150- and 275-foot levels. On the 150-foot level, 400 feet of crosscutting and 200 feet of drifting were done, and a station was cut on the 275-foot level.

The equipment consists of a 100 h.p. locomotive-type boiler, a 10- by 12-inch steam hoist, and a 16- by 24-inch straight-line compressor of about 400-cubic-foot capacity.

An average of 20 men was employed. Edward H. Orser is consulting engineer at the property, and H. Smeaton is superintendent. The mine address is Lightning River.

Toburn Gold Mines, Limited

Toburn Gold Mines, Limited, has a capitalization of 2,000,000 shares of \$1 par value. The officers and directors are: H. A. Guess, president; R. F. Goodwin, vice-president; G. A. Brockington, secretary; Charles Earl, assistant secretary; J. C. Emison, treasurer; E. C. Corson, assistant treasurer; W. J. Boland and James Moore, directors; F. G. Hamrick, comptroller and auditor. The New York office is at 120 Broadway, and the Toronto office at 217 Bay Street, in care of W. J. Boland.

The mine is in Teck township, district of Timiskaming. During 1934 an average of 127 men was employed. M. W. Hotchkin, Kirkland Lake, is superintendent.

The following is an extract from the president's report to the shareholders for the fiscal year ending December 31, 1934:—

Surface exploration consisted of some trenching on Nos. 6 and 7 veins, the area believed to contain the north break. Sufficient encouragement was met to justify underground work in 1935.

Underground exploration activities at Toburn for 1934 consisted of 1,030 feet of diamond-drilling. Almost all the drill-holes were short, north or south horizontal holes put out in an effort to locate parallel vein structures.

Total development work done during the year 1934 amounted to 6,289 feet, all of which was above the 1,018-foot level. This development consisted of 3,030 feet of drifting, 1,067 feet of sublevel drifting, 1,043 feet of crosscutting, 608 feet of raising, 481 feet of box-holing, and 60 feet of slashing. Of this total, approximately 1,980 feet was done on ore, breaking 5,775 tons, which was sent to the mill. Approximately 91 per cent. of the development work was confined to the 542-, 667-, 792-, 893-, and 1,018-foot levels. Work done on the 1,029-foot sublevel is included in the total for the 1,018-foot level.

The more noteworthy results of the 1934 development were:—

1. Locating the 911-drift ore shoot on the 893-foot level, which is believed to be a branch of the 1,024-drift vein, which, in turn, is most likely the upward extension of the 1,215- and the 1,325-drift veins. This identifies two inclined vein structures dipping approximately 53° S. W. of the dike fault, one above the other, i.e. the 672-904 vein structure and the 911-1,325 vein structure.

2. Locating ore on the nearly vertical No. 11 vein structure at the A 100-foot level, 542-foot level, and 667-foot level, both east and west of the dike fault, intermediate between the A 100- and 542-foot levels.

3. Locating ore on the No. 7 vein structure above the A 200-foot level, which has good possibilities for extensions both downward and eastward.

Production figures for 1934 compared with those of the year 1933 are:—

Year	Tons milled	Average ounces gold per ton	Ounces fine gold produced	Percentage mill recovery
1933.....	36,913	0.659	23,020	94.7
1934.....	36,230	.583	20,401	96.6

The estimated ore reserves broken and unbroken at December 31, 1933, were 50,200 tons averaging 0.66 ounces gold per ton, and at December 31, 1934, were 60,550 tons, averaging 0.63 ounces gold per ton.

This means that 46,580 tons of new ore, averaging 0.56 ounces gold per ton, were found and opened up by the exploration and development of 1934.

Earnings for the year 1934, after deducting administration and taxes, but before deduction of \$182,101.04 depreciation and depletion, were \$315,811.27.

Tom Johnson-Nipigon Mines, Limited

Tom Johnson-Nipigon Mines, Limited, was incorporated in 1931. The name of the company was changed from Kirkland Divide Gold Mines, Limited, to its present name in 1934. It has a capitalization of 2,000,000 shares of \$1 par value. The officers and directors are: P. H. Crawshaw, president; J. R. Scott, vice-president; M. O. Inglis, secretary-treasurer; Thos. Johnson and H. S. Shannon, directors. The head office is 1005 Bank of Hamilton Building, Toronto. The mine office is at Empire.

The company owns 6 claims in the Kowkash area and 11 claims adjoining the property of Northern Empire Mines on the west, in the Beardmore area, Thunder Bay district. The company also holds 300,000 shares in Nipsona Mines, Limited, a subsidiary of Tom Johnson-Nipigon Mines, which company was formed in 1934 to obtain control of 4 claims adjacent to those of the parent company. Some surface trenching and diamond-drilling has been done on the Kowkash property.

On the Beardmore claims surface work is reported to have shown one of the Northern Empire veins extending 234 feet northwest of the boundary, where it averages 8 to 10 inches in width. At this point it is cut by a dike. West of the dike it has been traced another 125 feet, where its width ranges from 6 to 8 inches. Good values are said to have been obtained from this vein.

Sidney Muskin is the engineer in charge at the Beardmore property.

Vermilion Lake Gold Mines, Limited

Vermilion Lake Gold Mines, Limited, incorporated in 1932, has an authorized capitalization of 15,000 shares of no par value. The officers and directors are: Dr. H. K. Mitchell, president; H. Dix Rogers, vice-president; J. C. Stewart, secretary-treasurer; John E. Clark and J. Bennett, directors. The head office is at 1005 Lumsden Building, Toronto. The mine address is Northpines.

The property consists of about 480 acres at Big Vermilion Lake, 7 miles from Hudson, on the Canadian National railway, district of Kenora, Patricia portion.

A considerable amount of surface work, trenching, and test-pitting has been done on the property. In September, 1934, control of operations was acquired by the Reward Mining Company, Limited, of British Columbia, on the basis of the Reward Mining Company receiving 8 per cent. of the net earnings. The company planned to diamond-drill the property during the first months of 1935.

Wawa Goldfields, Limited

Wawa Goldfields, Limited, was incorporated in 1933. The authorized capitalization was increased from 1,500,000 to 2,500,000 shares of \$1 par value in November, 1934. The officers and directors were: A. P. Earle, president; H. H. Racine, vice-president; P. C. Dings, G. S. Payne, and L. Beauregard, directors. The head office is at 616 Canada Cement Building, Montreal.

The property includes a group of 4 claims in township 29, range 23, in the Michipicoten area, district of Algoma. The mine address is Wawa.

During 1934 a total of 90 feet of drifting, and 209 feet of crosscutting was done on the 50-foot level. This work was done during May, June, and July. Some surface work was then done until November, when operations were suspended. A 375-cubic-foot Diesel compressor was used.

An average of 14 men was employed from May until November. A. C. Melkman was in charge of operations.

Wells Longlac Mines, Limited

Wells Longlac Mines, Limited, was incorporated in 1934 with an authorized capitalization of 3,000,000 shares of \$1 par value. The officers and directors were: A. J. Felton, president; A. W. Burt, vice-president; F. E. Forrester, secretary-treasurer; E. C. McCracken and Chas. Palmer, directors. The head office is at 347 Bay Street, Toronto.

During 1934 this company took an option on the Stagee property, which adjoins the old Foley mine, in the Mine Centre area. Underground exploration was started in November, and by the end of the year a 2-compartment shaft had been sunk to a depth of 108 feet, and 20 feet of drifting had been accomplished on the 100-foot level.

The plant used consisted of a 20 h.p. boiler, a 5- by 7-inch steam hoist, and a 310-cubic-foot gasoline compressor. A. S. Dawson is mine manager. The mine address is Mine Centre.

The company owns a group of 15 claims in the Magnet Lake section of the Little Long Lac area, on which surface work and diamond-drilling was performed during the year.

Wendigo Gold Mines, Limited

Wendigo Gold Mines, Limited, was incorporated in October, 1933, with an authorized capitalization of 2,000,000 shares of \$1 par value. The officers and directors were: H. G. Tudor, president; H. G. Young, vice-president; H. R. Tudhope, secretary-treasurer; A. J. Bolton and W. G. Cameron, directors. The head office is at 701 Dominion Bank Building, Toronto.

The property of this company is located at Witch bay, on the Lake of the Woods, district of Kenora, and is 22 miles southeast of Kenora.

The plant installed included a 100 h.p. boiler, a 375-cubic-foot Ingersoll-Rand steam compressor, two 525-cubic-foot Ingersoll-Rand steam compressors, and an 8¼- by 10-inch Ingersoll-Rand hoist. Buildings erected during the year included an office, blacksmith shop, dry-house, and assay office.

During 1934, the 2-compartment 80-degree shaft was sunk 399 feet to a total depth of 516 feet. Levels were established at 200, 350, and 500 feet.

A total of 1,000 feet of diamond-drilling was done from underground during the year.

The lateral work accomplished during 1934, and the total done to the end of 1934, on the various levels, was as follows:—

Level	Drifting		Crosscutting	
	1934	Total	1934	Total
	feet	feet	feet	feet
50-foot.....		114		
60-foot.....		65		
100-foot.....	225	290		
200-foot.....	815	815	160	160
350-foot.....	225	225	55	55
500-foot.....	590	590	50	50
Total.....	1,885	2,099	265	265

The work on the 60-foot level was done from the old No. 2 shaft, which has a depth of 100 feet and connects with the main shaft workings at that horizon.

An average of 44 men was employed, of whom 12 were underground. C. L. Spencer was in charge of operations. The mine address is Kenora.

West Red Lake Gold Mines, Limited

West Red Lake Gold Mines, Limited, is capitalized at 3,000,000 shares of \$1 par value. The officers and directors were: G. B. Hughes, president; A. J. Doane, vice-president; W. E. Robinson, secretary-treasurer; J. E. Streight, A. Cockeram, and M. R. Howey, directors. The executive office is at 609 Continental Life Building, Toronto.

The property consists of 27 claims in four groups located in the townships of Todd and Ball in the Pipestone Bay section of the Red Lake area, Kenora district, Patricia portion.

The main group consists of 9 claims, totalling approximately 375 acres. The mining plant is on claim No. 10,057, approximately 21 miles west of the Howey gold mine.

The mining plant and camps were erected in May and June, 1934. Buildings include a boiler-house, 45 by 35 feet; blacksmith shop, 16 by 22 feet; dry-house, 16 by 20 feet; warehouse, 12 by 14 feet; and powder magazine, 18 by 20 feet. The plant equipment includes two 60 h.p. locomotive-type boilers, a 7- by 10-inch double-acting reversible hoist, a 400-cubic-foot vertical-type compressor, and a No. 2 Gardner Denver steel sharpener.

In July a 2-compartment shaft, 11 by 6½ feet outside measurement, was started. This shaft was sunk to a depth of 205 feet, a level was established at the 200-foot horizon, and 95 feet of crosscutting and 298 feet of drifting was done. Work was discontinued at the property during the latter part of October, 1934. A. H. Honsberger was manager in charge of operations.

Witch Bay Gold Mines, Limited

Witch Bay Gold Mines, Limited, was incorporated in July, 1934, with an authorized capitalization of 50,000 shares of \$1 par value. The officers and directors were: Henry Martin, president; H. G. Young, vice-president and managing director; H. R. Tudhope, secretary-treasurer; H. D. Tudor and A. J. Bolton, directors. The head office is at 357 Bay Street, Toronto.

The property of this company consists of two groups of claims adjoining the Wendigo mine on the east and west.

Work was started in August and suspended in December, 1934. During that period an old 30-foot shaft on the east group was cleaned out and sunk an additional 15 feet. Some surface trenching was also done.

The plant installed included a 60 h.p. boiler, a 4- by 6-inch hoist, and a gasoline compressor. F. M. Passow was in charge of operations. The mine-office address is Kenora.

Wright-Hargreaves Mines, Limited

Wright-Hargreaves Mines, Limited, has an authorized capital of 5,500,000 shares of no par value. The officers and directors of the company are: Oliver Cabana, Jr., president; W. H. Wright, vice-president; Gerard F. Miller, treasurer; E. L. Miller, secretary and managing director; James Y. Murdoch and Oliver G. Donaldson, directors. The head office is at Fort Erie. The mine address is Kirkland Lake.

M. W. Summerhayes is general manager, and 440 men were employed during the year at the mine in Teck township, district of Timiskaming.

The following is taken from the general manager's report for the fiscal year ending August 31, 1934:—

During this period 330,741 tons of ore were treated, containing 207,655 ounces fine gold and 40,915 ounces of fine silver. There was realized from the marketing of this bullion, \$6,797,578.81.

The average grade of the ore going to the mill, at \$20.67 per ounce, was 0.66 ounces, or \$13.68 per ton, with a recovery of 0.63 ounces, or \$13.07 per ton, an extraction of 95.51 per cent.

ANALYSIS OF OPERATING COSTS

	Total	Cost per ton milled
Development, exploration, and pumping.....	\$357,223.79	\$1.080
Stoping.....	748,532.05	2.263
Transporting ore (hoisting, etc.).....	275,119.27	.832
Milling charges.....	459,090.54	1.388
Marketing bullion.....	32,060.15	.097
General surface charges.....	37,453.38	.113
Stock transfer and registrar charges.....	13,685.70	.041
Insurance, silicosis, workmen's compensation, property taxes, miscellaneous.....	83,026.89	.251
General and undistributed charges (storehouse, hospital, maintain misc. mine buildings, mine management and administration, interest and exchange, legal expenses, miscellaneous).....	125,792.04	.380
Depreciation buildings and equipment.....	274,762.70	.831
	\$2,406,746.51	\$7.276
Provision for taxes (exclusive of bullion tax).....	275,000.00	.831
Provision for depletion of mining properties.....	182,111.00	.551
Amount written off, shaft No. 4.....	170,299.62	.515
Total.....	\$3,034,157.13	\$9.173

SUMMARY OF DEVELOPMENT AND EXPLORATION August 31, 1934

	Drifting	Shaft-sinking	Cross-cutting	Raising	Total footage	Diamond-drilling	Excavation
	feet	feet	feet	feet		feet	cu. ft.
August 31, 1933.....	119,464	10,681	42,492	7,987	180,624	87,805	364,938
Fiscal year.....	17,162	.....	5,618	1,191	23,971	16,586	33,230
August 31, 1934.....	136,626	10,681	48,110	9,178	204,595	104,391	398,168

PRODUCTION RECORD, 1921-1934
(Based on gold at \$20.67 per ounce)

Year	Tons milled	Value per ton	Gross value	Recovery per ton	Bullion produced	Dividends
1921 (8 mos.) . . .	36,081	\$13. 96	\$503,302	\$13. 00	\$468,665	.....
1922	66,181	12. 49	827,447	11. 52	762,752	\$412,500
1923	79,242	10. 48	830,992	9. 52	754,978	206,250
1924	84,487	14. 16	1,194,217	12. 89	1,088,725	206,250
1925	147,939	14. 49	2,148,554	12. 93	1,913,401	550,000
1926	153,392	15. 66	2,400,795	14. 02	2,150,844	893,750
1927	209,164	11. 77	2,455,460	10. 51	2,151,916	1,237,500
1928	256,331	8. 36	2,144,002	7. 20	1,845,923	825,000
1929	188,238	10. 29	1,938,552	9. 25	1,741,872	.....
1930	220,430	12. 20	2,687,828	11. 03	2,431,896	275,000
1931	266,352	11. 73	3,124,533	10. 93	2,912,308	825,000
1932	295,525	12. 85	3,796,295	12. 00	3,546,903	1,100,000
1933 (8 mos.) ¹ . .	193,441	13. 56	2,623,456	12. 63	2,443,760	550,000 ²
1934	330,741	13. 68	4,525,150	13. 07	4,321,945	2,750,000
Total	2,527,544	\$12. 34	\$31,200,583	\$11. 29	\$28,535,888	\$9,831,250

¹In 1933, the fiscal year closing changed from December 31 to August 31.

²April and July dividends only.

MILLING STATISTICS

September 1, 1933, to August 31, 1934

Ore milled	tons	330,741
Average value per ton		\$13. 68
Gross value	\$4,525,149. 92	
Loss in tailings	203,205. 31	
Net value recovered	\$4,321,944. 61	
Average tons milled per day	906. 14	
Per cent. of possible running time	97. 11	
Tons 100 per cent. running time	933	
Solution precipitated	tons 1,173,048	
Solution precipitated per ton of ore	tons 3. 55	
Value per ton in tailings	\$0. 614	
Per cent. extraction	95. 51	
Cyanide consumed per ton of ore (K.C.N.)	lbs. 0. 497	
Zinc consumed per ton of ore	ounces 1. 544	
Zinc consumed per ton of solution	ounces 0. 436	
Lime consumed per ton of ore	lbs. 2. 814	
Steel consumed per ton of ore, ball mills	lbs. 2. 52	
Steel consumed per ton of ore, tube mills	lbs. 2. 80	
Cost of flotation reagents consumed per ton of ore	\$0. 033	
Average value of pregnant solution	\$3. 68	
Average h.p. consumed per day	2,451	
Average h.p. consumed per ton milled	2. 70	
Power cost per h.p. consumed	\$58. 96	

N.B.—All values at \$20.67 per ounce.

ORE RESERVES ESTIMATE

	Tons	Ounces	Grade	Value ¹
On hand August 31, 1933	998,061	0. 67	\$13. 75	\$13,726,809
Developed in fiscal year	517,884	. 60	12. 44	6,441,538
Milled in fiscal year	1,515,945 330,741	0. 64 . 66	\$13. 30 13. 68	\$20,168,347 4,525,150
Ore reserves, August 31, 1934	1,185,204	0. 64	\$13. 20	\$15,643,197

¹Calculated at \$20.67 per ounce.

ADDITIONS TO PLANT, BUILDINGS, AND EQUIPMENT
September 1, 1933, to August 31, 1934

Mill structure and equipment.....	\$216,946.99
Shops and equipment.....	12,872.55
Power-house and electrical equipment.....	6,947.42
Assay office, building and equipment.....	14,630.88
General surface and buildings.....	9,902.68
No. 4 shaft and hoist-house.....	8,038.80
Sprinkler system.....	30,665.45
New tailings line.....	12,364.90
Underground equipment.....	12,940.46
Total.....	\$325,310.13

Development

There were 517,884 tons of new ore developed, having an average grade of 0.60 ounces, or \$12.44 per ton at \$20.67 per ounce. A considerable quantity of this consists of low-grade ore actually developed in other years but which, due to the increased price for gold, can now be included in the reserves. After deducting 330,741 tons milled, there were 187,143 tons added to our reserves. Some 17,162 feet of drifting was done, of which 8,052 feet, or 47 per cent. was on ore.

A diamond-drill hole has intersected the north vein at the 4,500-foot horizon, showing the usual excellent structures and mineralization.

It is planned during the present fiscal year to prepare for a new interior shaft for developing the mine below the present bottom. This will consist of the necessary hoisting station and ore and waste passes to connect with No. 3 shaft and the upper portion of the shaft above the 3,900-foot level.

Milling

During the early months of the period under review, the mill alterations were completed and the full benefits of the various changes on the per cent. of extraction obtained. The pilot mill indicated a possible extraction of 96.2 per cent. This percentage was obtained in May last and has been bettered each succeeding month since that time.

General

A complete sprinkler system has been installed in the mill and shops, covering the most important fire hazards. This should reduce to a minimum the chances for a fire.

The finer grinding in the mill has introduced more base metals into our bullion, making a regulus carrying high gold values as a by-product. This is hard and expensive to reduce satisfactorily, and the bullion shipped is not easy to check with the mint. We have, in the last few weeks, worked out what appears to be a new refining process which will eliminate this trouble. If the further experiments in a larger way prove satisfactory, we propose to make the necessary changes in our refinery equipment to put this process into use.

Young-Davidson Mines, Limited

The officers and directors of Young-Davidson Mines, Limited, are: Gideon Grant, president; C. G. Knott, vice-president; F. M. McKay, secretary-treasurer; Jacob A. Davidson, A. Calvin Ross, Colin M. McLean, directors. The capitalization is \$3,000,000, in shares of \$1 par value.

The company owns a property in Powell township, district of Timiskaming, which is being operated under agreement by the Hollinger Consolidated Gold Mines, Limited. An account of the work done on the property appears on page 36 of this report. The mine address is Elk Lake.

Young-Shannon Gold Mines, Limited

Young-Shannon Gold Mines, Limited, was incorporated in 1932, with an authorized capitalization of 3,000,000 shares of \$1 par value. The officers and directors were: C. T. Young, president; S. J. Defoe, secretary; W. C. Huff, treasurer; and A. J. Bolton, director. The head office is at 1 Toronto Street, Toronto.

The property of this company includes a group of 9 mining claims in Chester township, district of Sudbury. There is a 22-mile road from Makwa station on the Canadian National railway.

In June a 2-compartment vertical shaft was started on a small island in Clam lake. By the end of the year the shaft had been sunk to a depth of 100 feet, and 50 feet of drifting and 50 feet of crosscutting accomplished at that level. A total of 3,000 feet of diamond-drilling was done during the year.

The plant installed included a 45 h.p. boiler, an 8- by 12-inch steam hoist, and a 220-cubic-foot GD gasoline compressor. Buildings erected included a power-house, blacksmith shop, bunk-house, and powder-house.

An average of 12 men was employed throughout the year. C. T. Young was in charge of operations, with A. Taylor as mine captain. The mine address is Gogama.

GRAPHITE

Black Donald Graphite Company, Limited

The officers of the Black Donald Graphite Company, Limited, are: R. F. Bunting, president and manager; W. B. Bunting, vice-president; R. A. Telfer, secretary-treasurer.

The mine in Brougham township, Renfrew county, operated 90 days during 1934, and the refinery 144 days. About 2,000 tons of ore was hoisted and milled.

The company reports that owing to improvement in market conditions stocks of refined graphite on hand have been somewhat reduced.

An average of 28 men was employed during the period of operation. The mine address is Calabogie.

GYPSUM

Canadian Gypsum Company, Limited

The Canadian Gypsum Company, Limited, has a capitalization of \$300,000, divided into 3,000 shares of \$100 par value. The officers and directors of the company are: S. L. Avery, president; R. G. Bear, secretary-treasurer; O. M. Knode, C. F. Henning, Otis Wack, and J. E. MacLeish, directors. The head office is at 1221 Bay Street, Toronto. The head office officials are: B. S. Barns, agent and comptroller, and F. B. Gibbs, manager. Otis Wack, Windsor, N.S., is director of operations.

The company operates a gypsum mine and plant near Hagersville, in Oneida township, Haldimand county. All commercial gypsum products are produced at the plant, which includes a mill, wall board and block manufacturing buildings. During 1934 some 17,046 tons of rock were hoisted. An average of 30 men was employed. W. E. Allen, Hagersville, is superintendent.

The company also operates a quarry and lime plant at Guelph; a large gypsum quarry at Windsor, N.S.; a gypsum mill at Hillsborough, N.B.; a gypsum calcining mill at Iona, Cape Breton; and a winter gypsum storage depot at Deep Brook, N.S.

Associated with the company is the Gypsum Packet Company, Limited, operating four 7,000-ton freight and passenger steamers between Nova Scotia and United States ports.

Gypsum, Lime and Alabastine, Canada, Limited

Gypsum, Lime and Alabastine, Canada, Limited, has a capitalization of 2,000,000 shares of no par value. The officers are: R. E. Haire, president and

manager; S. H. J. Reid, secretary-treasurer; W. E. Armstrong, Henry Cockshutt H. J. Haire, Jas. R. Inksater, G. H. Kranenberg, J. E. McConnell, R. S. McCurdy, N. L. Nathanson, W. C. Pitfield, and John F. Cameron, directors. The head office is at Paris, Ont.

The mine and mill at Caledonia, Seneca township, Haldimand county, was operated throughout the year. L. V. Robinson was superintendent, employing an average of 110 men.

There were hoisted 21,744 tons of rock. Of this, some 1,432 tons were sold and the rest was manufactured into landplaster, stucco, Paristone, Gyproc, dry Insulex, gypsum lath, and other building products.

In addition to the Caledonia mine, the company operates gypsum plants at Montreal, Winnipeg, Vancouver, and Calgary.

Lime plants are situated at Beachville, Elora, Hespeler, Milton, Limehouse, and Puslinch, Ont., and at St. Mark and Joliette, Que.

Quarries are operated at Mabou, N.S.; Gypsumville, Man.; and Salmon River, B.C. The alabastine plant is at Paris, Ont.

MOLYBDENITE

Phoenix Molybdenite Corporation, Limited

The Phoenix Molybdenite Corporation, Limited, has a capitalization of \$1,000,000, in shares of \$1 par value. The officers and directors are: F. L. Stinson, president and manager; E. A. Dempster, vice-president; W. G. Chipp, secretary-treasurer; John Thompson and George Joynt, directors. The head office is at 316 Excelsior Life Building, Toronto. The mine address is R.R. 2, Ashdad.

The mine in Bagot township, Renfrew county, was operated from April to October, 1934.

A blacksmith shop, transformer station, and mill were erected. The mill went into operation on August 15, and during the remaining period of operation treated about 200 tons of ore from surface, with a recovery of 3,300 pounds of concentrates.

At the end of September there were 31 men employed at the property.

NICKEL AND COPPER

Cuniptau Mines, Limited

Cuniptau Mines, Limited, has an authorized capital of 3,000,000 shares of \$1 par value. The property consists of 62 claims in Strathy township, district of Nipissing, two miles north of Timagami. The officers of the company are: B. W. Watkins, president; E. P. Muntz, vice-president; W. G. Watkins, secretary-treasurer. J. W. Morrison is consulting engineer, and S. S. W. Cole, mine manager. The head office is at 465 Bay Street, Toronto. The mine address is Goward.

To the end of January, 1935, the following work had been done. A 2-compartment shaft was sunk to a depth of 240 feet, with levels at 100 and 225 feet. Drifting and crosscutting amounted to 1,372 feet, and 55 feet of raising was done. A 50-ton blast furnace is being put into operation with the intention of treating the green ore.

An average of 40 men was employed.

Falconbridge Nickel Mines, Limited

The officers and directors of Falconbridge Nickel Mines, Limited, are: Thayer Lindsley, president; Halstead Lindsley and J. G. Hardy, vice-presidents; N. F. Parkinson, secretary-treasurer; W. S. Morlock, director. The authorized capital is 5,000,000 shares of no par value. The head office is at 25 King Street West, Toronto.

The company operates a nickel-copper property in Sudbury district. Ernest Craig is general superintendent; J. R. Gill, smelter superintendent; Angus MacDonnell, underground superintendent; and R. C. Mott, concentrator superintendent. During 1934 an average of 436 men was employed, of whom 124 were underground. The mine address is Falconbridge.

The following is taken from the report of the general superintendent for the year ending December 31, 1934:—

Such interruptions as were experienced to continued operation of mine and reduction plants were entirely due to necessary periodic repairs to blast furnace and settler.

Mine Development

Development footages attained during the year and combined over all levels, distribute as tabulated below:—

Drifting and crosscutting.....	feet	4,054
Raising.....	feet	1,122
Stope entrances.....	feet	130
Box-holes.....		7
Diamond test drilling.....	feet	2,597
Diamond-drilling (surface).....	feet	405
Station-cutting.....	cu. ft.	6,700
Shaft-sinking.....	feet	546

All development work during the year was carried out within the area in which ore reserves were computed in 1933, with the exception of the east drive on the 500-foot level.

Of the total 4,054 feet of drifting and crosscutting, 2,577 feet was driven east on the 500-foot level. This work served to open up the eastern ore bodies and to provide a connection with No. 5 shaft. Intensive faulting, encountered in some sections, reduced the ore possibilities at this horizon. One body, however, extending for 500 feet and disclosing fair widths, was opened up, while the last 1,100 feet of the drive was in ore of widths varying between 10 and 40 feet but of a grade considerably reduced by the presence of large amounts of quartz. The limits of this body have not yet been reached.

On the 750-foot level an advance of 610 feet west disclosed 575 feet of good ore. The east drive was continued for 233 feet with ore to 120 feet, at which point the main fault was encountered.

No. 5 Shaft.—Preparation for sinking a 5-compartment shaft at a location some 2,400 feet east from the present working shaft was made early in the summer. This shaft is 13 feet 4 inches by 19 feet 6 inches, outside timber, and will be continued to a depth of 1,500 feet.

The depth of overburden having been established at 100 feet by means of an electrical survey and checked by one bore-hole, excavation of the shaft was commenced in June. Sinking through the overburden was accomplished by excavating inside a steel plate shield, the excavation being followed by timber sets spaced at 3-foot centres and closely lagged. After reaching bed rock, in order to seal off the water and quicksand encountered there and also to reinforce the shaft through the sand, a concrete lining was poured inside the timber and continued to surface. Permanent steel sets were started in September, and a total depth of 546 feet from surface had been reached by the end of the year. A station was cut at the 500-foot level, where connection was made with the east drift.

Ore Reserves

Ore reserves, computed as at December 31, 1934, are tabulated hereunder:—

	Tons
Ore reserves as at December 31, 1933.....	2,817,884
Plus new ore added 1934.....	460,000
	<hr/>
Total.....	3,277,884
Less: drawn during 1934.....	317,646
	<hr/>
Total ore reserves (averaging 2.04 per cent. nickel and 0.90 per cent. copper), December 31, 1934.....	2,960,238

Mining

The results of mining activities during the year are set out in the following table:—

BROKEN ORE IN STOPES	
Balance December 31, 1933.....	Tons 408,780
Broken during 1934.....	386,051
Total.....	794,831
Less: hoisted from stopes during 1934.....	285,089
Broken ore reserves December 31, 1934.....	509,742
ORE HOISTED	
From stopes, 1934.....	285,089
From development, 1934.....	14,085
From concentrating dump, 1934.....	18,472
Total ore to crushing plant, 1934.....	317,646

Crushing, Sorting, and Transportation

From 317,646 tons of ore delivered to the crushing plant, 44,116 tons, or 13.9 per cent., of waste was eliminated by sorting and discarded. The balance, amounting to 273,530 tons, was transported over the aerial tramway to the treatment plant bins.

The entire reduction plant was in operation 337.46 days during the year. Periodic repair campaigns, necessary in the one-unit plant, account for the whole of lost operating time. Results of operation tabulate as below:—

Total ore treated.....	Short tons 272,923
Matte produced.....	9,271.4
Nickel in matte produced.....	5,202.6
Copper in matte produced.....	2,450.8
Metals per ton of ore:	Pounds
Nickel.....	41
Copper.....	19.90
Metallurgical losses per ton of ore:	
Nickel.....	2.88
Copper.....	1.64

Construction

With the exception of temporary installations of equipment to facilitate the sinking of No. 5 shaft, practically no additions or alterations to the plant were undertaken during the year.

Housing facilities were further increased during the year, and an up-to-date sewage disposal system was installed. Sewerage and water systems were also extended to provide adequate service and fire protection throughout plant and townsite.

The following is an extract from the report of the consulting metallurgist for the year ending December 31, 1934:—

Mill and Smelter

The mill and smelter operated throughout the year with only the normal interruptions for repairs. The excellent overall metallurgical recovery was slightly improved.

Refinery

The refinery, which is located in Norway, operated very steadily throughout the year, although with a little less than normal capacity during the first few months due to adjustment of new equipment. A certain amount of additions and alterations took place, more to improve and stabilize operating conditions than to increase capacity, although this at the end of the year was very ample for 6,000 short tons annually and some months exceeded this rate.

Custom matte was received regularly, from February, at the increased rate of 1,000 long tons nickel annually. The plant for separation of precious metals was finished during the year and is gradually coming into routine. Research work and experiments are going on to further improve the recovery and high quality of the metals, and some small further progress has been made.

For the year 1934, the amount of metals in matte received from the smelter, the refinery production, the metals in process, and the metals in matte on hand at the end of the year is set out in the following table:—

	Nickel	Copper
	lbs.	lbs.
Metals in Falconbridge matte received, less refining losses	9,924,129	4,626,535
Produced in marketable form during the year	9,508,939	4,633,235
Metals in process of refining at end of year	1,953,277	402,976
Metals in matte on hand at end of year	1,355,139	604,058

International Nickel Company of Canada, Limited

The officers of the International Nickel Company of Canada, Limited, are: Charles Hayden, chairman of the board; Robert C. Stanley, president; John F. Thompson, vice-president; Paul D. Merica and John C. Nicholls, assistants to the president; James L. Ashley, secretary-treasurer.

The directors whose term expires in 1935 are: James L. Ashley, John F. Dulles, Reg. Halladay, Charles Hayden, J. W. McConnell, R. S. McLaughlin, Britton Osler, J. A. Richardson, Robt. C. Stanley, Andrew V. Stout, John F. Thompson, and Rt. Hon. Lord Weir of Eastwood.

The directors whose term expires in 1936 are: John P. Bickell, Hon. H. Cockshutt, Wm. N. Cromwell, D. Owen Evans, Sir Harry McGowan, R. H. McMaster, Wm. W. Mein, Rt. Hon. Lord Melchett, Paul D. Merica, Sir Robert L. Mond, Thomas Morrison, Seward Prosser, and Grant B. Shipley.

The executive office is at 67 Wall Street, New York City, and the general offices of the mining and smelting division are at Copper Cliff, Ont.

This company and subsidiary companies operate hydro-electric power plants at High Falls, Big Eddy, Wabageshik, and Nairn Falls, Ont.; nickel-copper mines in Sudbury district, Ont.; smelters at Copper Cliff and Coniston, Ont.; refineries at Port Colborne, Ont., Acton, England, and Clydach, Wales; rolling mills at Birmingham, England, Huntington, W. Va., and Glasgow, Scotland; a colliery at Pontardawe, Wales; and a foundry at Bayonne, N.J.

The authorized capital of this company consists of \$27,679,900 of preferred shares of \$100 and \$5 par value, and 15,000,000 shares of common stock of no par value.

The following information is extracted from the annual report of the company covering the year ending December 31, 1934:—

General

The improvement in your company's business mentioned in the annual report for 1933 continued through 1934, with the result that the report submitted herewith is the most satisfactory since that for 1929, which was the peak year in the history of the nickel industry.

Sales of nickel, copper, rolling-mill products, and precious metals, details of which appear in the Sales section, substantially increased. Quoted prices for nickel, with the exception of a lower sterling price, remained unchanged. However, though still low, the average price received for copper was 5 per cent. in excess of that obtained in 1933.

Operations throughout the year, conducted on an increased scale and at a uniform rate, afforded your management opportunity to cut costs of production to the lowest figures obtaining since your plants were reconstructed and the Froot mine fully developed. The expanded operations called for additions to pay-rolls and decreased unemployment in the various localities in which your operations are conducted.

The financial statements are submitted for convenience in United States dollars. As in the previous year sales outside of Canada and the United States were based on sterling. It will be noted that a net profit of \$18,487,478.80 was realized after all charges, including provision of \$5,321,131.52 for depreciation, mine depletion, and other reserves. After paying

\$1,933,898.75 of preferred dividends there remained \$16,553,580.05, equal to \$1.13 per share on the common stock. The year closed with your company in a strong cash position.

There follows a résumé of your company's diversified activities during the year ended December 31, 1934.

Sales

Your company's sales of nickel in all forms, including nickel in alloys, amounted to 91,459,554 pounds, compared with 74,356,969 pounds in 1933, an increase of 23 per cent.

Sales of nickel in products of the Port Colborne, Canada, and Clydach, Wales, refineries amounted to 73,964,621 pounds, compared with 61,353,495 pounds in 1933, an increase of 21 per cent. Sales of nickel in products of the Copper Cliff smelter amounted to 1,357,008 pounds. Sales of nickel in products of the rolling mills at Birmingham, England, Glasgow, Scotland, and Huntington, W. Va., and of the foundry at Bayonne, N. J., totalled 16,137,925 pounds, compared with 13,003,474 pounds, an increase of 24 per cent.

The estimated world's consumption of nickel in all forms was 122,000,000 pounds, compared with 96,000,000 pounds in 1933 and 57,000,000 pounds in 1932.

Sales of Monel metal, a product made direct from Creighton ore, totalled 10,763,821 pounds, compared with 9,101,219 pounds in 1933, an increase of 18 per cent.; sales of pure rolled nickel were 7,469,914 pounds, compared with 6,287,991 pounds in 1933, an increase of 19 per cent.

Copper sales, inclusive of copper in sulphate produced in Wales, increased from 113,682,312 pounds to 194,870,682 pounds, or 71 per cent.

Gold sales were 74,375 ounces, compared with 21,355 ounces in 1933; silver sales were 1,006,808 ounces, compared with 876,303 ounces; and sales of the platinum metals were 124,424 ounces, compared with 77,198 ounces. Sales of selenium were 73,516 pounds, and sales of tellurium 1,110 pounds.

Mines

Throughout 1934 ore was mined continuously from the Frood and Creighton mines, the total tonnage shipped amounting to 2,690,814 tons, of which the Frood mine contributed 1,868,186 tons and the Creighton mine 822,628 tons.

At the Frood mine exploratory work was restricted to the lower levels, and ordinary development work was regulated to conform with ore requirements. During 1934 the advance of shafts, drifts and crosscuts, raises, winzes, and box-holes amounted to 19,937 feet, thus bringing the total development work in this mine to 31.7 miles. Twenty new stopes and 5 pillar stopes were brought into production. There are now available for production in the Frood mine 83 stopes and 13 pillar stopes. The average output of a stope is 140 tons daily and that of a pillar 60 tons daily. Costs of development work and mining were satisfactory, and the mine is in splendid condition to supply smelter requirements.

The advance made at the Creighton mine in 1934, inclusive of shafts, drifts and crosscuts, raises, winzes, and box-holes totalled 8,694 feet. In order to mine efficiently the large reserves of proven ore in the lower levels a new shaft is being sunk. Work is progressing on the shaft-sinking and on the erection of the necessary surface plant, and it is estimated that this project will be completed early in 1937.

Smelters

The concentrator was operated at a uniform rate throughout the year and treated 1,843,146 tons of ore, the greatest tonnage thus far handled. As the result of certain rearrangement of equipment and with the completion of some minor installations the available capacity in the grinding and flotation sections is 8,000 tons per day. This capacity can be readily increased to 11,000 tons per day should demand call for increased quantities of nickel. Experimental work is being continued actively with reference to mechanical details of operations and chemical features of flotation.

The Copper Cliff smelter produced 92,174 tons of bessemer matte and 97,611 tons of blister copper. Three reverberatory furnaces were in operation throughout the year. The installation of additional converters, mentioned last year, has been completed, which not only adds to plant capacity but from a metallurgical standpoint balances adequately the copper and nickel smelting operations. From the standpoint of efficiency the performance of the reverberatory furnaces and converters was good, and greater daily tonnages were smelted than at any time heretofore.

For the Orford separation process one blast furnace was used throughout the year and a second for seven months. A marked reduction in the amount of coke and nitre cake used per ton of bessemer matte smelted resulted in a reduction of costs.

At the Coniston smelter three blast furnaces were in operation up to April 1, and four thereafter. During the year 840,980 tons of ore were smelted and 59,732 tons of bessemer matte produced. This smelter in common with your other plants in the Sudbury district is in splendid physical condition and is operating satisfactorily from the standpoint of tonnage and cost of production.

Hydro-Electric Plants

All of your four hydro-electric plants were in use throughout the year. Through systematic maintenance of storage dams, water capacity has been materially increased. The concrete

dam at Nairn Falls was partially reconstructed and the station generally overhauled. All power-plant equipment is maintained in excellent condition and the stations are furnishing a large quantity of electric power with little or no interruption in this important service.

Refineries

Port Colborne Refinery.—Six electrolytic circuits were in continuous operation during the year and a seventh was in use from April to August, inclusive. The total output of nickel, inclusive of nickel in oxide, was 70,974,850 pounds. Particular attention has been paid to plant research, which has resulted in numerous efficiencies in process operations. The resulting savings, together with improvements in handling materials, have enabled your management to show satisfactory costs. There has been little change in labour conditions at this refinery. Increased output and a steady rate of operations have resulted in the maintenance of a fairly constant number of employees.

Ontario Refining Company, Limited.—As a result of increased nickel production there was a corresponding increase in the tonnage of blister copper received from the Copper Cliff smelter, which rose from approximately 6,500 tons per month at the beginning of the year to 9,000 tons per month during the last quarter. Refined copper production amounted to 95,558 tons, compared with 58,098 tons in 1933. Shipments from the refinery were 97,292 tons in 1934, compared with 53,678 tons in 1933.

Selenium and tellurium are now regularly produced as by-products in addition to by-product gold, silver, and platinum metals. A plant for refining tellurium was constructed during the year and was started in October, 1934. Plant research throughout the refinery has resulted not only in operating economies but has further improved the quality of your ORC brand of refined copper.

Your company's stock interest in the Ontario Refining Company, Limited, was increased from 67.79 per cent. to 90 per cent. during the year and may be further increased, as referred to in the annual report for 1931, upon termination of the copper purchase contract therein mentioned. In the event that all of the remaining outstanding stock is purchased in 1935 a cash expenditure of approximately \$1,100,000 is indicated.

Ore Reserves

Proven ore reserves on December 31, 1934, were 204,399,463 tons. In the ordinary course of mining operations 2,720,779 tons were added to reserves.

Outlook

A programme of mine development and plant construction and rehabilitation, begun in 1926 and concluded in 1929, entailed expenditures in excess of \$50,000,000. Coincident with the completion of this extensive work the current world trade collapse started and has lasted with varying severity since that time.

It is, however, gratifying to report that your company's business apparently turned the corner of depression during the spring of 1932 and since then has improved gradually to such an extent that the net profits in 1934 are, with one exception, the greatest in your company's history. Furthermore, it should be noted that 1934 was the first period in which your modernized plants were operated at a rate of capacity sufficient to demonstrate the economies which the large capital expenditures have made possible.

The year closed with all of your properties in first-class condition and with your sales and technical departments thoroughly organized and staffed to manage efficiently a growing business. Hence, barring major disturbances, 1935 should continue to show improvement in quality of output, lower costs of production, and from present indications increasing sales of your company's diversified products.

Employees

The total number of employees at the year-end was 9,154, distributed as follows: Canada 5,474, Great Britain 2,507, United States 1,122, other countries 51. Employees on December 31, 1933, numbered 8,297. The increase, amounting to 10 per cent., is due to the increased scale of operations.

It is gratifying to report that there was a further decline in the accident rate in the mining division, the number of compensation accidents per 1,000 shifts worked in 1934 being 0.206, compared with 0.259 in 1933.

During 1934 an average of 1,663 men was employed at Copper Cliff, 426 at Coniston, 1,529 at Froid, and 752 at Creighton. Of these, an average of 1,208 men was employed underground at Froid, and 514 at Creighton.

Donald MacAskill is general manager; R. D. Parker, general superintendent; H. J. Mutz, superintendent of mines; S. J. Kidder, superintendent of the Creighton mine; F. J. Eager, superintendent of the Froid mine.

RADIUM

Canada Radium Mines, Limited

Canada Radium Mines, Limited, has a capitalization of 2,500,000 shares of \$1 par value, of which 1,400,000 shares have been issued. The property consists of 750 acres in Cardiff township, Haliburton county. The officers and directors are: K. W. Wright, president; Geo. F. McCandless, vice-president; A. M. Barry, secretary-treasurer; Frank Austin, managing director; E. W. Austin, superintendent; Geo. A. Arthur and John G. Cole, directors. H. L. McClelland is consulting engineer. The head office is at 244 Bay Street, Toronto. The mine address is Cheddar.

The shaft has been sunk to a depth of 375 feet, with levels at 125, 250, and 365 feet. Approximately 700 feet of lateral work has been completed.

About 15 men are employed at the mine.

SILVER AND COBALT

Cain and Taylor

The Beaver mine in Coleman township, district of Timiskaming, was operated from January 2 to June 9, 1934, by the owners, C. E. Cain and W. D. Taylor.

From 35 tons of ore hoisted and shipped, there were recovered 58,620 fine ounces of silver, having a value of \$24,598. An average of 12 men was employed.

Cobalt Properties, Limited

Cobalt Properties, Limited, is capitalized at \$25,000, in shares of \$1 par value. The officers are: Ambrose Murphy, president; Arthur Brocklebank, managing director; T. Wainwright, vice-president; H. E. Tomney, secretary-treasurer; Agnes Reid, director. The head office is at Cobalt.

The company owns the following properties in the township of Coleman, district of Timiskaming: Coniagas, Mining Corporation, Right of Way, McKinley-Darragh-Savage, and Cobalt Townsite.

During 1934, shipments of 102 tons of ore, containing 221,345 ounces of silver, were made. About 50 men were employed during the year.

George Martin

George Martin of Cobalt operated the Crown Reserve mine in Coleman township, district of Timiskaming, under lease during part of 1934, employing 8 men.

Shipments of 7,568 pounds of silver-cobalt ore and 1,124 ounces of bullion were made.

Mining Corporation of Canada, Limited

The properties of the Mining Corporation of Canada, Limited, in Coleman township, district of Timiskaming, were leased from January 1 to September 12. The operation by the lessees yielded 49,789 ounces of silver, valued at \$24,615.

The mines were sold to Cobalt Properties, Limited, in September.

Nipissing Mining Company, Limited

Nipissing Mines Company, Limited, has a capital of 1,200,000 shares of \$5 par value. The directors of the company are: E. P. Earle, president and

treasurer; Alexander Fasken, vice-president and secretary; Richard T. Greene, Dr. F. R. Bennetto, C. W. Nichols, Halstead Lindsley, and Hugh Park, directors. The head office is at the Excelsior Life Building, Toronto, and the New York office is at 165 Broadway.

The operating company is the Nipissing Mining Company, Limited, with a capital of 2,500 shares of \$100 par value. The officers and directors of the company are: Alexander Fasken, president and secretary; E. P. Earle, vice-president and treasurer; Richard T. Greene, C. W. Nichols, Dr. F. R. Bennetto, Halstead Lindsley, and Hugh Park, directors. Hugh Park is general manager.

The mine in Coleman township, district of Timiskaming, was reopened in July, 1934, and operated until the end of the year, with an average force of 21 men.

The following is an extract from the report of the general manager for the fiscal year ending December 31, 1934:—

Operations at the Cobalt property were more extensive than in 1933. There was marked improvement in the price of silver and in the market demand for ores and residues containing cobalt and other minerals. This condition permitted the reopening of one of the shafts, to extract several hundred tons of cobalt ore. Shipments of residue amounted to 600 tons, as contrasted with no sales in 1933.

The clean-up of the fire area at the low-grade mill produced 575 tons of medium-grade silver ore, which was shipped direct to smelters. It is probable that some further tonnage from this source will be procured. Leasers working in various sections of the property obtained fair results, in which the company shared to a substantial extent.

The following shipments were made during the year:—

	Tons	Ounces silver
Bullion.....	21.56	628,608.30
Clean-up.....	573.37	103,267.32
Leasers' ore.....	131.19	161,971.27
Residue.....	605.81	43,335.63
Cobalt ore.....	360.40	.....
Total.....	1,692.33	937,182.52

The approximate value of shipments was \$425,000.

There was a gratifying material increase in the price of silver, the year starting at 44 $\frac{7}{8}$ cents and ending at 54 $\frac{3}{4}$ cents, the average for 1934 being 47.973 cents, an increase of 13 $\frac{1}{4}$ cents, or 38 per cent. over 1933. There have been further increases since 1934, present quotations being around 75 cents. The following table shows the fluctuations in the price of silver during the 5 preceding years:—

	Average	High	Low	Spread
	cents	cents	cents	cents
1934.....	47.973	55.75	41.75	14
1933.....	34.727	45	24.5	20.5
1932.....	27.892	31	24.25	6.75
1931.....	28.701	37.25	25.75	11.5
1930.....	38.154	46.875	30.75	16.13

It is doubtful whether any considerable amount of silver remains in the old workings which would be profitable for the company to extract at present or even higher prices. If silver continues at about the present level there may be some inducement to carry on further exploration work in the search for new veins, though such exploration work could not be expected to be as profitable as the portions already explored and from which the major part of past production was derived.

M. J. O'Brien, Limited

Cross Lake Mine

The Cross Lake mine in Coleman township, district of Timiskaming, is owned and operated by M. J. O'Brien, Limited. J. G. Dickenson is general manager, and W. A. O'Flynn is manager. About 103 men are employed. The mine address is Cobalt.

The following development work was done in 1934: drifting and cross-cutting, 4,257 feet; raising, 637 feet; sinking, 11 feet.

The following table shows the ore hoisted and milled in 1934:—

	Tons
Total tons broken	43,316
Ore hoisted	22,794
Waste hoisted	14,790
Ore milled	30,755
Custom ore milled	301

The silver recovered amounted to 1,088,993 ounces, of which 26,086 ounces was from custom ore. There were shipped:—

Cobalt	lbs.	54,873
Copper	lbs.	24,745
Lead	lbs.	7,789
Gold	ounces	4.531

Miller Lake O'Brien Mine

The Miller Lake O'Brien mine, Nicol township, district of Timiskaming, is owned and operated by M. J. O'Brien, Limited. J. G. Dickenson is general manager and H. G. Kennedy is manager. The mine address is O'Brien. The average number of men employed was 83.

The 1934 report is as follows:—

Drifting	Feet	2,734
Crosscutting		386
Raising		126
Sinking		41
	Tons	
Ore stoped		10,246
Ore and waste broken		21,484
Ore hoisted		21,680
Waste hoisted		6,514

Peterson Cobalt Mines, Limited

The property of Peterson Cobalt Mines, Limited, in Coleman township, district of Timiskaming, was not operated in 1933, but a short lease was given to Frank Barnet. Ore picked from the dump yielded \$165.52 in silver.

C. W. Price

The Foster mine in Coleman township, district of Timiskaming, was operated under lease by C. W. Price, who employed 2 men. Shipments of ore and concentrates yielded 6,037 ounces of silver, having a value of \$3,088.59.

Sandoe and Moyle

The Temiskaming mine in Coleman township, district of Timiskaming, was leased to Richard Sandoe and H. Moyle.

Some 9 tons of ore shipped to the Temiskaming Testing Laboratories for treatment yielded 25,488 ounces of silver.

Smith Cobalt Mines, Limited

The property of Smith Cobalt Mines, Limited, is in Coleman township, district of Timiskaming, east of Cross lake. A shaft had been sunk by the Mining Corporation to a depth of 410 feet, and 1,100 feet of lateral work had been done.

The new company started dewatering the workings in May, 1934, and to the end of the year the following work was done: drifting, 60 feet; raising, 25 feet; and winze-sinking, 66 feet. Operations ceased on December 31, 1934. An average of 13 men was employed.

The officers are: W. H. Smith, president; A. A. Amos, vice-president; Col. E. F. Armstrong, vice-president; A. Kelso Roberts, secretary-treasurer. The company is capitalized at 4,000,000 shares of \$1 par value, of which 2,100,000 are issued. The executive office is at 320 Bay Street, Toronto.

A. Wood

The Dominion Reduction property in Coleman township, district of Timiskaming, was leased to A. Wood, Cobalt, in 1934.

Ore shipped to Deloro, Noranda, and the O'Brien mill at Cobalt, yielded 11,490 ounces of silver.

TALC

Canada Talc Company, Limited

The mine and mill of the Canada Talc Company, Limited, in Hastings county, were operated throughout the year. The officers and directors of the company are: W. S. Morden, president; Roy Taylor, secretary; E. S. James, director.

The ore was mined from the 3rd and 8th levels. A total of 7,237 tons was hoisted, and 7,337 tons were milled. On the 4th level, 450 feet of drifting was done to open up new veins.

Roy Taylor, Madoc, is manager, employing an average of 17 men in the mine and 11 in the mill.

Geo. H. Gillespie Company, Limited

The officers and directors of the Geo. H. Gillespie Company, Limited, are: Geo. H. Gillespie, president; M. H. Ludwig, secretary-treasurer; Alexander Longwell, director.

The Henderson mine in Huntingdon township, Hastings county, was operated throughout the year. Some 6,667 tons of ore were hoisted and treated at the Gillespie mill.

Geo. H. Gillespie, Madoc, is manager. Eight men were employed at the mine and 10 at the mill.

METALLURGICAL WORKS

Algoma Steel Corporation, Limited

During 1934 only one blast furnace of this corporation, located at Sault Ste. Marie, was operated. No. 4 furnace was in blast from January 1 to June 15, and from October 16 to November 23. It produced a total of 68,904 tons of iron.

Jas. H. Bell was blast furnace superintendent.

Canadian Furnace Company, Limited

The Canadian Furnace Company, Limited, at Port Colborne, operated the furnace from July to December, 1934.

The production for the year was as follows:—

	Gross tons
Pig iron.....	38,980
Spiegeleisen.....	6,541
Total.....	45,521

The officers of the company are: Frank B. Baird, Buffalo, N.Y., president; Richard C. Yates, Port Colborne, vice-president and manager; Frederick C. Slee, Buffalo, N.Y., secretary. W. J. Higgins, Port Colborne, is superintendent.

Canadian Industries, Limited

During 1934, the sulphuric acid plant, located at Copper Cliff, was in continuous operation.

There are three 50-ton-per-day units, which manufacture acid from the converter gases produced at the smelter of the International Nickel Company. All three units were in operation throughout the year. The nitre cake plant, which has an estimated capacity of 72,000 tons per annum, was operated at about 60 per cent. of capacity. In this plant sodium sulphate is treated with sulphuric acid to produce nitre cake, which is used in the Orford process of separating nickel from copper.

An average of 52 men was employed. G. G. Vincent was succeeded by E. Jordan as works manager.

Deloro Smelting and Refining Company, Limited

The plant at Deloro operated throughout the year. The silver output for the year amounted to approximately 2,728,300 ounces.

The officers of the company are: M. J. O'Brien, chairman of the board; J. A. O'Brien, president; S. F. Kirkpatrick, vice-president and managing director; F. A. Bapty, secretary-treasurer. S. B. Wright is general manager, and R. A. Elliott is superintendent.

International Nickel Company of Canada, Limited

The refinery at Port Colborne was operated continuously throughout the year. An account of the operations appears on page 94 of this report.

Ontario Refining Company, Limited

The copper refinery of this company, situated at Copper Cliff, was operated continuously during 1934. Operations were gradually increased from about 55 per cent. of the rated capacity of the plant, as at the end of 1933, to about 85 per cent. at the end of 1934.

A wide variety of electrolytic copper shapes was produced, with an increasing volume of end-poured cakes, bars, and billets, made by the patented process of which this company is the only licensee in Canada. By-product departments were expanded, and a tellurium recovery plant was completed and put in operation in October. Gold, silver, platinum metals, selenium, and tellurium are now regularly produced as by-products.

The refinery operated chiefly on blister copper from the Copper Cliff smelter of the International Nickel Company, although gold ores and gold-bearing slag and mattes were also treated.

The distribution of products extended to most European countries, with the largest volume going to the United Kingdom. No copper has been shipped to the United States since a 4-cent-per-pound tariff was placed on foreign copper in June, 1932.

An average of 462 men was employed, in comparison with 236 men during 1933. F. Benard was plant manager.

Steel Company of Canada, Limited

The Steel Company of Canada, Limited, operated "A" furnace for 44 days with a production of 12,679 gross tons of pig iron, and "B" furnace for 278 days with a production of 151,072 gross tons.

The average number of men employed was 85. R. A. Gillies is blast furnace superintendent.

The officers of the company are: Charles S. Wilcox, chairman of the board; R. H. McMaster, president; H. M. Jaquays and H. T. Diplock, vice-presidents; H. H. Champ, vice-president and treasurer; H. S. Alexander, secretary; S. E. Le Brocq, comptroller.

LIST OF MINES AND METALLURGICAL WORKS

OPERATOR	MINE	MANAGER	ADDRESS
CHROMIUM			
Chromium Mining and Smelting Corp., Ltd.	Obonga Lake	A. R. Globe	Collins.
GOLD			
Algold Mines, Ltd.	Algold	R. F. Mitchell	Goudreau.
Algona Summit Gold Mines, Ltd.	McCarthy-Webb	F. A. Brant	Goudreau.
Aischbach Gold Mining Co., Ltd.	Aischbach	Clarence Aischbach	Goldthorpe.
Amalgamated Gold Fields Corporation, Ltd.	Blue Quartz	C. D. Salkeld	Painkiller Lake, via Matheson.
Anglo-Huronian, Ltd.	Vipond	Robert E. Dye	Timmins.
Ardeen Gold Mines, Ltd.	Moss	N. O. Lawton	Tip Top Spur, via Port Arthur.
Ashley Gold Mining Corporation, Ltd. (operated by Mining Corp. of Canada, Ltd.)	Ashley	Eric Hargreaves	Elk Lake.
Bankfield Gold Mines, Ltd.	Bankfield	J. W. McKenzie	Geraldton.
Barry-Hollinger Mines, Ltd.	Barry-Hollinger	Douglas Bryden	Boston Creek.
Bathurst Gold Mines, Ltd.	Bathurst		Narrow Lake.
Biggood Kirkland Gold Mines, Ltd.	Biggood	Oscar Knutson	Kirkland Lake.
Biggood Kirkland Gold Mines, Ltd. (under lease)	Moffatt-Hall	Oscar Knutson	Kirkland Lake.
Bob Tough Gold Mines, Ltd.	Bob Tough	E. B. Ratcliffe	Massey.
Bousquet Gold Mines, Ltd.	Bousquet	Lionel Brooke	Willisville.
Buffalo Ankerite Gold Mines, Ltd.	Buffalo Ankerite	Chas. L. Hershman	South Porcupine.
Canadian Kirkland Mines, Ltd.	Canadian Kirkland	Hugh Jardine	Kirkland Lake.
Canusa Gold Mines, Ltd.	Canusa	E. Y. Dow	South Porcupine.
Casey Summit Gold Mines, Ltd.	Casey Summit		Casummit Lake, via Sioux Lookout.
Centennial Gold Mines, Ltd.	Centennial		Wawa.
Central Canada Mines, Ltd.	Central Canada		232 Grain Exchange, Winnipeg, Man.
Central Patricia Gold Mines, Ltd.	Central Patricia	A. J. Anderson	Hudson.
Central Porcupine Mines, Ltd.	Central Porcupine	Frank G. Stevens	Schumacher.
Churchill Mining and Milling Co., Ltd.	Churchill		45 Richmond St. W., Toronto.
Cole Gold Mines, Ltd.	Cole	J. Y. Cole, Jr.	Red Lake.
Concordia Gold Mining Co., Ltd.	Jones Porter	John Pringle	Timmins.
Coniaurum Mines, Ltd.	Coniaurum	John Redington	Schumacher.
Consolidated Mining and Smelting Co. of Canada, Ltd. (under option).	Afton		
	McKenzie		
	Mackey Point		
			1010 St. Catherine St., Montreal, Que.

LIST OF MINES AND METALLURGICAL WORKS—Continued

OPERATOR	MINE	MANAGER	ADDRESS
GOLD—Continued			
Cooper, W. D., and Barry P. A. (under lease)	McIntyre Birch Lake	W. D. Cooper	Birch Lake, via Sioux Lookout.
Coulson Consolidated Gold Mines, Ltd.	Coulson	C. D. Salkeld	Painkiller Lake, via Matheson.
Craig Gold Mines, Ltd.	Craig	J. G. A. Stevenson	Madoc.
Darwin Gold Mines, Ltd.	Grace	M. H. Froberg	Wawa.
Delnite Mines, Ltd.	La Roche	J. F. Akehurst	Timmins.
De Santis Gold Mining Co., Ltd.	De Santis	Peter De Santis	Box 1299, Timmins.
Dome Mines, Ltd.	Dome	H. P. De Pencier	South Porcupine.
Duport Mining Co., Ltd.	Damascus	J. G. Cross	Box 591, Kenora.
Ed. Hargreaves Kirkland Gold Mines, Ltd.	Ed. Hargreaves	J. A. MacVichie	Kirkland Lake.
Excello Mines, Ltd.	Excello	Geo. Doane	159 Bay St., Toronto.
Federated Mining Corporation, Ltd.	New York Porcupine	P. C. Benedict	Box 501, South Porcupine.
Foley O'Brien Corporation, Ltd.	Foley O'Brien	Russell Cone	South Porcupine.
Foley Syndicate (under agreement with British Canadian Mines, Ltd.)	Foley		Mine Centre.
Four Nations Consolidated Gold Mines, Ltd.	Four Nations	L. W. Adams	372 Bay St., Toronto.
Fox Lake Gold Syndicate	Fox Lake	Alex. Gillies	Box 175, Espanola.
Gold Eagle Gold Mines, Ltd.	Gold Eagle	H. C. Miller	Red Lake.
Gold Lands Syndicate of Algoma	Edwards	A. V. Hannam	29 Melinda St., Toronto.
Gold Range Mines, Ltd.	Gold Range		1604 Royal Bank Bldg., Toronto.
Golden Gate Mining Co., Ltd.	Lucky Cross		59 Yonge St., Toronto.
Golden Star Consolidated Mines, Ltd.	Golden Star		306 Sterling Tower, Toronto.
Golden Star Consolidated Mines, Ltd. (under option) ¹	Ferguson		306 Sterling Tower, Toronto.
Golden Summit Mines, Ltd.	Golden Summit	Wm. J. Simpson	Sesekinika.
Goodfish Mining Co., Ltd.	Goodfish	I. E. Mosher	Kirkland Lake.
Greenlaw Gold Mines, Ltd.	Greenlaw		244 Bay St., Toronto.
Halcrow-Swayze Mines, Ltd.	Halcrow-Swayze	Horace F. Strong	Chapleau.
Hard Rock Gold Mines, Ltd.	Hard Rock	J. C. Dumbrille	Geraldton.
Harkness-Hays Gold Mines, Ltd.	Harkness-Hays	J. F. Anderson	Schreiber.
Hillside Gold Mines, Ltd.	Hillside	D. S. Baird	Wawa.
Hollinger Consolidated Gold Mines, Ltd. ¹	Brennan David (Hislop)		Ramore.
Hollinger Consolidated Gold Mines, Ltd. (under option)	Hollinger	John Knox	Timmins.
Horseshoe Mines, Ltd.	Cochenour-Willans		Red Lake.
Howey Gold Mines, Ltd.	Regina		302 Royal Bank Bldg., Toronto.
Young-Davidson Mines, Ltd.	Howey	Edward Futterer	Red Lake.

¹ See also Young-Davidson Mines, Ltd.

Hudson Patricia Gold Mines, Ltd.	Hudson Patricia	J. M. Thompson.	Narrow Lake, via Sioux Lookout.
J-M Consolidated Mines, Ltd.	Jackson-Manion	D. M. Thomson.	Jackson Manion.
Kenora Prospectors and Miners, Ltd.	{ Cedar Island	Geo. H. Ince.	Kenora.
	{ Mikado	Geo. H. Ince.	Kenora.
Kenty Gold Mines, Ltd.	Kenty	Ralph Hurd	8 Wellington St. E., Toronto.
Kirkland Consolidated Mines, Ltd.	Kirkland Consolidated	Howard Brassaw	Sesekinika.
Kirkland Gold Belt Mines, Ltd.	Kirkland Gold Belt	P. J. Harris	King Kirkland.
Kirkland Lake Gold Mining Co., Ltd.	Kirkland Lake Gold	F. J. Sullivan	Kirkland Lake.
Lake Caswell Mines, Ltd.	Westree (Champion Reef)	E. W. Todd	Westree.
Lake Shore Mines, Ltd.	Lake Shore	Geo. Schmelzle	Kirkland Lake.
Lakeland Gold, Ltd.	Lakeland	Richard Callin	Kirkland Lake.
Lakeside-Kirkland Gold Mines, Ltd.	Queen Lebel		703 Northern Ontario Bldg., Toronto.
Lebel Oro Mines, Ltd.	Long Lake		244 Bay St., Toronto.
Lee Gold Mines, Ltd.	Lee	A. A. Barton	Geraldton.
Little Long Lac Gold Mines, Ltd.	Little Long Lac		Bank of Commerce Bldg., Kirkland Lake
Lucky Cross Leasing Syndicate ¹ (under lease)	Lucky Cross	S. L. MacDonald	159 Bay St., Toronto.
Lucky Kirkland Gold Mines, Ltd.	Lucky Kirkland	G. A. Howes	Kirkland Lake.
Macassa Mines, Ltd.	Macassa	R. J. Ennis	Schumacher.
McIntyre-Porcupine Mines, Ltd.	McIntyre-Porcupine	John W. Shaw	Red Lake.
McKenzie Red Lake Gold Mines, Ltd.	Martin-McNeeley	Stanley Saxton	South Porcupine.
McLaren-Porcupine Gold Mines, Ltd.	McLaren-Porcupine	C. H. E. Stewart	Geraldton.
MacLeod-Cockshutt Gold Mines, Ltd.	MacLeod-Cockshutt	K. W. Fritzsche	Jellicoe.
McMartin J. Bruce	Dikdik	J. G. McGregor	Footbanks.
McMillan Gold Mines, Ltd.	McMillan		25 King St. W., Toronto.
Manitoba and Eastern Mines, Ltd.	Manitoba and Eastern	Charles L. Hershman	South Porcupine.
Marbun Gold Mines, Ltd.	March	S. J. Bird	284 Inglewood Drive, Toronto.
Martin Bird Syndicate	Martin Bird	Thos. L. Wells	Elk Lake.
Matachewan Consolidated Mines, Ltd.	Matachewan Consolidated		39 New Bank of Toronto Bldg., London,
Miller Independence Mines (1924), Ltd.	Miller Independence		Ont.
Minto Gold Mines, Ltd.	{ Jubilee	John Knox, Jr.	Wawa.
	{ Minto	John Knox, Jr.	Wawa.
Munro Croesus Mines, Ltd.	Munro Croesus	J. E. Grant	Haileybury.
Naybob Gold Mines, Ltd.	Hayden	R. J. Naylor	Timmins.
Neville Canadian Gold Mines, Ltd.	Wasapika-Ribble		710 Concourse Bldg., Toronto.
North Shores Gold Mines, Ltd.	North Shores	R. N. Palmer	Schreiber.
Northern Empire Mines Co., Ltd.	Beardmore	R. J. Hendricks	Empire.
O'Connell Gold Mines, Ltd.	O'Connell	J. J. Hollinger	Elk Lake.
Oreocana Trusts, Ltd.	{ Kozak		1689 Board of Trade Bldg., Chicago, Ill.
	{ Michael-Boyle		1689 Board of Trade Bldg., Chicago, Ill.
Pamour Porcupine Mines, Ltd.	Pamour Porcupine	C. D. Stevenson	South Porcupine.
Parkhill Gold Mines, Ltd.	Parkhill	R. E. Barrett	Wawa.
Paymaster Consolidated Mines, Ltd.	Paymaster	Chas. Cook	South Porcupine.

¹ See also Golden Gate Mining Co., Ltd.

LIST OF MINES AND METALLURGICAL WORKS—Continued

OPERATOR	MINE	MANAGER	ADDRESS
	GOLD—Continued		
Pickle Crow Gold Mines, Ltd.	Pickle Crow	Alex. G. Hattie	Pickle Lake, via Sioux Lookout.
Porcupine Peninsular Gold Mines, Ltd.	Porcupine Peninsular	Robert E. Dye	Connaught.
Ramore Gold Mining Co., Ltd.	Ramore	W. V. Hocken	Ramore.
Red Crest Gold Mines, Ltd.	Rowan Discovery	J. M. Wilson	Golden Arm, Red Lake.
Red Lake Gold Shore Mines, Ltd.	Red Lake Gold Shore	M. L. Bouzan	Red Lake.
Richelieu Gold Mines, Ltd.	Richelieu	J. G. Harkness	Savant Lake.
Roche Long Lac Gold Mines, Ltd.	Roche Long Lac	R. P. Teare	Hardrock.
St. Anthony Gold Mines, Ltd.	St. Anthony	D. H. Traynor	Savant Lake.
Sakoosie Gold Mines, Ltd.	Sakoosie	A. E. Saunders	Dymont.
Saundary Syndicate	Headlight		Mine Centre.
Selected Canadian Golds, Ltd. (under option)	Sultana	Dr. Alex. Sinclair	Bank of Commerce Bldg., Toronto.
Sinclair Mines Syndicate	Sinclair Syndicate	J. C. Canfield	Sault Ste. Marie.
Smith, S. B.	Van Sickle	A. Pacitto	Wawa.
South Vermillion Gold Mines, Ltd.	South Vermillion	W. J. Hoover	Mine Centre.
Stanley Gold Mines, Ltd.	Stanley	Frank Carnegie	Mine Centre.
Stellar Gold Mines, Ltd.	Stellar		Emo.
Straw Lake Beach Gold Mines Syndicate, Ltd.	Straw Lake Beach	C. E. Rodgers	372 Bay St., Toronto.
Swayze-Huycke Gold Mines, Ltd.	Swayze-Huycke		Kirkland Lake.
Sylvanite Gold Mines, Ltd.	Sylvanite		364 Bay St., Toronto.
Talisman Gold Mines, Ltd.	Gardner Guibord	J. D. Cumming	Tashota.
Tashota Goldfields, Ltd.	Tashota	R. J. Henry	Kirkland Lake.
Teck-Hughes Gold Mines, Ltd.	Teck-Hughes	Edward H. Orser	Lightning River.
Teddy Bear Valley Mines, Ltd.	Teddy Bear Valley	M. W. Hotchkin	Kirkland Lake.
Toburn Gold Mines, Ltd.	Toburn	Sidney Muskin	Empire.
Tom Johnson-Nipigon Mines, Ltd.	Johnson-Nipigon		Northpines.
Vermilion Lake Cold Mines, Ltd.	Vermilion Lake	A. C. Melkman	Wawa.
Wawa Goldfields, Ltd.	Wawa Goldfields	A. S. Dawson	Mine Centre.
Wells Longlac Mines, Ltd. (under option)	Wells Longlac		347 Bay St., Toronto.
Wendigo Gold Mines, Ltd.	Wendigo	C. L. Spencer	Kenora.
West Red Lake Gold Mines, Ltd.	West Red Lake		609 Continental Life Bldg., Toronto.
Witch Bay Gold Mines, Ltd.	Witch Bay		357 Bay St., Toronto.
Wright-Hargreaves Mines, Ltd.	Wright-Hargreaves	M. W. Summerhayes	Kirkland Lake.
Young-Davidson Mines, Ltd. (under agreement with Hollinger Consolidated Gold Mines, Ltd.)	Young-Davidson	A. F. Brigham	Elk Lake.
Young-Shannon Gold Mines, Ltd.	Young-Shannon	C. T. Young	Gogama.

GRAPHITE

Black Donald Graphite Co., Ltd.....	Black Donald.....	R. F. Bunting.....	Calabogie.
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GYPSUM

Canadian Gypsum Co., Ltd.....	Canadian Gypsum.....	W. E. Allen.....	Hagersville.
Gypsum, Lime and Alabastine, Canada, Ltd..	Caledonia.....	L. V. Robinson.....	Caledonia.

MOLYBDENITE

Phoenix Molybdenite Corporation, Ltd.....	Phoenix.....	F. L. Stinson.....	R. R. 2, Ashdad.
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NICKEL AND COPPER

Cuniptau Mines, Ltd.....	Cuniptau.....	S. S. W. Cole.....	Goward.
Falconbridge Nickel Mines, Ltd.....	Falconbridge.....	Ernest Craig.....	Falconbridge.
International Nickel Co. of Canada, Ltd.....	Creighton.....	S. J. Kidder.....	Creighton.
	Frood.....	F. J. Eager.....	Frood.

RADIUM

Canada Radium Mines, Ltd.....	Canada Radium.....	Frank Austin.....	Cheddar.
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SILVER AND COBALT

Cain, C. E., and Taylor, W. D.....	Beaver.....	C. E. Cain.....	Cobalt.
Cobalt Properties, Ltd.....	Cobalt Properties.....	Arthur Brocklebank.....	Cobalt.
Martin, George (under lease).....	Crown Reserve.....	George Martin.....	Cobalt.
Nipissing Mining Co., Ltd.....	Nipissing.....	Hugh Park.....	Cobalt.
O'Brien, M. J., Ltd.....	Cross Lake.....	W. A. O'Flynn.....	Cobalt.
	Miller Lake O'Brien.....	H. G. Kennedy.....	O'Brien.
Peterson Cobalt Mines, Ltd.....	Peterson Cobalt.....		Cobalt.
Price, C. W. (under lease).....	Foster.....	C. W. Price.....	Cobalt.
Sandoe, Richard, and Moyle, H. (under lease)	Temiskaming.....	Richard Sandoe.....	Cobalt.
Smith Cobalt Mines, Ltd.....	Smith Cobalt.....		Cobalt.
Wood, A. (under lease).....	Dominion Reduction.....	A. Wood.....	320 Bay St., Toronto. Cobalt.

LIST OF MINES AND METALLURGICAL WORKS—Continued

OPERATOR	MINE	MANAGER	ADDRESS
TALC			
Canada Talc. Co., Ltd.	Connolly	Roy Taylor	Madoc.
Geo. H. Gillespie Co., Ltd.	Henderson	Geo. H. Gillespie	Madoc.
METALLURGICAL WORKS			
Algoma Steel Corporation, Ltd.	Iron blast furnace.	Jas. H. Bell	Sault Ste. Marie.
Canadian Furnace Co., Ltd.	Iron blast furnace.	W. J. Higgins	Port Colborne.
Canadian Industries, Ltd.	Acid and chemical plant.	E. Jordan	Copper Cliff.
Deloro Smelting and Refining Co., Ltd.	Silver-cobalt refinery.	S. B. Wright	Deloro.
Falconbridge Nickel Mines, Ltd.	Nickel-copper refinery.	J. R. Gill	Falconbridge.
International Nickel Co. of Canada, Ltd.	Nickel-copper smelter.	Peter Macdonald	Copper Cliff.
	Nickel-copper smelter.	Peter Macdonald	Coniston.
Ontario Refining Co., Ltd.	Nickel refinery.	H. W. Walter	Port Colborne.
Steel Company of Canada, Ltd.	Electrolytic copper refinery.	F. Benard	Copper Cliff.
	Iron blast furnace.	R. A. Gillies	Hamilton.



