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PROVINCE OF ONTARIO  
DEPARTMENT OF MINES

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HON. PAUL LEDUC, *Minister of Mines*

T. F. SUTHERLAND, *Deputy Minister*

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Bulletin No. 105

# Mines and Metallurgical Works of Ontario in 1935

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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1936

~~MAIN~~  
~~MHSB~~  
~~SUDBURY~~



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 1935.

I have the honour to be, Sir,

Your obedient servant,

T. F. SUTHERLAND,  
*Deputy Minister of Mines*

DEPARTMENT OF MINES,  
Toronto, June, 1936.

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# MINES OF ONTARIO IN 1935

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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## CHROMIUM

### Chromium Mining and Smelting Corporation, Limited

The Chromium Mining and Smelting Corporation, Limited, was incorporated in 1934, succeeding the Chromium Alloy Company, Limited. It has an authorized capitalization of 3,000,000 shares of no par value, of which 1,500,000 have been issued. The officers and directors of the company are: A. R. Globe, president and managing director; R. O. Denman, secretary-treasurer; F. J. Maw, R. S. Hart, and Scott Misener, directors.

The mine property is situated 26 miles south of Collins, a station on the main line of the Canadian National Railways, Thunder Bay district. The holdings include 12 patented claims and 35 unpatented claims, making a total area of about 1,900 acres.

Development work done on the property to date includes a large amount of surface-trenching, diamond-drilling, and underground development from a shaft 350 feet in depth. From the 100-foot level of this shaft 500 feet of cross-cutting and 120 feet of drifting have been done. Stations have also been cut at the 225-foot and 325-foot levels. No underground work was done at the mine in 1935.

Several ore zones have been found on the property. The largest and most extensively developed is known as the "E" zone, in which the 350-foot shaft has been sunk. In 1934, 12 diamond-drill holes, with total footage of 3,146 feet, were drilled in this zone. Officials of the company have stated that work done in this zone has indicated 225,000 tons of ore, 17 per cent.  $\text{Cr}_2\text{O}_3$ , in a section 770 feet in length and 300 feet in depth. The total amount of diamond-drilling done on the property is 6,150 feet in 33 holes. Ten of these holes were drilled in 1929-30; the remainder in 1934. Work at the property in 1935 consisted chiefly of surface work and the making of a tractor road between the mine and Collins, a distance of 26 miles.

In May, 1935, the refining and smelting plant of Superior Alloys, Limited, at Sault Ste. Marie, Ont., was purchased.

The following is taken from the company's first annual report:—

After alterations and repairs, silicon operations were started on June 23, and chromium on August 23. This plant was built in 1929 for the production of ferro-alloys, and a considerable amount of manganese ore was treated prior to the general slump in that year. In the fall of 1934, operations were again resumed in the production of silicon mainly for overseas markets.

The building is of the usual steel construction which is used in furnace rooms for operations of this type, floor space being 60 by 160 feet. At the time this plant was taken over, there was in operation, one 3,000 k.w. electric furnace producing ferro-silicon, and transformers and other electrical equipment for a second furnace suitable for the smelting of chromium ore. From this equipment, together with the furnace from Niagara Falls, N.Y., a furnace for the chromium smelting has been assembled. In addition to the above, there is a considerable quantity of furnace parts which can be brought together later for more capacity. The plant having been originally designed for the production of ferro-alloys, extensions and additions may be added with a minimum amount of alterations. The capacity of this plant is 350 tons of ferro-silicon per month at the present time. This is being marketed through well-established channels. Dependent upon the type of alloy processed, from 60 to 200 tons of chromium alloy is being produced monthly. A third furnace is being made ready for chromium and will add to the capacity.

In addition to the purchase of the plant of Superior Alloys, Limited, the company also secured by lease, with option to purchase, the FitzGerald laboratory, which adjoins your furnace plant. The FitzGerald Testing Laboratory is fully equipped with chemical laboratory, two electrical furnaces, and the usual allied equipment for research work. The plant also includes one of the finest libraries of its kind in Canada, the Fitzgerald Memorial and Metallurgical Library.

Ore milled in 1935 amounted to 1,200 tons. Early in 1935, 750 tons of chromium ore was hauled to Collins from the mine by tractor. This was stock-piled at Collins. Nine cars, a total of 400 tons, of this stock was drawn on during the year.

The average number of men employed during 1935 at the mine was 20. During the last seven months of the year an average of 44 men was employed at the smelter. A. R. Globe is general manager of the company's operations. The mine address is Collins.

## GOLD

### Algold Mines, Limited

Algold Mines, Limited, was incorporated in February, 1934, with an authorized capitalization 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 are: W. R. Knox, president; J. G. Merrick, secretary-treasurer; J. J. Gray, M. C. Van der Voort, and Wm. Edwards, directors. The head office is at 45 Richmond Street West, Toronto.

The property is located in township 28, range 26, district of Algoma. By road, it is about 6 miles west of Goudreau on the Algoma Central railway. The mine 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, 120, 140, 200, and 400 feet, and mined two small stopes on the 100-foot level.

Algold Mines, Limited, started work in July, 1934. Underground operations were carried on from August, 1934, until the end of February, 1935, suspended until July, and then carried on until December, when they were again suspended.

The development work accomplished by this company from August, 1934, to the end of 1935, and the total in the mine at the end of 1935, on the various levels, was as follows:—

Level	Drifting		Crosscutting		Raising	
	1934-35	Total	1934-35	Total	1934-35	Total
	feet	feet	feet	feet	feet	feet
100-foot.....	365	865	40	95	.....	.....
120-foot.....	.....	35	.....	.....	.....	.....
140-foot.....	35	110	15	15	110	110
200-foot.....	318	1,388	40	625	.....	.....
400-foot.....	.....	470	.....	150	.....	.....
Total.....	718	2,868	95	885	110	110

The plant included a 1,100-cubic-foot Ingersoll-Rand electric compressor, and an 8½- by 10-inch air hoist.

An average of 12 men was employed during 1935. R. F. Mitchell was in charge, except for a short period during which Frank Williams had charge.

### Anglo-Huronian, Limited

Anglo-Huronian, Limited, incorporated in 1933, has an authorized capitalization of 2,000,000 shares of no par value, of which 1,252,605 are issued. The officers and directors are: André Dorfman, president; J. H. Black, vice-president; J. Ingram, secretary-treasurer; G. C. Andrew, J. Ritchie, R. D. Stewart, F. H. Hamilton, E. Turk, and Sir A. Hamilton Grant, directors. The head office is at 80 King Street West, Toronto.

The company owns and operates the Vipond mine, which lies south of and adjacent to the Hollinger mine in Tisdale township, district of Cochrane. The following table shows the development work done on the various levels to July 31, 1934; the work accomplished during the last fiscal year, August 1, 1934, to July 31, 1935; and the total:—

DEVELOPMENT WORK BY LEVELS TO JULY 31, 1935

Levels	Previous to August 1, 1934			From August 1, 1934, to July 31, 1935			Total		
	Drifts	Cross-cuts	Raises <sup>1</sup>	Drifts	Cross-cuts	Raises	Drifts	Cross-cuts	Raises
	feet	feet	feet	feet	feet	feet	feet	feet	feet
100-foot.....	3,250	1,605	.....	59	.....	36	3,309	1,605	36
200-foot.....	7,089	5,703	157	25	.....	54	7,114	5,703	211
300-foot.....	6,999	2,021	815	11	.....	216	7,010	2,021	1,031
400-foot.....	7,601	5,005	579	180	.....	226	7,781	5,005	805
500-foot.....	8,193	5,287	757	20	.....	113	8,213	5,287	870
600-foot.....	4,445	2,797	371	250	157	457	4,695	2,954	828
733-foot.....	4,443	2,270	666	314	226	.....	4,757	2,496	666
866-foot.....	2,736	4,689	208	.....	.....	17	2,736	4,689	225
1,000-foot.....	3,888	5,336	10	664	609	186	4,552	5,945	196
1,200-foot.....	3,750	1,895	218	324	12	220	4,074	1,907	438
1,450-foot.....	2,807	2,131	1,227	622	192	12	3,429	2,323	1,239
Total.....	55,201	38,739	5,008	2,469	1,196	1,537	57,670	39,935	6,545

<sup>1</sup>No record available previous to August 1, 1931.

No shaft-sinking or winzing was done during the year, but for purposes of comparison with the preceding table a summary of the work on shafts and winzes to July 31, 1934, is set out below:—

SHAFT-SINKING AND WINZING TO JULY 31, 1935

North Thompson (No. 3) shaft.....	Feet 1,200
North Thompson (No. 3) winze (an extension of No. 3 shaft)...	250
Vipond (No. 1) shaft.....	400
Vipond (No. 4) winze (from the 300- to the 500-foot level).....	200
Crown (No. 2) shaft.....	500
Crown (No. 5) winze (inclined, from the 500- to the 900-foot level)	400
Crown (No. 6) winze (from the 900- to the 1,100-foot level).....	200

Diamond-drilling done between August 1, 1934, and July 31, 1935, amounted to 17,484 feet. In the same period the mill treated 104,764 tons of ore, which yielded \$277,238.73, valuing gold at \$20.67 an ounce. Previous to August 1, 1934, the total tonnage treated from the mine was 1,342,808 tons, which yielded \$10,583,956.49.

The average number of men employed at the Vipond mine in 1935 was 149, of this number 106 worked underground, 17 in the mill, and 26 on surface. Robt. E. Dye was manager throughout the year; and was succeeded early in 1936 by W. R. Adam. The mine address is Timmins.

### **Arbade Gold Mines, Limited**

Arbade Gold Mines, Limited, has an authorized capitalization of 3,500,000 shares of \$1 par value, of which 2,112,939 have been issued.

The officers and directors are: C. A. Floyd, president; C. C. Floyd, secretary-treasurer; D. E. Sanderson and J. F. Kilawee, directors. The head office is at 10 Adelaide Street East, Toronto. The mine address is Matachewan.

The company owns 39 claims in Argyle and Baden townships, district of Timiskaming.

During 1935 a programme of surface development and diamond-drilling was carried out on the southwest group of claims. A mining plant was erected, and camps to accommodate 50 men were completed. A shaft was sunk to a depth of 60 feet.

An average of 7 men was employed.

### **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. In 1935 the capitalization was increased to 4,000,000 shares of \$1 par value. The officers and directors are: H. G. White, president; Wm. Taylor, secretary-treasurer; Dr. V. M. Pierce, A. R. Miller, Jr., J. J. McInerney, C. G. Greenshields, James Cooper, and R. E. Allan, directors. The executive office is at 132 St. James Street West, Montreal, Que.

The property is located in Moss township, district of Thunder Bay, and is 18½ miles by road from Tip Top Spur on the Fort Frances branch of the Canadian National Railways.

Underground operations, which had been suspended in January, 1935, were resumed in August. Milling was resumed in the middle of November.

The lateral work accomplished from the resumption of operations until the end of the year consisted of 581 feet of drifting and 47 feet of crosscutting on the 1,000-foot level. Stoping was done on the 875- and 1,000-foot levels. A total of 3,871 feet of diamond-drilling was also done.

During November and December the 200-ton cyanide mill treated a total of 3,970 tons of ore.

An average of 28 men was employed during 1935 under the direction of W. R. Osborne. The mine address is Tip Top Spur, via Port Arthur.

### **Argosy Gold Mines, Limited**

Argosy Gold Mines, Limited, incorporated in May, 1935, has an authorized capital of 3,000,000 shares of \$1 par value, of which 1,489,905 shares were outstanding on December 31, 1935. The officers and directors are: F. L. Tretheway, president; J. B. Tyrrell, vice-president; V. H. Emery, managing director; A. L. Bishop and J. A. Wilson, directors. L. Appleyard is secretary-treasurer. The head office of the company is at 8 Wellington Street East, Toronto. The mine office address is Casummit Lake, via Sioux Lookout.

The property held by Argosy Gold Mines, Limited, consists of 21 claims at Casummit lake, about 100 miles north of Sioux Lookout in the Patricia portion of Kenora district. This property was purchased from Casey Summit Gold Mines, Limited, in May, 1935, along with all the other assets of that company. Argosy Gold Mines, Limited, also assumed all liabilities of its predecessor company.

Argosy Gold Mines, Limited, commenced dewatering the mine shaft on May 23. Underground development work was started on June 18. Development work on the partly explored No. 2 vein was continued on the 300-foot level, and a winze was started on the vein from this level to establish new levels at 400 feet and 500 feet. A crosscut was also started on the 300-foot level to intersect the No. 3 vein, which had not previously been developed underground.

Equipment was ordered late in the year to alter the 50-ton amalgamation mill, built and operated for a short time by Casey Summit Gold Mines, Limited, to a 75-ton cyanide mill.

Steam and Diesel engine power are used at this mine. When underground work was resumed, the new company installed a 650-cubic-foot air compressor with direct connection to a 150 h.p. Diesel engine. No other important changes were made in the mining plant.

An average of 42 men was employed at this mine from May, 1935, to the end of the year. R. Massey Williams is mine manager.

### **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. H. C. Waite, president; G. C. Ames, secretary-treasurer; Charles McCrea, C. G. McCullagh, W. R. P. Parker, E. H. Rose, and C. E. Trafford, 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 president for the year ending December 31, 1935:—

Operating profits amounted to \$54,295.69, as against \$60,428.92 in the previous year. After writing off prior development costs of \$63,607.11 and transferring \$4,000.00 from contingency reserve, there was a net loss of \$5,311.42. Net liquid assets increased by \$77,513.22 during the year and amounted to \$159,683.89 at December 31.

Development of new ore did not keep pace with production, and ore reserves decreased both in tonnage and grade. Estimated reserves at the end of the year amounted to 10,760 tons, averaging slightly less than 0.3 ounces per ton. In addition, there is a considerable quantity of backfill from the initial stoping operations, which, at the current price for gold and with mining costs written off, can be handsorted and treated at a small profit.

There were 47,367 tons of ore, with an average grade of 0.2636 ounces per ton, milled during the year, as compared with 43,532 tons averaging 0.315 ounces in 1934. The value of bullion produced amounted to \$440,553.70, against \$456,831.86 in the previous year. The total value of bullion shipments to the end of 1935 was \$1,465,495.97.

The cost per ton of ore milled, including mining, development and exploration, milling, administration and head office, was \$8.26. An appreciable reduction in operating costs was attained towards the end of the year.

Development and exploration work done during the year consisted of 5,265 feet of diamond-drilling, 2,097 feet of drifting, 727 feet of crosscutting, and 2,182 feet of raising.

In September a complete geological examination of the mine was made by an independent consulting geologist, who planned an extensive exploration programme, which is being carried out under his direction. As a result of this work several vein intersections have been located by diamond-drilling, but subsequent development by drifting, raising, etc., has failed to prove any considerable quantity of new ore. Unless new discoveries are made the life of this mine will be short.

An average of 120 men was employed. J. W. Robertson 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, of which 2,520,005

shares have been issued. The officers and directors are: C. D. H. MacAlpine, president; T. H. Stinson, vice-president; F. J. Bailes, secretary-treasurer; Jas. Errington, D. M. Morin, and J. H. C. Waite, directors. The head office is at 1006 Concourse Building, Toronto.

The property is located in the Magnet Lake section of the Little Long Lac area, Thunder Bay district. It is reached by a 3-mile road from Kenwell on the Long Lac-Port Arthur branch of the Canadian National Railways. The mine address is Geraldton.

Underground operations were carried on throughout 1935. The 3-compartment vertical shaft was continued to a depth of 552 feet, and levels were established at 275 and 525 feet. A station was cut at 400 feet. The work accomplished on the various levels was as follows:—

Level	Drifting	Crosscutting	Raising
	feet	feet	feet
150-foot.....	1,323	404	17
275-foot.....	901	377	51
525-foot.....	244	.....	.....
Total.....	2,468	781	68

In addition 2,237 feet of diamond-drilling was done from surface, and 1,416 feet from underground.

The plant included two 90 h.p. boilers, an 11- by 8-inch Ingersoll-Rand steam hoist, and a 750-cubic-foot Ingersoll-Rand steam compressor.

An average of 54 men was employed, of whom 19 were underground. J. W. MacKenzie was in charge.

### 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; E. S. Williams, 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 of 48 men. Operations ceased in January, 1936.

Development for the year consisted of 72 feet of drifting. Ore hoisted amounted to 35,172 tons. The total value of the production for the year was \$143,698.26. Douglas Bryden was manager.

### 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; N. W. Byrne, secretary-treasurer; W. Crawford, R. J. Neelands, H. Koza, A. E. Belcher, and O. L. Knutson, directors. ~~O. L. Knutson is mine manager,~~ and S. A. Pain is consulting engineer. Both the head office and mine office are at Kirkland Lake. The company owns 753 acres in Lebel township, district of Timiskaming.

During 1935 work at the mine was confined to the 500-foot level of the No. 2 shaft. The main crosscut was extended 280 feet to the south and tapped the vein system running across the north end of the Moffatt-Hall mine into Bidgood ground.

In this zone a total of 1,337 feet of crosscutting and drifting was carried out, and 1,471 feet of diamond-drilling.

The cyanide mill treated 6,960 tons of ore extracted from the Moffatt-Hall mine under lease during the first seven months of the year, but after July all production was from the Bidgood mine, from which 11,148 tons derived from stoping and drifting on the 500-foot level was treated.

The mill has been gradually stepped up and is currently treating 60 to 70 tons daily. The crusher and rolls are capable of handling 300 tons daily, and the ball mill 110 tons daily. A tube mill is being installed, and with a few additions the cyanide end of the mill can treat 150 tons a day.

The mining plant consists of a 1,000-cubic-foot Sullivan compressor driven by a 200 h.p. motor, a 720-cubic-foot compressor driven by a 125 h.p. motor, and an electrically driven hoist.

The mine water is handled by vertical triplex and horizontal duplex pumps, each handling 100 g.p.m., with a 250 g.p.m. centrifugal pump as a standby.

Production for the year amounted to 2,243 ounces of gold and 806 ounces of silver from the Moffatt-Hall lease and 1,308 ounces of gold and 855 ounces of silver from the Bidgood mine.

An average of 42 men was employed.

### **Bilmac Gold Mines, Limited**

Bilmac Gold Mines, Limited, was incorporated in September, 1934, with an authorized capitalization of 2,000,000 shares of no par value. The officers and directors are: L. F. Hogarth, president; G. E. McVittie, vice-president; A. C. Laing, treasurer; W. R. Marchmont, secretary; A. V. Kellum and Edward Coleman, directors. The head office is at 33 Temperance Street, Toronto.

The property consists of six claims in Macmurchy township, West Shining-tree area, district of Sudbury, and comprises the former White Rock, Atlas, Harvey Kirkland, and McVittie properties.

In October, 1934, sampling and mapping were started; and in February, 1935, underground work was commenced on the old White Rock property. Previous operators had put down a 2-compartment vertical shaft to a depth of 175 feet, established levels at 65 and 175 feet, and done 290 feet of drifting and 20 feet of crosscutting on the 65-foot level and 915 feet of drifting and 125 feet of crosscutting on the 175-foot level. They had also put up an inclined raise from the 65-foot level to surface, and mined a small stope on that level.

Work was suspended by the company in June, 1935, after the shaft had been deepened to 425 feet, and about 35 feet of crosscutting on a new level at 410 feet had been accomplished.

The plant included a 104 h.p. boiler, a 560-cubic-foot steam compressor, and a 9- by 8-inch Ingersoll-Rand double-drum hoist. There was an old mill on the property consisting of a jaw-crusher, a Tremaine stamp, and amalgamation plates.

An average of 35 men was employed during the period of work in 1935, of whom 10 were underground. J. E. Grant was manager, and Sydney Brown was superintendent. The mine address is Shiningtree.

### **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 are: R. R. Tough, president; H. J. Tiedt, vice-president;

J. H. Stevens, secretary-treasurer; Albert Levan, assistant secretary; E. B. Ratcliffe, managing director; F. H. Gage, R. E. Thompson, and H. J. Simons, directors. The executive office is at 207 Turner Building, Hamilton.

The property is located in McKinnon township, district of Sudbury, and is reached by a 16-mile road from Massey station on the Canadian Pacific railway.

During 1935 the installation of the plant was completed, and the 3-compartment vertical shaft was sunk 120 feet to a total depth of 150 feet. A level was established at 150 feet, where 118 feet of crosscutting was accomplished. Underground work was suspended in August, and surface work only carried on until the end of October, when all operations ceased.

The plant included a 99 h.p. horizontal return tubular boiler; a 750-cubic-foot Ingersoll-Rand compressor, driven by a 125 h.p. steam engine; and an 8-by 10-inch Jenckes single-drum hoist.

An average of 12 men was employed during the period of operation in 1935, of whom 5 were underground. E. B. Ratcliffe was in charge.

### Bousquet Gold Mines, Limited

Bousquet Gold Mines, Limited, was incorporated in November, 1920, with an authorized capitalization of 2,000,000 shares of \$1 par value. The capitalization was increased to 3,000,000 shares in 1935. The officers and directors are: Lionel Brooke, president; C. H. Hitchcock, vice-president; Globe Investment, Limited, treasurer; W. B. McPherson, secretary; H. P. Snelgrove, director. The head office is 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. By winter road it is 7 miles east of West River, on the Algoma Eastern railway.

During 1935 the 2-compartment vertical shaft was sunk an additional 134 feet, to a total depth of 468 feet, and a third level established at 450 feet. The lateral work accomplished in 1935, and the total to the end of 1935 on the various levels was as follows:—

Level	Drifting		Crosscutting	
	1935	Total	1935	Total
	feet	feet	feet	feet
150-foot.....		605		67
300-foot.....	177	447		102
450-foot.....	526	526	136	136
Total.....	703	1,578	136	305

In addition 1,908 feet of diamond-drilling was done from underground.

Anglo-Huronian, Limited, optioned a large block of shares in the company at the beginning of the year, and was responsible for the work done from the middle of February until June, when the option was dropped. The company suspended all work for 1935 at the end of July.

The plant used included an 80 h.p. and a 60 h.p. boiler, a 500-cubic-foot steam compressor, and an 8-by 10-inch steam hoist.

An average of 29 men was employed from the first of the year until the end of July. C. W. MacDonald was in charge during the option period, and Lionel Brooke during the remaining time.

## Buffalo Ankerite Gold Mines, Limited

Buffalo Ankerite Gold Mines, Limited, was incorporated in 1932 with an authorized capitalization of 1,000,000 shares of \$1 par value. The number of shares issued and outstanding at the end of 1935 was 701,679; this includes shares to be issued to Marbuan Gold Mines, Limited, in consideration of the transfer of their net assets to this company. The officers of the company at the end of 1935 were: Geo. R. Feine, president; G. R. Loesch, vice-president; Henry Kobler, treasurer; R. P. Kinkel, assistant treasurer; E. G. Kinkel, secretary and managing director. The directors were: H. J. Tiedt, J. Betz, and A. J. Baldeck. The executive office of the company is at 1728 Rand Building, Buffalo, N.Y. The head office and mine office are at South Porcupine. The property is in Deloro township, district of Cochrane.

In 1935 plans were made for the acquisition of Marbuan Gold Mines, Limited, by Buffalo Ankerite Gold Mines, Limited. These plans were not approved by the shareholders of each company until January, 1936, but at this time the approval was given as of November 30, 1935.

The following is taken from the managing director's report to the shareholders for the fiscal year ending December 31, 1935:—

The recoveries for the year are indeed gratifying, having exceeded the \$1,000,000 mark, the total recovery being \$1,023,358.51 (Ankerite mill) and including the Marbuan mill for December, \$1,056,653.85, as compared to \$712,898.29 in the year 1934, with an average daily tonnage of 345.6 tons.

The operating profit, before depreciation and deferred development write-off, was \$311,941.30. This shows considerable improvement over 1934.

During the fiscal year the company acquired by outright purchase claim H.R.951 on McDonald lake, lying about one mile northwest of the company's property, consisting of about 40 acres, for a reasonable cash consideration. This claim may prove of considerable importance to the company in the future.

The most important step taken by the company during the year was the acquiring of the properties of the Marbuan Gold Mines, Limited. This transaction was approved by the Marbuan Gold Mines, Limited, stockholders on January 22, 1936, and the transfer of its properties to this company has been completed. By the consummation of this transaction the mining area of the company has been increased from approximately 155 acres to 331 acres. The milling capacity has been increased by the acquisition of the Marbuan mill to approximately 700 tons per day, with possibilities of being able to increase tonnage in 1936.

During the year 1935 the company employed the Canadian Appraisal Company, Limited, of Montreal, to make a thorough appraisal of the buildings, machinery, and equipment. The report of the Canadian Appraisal Company shows the valuations as of June 29, 1935, as follows:—

	Buffalo Ankerite	Marbuan
Buildings, replacement value.....	\$131,990.54	\$71,222.53
Buildings, present value.....	102,785.48	50,381.85
Machinery and equipment, replacement value.....	406,940.08	192,252.46
Machinery and equipment, present value.....	296,019.54	127,055.50
Grand total, replacement value.....	538,930.62	263,474.99
Grand total, present value.....	398,805.82	177,437.35

The operation policy for 1936 includes the completion of the crosscut from the Marbuan winze to the No. 5-7 ore zone, the connecting of this crosscut with the main Ankerite shaft, crosscutting to the Nos. 1 and 2 veins from the main shaft on the 875- and 1,050-foot levels, and drifting east and west on these veins. Alterations will be made in the crusher plant and Ankerite and Marbuan mills to increase capacity, providing that the development work progresses sufficiently to warrant increased tonnage.

The broken ore reserves (Ankerite) have increased in grade and tonnage over 1934. The positive ore reserves as estimated have increased from 107,997 tons to 360,648 tons. The estimated values have, however, decreased from the per ton value shown in the 1934 report. We believe this value to be more in line with recoveries of 1935. The excellent values and widths shown in diamond-drill cores below the 875-foot level, north zone, are very encouraging indications of increasing values at depth. In the 1934 report of Marbuan the broken ore reserves were stated to be 12,375 tons of \$3.75 grade. In the 1935 report this has been increased to 15,665 tons of \$3.10 grade. In 1934 there were no positive ore reserves, and in 1935 there were 33,520 tons

of \$2.97 grade. In 1934 the possible ore was given at 11,867 tons of \$6.85 assay value. The 1935 report shows 34,740 probable and possible ore reserves with an average assay value of \$2.63, all values above being at \$20.67.

The following is taken from the report of the manager to the president for the year ending December 31, 1935:—

### Production

During the period the mill treated 159,383 dry tons, yielding \$1,023,358.51. Recovery per ton milled was \$6.42.

### Milling

Percentage of total possible running time.....	97.88
Tons treated per day.....	437.7
Tons treated per 24 hours' running time.....	447.3
Mill heads (at \$20.67 per ounce).....	\$3.891
Mill tailings (at \$20.67 per ounce).....	\$0.223

### Mining

	Tons
Ore broken in stopes and stope preparation.....	170,170
Ore broken in development.....	33,522
Total.....	203,692

### Development and Exploration

The objectives for 1935 were the development of the Nos. 5 and 7 vein structures on the 250-, 350-, 725-, and 875-foot levels, and the extensions of the Nos. 1 and 2 veins on the 475- and 600-foot levels.

	Feet
Drifts.....	6,892
Crosscuts.....	70
Raises.....	2,477
Shafts.....	466
Diamond-drilling.....	11,179.5
Stations and pockets.....	9,537.8
	cu. ft.

Lengths of ore developed on the different horizons follow:—

Level	Vein	Feet
250-foot.....	No. 91.....	180
350-foot.....	No. 91.....	43
475-foot.....	Nos. 89, 90, 91, 2.....	687
600-foot.....	Nos. 83, 1, 2.....	279
725-foot.....	Nos. 90, 91, 89.....	840
875-foot.....	Nos. 89, 90, 91, 92, 93.....	1,542

### Shaft-Sinking

The main shaft was repaired, and the timbers were relined from the 475-foot level to the bottom. Shaft sets between the 600-foot level and the bottom were replaced and jacked back into position. Shaft-sinking preparations were completed late in September, and actual sinking started October 10; 466 feet of shaft was sunk and the 875-foot station partially cut by the end of the year. Serpentine entered the shaft above the 1,050-foot station location. The shaft section from this horizon to the 1,200-foot level is in serpentinized peridotite and serpentine.

Shaft set intervals were reduced, and it was found necessary to spile the last 35 feet of the section. It appears that the shaft is in the main serpentine mass, and it is questionable whether it would be advisable to continue sinking in this location.

### Costs

The total operating costs per ton milled (for a total of 159,383 tons), including workmen's compensation, silicosis, and fire insurance, follow:—

	Total cost	Cost per ton
<b>OVERALL OPERATING COSTS:</b>		
Exploration .....	\$15,341.55	\$0.096
Development .....	103,405.52	.648
Mining .....	366,362.93	2.299
Milling .....	124,862.62	.783
General expense and personnel loss .....	61,440.18	.385
<b>Total .....</b>	<b>\$671,412.80</b>	<b>\$4.213</b>
<b>UNIT COSTS:</b>		
Per ton of ore broken in stopes .....		\$1.032
Per foot of drifts .....		12.859
Per foot of crosscuts .....		10.253
Per foot of raises .....		16.518
Per foot of diamond-drilling .....		1.240
Per foot of shaft (8 by 22 feet) .....		78.308

### Ore Reserves

The development factor has improved over that existing at the end of 1934. It is not up to normal at present. The sinking of the main shaft with stations established at the 875- and 1,050-foot levels will expedite the development of the No. 5-7 and South zone veins on these levels. Diamond-drilling has proved the downward extension of the structures to the 1,100- and 1,000-foot horizons, respectively, with favourable results.

Broken ore reserves are estimated at 105,379 tons, with an assay value of \$4.54, and positive ore reserves at 360,648 tons, with an assay value of \$5.42 per ton, both values being based on gold at \$20.67 per ounce.

### Construction

Minor buildings were erected. The Marbuan steam plant was overhauled and is being used as a central heating unit for Marbuan and Ankerite. The necessary lines were installed to Ankerite. The tailings dam was increased in height to provide additional storage.

### General

A second-hand Symons cone crusher was purchased and installed in the crushing plant. Two additional discs were purchased and installed on the American filter in the mill, raising the capacity of this machine to 500 tons plus. Costs have been reduced materially.

During 1935, the average number of men employed at the Buffalo Ankerite mine was 274, and at the Marbuan mine 110. Chas. L. Hershman was manager at both properties.

### MARBUAN MINE

The following memorandum of the report on the operations of the Marbuan Gold Mines, Limited, for the year 1935 is taken from the annual report of the Buffalo Ankerite Gold Mines, Limited, for the same period.

This memorandum is made for the purpose of supplying general information regarding this property to Buffalo Ankerite Gold Mines, Limited, stockholders, although the property was not acquired until after the expiration of the year ending December 31, 1935.

### Production

During the period the mill treated 59,380 dry tons, yielding \$287,012.17. Recovery per ton milled was \$4.833.

#### Milling

Percentage of total possible running time .....	85
Tons treated per day .....	162.3
Tons treated per 24 hours' running time .....	191
Mill heads (at \$20.67 per ounce) .....	\$2.61
Mill tailings (at \$20.67 per ounce) .....	\$0.189
Extraction, per cent .....	96.02

#### Mining

	Tons
Ore broken in stopes and stope preparation .....	58,105
Ore broken in development .....	9,413

### Development and Exploration

The objectives for 1935 were the development of the indicated Nos. 3 and 5 structures on the 8th, 9th, and 10th winze levels.

	Feet
Drifts.....	3,914
Crosscuts.....	1,270
Raises.....	667
Diamond-drilling.....	7,596.6

### Costs

The total operating costs per ton milled, including workmen's compensation, silicosis, and fire insurance, follow:—

OVERALL OPERATING COSTS:	Per ton
Exploration.....	\$0.159
Development.....	1.222
Mining.....	2.112
Milling.....	1.061
General expense and personnel loss.....	.489
Total.....	\$5.043
<b>UNIT COSTS:</b>	
Per ton broken in stopes.....	\$1.137
Per foot drifts.....	13.143
Per foot crosscuts.....	12.094
Per foot raises.....	15.903
Per foot diamond-drilling.....	1.185

### Ore Reserves

Ore reserve calculations are based on extensions within the operating areas and the indicated possibilities beyond stope sections on all horizons.

Ore reserves	Tons	Assay value <sup>1</sup>
Broken.....	15,665	\$3.10
Positive.....	35,520	2.97
Probable.....	18,380	2.70
Possible.....	16,360	2.55
Total.....	83,925	\$2.85

<sup>1</sup>Gold at \$20.67 per ounce.

### Construction

The steam plant was overhauled and placed in operation as a central heating unit for both the Ankerite and Marbuan. All pipe-lines, steam and water, were replaced and insulated. A new fuse-house was built. The tailings dam was increased in height to provide additional storage.

### General

A set of second-hand rolls were purchased and installed in the rock-house. Operating costs were reduced.

## Canusa Gold Mines, Limited

Canusa Gold Mines, Limited, was incorporated in July, 1932, with an authorized capitalization of 1,500,000 shares of \$1 par value. In December, 1935, the shareholders of the company authorized an increase in the capitalization to 4,500,000 shares of \$1 par value. The officers and directors of the company in 1935 were: D. D. Wessels, president; Geo. Neukom, vice-president; Thos. R. Deacon, secretary; Robt. Schram, treasurer; H. Kendrick and P. Du Bois, directors. The head office is at 371 Bay Street, Toronto. The mine office address is South Porcupine.

The company holds 440 acres, 80 acres in Tisdale township and 360 in Whitney township, district of Cochrane. The claims are all in one group and were formerly held by the Scottish-Ontario Syndicate.

The following development work has been reported done at this property:—

	To Dec. 31, 1934	1935
	feet	feet
Shaft-sinking.....	320	.....
40-foot level:		
Drifting.....	140	40
Crosscutting.....	10	.....
Raising.....	15	15
100-foot level:		
Drifting.....	600	225
Crosscutting.....	305	150
Raising.....	240	.....
300-foot level:		
Drifting.....	225	.....
Crosscutting.....	790	.....
Raising.....	20	.....

There is a 25- to 50-ton amalgamation mill on this property. Only a small tonnage was milled in 1935. No bullion sales have been reported.

Other plant equipment includes one 40 h.p. locomotive-type boiler, one 20 h.p. marine-type boiler, two air compressors, capacities 850 and 300 cubic feet, a single-drum hoist, and electric motors to drive both compressors and hoist.

Operations were suspended at the property about September 1, 1935, with the exception of pumping operations. The average number of men employed was about 14. Robt. Schram was general manager during 1935.

### Casey Contact Gold Mines, Limited

In June, 1934, the charter of Brookbank Gold Mines, Limited, incorporated in March, 1929, was acquired by Casey Contact Gold Mines, Limited. The authorized capitalization was increased in November, 1934, from 3,000,000 shares to 3,500,000 shares of \$1 par value. The officers and directors are: F. W. Purdy, president; H. L. Walker, vice-president; E. M. Hand, secretary-treasurer; E. L. Cousins, A. K. Roberts, and H. F. Cassidy, directors. The head office is at 67 Yonge Street, Toronto.

The company acquired in 1934 the Brennan-Kenty east group of 12 claims, located about 8½ miles northwest of Nezah in the Sturgeon River area, district of Thunder Bay. Surface work and diamond-drilling was carried on until June, 1935, when underground work was started. A 2-compartment vertical shaft was sunk to a depth of 228 feet. A station was cut at 100 feet, and a level established at 200 feet. All work was suspended at the end of September owing to financial difficulties. A total of 408 feet of lateral work was accomplished on the 200-foot level.

The plant included a 165 h.p. locomotive-type boiler, a 6- by 8-inch Canadian Mead single-drum hoist, and a 275-cubic-foot Sullivan steam-driven compressor.

An average of 23 men was employed in 1935 to the end of September, under the direction of H. M. Parrington. The mine address is Jellicoe. There is a winter road to the property from Nezah.

The company also owns a group of 33 claims at Casummit lake, 100 miles north of Sioux Lookout, in Patricia portion of Kenora district.

At the beginning of 1936 arrangements were being made to change the name of the company to Brengold Mines, Limited.

## 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 head office is at 85 Richmond Street West, Toronto.

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 area.

The following is an extract from the president's report for the year ending December 31, 1935:—

Following the addition to the mill in April, increasing the capacity to 100 tons per day, production was maintained at that rate throughout the balance of the year. The total yield was 22,061.26 ounces of gold and 2,296.96 ounces of silver, valued at \$777,570.49, from 35,192 tons of ore treated.

A further addition to the mill was decided on in July to bring the milling capacity to 150 tons per day. All the necessary equipment has been purchased and it is expected to have the enlarged plant in operation by March 1, 1936.

Under the existing contract with the Hydro-Electric Power Commission of Ontario, power was delivered to the mine in April and has resulted in a considerable saving. With future requirements in mind, negotiations were opened with the commission for additional power. Your company has concluded a new contract, agreeing to purchase 800 horse-power per annum at \$65 per horse-power for a period of seven years. Power exceeding the 800 horse-power is to be supplied at a \$35 rate. After the seven-year period, all power is to be supplied at \$35 per horse-power for the life of the mine. This new contract will come into effect when the additional power is delivered following the completion of the construction of a second unit at the Rat Rapids development site.

A further reduction in transportation costs was effected on the completion of the Root River portage development last July. Freight can now be transported from Hudson on the Canadian National railway to Doghole bay at the east end of Lake St. Joseph. Doghole bay is 21 miles from the property. The government is now considering the construction of a road from this point to the mine. The road is urgently needed for the general development of this new and proved mining area.

Patents were obtained on 46 mining claims held by your company, representing 2,024.16 acres, making a total of 64 claims, or 2,624.44 acres, on which patents have been acquired. The company has in addition 40 mining claims which will be patented when the required assessment work is completed.

During the coming year it is proposed to sink the main shaft from the 500- to the 1,000-foot level and also carry on further lateral exploration. The amount of development that can be done will be governed by the power available. Delivery of the extra power contracted for is not expected until the 1st of October next.

Development at the No. 2 operation (Springer) was carried out as planned, and the results of the work are covered in the mine manager's report. Power requirements at the main mine made it impossible to carry on further work at this operation for the time being, but in view of the satisfactory results obtained it is the intention of your directors to extend the present shaft to the 500-foot level and do further lateral work when the power is available.

At the close of the year, after treating 35,192 tons, the ore reserves amounted to 95,413 tons, averaging 0.64 ounces per ton.

The development at the main mine continues to be very satisfactory, and that at the No. 2 operation has indicated a substantial length of high-grade ore; and future development of this property shows much promise.

The following is taken from the mine manager's report for the year ending December 31, 1935:—

### Production

During the year, 35,192 tons of ore were treated, from which was recovered \$777,570.49. The average extraction was 97.36 per cent.

### Development

Development was restricted to the opening of the known ore shoots. The "B" and "C" ore shoots were developed on the 3rd and 4th levels. This work has shown the ore to have

greater widths and lengths than previously estimated and has consequently increased the tonnage of ore available while maintaining the same grade.

Diamond-drilling has improved the outlook for increased ore reserves. Drilling was done from underground workings and at surface. A hole drilled from the station at the 500-foot level cut the "C" ore shoot at a vertical depth of 140 feet below that level. An ore intersection in this hole gave 0.55 ounces gold across a width of 9 feet. Shallow surface drilling was done 1,200 feet west of the shaft and has disclosed a new ore area. The results of this work indicate a section 233 feet long by 2.5 feet wide, with an average grade of 0.4 ounces gold. Further exploration of this showing will be undertaken by means of underground work on the 375-foot level. Preparations were made to sink the main shaft from the 500-foot to the 1,000-foot level.

#### ORE ESTIMATE

	Tons	Grade
		ounces
"A" ore body.....	6,395	0.59
"B" ore body.....	31,295	.60
"C" ore body.....	36,965	.68
"D" ore body.....	4,450	.52
Broken ore in stopes.....	16,308	.65
Total.....	95,413	0.64

#### Construction

During March and April, a complete change-over from steam to electric power was effected, and at the same time a second mill unit was installed and put into operation, raising the daily capacity from 50 to 100 tons. This change-over of the plant necessitated the construction of a new power-house and a new headframe.

The installation in the power-house of two new compressors, a double-drum hoist, and a standby unit was completed.

The following additional buildings were constructed and equipped: kitchen and dining hall (capacity 150 men), central heating plant, 5 houses, recreation building, machine shop.

#### No. 2 Operation (Springer)

A plant (electrically operated) was set up and a shaft sunk to 175 feet. A station was established at 150 feet and a total of 1,022.5 feet of crosscutting and drifting was done.

Four ore shoots, varying in length from 25 feet to 90 feet, were found to the west of the main crosscut, giving a total ore length of 198 feet, averaging 2.35 ounces over a width of 14 inches. It was necessary to suspend this work in order to have sufficient power available to carry on shaft-sinking operations at the main property. The results of the exploration to date are very satisfactory, and further sinking and development will be carried on as soon as hydro power is available.

#### Summary

The change-over from steam to electric power, together with the improved mine conditions, necessitated a complete rearrangement of the plant and camp buildings. The major expenditures have been completed, so the expense of the construction programme for the ensuing year should be moderate.

In July, it was decided to increase the daily capacity of the mill to 150 tons. Material and equipment for this purpose were purchased and the mill addition is now being erected. All work, apart from capital expenditures, has been written into the operating costs.

An average of 105 men was employed during the year. A. J. Anderson is mine manager. The mine address is Pickle Crow.

#### Central Porcupine Mines, Limited

Central Porcupine Mines, Limited, incorporated December, 1933, has an authorized capitalization of 5,000,000 shares of \$1 par value. The officers and directors of the company are: E. Ward Wright, president; C. D. H. MacAlpine, vice-president; Geo. G. Blackstock, secretary-treasurer; W. J. Aikens, W. J. Hume, H. C. McCloskey, and Jos. Montgomery, directors. The head office is at 25 King Street West, Toronto. The mine office is at Schumacher.

The property held by Central Porcupine Mines consists of 13 claims, 520 acres, in the township of Tisdale, district of Cochrane. It lies south of the

Coniaurum mine and east of the McIntyre and Hollinger mines, and adjoins each. Development of this property has been carried on through the Goldale shaft of the Coniaurum mines, work being done from the 1,000-foot level. In 1934 a crosscut, approximately 2,220 feet in length, was started to reach Central Porcupine ground. About 1,303 feet advance was made in this crosscut in 1934. Early in 1935 a vein was encountered on Coniaurum ground, and crosscutting was temporarily held up while some development work was done on this vein. Work on the crosscut was later resumed and Central Porcupine ground was entered about 650 feet east of the northwest corner of the property. The crosscut was continued in a direction S.25°E., for 1,252 feet beyond the boundary. A line drive from a point 85 feet back of the face was then carried due east for 689 feet, from which point a crosscut was again started in a southerly direction. Only a few rounds had been taken from this crosscut at the end of the year. The total advance in 1935 was 2,908 feet. From the same level 3,109 feet of diamond-drilling was done in 1935.

The average number of men employed in 1935 was 32. F. G. Stevens is general manager of this property, and Chas. Workman is mine superintendent.

### **Churchill Mining and Milling Company, Limited**

The Churchill Mining and Milling Company, Limited, was incorporated in March, 1918, and now has an authorized capitalization of 4,000,000 shares of \$1 par value. The officers and directors are: W. R. Knox, president; K. G. Merrick, secretary-treasurer; D. Lieberman, H. H. Van Wart, and F. H. Geddes, directors. The head office is at 45 Richmond Street West, Toronto.

The property held by this company includes a group of four claims in Churchill township, in the West Shiningtree area, district of Sudbury.

Operations at this property, which were suspended in October, 1934, were resumed in July, 1935, and again suspended at the end of November. During 1935 a level was established at the bottom of the 109-foot, 2-compartment shaft, sunk in 1934, and a total of 70 feet of drifting and 154 feet of crosscutting was accomplished.

The plant included a 47 h.p. locomotive-type boiler, a 270-cubic-foot Sullivan compressor driven by a steam engine, and a 6- by 8-inch Jenckes hoist.

An average of 10 men was employed during the period of operation, under the direction of A. Lantagne.

### **Clark Gold Mines, Limited**

Clark Gold Mines, Limited, was incorporated in October, 1934, with an authorized capitalization of 2,000,000 shares of \$1 par value, 650,000 of which have been issued. The officers and directors are: R. H. Miner, president; A. J. Reece, vice-president; G. S. Andrews, secretary-treasurer; W. S. Lighthall, A. C. Dick, and M. A. Carton, directors. The executive office is at 7411 De Lanaudiere Street, Montreal, Que. The mine address is Dymont.

The property consists of a group of 15 claims located about 8 miles southwest of Dymont on the Canadian Pacific railway, district of Kenora.

Work was started in October, 1934, and carried on until November, 1935. Some open-cut mining was done, and several shipments of ore were made. Underground work was started in April, 1935, and suspended at the end of September, 1935. An old 2-compartment, 75-degree shaft, 75 feet deep, was slashed to vertical and timbered. A level was established at 68 feet, on which 20 feet of drifting was done.

The plant included a 310-cubic-foot gasoline compressor and a small air hoist. Buildings erected consisted of a power-house, blacksmith shop, and powder magazine.

An average of 21 men was employed during 1935, under the direction of R. R. Clark.

### **Cole Gold Mines, Limited**

Cole Gold Mines, Limited, incorporated in November, 1933, has an authorized capitalization of 3,000,000 shares of \$1 par value. The officers and directors of the company are: John Y. Cole, president; Wm. Exton, Jr., vice-president; Cecily Cole, secretary-treasurer. The executive office and the mine office are both located at Cole, a recently established post office.

The holdings of the company are located along the southwestern shore of the Pipestone Bay section of Red lake, in the Patricia portion of Kenora district.

The property is being developed through a 2-compartment shaft, which was sunk to 200 feet in 1933. In 1934, a large amount of development work was done on the 200-foot level and a number of veins were partially developed. In 1935, the 300-foot level was opened. Development continued on this level until about the middle of September, when sinking was again resumed, with an objective depth of 550 feet. This work was completed about the end of the year. Two new levels at 300 feet and 400 feet are to be opened.

Work to date has been carried on with a small steam-operated plant, which includes one 70 h.p. locomotive-type boiler, a Canadian Ingersoll-Rand 250-cubic-foot air compressor, and an 8- by 10-inch Jenckes hoist. Arrangements for the supply of electric power to the mine by the Hydro-Electric Power Commission of Ontario were recently reported to have been completed.

From 45 to 55 men were employed at the mine in 1935. John Y. Cole is manager of the property.

### **Concordia Gold Mining Company, Limited**

The Concordia Gold Mining Company, Limited, is a subsidiary company of Associated Gold Mining and Finance Company, Limited. The company was incorporated in May, 1934, with an authorized capitalization of 3,000,000 shares of no par value, of which 1,501,000 shares are reported held by the parent company. The head office of the company is at 276 St. James Street West, Montreal, Que. The officers and directors of the company are: A. E. Ladouceur, president; Walter F. Costigan, secretary-treasurer; Theo. Lanctot and Stuart Grant, directors. C. L. Laederer is mine manager, and E. E. Elliott is mine superintendent. The mine address is Timmins.

The Concordia Gold Mining Company took over the property of Jones-Porter Mines, Limited, consisting of 14 claims in Deloro township, district of Cochrane. The underground workings consist of a 3-compartment shaft, 158 feet in depth, with station at 125 feet, at which level 177.8 feet of crosscutting and 55.7 feet of drifting had been done to December 19, 1935. During 1935, 10 diamond-drill holes were drilled from underground, and 8 from surface. Total footage in all these holes combined was slightly in excess of 2,400 feet.

During the year the plant was altered, and several additions were made. Buildings and equipment are as follows: office and staff residence; cookery; 2 bunk-houses; fully equipped assay office; blacksmith shop, with Climax drill-sharpener; superintendent's residence; oil-house; magazines; auxiliary boiler-house, with two vertical-type boilers, 25 to 30 horse-power each, used for heating and to supply part of the power required in the mill; a main boiler-house, under

construction, and 2 locomotive-type boilers of 100 h.p. each; and a large combination building, in which there is a fully equipped machine shop, welding shop, dry-house, engineering office, mill, and hoist-room. In the hoist-room there is an 8- by 10-inch Jenckes hoist; a Sullivan, steam-driven, 2-stage, 1,000-cubic-foot air compressor; a second compressor with a rated capacity of 180 cubic feet; and a 20 k.w. steam-driven lighting unit.

In a building attached to the hoist-room is a 12- by 14-inch Ingersoll-Rand 480-cubic-foot air compressor belted to a Hercules TXO 110 h.p. gasoline power unit. This power plant was installed in 1935 and supplies the air for the present mining operations.

The Canadian Straub mill, also installed in 1935, has a capacity of from 5 to 9 tons. It was put into operation in October; and it is estimated that about 230 tons were treated during October, November, and December. On December 15, 1935, the first shipment, 32.9842 ounces of bullion was sent to the Royal Mint.

During 1935 the average number of men employed monthly was 24.

### **Russell C. Cone**

In the spring of 1935, Russell C. Cone obtained a lease on No. 5 vein on the Lucky Coon property, mining claim P. 655, located about 4 miles south of Mine Centre in the Rainy River district.

There is an old 2-compartment vertical shaft on this vein, which is reported to be 115 feet deep, but no headframe or buildings were left.

Work was started in June to move equipment into the property and to construct buildings. A small mill was completed and put in operation on October 1 to test ore from the dump, but was shut down a month later. The mill equipment included a jaw-crusher, Gibson rod mill, and amalgamation plates. A 20 h. p. boiler and a 5- by 7-inch single-drum hoist were taken into the property, but no underground work had been started by the end of the year.

An average of 5 men was employed under the direction of Russell Cone. The mine address is Mine Centre.

### **Coniaurum Mines, Limited**

Coniaurum Mines, Limited, has an authorized capitalization of 6,000,000 shares of no par value, of which 2,717,947 shares have been issued. The officers and directors of the company are: Thayer Lindsley, president; A. L. Bishop, vice-president; H. Whittingham, secretary-treasurer; Alex. Longwell, H. Lindsley, H. S. Munroe, T. H. Rea, directors. The head office is at 25 King Street West, Toronto. The mine address is Schumacher. John Redington is mine manager.

The mine property consists of about 760 acres adjoining the McIntyre-Porcupine mine on its east boundary, in Tisdale township, district of Cochrane.

The property has been developed through two shafts and several winzes. The Main, or Bishop, shaft was deepened in 1935 to 3,700 feet. A second shaft goes down to the 1,000-foot level. Some 833 feet of winze-sinking was also done in 1935, bringing the total winze footage up to 1,678 feet.

The following is taken from the mine manager's report for the year ending December 31, 1935:—

#### **Development**

Development in various parts of the mine has consisted of considerable lateral work, as well as sinking and raising. The Bishop, or Main, shaft has now reached a depth of 3,700 feet.

Two new levels have been established: the 3,250-foot and the 3,500-foot. In addition, a winze is being put down near the east boundary of the West Goldale claim. This has now reached a depth of 900 feet below the 3,000-foot level. Considerable amounts of drifting and crosscutting have been done on the 1,000-, 1,750-, 2,000-, 3,000-, and 3,500-foot levels.

#### Exploration

The 3,250- and 3,500-foot levels are now under vigorous exploration. No. 10 crosscut is being driven on the 3,250-foot level to intersect the No. 7 vein fracture, which is located on the south side of the Coniaurum porphyry mass. On the 3,500-foot level M2 crosscut is being driven west to connect with the winze, where a level has already been established. From this point M2 crosscut will be driven due west to the McIntyre boundary.

Veins Nos. 7, 25, and 26 have been indicated on the 3,500-foot level and are now under exploration. Vein No. 24 on the 1,000-foot level has been driven on for some distance. This vein is located in the southwest portion of the property. On the 3,000-foot level, veins Nos. 21 and 22 have been developed for some distance. Both of these provided considerable ore for mill feed.

This year has been one of large expansion both underground and on surface. The full value of this will not begin to make itself apparent until about June of 1936. At that time we expect to bring into production at least two new levels.

Diamond-drilling, as in other years, has been carried on for the purpose of obtaining geological information, as well as for the location of ore bodies.

#### SUMMARY OF DEVELOPMENT

	Feet
Sinking .....	1,338
Drifting .....	2,481
Crosscutting .....	4,373
Raising .....	1,857
Diamond-drilling .....	12,942

The footage driven in ore was 1,684 feet, with an average value of 5 pennyweights per ton over a width of 4.8 feet. Vein No. 15 has been developed on the 350-foot, vein No. 15A on the 1,750-foot, and veins Nos. 21 and 22 on the 3,000-foot level.

#### Ore Reserves

Broken ore reserves are greater than those of last year and are now 200,067 tons. Stopping supplied 199,357 tons, and development another 17,622 tons of ore. The mill drew 151,055 tons, leaving a carry-forward of 200,067 tons of ore at the end of the year. Unbroken ore reserves are estimated at 171,320 tons, having an average grade of 4.1 pennyweights.

#### Milling

During the year the mill treated 151,055 tons of ore with an average recovery of \$7.51 per ton, extracting 95.94 per cent. of the gold content, operating 354.73 days, or 97 per cent. of the possible running time. The mill was closed down for a period of ten days while making the change-over of crusher into the new crusher building.

#### New Equipment and Improvements to Buildings

A new hoisting engine, with a maximum speed of 1,800 feet per minute, was installed. A new headframe was erected, and the crushing plant rearranged to facilitate handling larger tonnage. Also some additional equipment was added to the machine shop. The new buildings consist of a fireproof hoist-house and electrical shop; an addition to the dry-house; and an addition to the main office for the use of the resident doctor, as well as a new residence to accommodate the physician.

#### Tailings Dam

A large tailings dam is now under construction. When complete it will have a storage capacity that will serve our requirements for many years. We are very fortunate in having this available space on our property.

The average number of men employed during the year was 296; of this number 211 were employed underground.

### Consolidated Mining and Smelting Company of Canada, Limited

The Consolidated Mining and Smelting Company of Canada, Limited, is capitalized at \$20,000,000, divided into 800,000 shares of \$25. The officers and directors are: Jas. J. Warren, president; Jas. E. Riley, secretary-treasurer; Jas. J. Warren, Sir Edward Beatty, S. G. Blaylock, Henry Joseph, J. C. Hodgson,

F. G. Osler, R. S. McLaughlin, Sir Herbert Holt, W. A. Black, R. H. McMaster, Thayer Lindsley, Hon. R. R. Bruce, Sir Charles Gordon, and L. A. Campbell, directors. The head office is at 215 St. James Street, Montreal, Que. An office is maintained at 302 Bay Street, Toronto.

#### Afton Mine

The company started underground operations on this property in January, 1935, and carried them on throughout the year. The property is in Afton township, Timagami Forest Reserve, district of Sudbury.

Previous operators had driven a 200-foot adit, from which a 2-compartment vertical winze had been sunk to a depth of 150 feet. A level was established at that depth, on which 270 feet of crosscutting was accomplished.

During 1935 the winze was sunk an additional depth of 266 feet, to a total depth of 416 feet, and levels were established at 275 and 400 feet. The lateral work accomplished in 1935 consisted of 34 feet of drifting on the 150-foot level, 616 feet of drifting and 249 feet of crosscutting on the 275-foot level, 751 feet of drifting and 210 feet of crosscutting on the 400-foot level. During the year a total of 1,321 feet of diamond-drilling was done from underground, and 957 feet from surface.

The plant used included two 53 h.p. horizontal return tubular boilers, a 360-cubic-foot steam-driven compressor, and an 8- by 6-inch Ingersoll-Rand single-drum hoist.

New Golden Rose Mines, Limited, was incorporated in April, 1935, with an authorized capitalization of 3,000,000 shares of \$1 par value to take over this property from Afton Mines, Limited, in return for 1,000,000 shares of New Golden Rose stock. Under the terms of the option Consolidated Smelters was to receive approximately 2,000,000 shares of New Golden Rose stock on an expenditure basis. This expenditure was completed during 1935 and the option fulfilled.

An average of 54 men was employed during 1935, of whom 23 were underground. D. C. McKechnie is mine manager, and W. E. Aitchison is superintendent. The mine address is Sudbury.

#### Cordova Mine

The company acquired the old Cordova property on the east half of lot 20, concession I, Belmont township, Peterborough county.

In 1935 the old No. 3 shaft was dewatered, retimbered, and enlarged to the 5th, or bottom, level. An additional 160 feet of sinking was done and new hoisting equipment installed. Some 22 feet of drifting and 36 feet of crosscutting was done, and 600 tons of ore and 5,000 tons of waste were hoisted.

C. A. Seaton was manager, employing 39 men. The mine address is Cordova.

#### Golden Horn Mine

In May, 1935, work was started under option at the old Golden Horn mine, Rush bay, Lake of the Woods, district of Kenora. It is about 22 miles southwest of Kenora.

Previous operators put down two shafts on this property to depths of 106 and 254 feet, and established levels at 100, 166, and 235 feet. They accomplished 231 feet of drifting and 65 feet of crosscutting on the 1st level, 362 feet of drifting and 31 feet of crosscutting on the 2nd level, and 118 feet of drifting and 285 feet of crosscutting on the 3rd level. A small amount of stoping was done. They constructed a small mill containing a jaw-crusher, rolls, Huntingdon mill, and three concentrating tables, with which some gold was produced.

The company dewatered the workings and carried on sampling work till the end of July, when the option was dropped.

The mill and cookery were all that remained of the old equipment. A 310-cubic-foot gasoline compressor was used to dewater the workings.

An average of 7 men was employed during the period of work, under the direction of C. E. White.

#### **McKenzie Claims**

The company has under option the McKenzie group consisting of 9 claims, or about 360 acres, in Garrison township, district of Cochrane.

The following work was done in 1935: shaft-sinking, 256 feet; crosscutting, 712 feet; and drifting, 293 feet; about 7,612 tons of waste were hoisted.

The plant consists of a gasoline compressor and a single-drum air hoist. An average of 20 men was employed at the property during the year. The mine address is Matheson. A. S. Hudson was manager.

#### **Rich Rock**

The company has under option the property of Rich Rock Mines, Limited, in Kaladar township, Lennox and Addington county. The property consists of 298 acres in lots 24 and 25, concession VI.

Work was started on April 24, 1935, and to the end of the year the following work was accomplished: shaft-sinking, 125 feet; crosscutting, 57 feet; and drifting, 30 feet. About 150 tons of ore and 1,700 tons of waste were hoisted.

C. E. White was manager, employing an average of 25 men. The mine address is Flinton.

#### **Cooper and Barry**

W. D. Cooper and P. A. Barry continued operations, on a lease basis, on the Birch Lake property of McIntyre-Porcupine Mines, Limited, to the end of 1935. This property consists of 8 claims on the north side of Birch lake, two miles east of the Argosy mine, in Kenora district, Patricia portion.

In 1934, mining was carried on from an open stope. In 1935, a shaft was started from the bottom of the stope, 42 feet below surface, and sunk to 98 feet. The ore was found to be cut off in this shaft by a horizontal fault. Some exploration work was done along the fault-plane, but the downward continuation of the ore was not found. Work was then resumed at the 42-foot level. Drifting was started from each end of the stope, and about 100 feet of lateral work was done. Some ore was taken down above the drifts. In September, 1935, about 20 tons of ore was being milled daily in a small stamp and amalgamation mill.

The lease was dropped about the end of the year, and since then part of the mill equipment has been removed from the property.

The average number of men employed in 1935 was 19.

#### **Corless Patricia Gold Mines, Limited**

Corless Patricia Gold Mines, Limited, was incorporated under the laws of Ontario on January 7, 1935. It is capitalized at 3,000,000 shares of \$1 par value; 1,000,000 shares were issued for property. The officers and directors are: Edwin C. Graves, president; H. J. Carmichael, vice-president; Joseph Simpson, secretary-treasurer; Charles Buchanan and Robt. White, directors. The head office address is 25 Richmond Street West, Toronto. The mine address is Jackson Manion.

The property consists of 26 patented claims, approximately 1,000 acres, in Corless township, in the Woman Lake area, district of Kenora, Patricia

portion. It lies about  $5\frac{1}{2}$  miles west of the property of J-M Consolidated Gold Mines, Limited, and may be reached from Hudson by a canoe route through Lac Seul, Pakwash lake, Trout Lake river, and Woman river, to Woman lake, but the best route is by air from Hudson or Sioux Lookout. The planes land on Corless lake about one mile from the camp.

Work to date has consisted of trenching and diamond-drilling. Active development was begun in January, 1935. During the year 26 diamond-drill holes, averaging 184 feet in depth, were drilled. Further drilling is planned for 1936.

Ten log buildings have been erected on the property, including a fully equipped assay office.

A. A. Robins was manager during 1935, and was succeeded by W. M. Rice. An average of 15 men was employed at the property during the year.

### **Coulson Consolidated Gold Mines, Limited**

Coulson Consolidated Gold Mines, Limited, has a capitalization of 3,000,000 shares of \$1 par value, of which 1,378,980 shares have been issued. The officers and directors are: Nicholas Kinsella, president; A. Ritchie, secretary-treasurer; L. V. Sutton, Raymond Sutcliffe, G. S. Haines, and D. McKenna, directors. The head office is at 1809 Royal Bank Building, Toronto.

The property in Coulson township, district of Cochrane, operated throughout 1935. Underground work was suspended in November.

During the year the south shaft was deepened to 570 feet, and 1,000 feet of drifting and 1,500 feet of crosscutting were done on the 550-foot level.

An average of 35 men was employed. The mine address is Painkiller Lake, via Matheson.

### **Craig Gold Mines, Limited**

Craig Gold Mines, Limited, has a capitalization of 5,000,000 shares of \$1 par value, of which 1,923,252 shares have been issued.

The officers and directors are: F. W. Clements, president; W. N. Agnew, vice-president; F. J. Slater, secretary-treasurer; Geo. W. Scobell and Gerald D. Martin, directors. The head office is at 330 Bay Street, Toronto. The mine address is Madoc. The company owns nine claims in Tudor township, Hastings county.

Two shafts have been sunk, No. 1 to a depth of 245 feet and No. 2 to a depth of 200 feet. In No. 1 shaft, stations have been cut at 50, 125, and 225 feet. About 350 feet of drifting was done on the 50-foot level, and 110 feet on the 225-foot level. The mine operated from January to October 15, when work was temporarily suspended.

An average of 30 men was employed under the management of J. G. A. Stevenson. E. B. E. de Camps is consulting engineer and acting manager.

### **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 are: Geo. Royce, president; David Gross, Robert Fennell, R. E. Hore, and R. A. Darwin, directors. Corporation Management and Executives, Limited, is secretary-treasurer. The executive office is at 304 Bay Street, Toronto. The mine address is Gold Park.

The property is located in township 29, range 23, in the Michipicoten area, district of Algoma. It is about 7 miles by road from Wawa station on the Algoma Central railway.

Work was continued throughout 1935. The 2-compartment 60-degree shaft was sunk an additional 100 feet to a total depth of 543 feet, and a 5th level established at 533 feet on the incline. In July, a 3-compartment vertical shaft was started from surface, and by the end of the year it had reached a depth of 418 feet, with sinking still in progress. Stations had been cut at depths of 276 and 367 feet, connecting with the 3rd and 4th levels from the inclined shaft.

The development work accomplished on the various levels during the year, and the total to the end of 1935, was as follows:—

Level	Drifting		Crosscutting		Raising	
	1935	Total	1935	Total	1935	Total
	feet	feet	feet	feet	feet	feet
200-foot.....		640		106		50
300-foot.....	198	957	205	431	232	347
400-foot.....	328	1,632	210	591	255	373
500-foot.....	645	645	50	50	112	112
Total.....	1,171	3,874	465	1,178	599	882

The 50-ton amalgamation-flotation mill, which has been on the property since 1929, was changed to an amalgamation-cyanidation circuit and put in operation on November 5. The equipment now includes a jaw-crusher, Marcy ball mill, Hardinge mill, Dorr Duplex classifier, Dorr Simplex classifier, 4 Pachuca tanks, 2 thickeners, 2 Oliver filters, and a Merrill-Crowe precipitation unit. By the end of 1935, the mill had treated a total of 2,086 tons of ore.

Additions to the plant during 1935 included a 42-inch double-drum electric hoist, and a 770-cubic-foot Ingersoll-Rand electric compressor. A steel head-frame was erected for the new shaft. Buildings constructed included a shaft-house, blacksmith and machine shop, hoist-compressor house, dry-house, bunk-house, and additions to the original mill building.

An average of 61 men was employed during 1935, of whom 30 men were underground. M. H. Frohberg was in charge of operations.

### Delnite Mines, Limited

Delnite Mines, Limited, was incorporated in November, 1934, and is capitalized at 3,000,000 shares of \$1 par value. This company is a subsidiary of Sylvanite Gold Mines, Limited, and Erie Canadian Mines, Limited. The latter company, a wholly owned subsidiary of Sylvanite Gold Mines, Limited, received Delnite shares for preliminary expenditures and development done during the summer of 1934 and the option to purchase other shares, so that if fully exercised Erie Canadian will hold 1,291,500 shares of the issued capital. There were 840,000 shares issued for the property, which consists of the property of the former La Roche Mines, Limited, and the Rendix or Martin claims, three patented claims located 3 miles southeast of Timmins in the township of Deloro, district of Cochrane. The officers and directors are: E. L. Koons, president; W. L. Marcy, vice-president; W. V. Moote, managing director; C. L. Ingham, treasurer; W. S. Walton, secretary; Harry Yates, Jas. E. Day, and Jas. Savage,

directors. The head office of the company is at 603 Royal Bank Building, Toronto. The mine address is Timmins.

During 1935, a second bunk-house, 24 by 36 feet, and other small buildings were erected. A 60- by 16-inch air receiver was added to the mining plant, and the 10- by 12-inch air hoist was improved by alterations, including a gear-driven indicator. An electric pump was placed underground after the shaft was deepened. A magneto phone system and an electric cage-call system, to connect each level with the shaft-house and hoist-room, were installed.

An average of 37 men was employed during 1935. J. F. R. Akehurst is resident manager of the mine.

The following is an extract from the general manager's report for the fiscal year ending March 31, 1936:—

During the period, in addition to continuing work on the 125-foot level, the shaft was deepened and two new levels were opened up at the 250- and 375-foot horizons. A summary of the work done during the year is shown in conjunction with all previous work.

### Development

#### SUMMARY OF DEVELOPMENT AND EXPLORATION, MARCH 31, 1936

	Drifting	Cross-cutting	Shaft-sinking	Shaft stations	Total	Diamond-drilling
To March 31, 1935 . . . . .	feet 1,233	feet 903.5	feet 138	feet 25	feet 2,299.5	feet 7,099
April 1, 1935, to March 31, 1936 . . . . .	3,015.5	1,599	253	66.5	4,934	9,179
Total to March 31, 1936	4,248.5	2,502.5	391	91.5	7,233.5	16,278

In the 3,015.5 feet of drifting done during the year, 1,121 feet of ore were developed. In the 4,248.5 feet of drifting which has been done at the property since the beginning of operations, 1,439 feet of ore have been developed, which have an estimated average grade of 0.215 ounces over an average width of 5.1 feet. The average grade was calculated from channel sampling, in which all high assays have been reduced to 1 ounce. This combined footage and grade of ore is classified by levels as follows:—

Level	No. of ore shoots	Total length	Value at \$20.67	Value at \$35.00
		feet		
125-foot . . . . .	5	445	\$5.18	\$8.75
250-foot . . . . .	3	428	3.96	6.70
375-foot . . . . .	3	566	4.24	7.17
Total . . . . .		1,439	\$4.45	\$7.53

*Diamond-Drilling.*—Of the 9,179 feet of drilling done during the year, 5,364 feet was done from surface and 3,815 feet from underground. As part of the surface drilling, a series of three holes were put down to cut, at 750 feet vertical depth, the zone being developed in underground operations. Results indicated vein structure similar to that found in the lateral work.

In the drilling from underground, in addition to the drilling required by current development work, a series of five holes has been put down to explore the values in the downward extensions of vein No. 301 at the 500-foot level. The holes were spaced 100 feet apart. The results secured in these holes indicate the same ore situation on this vein at the 500-foot horizon as has been found at the 375-foot level.

*Structure.*—The veins on which the drifting has been done are located in a basalt formation, which strikes in a general east-west direction and dips 50°–60°N. The main ore zone is a band of altered basalt, 200 feet wide, which lies between two roughly parallel bands of chlorite schist, which have resulted from intense alteration of previous basalt beds. To the north and south of the above area further basalt flows are shown by drilling. Vein indications and a quartz porphyry intrusive have been cut in this outer basalt, but the importance of the areas has not been determined.

The veins in the main ore zone follow the primary flow structure of the basalt. Where the normal strike and dip of the structure has not been disturbed, the veins of the Nos. 101 to 301 vein system have shown continuity of ore on the levels and in the drilling below the 375-foot level mentioned previously.

In the area 500 feet northeast of the shaft, a drag fold exists in the basalt beds, and the vein structure is irregular, resulting in a condition that does not permit straight-away development. The ore developed in this area has been found to be of higher grade than the average of the mine.

#### **Plant and Equipment**

The plant and equipment were maintained in good operating condition. A second bunk-house was erected. A mine ventilation fan was installed on surface to exhaust from the two bottom levels. Expenditures on new buildings and plant were kept at a minimum pending a decision on a permanent building programme.

#### **General**

The total expenditures for the year were \$118,684.35. The ore occurrences developed to date and the possible ore indicated by drilling both on and below the present workings, are encouraging.

### **De Santis Porcupine Mines, Limited**

The name of the De Santis Gold Mining Company, Limited, was changed to De Santis Porcupine Mines, Limited, in June, 1935. The capitalization was reduced to \$2,400,000 by the cancellation of 1,600,000 issued shares, and then increased to \$3,000,000 by the creation of 600,000 additional \$1 shares. Shareholders received one new share for each two of the old.

The officers and directors are: Peter De Santis, president and mine manager; Jos. V. Friel, vice-president; Giuseppe Giustini, secretary-treasurer; Theodore Schultze, T. Pomeroy, R. T. Payton, and Frank Prest, directors. The executive office is at 24½ Second Avenue, Timmins. The mine address is Box 1299, Timmins.

The company holds nine claims in Turnbull township and nine in Ogden township, district of Cochrane. It is on this latter group, lying about 4½ miles southwest of Timmins, that development work has been conducted in late years.

The property has been partially developed to a depth of 200 feet. The first shaft sunk was 210 feet in depth. Levels were opened at 90 and 200 feet below the collar. The total amount of crosscutting and drifting done to the end of 1935 on the 90-foot level was 327 feet. On the 200-foot level, the crosscutting and drifting amounted to 3,991 feet. During 1935 a main working shaft was started. It was raised to surface from the 200-foot level, and then then timbered from the surface down. A new timber headframe was erected and enclosed, but the proposed sinking below the 200-foot level had not been begun at the end of the year.

The average number of men employed in 1935 was 26. Fred Knutson was succeeded by H. McQuarrie as mine superintendent during the year.

### **Dome Mines, Limited**

The authorized capital stock of Dome Mines, Limited, consists of 1,000,000 shares of no nominal or par value, of which 46,666 are held under an agreement in trust for the company; the dividends on these shares are returned to the treasury of the company. The mine property lies in Tisdale and Whitney townships, district of Cochrane.

The officers of the company are: Jules S. Bache, president and treasurer; J. H. Stovel, first vice-president; G. C. Miller, second vice-president; Morton F.

Stern, third vice-president; Alex. Fasken, secretary; E. P. Goetz, assistant treasurer and assistant secretary; C. C. Calvin, assistant secretary; John B. Robinson, assistant secretary.

The directors are: Jules S. Bache and Morton F. Stern, New York; G. C. Miller, Buffalo; Dwight B. Lee, Detroit; G. H. Harris and Simon N. Stein (who fills the vacancy caused by the death of Innis P. Allen), Rochester; Alex. Fasken, Frank E. Maulson, and Frederick Burnett, Toronto.

The death took place during 1935 of H. P. De Pencier, who for many years had been first vice-president and general manager of the company. This position has been filled by J. H. Stovel, who was formerly general superintendent. Robert E. Dye joined the staff of the mine as general superintendent early in 1936.

The office of the executive and financial department is at 42 Broadway, New York. The Toronto office is at 36 Toronto Street. The mine address is South Porcupine.

During 1935 there was an average of 738 men employed at the mine; of this number about 439 were employed underground.

The following is taken from the report of the general manager for the year ending December 31, 1935:—

During the year 635,700 tons were hoisted; of this 549,100 tons was ore, which was sent to the mill and treated, and 86,600 tons was waste, which was dumped on the surface. In addition, 4,600 tons of waste was dumped into old stopes.

The 549,100 tons of ore milled yielded bullion containing 204,842.595 ounces of gold, the yield per ton being 0.3731 ounces. In addition, there was recovered from the treatment of by-product, 1,952.434 ounces.

All values of ore, etc., will be expressed in pennyweights throughout this report. One pennyweight equals one-twentieth of an ounce, troy weight.

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

#### OPERATING STATEMENT

for the year ended December 31, 1935

##### EARNINGS:

Bullion production (after deducting gold bullion tax and mint charges— \$346,202.04).....	\$6,939,988.68
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##### OPERATING AND MAINTENANCE EXPENDITURE:

Development and exploration.....	\$658,460.76
Mining, including hoisting.....	731,369.56
Crushing and conveying.....	120,313.78
Milling.....	504,505.84
Bullion expense.....	10,438.84
Fire protection.....	6,673.02
Warehouse expense.....	12,135.54
Auditing expense.....	2,828.81
Administrative expense:	
Mine office.....	111,293.90
Executive office.....	70,305.19
Registrar and transfer fees and expenses.....	11,810.33
Municipal taxes.....	18,065.99
Insurance.....	15,408.32
Ontario corporation capital tax.....	1,220.20
	2,274,830.08

NET OPERATING PROFIT FOR THE YEAR.....	\$4,665,158.60
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#### Development

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

## SUMMARY OF DEVELOPMENT BY LEVELS FOR THE YEAR 1935

Level	Stations	Drifts	Cross-cuts	Drift and crosscut slashing	Raises	Winzes	Box-holes	Raise, winze, and box-hole slashing	Total	Diamond-drilling
	feet	feet	feet	feet	feet	feet	feet	feet	feet	feet
1st		81					44		125	
3rd					28				28	
5th					126			3	129	123
6th			30	11				20	61	1,211
7th		353		41	186		48	2	630	1,234.5
8th		298		17	32		188		535	
9th		519		56	115		326	11	1,027	
10th		756		117	27		354	14	1,268	
11th		288		32	53		397	127	897	
12th		397	7	37	150		548	181	1,320	4,202.5
13th		216		16	134		973	279	1,618	671
14th		1,136	780	291	208	62	773	82	3,332	6,128.5
15th		793	710	98	157		601	262	2,621	6,360
16th		289	260	141					690	
16th (No. 6 shaft)		2,997	133	1,187					4,317	
17th		84		52					136	451
18th	16	493		101		650			1,260	
20th										3,360.5
21st	20			6					26	
23rd		324	51	7					382	
24th		1,046	71	142	663	20	312	111	2,365	1,385
25th		883	391	146	229	59	208	94	2,010	4,026
26th		250	204	59	264		10	43	830	4,851
27th		447	6	6	111			24	594	7,474.5
Total..	36	11,650	2,643	2,563	2,483	791	4,782	1,253	26,201	41,478.5

Approximately 26,200 feet of drifting, crosscutting, raising, winzing, and box-holing, and 41,500 feet of diamond-drilling, has been done in the course of searching for and opening up the various ore bodies.

Above the 16th level, about 13,600 feet of development work was done, mostly in connection with known ore bodies or extensions of same.

At the directors' meeting, held at the time of the annual meeting of this company in the latter part of April, 1935, permission was given your management to proceed with the sinking of a main underground shaft from the 2,050-foot or 16th level. This shaft was to be located about 4,500 feet in an east-northeasterly direction from our No. 3 main shaft. The section of this new or No. 6 shaft will be approximately the same as the present No. 3 shaft and will have similar hoisting equipment and capacity. The hoisting equipment ordered for this shaft is designed for a depth of 3,000 feet, but can be used to 4,000 feet, if it is found desirable to do so. It is planned to sink this shaft at one lift to the 31st level, or 4,250 feet below the collar of No. 3 shaft. This will give us four new levels to explore as well as enable us to do further work in that area between the 18th and 27th levels. Further sinking may be done later from this point.

Drifting to the site of No. 6 shaft was started in May, and this drift reached the general area of the shaft in late December. In all, 3,000 feet of drifting was done, and 1,400 feet of old drift was slashed out to the size of this main haulage drift, which is 9 by 12 feet. A trolley haulage has been established on this drift capable of handling the normal capacity of the mine.

Considerable work remains to be done before sinking can be started from this level. The shaft has to be raised about 160 feet above the level, excavations have to be made for hoist-rooms, ore and waste pockets, a station, and a station storage yard, and rope-way raises from hoist-rooms to sheave wheels. It involves approximately 7,000 cubic yards of excavation. All necessary equipment has been ordered and is in process of manufacture or has been received and installed.

On the 16th level, in addition to the main development, about 700 feet of drifting was done. On the 17th level, a small amount of drifting was done in connection with known ore bodies.

Between the 18th and 23rd levels, approximately 1,300 feet of drifting and sinking was done in connection with establishing a second entry into the 23rd level. This work was completed in September, giving the needed ventilation to the lower levels and permitting a start at actual mining on these levels. In further development of the ore zones below the 23rd level, approximately 6,200 feet of development work was done; also 17,700 feet of diamond-drilling.

The vein structure in drift No. 2,504 has been further drifted on at the 26th and 27th levels, where lengths of 790 feet and 470 feet, respectively, have been established. Also several small, but not yet thoroughly understood ore occurrences in the greenstone to the north and west of this vein structure have been found on the 24th and 25th levels. No development has been attempted on these on the 26th and 27th levels as yet. All the ore occurrences on these levels are characterized by the presence of much visible gold.

The work done to date indicates the probability of securing over 425,000 tons of ore from the 23rd to the 27th levels. It is felt that the grade of this ore will be considerably better than the grade of the ore in the older areas of the mine.

Of the tonnage milled, the stopes yielded 466,600 tons, averaging 7.89 pennyweights per ton, and development work yielded 82,500 tons, averaging 5.95 pennyweights per ton; a total of 549,100 tons, averaging 7.59 pennyweights per ton.

The expenditure on mining was \$731,369.56, or \$1.33 per ton milled. The expenditure on development was \$658,460.76, or \$1.20 per ton milled. Of the \$1.20 per ton, approximately 32 cents was chargeable directly to the major development work on the 16th level.

### Ore Reserves

The ore reserves are estimated at 2,000,000 tons. This includes 773,700 tons of broken ore but does not include 300,000 tons indicated as probable ore between the 23rd and 25th levels.

### The Mill

The following are the results of the mill operations during the year from a total of 549,100 tons treated:—

	Value per ton	Extraction per cent.
Heads.....	dwt. 7.5944	.....
Recovery.....	7.4610	98.24

The small plant treating old iron and other scrap produced 1,952.434 ounces.

### Exploration

As hitherto, we have continued to examine prospects and properties. No new properties were taken up during the year.

### General

Operating costs for the year were \$4.143 per ton milled, as against \$3.877 in the year 1934. Actual mine operating costs were slightly less than last year, the increase being due to development work in connection with No. 6 shaft.

The acquisition of the Foley O'Brien Corporation, Limited, in August, 1935, has added thirteen claims to our holdings. While it may be several years before our workings will reach this property, the trend of our ore bodies is all in the direction of these claims, and it is felt that these facts fully justify their purchase.

The death of our late general manager, Mr. H. P. De Pencier, late in November, was a severe loss to the company and to his many friends and admirers on our staff. His passing from the Dome picture is genuinely regretted by all.

## Duport Mining Company, Limited

The Duport Mining Company, Limited, was incorporated in January, 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; W. C. Robinson and R. V. Whiteside, directors. The head office is at 215 Public Utilities Building, Port Arthur. The mine address is Kenora.

The property held by this company includes the Cameron Island mine, located at Shoal lake, district of Kenora. It is about 28 miles southwest of Kenora by air.

Underground operations were continued at the property until November 24, when they were suspended until after Christmas. During 1935 a total of 530

feet of drifting and 137 feet of crosscutting was done on the 124-foot, or 2nd level; a 2-compartment 75-degree winze was sunk from the second level to a depth of 120 feet; and a 3rd level was established at that depth, on which 376 feet of drifting and 318 feet of crosscutting was accomplished. A small high-grade lens on the second level was stoped out.

During the year 376.16 tons of ore was shipped to Tacoma, Wash., and 98.54 tons of ore to Flin Flon, Man. The average gold content of these shipments was 4.45 ounces per ton.

The plant included an 84 h.p. boiler, 40 h.p. boiler, 300-cubic-foot steam compressor, a 500-cubic-foot Diesel compressor, a 7- by 9-inch hoist on surface, and a 6- by 8-inch hoist underground.

An average of 22 men was employed, of whom 12 were underground. J. G. Cross was in charge of operations, with C. Nelson as mine captain.

### **Edgelake Gold Mining Company, Limited**

The Edgelake Gold Mining Company, Limited, was incorporated in September, 1934. The authorized capitalization is 3,000,000 shares of \$1 par value. The officers and directors of the company are: P. B. Cameron, president and manager; J. A. Picotte, vice-president; J. M. Forbes, secretary; K. G. Cameron, treasurer; Robert McKinnon and David Craig, directors. The executive office address is Box 128, Schumacher. The mine address is Tashota.

The property consists of ten claims, approximately 400 acres, surrounding the west end of Tashota lake, 1½ miles north of Tashota station on the trans-continental line of the Canadian National Railways, Thunder Bay district.

During 1935, with an average of 2 men per month over a 9-month period, the following construction work was done: a 34-foot headframe was erected over a shaft, sunk at an earlier date to a depth of 32 feet; a boiler- and hoist-room building, 30 by 30 feet, with a 30- by 16-foot wing, was erected; and an Ingersoll-Rand 460-cubic-foot compressor and a 50 h.p. boiler were installed. Other equipment includes a 20 h.p. portable locomotive-type boiler and a 6- by 8-inch Jenckes steam hoist. An assay office and a small cabin were also erected. The president and vice-president have done most of the work so far accomplished at the property. Activities ceased temporarily late in the fall of 1935.

### **Edwards Gold Mines, Limited**

Edwards Gold Mines, Limited, has an authorized capitalization of 2,000,000 shares of \$1 par value. The company was formerly known as Del Sol Gold Mines, Limited; the change of name was authorized by letters patent in April, 1935. The officers and directors were: H. C. Orton, president; J. B. Kleckner, vice-president; H. H. Huevelman, secretary-treasurer; Murdock L. Martin, assistant secretary; F. E. Matthews, Neill Richards, R. G. Orton, E. B. Tilton, and H. C. Miller, directors. The head office is at 302 Sterling Tower, Toronto. A business office is maintained at 231 South La Salle Street, Chicago, Ill.

The company acquired the Edwards property, located in township 48, range 27, district of Algoma, on which the Gold Lands Syndicate of Algoma sank a 2-compartment 80-degree shaft to a depth of 97 feet, and did 60 feet of lateral work at that depth.

Underground work was started in March and continued until June, during which period about 400 feet of additional lateral work was accomplished on the 97-foot level.

The plant included a 110-cubic-foot and 310-cubic-foot Gardner Denver gasoline compressor and a gasoline hoist.

An average of 8 men was employed during 1935 under the direction of J. A. S. Roussac.

The property is reached by road from either Goudreau or Lochalsh. The mail address is Lochalsh.

### **Elizabeth Gold Syndicate**

The Elizabeth Gold Syndicate was formed in 1935 to acquire the old Elizabeth mine in Rainy River district about 10 miles north of Atikoken on the Fort Frances branch of the Canadian National Railways. W. L. Doyle is manager of the syndicate. The head office is at 9 Adelaide Street East, Toronto.

The Elizabeth mine was discovered in 1900 and worked until 1903. It was again worked during parts of 1912, 1913, and 1914. A 10-stamp mill was installed in 1902. The old workings include a 280-foot shaft, with levels at 65, 146, and 246 feet.

The syndicate started work in May. During the balance of the year the underground workings were dewatered and examined, in addition to surface work. Buildings and part of the old mining equipment were reconditioned. Operations were practically suspended for the winter at the end of the year.

An average of 15 men was employed during the period of operation, under the direction of C. N. Thompson.

### **Falcon Gold Mines, Limited**

Falcon Gold Mines, Limited, was incorporated in September, 1935, with an authorized capitalization of 2,500,000 shares of \$1 par value. The officers and directors are: W. G. Chapman, president; C. H. Hitchcock, vice-president; S. E. Cassan, secretary-treasurer; John Elliott and Lionel Brooke, directors. The head office is at 200 Bay Street, Toronto. The mine address is Sudbury.

The property consists of four claims in Falconbridge township, district of Sudbury, and was formerly known as the McConnell or Beckley property. It is about 7 miles northeast of Wanapitei village, to which it is connected by road.

Operations were started in March, 1935, by the parent company, South Tiblemont Mines, Limited, and continued until Falcon Gold Mines, Limited, took it over in September. The latter continued work until the end of November, when operations were suspended.

Previous operators sank a 45-foot shaft and did some diamond-drilling. During 1935 the diamond-drilling was extended to a total of 3,000 feet. A power-house, blacksmith shop, office, bunk-house, and cookery were constructed, and a headframe was erected over the old shaft. A 20 h.p. boiler and a 6- by 8-inch steam hoist had been installed when operations were suspended.

An average of 5 men was employed during the period of work, under the direction of J. E. Jerome.

### **Foley O'Brien Corporation, Limited**

The Foley O'Brien Corporation, Limited, which was incorporated in 1934, has an authorized capitalization of 2,100,000 shares of \$1 par value. The officers and directors of the company are: Wm. H. Kinch, president; Samuel J. Dark, secretary-treasurer; John G. Ullmann, A. J. McNab, and Carroll Searls, directors.

The Foley O'Brien Corporation, Limited, purchased from Foley O'Brien, Limited, 520 acres located in concessions II and III of Tisdale township, district of Cochrane. This property adjoins the holdings of Dome Mines, Limited, on the northeast, and in 1935 it was purchased by Dome Mines, Limited.

The following work was done underground at this property before it was taken over by the Foley O'Brien Corporation, Limited:—

Shaft and level	Shaft-sinking	Drifts and crosscuts	Raises
	feet	feet	feet
No. 1 SHAFT:.....	79		
39-foot.....		80	
50-foot.....		10	
79-foot.....		65	
No. 2 SHAFT.....	165		
165-foot.....		700	
WINZE (from the 160- to the 250-foot level).....	90		
250-foot.....		670	20
No. 3 SHAFT.....	235		
80-foot.....		145	
230-foot.....		130	

The Foley O'Brien Corporation, worked on this property from July, 1934, to May, 1935. In this period they did the following work: Seventeen diamond-drill holes, having an aggregate depth of 14,757 feet, were drilled; five of these holes, totalling 2,882 feet, were drilled from the underground workings from No. 2 shaft; the rest were drilled from surface. (Former operators had drilled 6 holes totalling 2,477 feet.) Eight pits or trenches were dug with mechanical shovels and scrapers on that part of the property known as Slate Hill; dirt removed from these pits totalled 13,082 cubic yards. Hand-cleaning and washing in the bottom of these pits exposed about 2,300 square yards of bed rock. Hand-dug trenches totalled 2,053 linear yards; of this, 1,733 yards reached bed rock. The average depth of these trenches was about 5 feet, with a maximum depth of 15 feet. The total sampling amounted to 1,518.5 feet. This was divided as follows: surface, 704.4 feet; No. 1 shaft, 261.9 feet; No. 2 shaft, 552.2 feet. The No. 3 shaft was not pumped out by the Foley O'Brien Corporation.

A small wooden headframe and shaft-house were erected over the No. 2 shaft, and a 20- by 40-foot compressor- and hoist-house was built.

P. C. Benedict was manager of this property for the Foley O'Brien Corporation. The mine address is South Porcupine.

### Fort Hope Consolidated Gold Mines, Limited

Fort Hope Consolidated Gold Mines, Limited, was incorporated in 1934, with an authorized capitalization of 3,000,000 shares of \$1 par value, succeeding Fort Hope Gold Mines, Limited. The officers and directors are: J. C. Mackay, president; L. M. Reid, secretary-treasurer; R. D. Felton and C. Cooper, directors. The head office is at 507 Confederation Life Building, Toronto.

The property acquired consists of 16 claims at the northwest end of Eabamet lake, north of the Albany river, in the Patricia portion of Kenora district. The mine is about 115 miles northeast of Collins, a station on the Canadian National railway, from which it is most easily reached by air. Mail going to the mine is addressed to Collins.

In 1928, a 2-compartment shaft was sunk to a depth of 125 feet and about 300 feet of lateral work was done on the 100-foot level. No further work was

done underground until 1935, when the mine was pumped out and sampled. The mine had nearly refilled when it was inspected late in August, 1935. No work of consequence was being done at that time, and at the end of the month only two employees remained at the mine.

The mining plant on the property includes two 50 h.p. locomotive-type boilers, a 350-cubic-foot Canadian Ingersoll-Rand straight-line air compressor, and an 8- by 10-inch Rand sinking hoist.

About 160 cords of wood were cut early in 1935. This work and the examination work done in the spring and summer were in charge of R. Halet.

### **Fox Lake Gold Mines, Limited**

Fox Lake Gold Mines, Limited, was incorporated in May, 1935, with an authorized capitalization of 1,000,000 shares of \$1 par value. The officers and directors are: L. W. Adams, president; P. M. A. Hare, vice-president; J. W. Westervelt, secretary-treasurer; D. A. Anderson and Thomas C. Benson, directors. The head office is at 39 New Bank of Toronto Building, London, Ont.

The property includes a group of nine claims in Mongowin township, district of Sudbury, which was taken over from the Fox Lake Gold Syndicate on incorporation. It is on the Espanola-Little Current highway, about 12 miles south of Espanola.

The 25-ton amalgamation mill, the construction of which was started in November, 1934, was completed and put in operation in February, 1935. It was operated for two weeks and then shut down for the rest of the year. Surface work was carried on throughout 1935. Diamond-drilling was started in August and continued intermittently for the balance of the year.

An average of 11 men was employed under the direction of L. W. Adams. The mine address is Espanola.

### **Franklin Gold Mining Company, Limited**

The Franklin Gold Mining Company, Limited, was incorporated in August, 1934, with an authorized capitalization of 3,500,000 shares of \$1 par value. The officers and directors were: F. M. Sheehan, president; H. E. Martin, vice-president; M. E. Hoult, secretary-treasurer; G. A. Davis and A. T. McCabe, directors. The head office is at 330 Bay Street, Toronto.

The company took over the property of Ontario Champion Mines, Limited, situated in Haycock township, district of Kenora, 8 miles east of Kenora. Previous operators sank a 2-compartment 55-degree shaft to a depth of 230 feet and established levels at 130 and 230 feet, where 225 feet and 120 feet, respectively, of lateral work were accomplished. A 120-foot adit was also driven to intersect the shaft at a depth of 70 feet. A 70-foot section was stoped out to a height of 50 feet on the 130-foot level. In the spring of 1935 the company dewatered the underground workings and sampled them, but did not do any development work. Surface exploration and mapping was carried on until November.

The plant on the property includes two 40 h.p. locomotive-type boilers, a 10- by 12-inch Allis-Chalmers single-drum hoist, and a 400-cubic-foot Gardner compressor.

R. Adair was in charge. The mine address is Kenora.

### **Gillies Lake-Porcupine Gold Mines, Limited**

Gillies Lake-Porcupine Gold Mines, Limited, was incorporated in January, 1933. It was formerly known as the Porcupine United Gold Mines, Limited,

which was a consolidation of Canadel Gold, Limited, Rochester Consolidated Mines Corporation, and Canadian Gold Mines, Limited, a merger which took place in 1928. The company is capitalized at 2,000,000 shares of \$1 par value. The officers and directors are: Ray M. Stanley, president; Howard Thurston, vice-president; Frederick Grotz, secretary-treasurer; F. O. Tidy, A. R. Sproule, and Dr. H. H. Moore, directors. Bernard N. Hyman is general manager. G. C. Chase is resident manager. The head office is at 9 Toronto Street, Toronto. The mine address is Box 2048, Timmins.

The property now consists of six claims adjoining the holdings of both McIntyre-Porcupine Gold Mines and Hollinger Consolidated Gold Mines. It is adjacent to the former on the west end, and to the latter on the north side. Underground work to date has been confined to one claim, the northwest quarter of the north half of lot 2, concession II, Tisdale township, district of Cochrane.

The shaft has two compartments and is 947 feet deep. Levels have been opened at 100, 300, 500, 800, and 925 feet. About 6,780 lineal feet of drifts and crosscuts were driven by previous operators. The present operators commenced underground work on April 2, 1935. Development work during the remainder of the year comprised approximately 120 feet of drifting, 260 feet of raising, and 70 feet of winze-sinking.

During 1935, 5,098 tons of ore were milled, giving a recovery of 1,595.703 ounces of gold and 248.87 ounces of silver, the total value of which amounted to \$57,276.95. Milling operations commenced April 3, 1935, at which time two recently installed Kennedy Nutt mills, with a rated capacity of from 10 to 15 tons, were put into operation. The overflow from these mills was passed over blanket tables and the concentrates were stored. Concentrates derived from a second unit, consisting of a Hardinge mill, 4½ feet by 16 inches, a classifier, and blanket tables, were also stored. Later a 6-cell flotation unit was installed to treat the tailings. In the fall of 1935, the two Kennedy Nutt mills were taken out, and a second Hardinge mill, 6 feet by 16 inches, was installed. A 12-inch by 18-foot double-rake Dorr classifier was also installed to classify the product from both ball mills. The installation of cyanide equipment to treat all the concentrates was completed at the end of the year.

No changes were made during 1935 in the mining plant, the principal items of which are: an Ingersoll-Rand single-drum, steam-operated hoist; a 150 h.p. locomotive-type boiler; and a 14- by 12-inch Chicago pneumatic single-stage air compressor, driven by a 100 h.p. General Electric motor.

The average number of men employed during the year was 30.

### **Gilmour Gold Mines, Limited**

Gilmour Gold Mines, Limited, was incorporated in August, 1935, with an authorized capitalization of 3,000,000 shares of \$1 par value. The officers and directors are: M. F. Burrows, president; J. Summers, secretary-treasurer; A. E. Broadley and Dr. R. A. Gemmill, directors. The head office is at 21 King Street West, Toronto. The mine address is Gilmour.

The property consists of 116 acres in Grimsthorpe township, Hastings county. All the development work on the property was done by previous operators. No 1 shaft is 85 feet deep, and during 1935 a station was cut at 75 feet. No. 4 shaft is 260 feet deep, with levels at 75, 125, and 250 feet. About 1,000 feet of drifting and 75 feet of crosscutting have been done from this shaft. About 500 tons of ore was hoisted during the period of operation in 1935.

Buildings on the property include an office, bunk-house, power-house,

hoist-house, assay office, mill, powder-house, and thaw-house. The 100-ton mill was put into operation in September.

An average of 15 men was employed. W. Hitchins was manager and was succeeded by A. A. Kenniger.

### Gold Eagle Gold Mines, Limited

Gold Eagle Gold Mines, Limited, incorporated in February, 1934, is capitalized at 3,000,000 shares of \$1 par value. The officers and directors are: W. F. Stafford, president; Millard C. Dorntge, treasurer; Bruce P. Davis, secretary; Chas. E. St. Paul, managing director; W. S. Rogers and J. T. Oliver, directors. The head office of the company is at 350 Bay Street, Toronto.

The holdings of this company consist of 24 claims on Mackenzie island in Red lake, Patricia portion of Kenora district, adjoining the south and west sides of the property of McKenzie Red Lake Gold Mines. The mine address is McKenzie Island, a post office established on the island in 1935 to serve these two mines.

The mining plant was installed on the property during the late summer and fall of 1934, and shaft-sinking was commenced late that year. The first station at the 125-foot level was being cut at the end of 1934. The following figures show the total amount of underground development work done up to August 27, 1935, when work was temporarily suspended.

Shaft, vertical, 3 compartments.....	Feet 525
125-foot level (station only).	
250-foot level (drifting and crosscutting).....	275
375-foot level " " ".....	400
500-foot level " " ".....	755

There is a good steam-operated mining plant on the property. No new additions were made to the plant during 1935. Alex. Gillies, the first manager of the property, was succeeded by F. M. Passow during the summer of 1935. An average of 33 men was employed during the first eight months of 1935.

### Golden Summit Mines, Limited

Golden Summit Mines, Limited, has a capitalization of 2,500,000 shares of \$1 par value, of which 1,650,000 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 property was operated throughout 1935, with an average force of 21 men, under the management of Wm. J. Simpson.

Development work consisted of 853 feet of crosscutting and 571 feet of drifting; 4,612 tons of ore was hoisted. A 35-ton mill was installed during the year.

### Gomak Mines, Limited

Gomak Mines, Limited, was incorporated in December, 1933, with an authorized capitalization of 1,000,000 shares of \$1 par value. The officers and directors are: C. N. Haldenby, president; Dr. W. H. Wright, vice-president;

F. O. Gallagher, secretary; Mrs. E. M. Clyde and R. M. West, directors. The head office is at 320 Bay Street, Toronto. The mine address is Gogama.

The property consists of a group of 17 claims in Chester township, Three Duck Lakes area, district of Sudbury. It is reached by a 21-mile winter road southwest from Gogama on the Canadian National railway.

Surface work and diamond-drilling were carried on until June, 1935, when a 2-compartment 65-degree shaft was started on claim S. 20,009. Underground development was suspended at the end of September after 75 feet of sinking and 180 feet of drifting on the 65-foot level, had been accomplished. Some diamond-drilling was done during October and November from underground.

At the end of the year a mill site had been excavated, and plans made to install a 20-ton amalgamation-flotation mill.

The plant included two 260-cubic-foot Ingersoll-Rand gasoline compressors, and a 5- by 7-inch Jenckes hoist. Buildings included a hoist-compressor house, blacksmith shop, office, bunk-house, and cookery.

An average of 10 men was employed during 1935, under the direction of R. D. Jones.

### **Halcrow-Swayze Mines, Limited**

Halcrow-Swayze Mines, Limited, was incorporated in November, 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. Yeoell and Martin Shunsby, directors. The executive office is at 709 Excelsior Life Building, Toronto.

The property is situated in Halcrow township, Swayze area, district of Sudbury. By air, it is about 20 miles east of Chapleau on the Canadian Pacific railway.

All work was suspended at this property on February 15, 1935. The underground work accomplished during 1935 consisted of about 35 feet of raising on the 200-foot level, and the same amount on the 354-foot level, for sampling purposes. The 25-ton test-mill treated about 220 tons of ore in 1935.

About 15 men were employed under the direction of H. F. Strong.

### **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 are: 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. The mine address is Geraldton.

The company continued development of its property in Ashmore township in the Little Long Lac area, Thunder Bay district, throughout 1935. The 3-compartment vertical shaft, started in 1934, was at a depth of 463 feet at the end of 1935, and sinking was in progress with an objective of 475 feet. Levels were established at 200 and 325 feet. During 1935, a total of 1,109 feet of drifting and 494 feet of crosscutting was accomplished on the 200-foot level, and 959 feet of drifting and 474 feet of crosscutting on the 325-foot level; 1,342 feet of diamond-drilling was done from surface, and 3,020 feet from underground.

There were no changes in the plant during the year. An assay office and a directors' lodge were constructed, and an automobile road from Geraldton to the property was completed.

An average of 39 men was employed, of whom 16 were underground. J. C. Dumbrille was in charge, with E. J. Bolger as engineer.

### **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 are: R. W. Lee, president; H. J. Sender, secretary-treasurer; Dr. H. L. Van Norstrand, H. L. Duncan, and W. J. Wadsworth, directors. The head office is at 310 Temple Building, Toronto.

The property consists of a group of 8 claims, situated 2 miles east of Schreiber on the main line of the Canadian Pacific railway, district of Thunder Bay.

During 1935 work was carried on from January until the middle of April, and from the middle of July until the end of the year. The underground work accomplished during the year consisted of 110 feet of drifting in No. 3B adit. A 220-cubic-foot Ingersoll-Rand gasoline compressor was used.

A 25-ton amalgamation mill was constructed and was operated intermittently during August and September, when a total of 119 tons of ore was milled. The equipment included a jaw-crusher, vibrating screen, 2 Kennedy Nutt units, 2 Wilfley tables, and two blanket tables, operated by a 20 h.p. Diesel engine.

About 500 tons of rock was mined from open cuts and the ore sorted out, some of which went to the mill.

An average of 13 men was employed during the period of operation. J. F. Anderson was in charge. 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. The officers and directors are: E. V. McMillan, president; G. E. MacMillan, secretary; J. J. Phillips, treasurer; M. I. McMillan, M. Kuittinen, and H. Aarnio, directors. The executive office is at 645 Queen Street East, Sault Ste. Marie.

The property consists of thirty-five claims, located in the northeastern part of township 29, range 23, in the Michipicoten area, district of Algoma.

Underground work, which had been suspended in December, 1934, was resumed in the middle of March and continued until August, when all operations ceased for the balance of 1935. During this period the adit on claim S.S.M. 4,925 was driven a further distance of 390 feet, to a total of 790 feet, and 49 feet of crosscutting done. In addition an old 52-foot adit on claim S.S.M. 7,367 was driven a further distance of 56 feet, to a total of 108 feet.

In January, 1935, the construction of a power line and 50-ton mill was commenced. The power line,  $1\frac{1}{4}$  miles long, was extended from the property of Stanley Gold Mines, Limited, and completed in March. Mill construction was suspended after the building was erected, and a jaw-crusher, Hardinge ball mill, and Wilfley table were set up. A 310-cubic-foot Ingersoll-Rand electric compressor was used for driving the main adit.

An average of 18 men was employed from the first of the year until August. D. S. Baird, J. A. Ogilvy, and Howard Webb were successively in charge.

### **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. At December 31, 1935,

4,920,000 shares were outstanding. The head office of the company is at Timmins. The general office is at 602 Royal Bank Building, Toronto.

The officers at December 31, 1935, were: Noah A. Timmins, president; Jules R. Timmins, vice-president; John B. Holden, secretary-treasurer; A. F. Brigham, consulting engineer; and John Knox, general manager. On January 23, 1936, the company sustained the loss, by death, of its president. Jules R. Timmins has now been appointed president; John B. Holden, vice-president and treasurer; and P. C. Finlay, secretary. The directors of the company are: Jules R. Timmins, John B. Holden, W. L. McDougald, Leo. H. Timmins, Wilson Bell, James Y. Murdoch, Allen A. McMartin, John I. Rankin, and N. A. Timmins, Jr.

The following tribute to the late Mr. Timmins is taken from the new president's statement to the shareholders under date of February 21, 1936:—

Before commenting in detail on the results of the operations of your company during the past year I desire to refer, on behalf of the board and myself, to the great loss sustained by your company through the death of our late president, Mr. N. A. Timmins, on the 23rd of January of the present year.

He was the last of the original five founders of the company, and president since its incorporation. No one had the interests of the company more at heart nor was more intimately associated with its affairs. The late Mr. Timmins was a man of vision, who had in full measure the pioneer spirit and the courage to back his convictions. He will be especially missed by his fellow directors, who have been associated with him for many years, as well as by the Hollinger organization. Not only our company, but the entire mining industry of the Dominion has suffered the great loss.

The following is taken from the general manager's report for the year ending December 31, 1935:—

PROFIT AND LOSS STATEMENT  
for the year ending December 31, 1934

SOURCES OF 1935 INCOME:		
Net value of gold and silver produced.....	\$14,704,625. 19	
Less Dominion Government tax on bullion.....	577,783. 55	
		\$14,126,841. 64
Interest on investments and other income.....		220,372. 86
		\$14,347,214. 50
DISPOSAL OF 1935 INCOME:		
Milling charges.....	\$1,189,388. 67	
Mining charges.....	5,979,810. 04	
Marketing bullion.....	106,306. 43	
Workmen's compensation.....	141,922. 93	
Silicosis assessment.....	130,779. 17	
General charges.....	679,679. 10	
		8,227,886. 34
		\$6,119,328. 16
DEDUCT:		
Taxes—		
Province of Ontario:		
Corporation tax.....	\$40,240. 99	
Mining profits tax.....	157,056. 15	
Royalties:		
Town of Timmins.....	51,398. 09	
Township of Tisdale.....	12,770. 18	
Municipal:		
Town of Timmins.....	68,416. 15	
Township of Tisdale.....	2,980. 76	
Dominion of Canada re 1933 income tax.....	1,263. 79	
Miscellaneous.....	76. 44	
Dominion, provincial, and municipal, reserved for.....	521,886. 20	
		856,088. 75
Net profit from operations before depreciation.....		\$5,263,239. 41

Depreciation:		
Plant .....	\$23,709.89	
Investments in other companies and properties written down .....	4,917.07	
Expenditures on properties abandoned .....	219,954.03	
		248,580.99
NET PROFIT FROM OPERATIONS CARRIED TO SURPLUS ACCOUNT .....	\$5,014,658.42	
SURPLUS ACCOUNT		
BALANCE BROUGHT FORWARD, JANUARY 1, 1935 .....	\$5,303,012.79	
NET PROFITS FROM OPERATIONS .....	5,014,658.42	
NET PROFITS FROM THE SALE OF SECURITIES AND OTHER ASSETS .....	34,843.85	
		\$10,352,515.06
PAID OUT IN DIVIDENDS .....	4,428,000.00	
BALANCE CARRIED FORWARD, DECEMBER 31, 1935 .....	\$5,924,515.06	
BULLION STATEMENT		
INVENTORY, JANUARY 1, 1935:		
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	
Total .....	\$105,442.14	
GROSS VALUES PRODUCED IN 1935:		
Ore milled .....	\$14,700,486.52	
Tailings loss .....	573,644.88	
		14,126,841.64
		\$14,232,283.78
INVENTORY, DECEMBER 31, 1935:		
Solutions .....	106,298.72	
Precipitates held over .....	4,160.00	
Gold in process to scavenger .....	2,000.00	
		\$112,458.72
BULLION SHIPPED DURING 1935 .....	14,119,825.06	
		\$14,232,283.78

## YEARLY AVERAGE COSTS

Account	Sundries	Labour	Stores	Total	Per ton ore milled
General miscellaneous charges and administration .....		\$321,507.06	\$124,599.16	\$446,106.22	\$0.2429
Surface services .....		61,484.09	43,627.75	105,111.84	.0572
Fire insurance .....	\$54,411.11			54,411.11	.0296
Group insurance .....		74,049.93		74,049.93	.0403
Marketing bullion .....	106,306.43			106,306.43	.0579
Workmen's compensation .....		141,922.93		141,922.93	.0772
Milling charges .....		487,834.90	701,553.77	1,189,388.67	.6474
Mining charges .....		4,208,872.15	1,770,937.89	5,979,810.04	3.2549
Silicosis assessment .....		130,779.17		130,779.17	.0712
Total charges .....	\$160,717.54	\$5,426,450.23	\$2,640,718.57	\$8,227,886.34	\$4.4786

## Employees

The average number of men employed during the year has been 2,889, distributed as follows:—

MINERS:	MECHANICS:	GENERAL:
Exploration .....	Operation .....	Mill and refinery ..
Development .....	Maintenance .....	Technical .....
Production .....		Clerical .....
		Miscellaneous .....
		Outside properties ..
Total .....	Total .....	Total .....
1,935	330	624

The men employed at outside properties on December 31, 1935, were distributed as follows: Ross mine, 75; Smith-Thorne, 30; Hunter mine, 5.

#### The Mill

Milling results were as follows:—

Ore milled.....	tons	1,837,153
Average value per ton.....		\$8.00
Gross value.....		\$14,700,486.52
Deduct loss in tailings.....		573,644.88
Net value recovered.....		\$14,126,841.64
Average tons per day.....		5,075
Per cent. of possible time run.....		87.6
Tons per 100 per cent. running time.....		5,793
Solution precipitated per ton ore.....	tons	0.99
Value per ton tailings.....		\$0.31
Cyanide consumed per ton of ore.....	lbs.	0.479
Zinc consumed per ton of ore.....	lbs.	0.045
Zinc consumed per ton of solution.....	lbs.	0.045
Lime consumed per ton of ore.....	lbs.	2.110
Lead acetate per ton of ore.....	lbs.	0.008
Average value of pregnant solution.....		\$7.78
Average value received per ounce of gold sold.....		\$33.77

#### Ore Reserves

Our ore reserves on the 31st of December, 1935, consisted of 7,355,318 tons, of a total value of \$51,918,222.00, having an average value of \$7.06 per ton. These figures compare with 7,061,926 tons of a total value of \$51,440,260.00, having an average value of \$7.28 per ton, at the end of 1934.

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 alterations have been made to the central shaft crushing plant, which makes its efficiency compare favourably with the most modern plants.

#### Hollinger Mine

Operations in the upper levels demanded a greater tonnage of backfill than formerly. During the year, 1,224,004 tons of backfill were placed.

The subshaft from the 3,950-foot level, known as No. 25 shaft, has been sunk to the 5,000-foot level and will be continued for another 150 feet before development operations are commenced. The drift west from Schumacher shaft, mentioned in the last annual report, has been extended to a point immediately under the central shaft. No. 21 shaft, which is immediately west of the central shaft, has been sunk to the 3,800-foot level and will be continued to connect with the drift above mentioned, thus given improved ventilation to the lower workings.

Intensive exploration in the upper levels has been continued with gratifying results. Approximately 37 per cent. of the ore came from above the 800-foot level. This figure indicates the importance of this work to the future life of the mine. As a result of this policy it has been unnecessary to draw on the ore reserves below the 2,750-foot level. This will ultimately result in concentration of the mining operations to more restricted areas, allowing considerable decrease in operating costs.

As mentioned in the previous report, operations are still carried on on all levels from surface to the 3,950-foot. There have been no outstanding ore discoveries of note during the year, but general developments have been up to expectations. There has been a further increase of \$500,000 in the ore reserves for the year.

#### Young-Davidson Mine

The operations have been satisfactory during the year. As intimated in the last report a shaft has been sunk to a depth of 475 feet and a station cut at the 262-foot level. Drifting has been extended from this station to the ore body, and crosscuts are now being driven to open up the ore body for production.

Some 229,793 tons were treated during the year. Operating profits amounted to \$234,000. The recovery for the year was \$3.12 per ton.

#### Hislop Property

The shaft was extended from the 150-foot level to a depth of 450 feet. Development work has been carried out on the 150-, 300-, and 450-foot levels. The results to date are in-

conclusive. A small mill has been erected on the property for test purposes and went into operation January 1.

#### **Horwood Lake**

An option on a property at Horwood lake was taken during the year, and a shaft has been sunk to a depth of 200 feet. No drifting has been done as yet.

#### **Smith-Thorne Property**

Work was started on the Smith-Thorne property at Horwood lake, district of Sudbury, in September, 1935. It is reached by a 17-mile winter road southwest from Tionaga on the Canadian National railway.

Buildings were constructed, a plant was installed, and the sinking of a 2-compartment 45-degree shaft was started on claim S. 25,339 on October 28. At the end of the year the shaft was at an inclined depth of 206 feet, and a station was being cut at 200 feet. It is planned to sink to 600 feet before starting lateral work.

The plant included a 42 h.p. boiler, an 8- by 6-inch Ingersoll-Rand steam hoist, a 315-cubic-foot and a 350-cubic-foot oil-engine compressor. Buildings erected included an office, cookery-bunkhouse, steel shop-dry house, boiler-house, and hoist-compressor house.

An average of 38 men was employed during the period of operation. G. F. Gibbs was in charge. The mine address is Tionaga.

The following is taken from the consulting engineer's report on outside properties for the year ending December 31, 1935:—

In all, 100 examinations on properties of varying merit were undertaken during the year, of which 82 were in Ontario, 17 in Quebec, and one in Manitoba. On some of them a limited amount of work has been done, and during the coming year several will be further investigated when favourable weather and transport conditions obtain.

Prospecting, development, and exploration work on outside properties (except the Young-Davidson and Hislop properties) involved an expenditure of \$245,000.

#### **Horseshoe Mines, Limited**

Horseshoe Mines, Limited, was incorporated in February, 1929, with an authorized capitalization of 4,500,000 shares of \$1 par value. The officers and directors are: Dr. T. B. Armstrong, president; John Aiken, vice-president; M. Abraham, secretary-treasurer; R. J. Dixon, director. The head office is at 801 Excelsior Life Building, Toronto.

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

The mine was idle from September, 1934, until September, 1935. Work was carried on from September 10 until December 25, and then suspended. The work consisted of repairs to the buildings, a geological survey of part of the property, and repairs to the shaft.

A crew of 9 men was employed during the period of operation, under the direction of W. R. Sutton, who was succeeded by Frank Williams. The mine address is Box 811, Kenora.

#### **Howey Gold Mines, Limited**

Howey Gold Mines, Limited, was incorporated in March, 1926. The authorized capitalization of the company is 5,000,000 shares of \$1 par value, all of which are issued. The officers and directors are: R. T. Birks, president;

W. S. Cherry, vice-president; H. C. McCloskey, secretary-treasurer; B. E. Martin, assistant secretary-treasurer; J. E. Hammell and John A. Northway, directors. Fraser D. Reid is general manager, Edward Futterer is resident manager, Ralph E. Sullivan is mill superintendent, and Robert Basserman is mine superintendent. The executive office of the company is at 717 Federal Building, Toronto; the head office and mine office are at Red Lake.

The company's holdings lie along both sides of the boundary between Dome and Heyson townships, at the southeast corner of the lower part of Red lake, in the Patricia portion of Kenora district. The greater part of the town of Red Lake is built on Howey property.

During 1935, a new hoist was bought and installed at the 1,000-foot level winze. This winze was completed to the 1,500-foot level early in the year. A new 50 h.p. Westinghouse motor was also bought to drive the hoist. The average number of men employed during 1935 was 218.

The following is taken from the general manager's report for 1935:—

## SUMMARY OF WORK ACCOMPLISHED

	1935	1934	1933
Drifts, crosscuts, raises, etc. . . . . feet	5,143.8	3,955	1,879
Shafts and winzes . . . . . feet	249	177	200
Shaft stations, slashing, etc. . . . . cu. yds.	52	296	3,860
Diamond-drilling (underground) . . . . . feet	4,185	3,629	1,837.6
Diamond-drilling (outside exploration) . . . . . feet	1,514	851	.....
Box-holes . . . . . feet	442	972	1,883
Ore broken . . . . . tons	650,156	502,508	414,611
Low-grade material discarded by sorting . . . . . tons	82,746	85,648	53,170
Milled after sorting . . . . . tons	402,220	396,109	290,965
Broken reserves in stopes (Jan. 1, 1936) . . . . . tons	456,958	301,990	276,526

## EARNINGS STATEMENT

	1935	1934	1933
Total receipts from sale of gold and silver . . . . .	\$1,319,764.26	\$1,594,222.51	\$1,158,470.03
Total operating cost including Toronto office expense . .	844,239.38	881,869.52	770,010.56
Operating profit . . . . .	\$475,524.88	\$712,352.99	\$388,459.47

MISCELLANEOUS OPERATING DATA<sup>1</sup>

	1935	1934	1933	Total from start of operations
Tonnage milled and sorted . . . . .	484,966	481,757	344,135	1,978,213
Tonnage discarded by sorting . . . . .	82,746	85,648	53,170	282,265
Tonnage milled . . . . .	402,220	396,109	290,965	1,695,948
Value a ton hoisted . . . . .	\$1.76	\$2.20	\$2.73	\$2.79
Value a ton material discarded by sorting . . . . .	\$0.21	\$0.21	\$0.54	\$0.335
Value a ton of ore milled . . . . .	\$2.08	\$2.64	\$3.12	\$3.20
Loss in tailings a ton milled . . . . .	\$0.127	\$0.214	\$0.24	\$0.226
Loss a ton of ore hoisted (in milling and sorting) . . . . .	\$0.141	\$0.213	\$0.286	\$0.242
Net percentage recovery a ton of ore hoisted . . . . .	92.1	90.3	89.5	91.3
Total net recovery of gold and silver . . . . .	\$1,319,764.26	\$1,594,222.51	\$1,158,470.03	\$6,715,955.81

<sup>1</sup>All values are figured on gold at \$20.67 per ounce.

## ANALYSIS OF COSTS

	1935 (484,966 tons)		1934 (481,757 tons)		1933 (344,135 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.....	\$467,385.23	\$0.963	\$497,155.74	\$1.032	\$445,033.50	\$1.293
Outside exploration..	4,326.53	.009	2,389.43	.005	484.39	.002
Crushing and conveying.....	40,294.21	.083	44,902.88	.093	34,918.07	.102
Ore sorting.....	14,200.53	.029	23,485.72	.049	15,612.00	.045
Milling.....	217,786.10	.450	217,909.85	.452	198,877.14	.578
General expense.....	67,451.02	.139	63,993.85	.133	48,277.67	.140
Total plant cost.....	\$811,443.62	\$1.673	\$849,837.47	\$1.764	\$743,202.77	\$2.160
Toronto office salaries and general expense	32,762.26	.068	32,028.69	.066	27,578.92	.080
Interest and exchange	33.50		3.36			
Total operating expenses before depreciation, Dominion and provincial taxes, and pre-operating charges..	\$844,239.38	\$1.741	\$881,869.52	\$1.830	\$770,781.69	\$2.240
Dominion and provincial taxes.....	39,472.01	.081	43,284.59	.090	13,016.83	.038
Depreciation (on 10 per cent. basis)....	135,705.24	.280	132,749.76	.276	119,108.64	.346
Pre-operating charges	96,993.20	.200	96,351.40	.200	103,240.50	.300
Total cost.....	\$1,116,409.83	\$2.302	\$1,154,255.27	\$2.396	\$1,006,147.66	\$2.924

## CAPITAL EXPENDITURES

Dwellings.....	\$1,266.60
Incinerator.....	1,243.45
Motor-boat (net).....	516.65
Surface pipe line.....	1,116.86
Miscellaneous surface.....	556.04
Electric hoist, underground.....	4,327.63
Miscellaneous, underground.....	1,418.30
Total.....	\$10,445.53

## Ore Reserves

The broken ore reserves as of December 31, 1935, amounted to 456,958 tons, compared to 301,990 tons the previous year. The unbroken reserves amount to 1,267,500 tons of ore, as compared to 1,853,000 tons the previous year.

In addition to this there is a possible 185,000 tons of ore in place indicated in the 1,175-foot level, west block, and 100,000 tons of ore that will in all probability be recovered from the permanent pillars. The total positive ore, and ore indicated as possible, amounts to 2,009,450 tons, with a gold content of between \$3.00 and \$3.50 a ton at the current price.

## Exploration

The 1,175-foot level east drift was extended to a point 1,042 feet east of the shaft, in an attempt to establish the downward extension of the narrow ore body encountered in the 1,000-foot level east drift. Diamond-drilling indicated the presence of a number of short lenses of mineralized quartz, none of which were of sufficient size to be mined at a profit.

The 1,175-foot level west drift was driven to a point 545 feet west of the shaft, and the dike systematically diamond-drilled to establish the downward extension of the 1,000-foot level west ore body. The results obtained justified our including this west block of 185,000 tons in the ore reserves as probable ore.

The winze was sunk to a point 271 feet below the 1,315-foot haulage level. A station was cut at the 1,500-foot level, and the dike explored by drifting and systematic diamond-drilling over a length on the strike of 770 feet. This work disclosed a mineralized section 6 feet wide and 300 feet long, having an approximate value of \$4.25 (gold at \$35.00 an ounce) per ton. This,

however, cannot be classified as ore. The assay results and results generally from the work done on this level were disappointing.

Surface prospecting and a limited amount of diamond-drilling from the surface was done during the year, resulting in no developments of importance.

### Hudson-Patricia Gold Mines, Limited

Hudson-Patricia Gold Mines, Limited, was incorporated in April, 1934, with authorized capitalization of 2,500,000 shares of \$1 par value. The capitalization was increased in December, 1935, to 3,500,000 shares. The officers and directors of the company are: W. R. Salter, president; M. H. Lebel, vice-president; P. A. Lavallee, managing director; M. F. Blue, secretary-treasurer; J. L. A. Tetreault, A. J. H. St. Denis, C. H. Ackerman, and General B. R. Hepburn, directors. The head office of the company is at 200 Bay Street, Toronto. The mine office address is Narrow Lake, via Sioux Lookout.

The holdings of the company consist of 26 claims in the townships of Goodall and Dent in the Woman Lake area of the Patricia portion of Kenora district. This company succeeded Metals Development, Limited, the shareholders of which received one share of Hudson-Patricia Gold Mines, Limited, for each four shares of the old company held.

The following table shows the amount of work done up to April, 1934, when the property was taken over by the present operators; at December 31, 1934; and at December 31, 1935:—

	April, 1934	Dec. 31, 1934	Dec. 31, 1935
	feet	feet	feet
SHAFT No. 1 (inclined) .....	100	100	100
100-foot level:			
Crosscutting .....	15	15	15
Drifting .....	312	320	320
SHAFT No. 2 (vertical) .....	237	237	237
211-foot level:			
Crosscutting .....	900	1,749	1,851
Drifting .....		1,061	1,312
Raising .....		169	169
WINZE (inclined 74° from 211-foot level) .....		75	144
325-foot level:			
Crosscutting .....			133
Drifting .....			579

Mining operations underground were suspended in August owing to lack of funds. Later in the year the capitalization was increased. Plans for a 50-ton cyanide mill were drawn up and approved, and the equipment for this mill was purchased early in 1936.

J. M. Thompson is manager. The average number of men employed at the mine from January 1 to October 1 was 27.

### J-M Consolidated Gold Mines, Limited

J-M Consolidated Gold Mines, Limited, incorporated in February, 1932, is capitalized at 3,500,000 shares of \$1 par value, of which 2,329,341 shares have been issued. The officers and directors are: J. E. Day, president; Chas. Taylor, vice-president; T. J. Day, secretary-treasurer; Hon. J. D. Chaplin and F. L. Hutchison, directors. The head office of the company is at 1116 Federal Building, 85 Richmond Street, West, Toronto. The mine office address is Jackson Manion.

This company holds 34 claims in the Woman Lake area, Patricia portion of Kenora district. Access by water is from Hudson, through Lac Seul, Pakwash lake, Trout Lake river, and Woman river, to Woman lake. Aircraft reach the property in about an hour flying from Hudson or Sioux Lookout.

The following table shows the development work done up to December 31, 1934, the work accomplished during 1935, and the total:—

	To Dec. 31, 1934	1935	Total
	feet	feet	feet
Shaft.....	404	.....	404
Winzes (below the 375-foot level).....	30	115	145
125-foot level:			
Drifts.....	730	305	1,035
Crosscuts.....	160	81	241
Raises.....	170	30	200
200-foot sublevel:			
Drift.....	50	31	81
250-foot level:			
Drifts.....	808	482	1,290
Crosscuts.....	212	57	269
Raises.....	170	30	200
375-foot level:			
Drifts.....	472	504	976
Crosscuts.....	288	.....	288
Raises.....	20	105	125
482-foot level:			
Drifts.....	.....	68	68
Crosscuts.....	.....	9	9

A cyanide mill of approximately 30 tons daily capacity was installed at this property early in 1934, and operated from May, 1934, to the end of March, 1935. Gross production from 3,448 dry tons milled during 1934 was \$34,709.32; and from 1,381 dry tons milled in 1935, gross production was \$13,464.99.

No major alterations or additions were made to the mining plant during 1935. The average number of men employed per month during 1935 was 38, divided as follows: underground, 12; mill, 11 (3 months only), and surface 23. D. M. Thomson is manager.

### Kenora Prospectors and Miners, Limited

Kenora Prospectors and Miners, Limited, was incorporated in February, 1928. The company has an authorized capitalization of 1,000,000 shares of \$1 par value. The officers and directors are: Thayer Lindsley, president; I. A. Lindsley, vice-president and managing director; A. G. Fulton, secretary-treasurer; I. F. Machin and Jos. Errington, directors. The secretary's address is 25 King Street West, Toronto. The head office and mine office are at Kenora.

The property includes the Cedar Island mine, located in Shoal lake, Lake of the Woods area, district of Kenora. It is 25 miles southwest of Kenora by air.

Work was continued throughout 1935 at the Cedar Island mine. During 1935 the Cornucopia, or No. 2 shaft, which is a vertical 2-compartment shaft, was sunk an additional 208 feet to a total depth of 601 feet, and levels were established at 393 and 500 feet. A total of 927 feet of drifting, 368 feet of cross-cutting, and 40 feet of raising was accomplished on the 393-foot level; and 712 feet of drifting, 257 feet of crosscutting, and 9 feet of raising on the 500-foot level. In addition stoping was started on these two levels and on the 144-foot level at No. 1 shaft.

In June the construction of a 30-ton amalgamation-flotation mill was commenced. It was completed and put in operation on October 15. The equipment included a jaw-crusher, two ball mills, a thickener, a 6-cell flotation machine, and amalgamation equipment, operated by a 150 h.p. Diesel engine. By the end of the year a total of 3,095 tons had been milled.

The plant included a 55 h.p. boiler, a 20 h.p. boiler, an 11- by 9-inch Ingersoll-Rand steam hoist, and a 600-cubic-foot Diesel compressor.

An average of 45 men was employed during 1935, of whom 15 were underground. Hilding Johnson was superintendent.

### Kirkland Consolidated Mines, Limited

Kirkland Consolidated Mines, Limited, is capitalized at 7,000,000 shares of \$1 par value. The officers and directors are: Ira Scheifley, president; Ferdinand Frohe, vice-president; C. C. Tyx, secretary-treasurer; Geo. F. Pfeiffer, Kevin Killeen, Norman R. Davis, Richard W. Langford, directors. The head office is at 702 Excelsior Life 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. The mine was reopened on August 10, and closed on September 30, 1935. During the operating period 100 feet of drifting was done on the 250-foot level and 1,000 feet of diamond-drilling. Ten men were employed, and Ralph Hurd was manager.

### 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 1312 Metropolitan Building, Toronto. The mine address is Kirkland Lake. P. J. Harris is superintendent. An average of 158 men was employed during the year.

The following is taken from the managing director's report for the year ending December 31, 1935:—

#### ANALYSIS OF OPERATING COSTS

	Total cost	Cost per ton milled
Development and exploration .....	\$109,365.34	\$1.52
Stopping .....	160,118.93	2.22
Transporting ore, hoisting, etc. ....	91,747.57	1.27
Milling .....	87,890.42	1.22
Marketing bullion .....	9,715.49	.14
Taxes .....	18,495.20	.26
General and undistributed charges (rebuilding and strengthening shaft-house, addition to mill equipment, maintenance mine buildings, administration and management, insurance, workmen's compensation, portion of extension to Kirkland Lake Hospital and drainage tunnel, miscellaneous) .....	97,461.47	1.36
Total .....	\$574,794.42	\$7.99

*Bert. G.E.*

### Summary of Work Done in Mine

As a means of showing the distribution of the work done, the mine has been divided into three vertical sections or hoisting lifts, and percentages are shown from each.

1st hoisting lift . . . . . from the 2,400-foot level to surface.  
 2nd hoisting lift . . . . . from the 4,900-foot level to the 2,400-foot level.  
 3rd hoisting lift . . . . . from the 5,800-foot level to the 4,900-foot level.

	Quantity	1st lift	2nd lift	3rd lift
		per cent.	per cent.	per cent.
Ore broken . . . . . tons	86,064	54.2	29.2	16.6
Drifting . . . . . feet	6,020	63.3	32.4	4.3
Crosscutting . . . . . feet	943	68.4	16.8	14.8
Raising . . . . . feet	492	34.6	.....	65.4
Slashing . . . . . cu. ft.	40,176	74.4	21.7	3.9
Diamond-drilling . . . . . feet	11,518	64.4	29	7.4
Distribution of all development . . . . .	.....	67.6	25	7.4

It will be seen from this that the majority of the development was done in the upper levels of the mine.

Practically no attempt was made to develop new ore in the lower lift. It is necessary to carry to completion the stopes already started in this section on account of the comparatively short life of the timber, which, if left for any appreciable time, would have to be replaced. If this had not been the case, for economic reasons, work for the time being would have been suspended in this lift.

### Production

Although there were 6,968 tons more milled than in the year previous, there was a gain in broken ore reserves for the year of 14,134 tons, bringing the total broken ore reserves to 33,648 tons.

#### MILLING STATISTICS

Ore milled . . . . . tons	71,920
Average value per ton . . . . .	\$12.02
Gross value . . . . .	\$864,477.04
Loss in tailings . . . . .	\$85,921.92
Net value recovered . . . . .	\$778,555.12
Recovery per ton milled . . . . .	\$10.83
Average tons milled per day . . . . .	197
Value in tailings per ton . . . . .	\$1.19
Per cent. extraction . . . . .	90.1

During the year there were alterations and additions made to the mill equipment, which resulted in a considerable increase in the milling capacity, with an improvement in the extraction.

### General

The surface plant was maintained in good repair, and a number of improvements were made for convenience and efficiency of operation. During the year much of the timber in the shaft-house had to be replaced, and considerable repairing done.

Also, your company had to bear, with the other mines of the camp, its share of the cost of the new Kirkland Lake Hospital extension and the drainage tunnel under the town of Kirkland Lake. Part of the cost of the latter, however, will not be due until 1936. All of the above unusual expenditures, which amounted to \$12,950.50, have been charged and paid for out of operations.

### Lafayette Long Lac Gold Mines, Limited

Lafayette Long Lac Gold Mines, Limited, has an authorized capitalization of 3,000,000 shares of \$1 par value. The name of the company was changed from Swayze-Rand Gold Mines, Limited, in 1934. The officers and directors were: H. J. Martin, president; W. G. Chapman, secretary-treasurer; P. Roche, M. S. McLaughlin, and Lloyd Woods, directors. The head office is at 200 Bay Street, Toronto.

The property includes a group of 25 claims in Errington township, Little Long Lac area, district of Thunder Bay. It is located about  $1\frac{1}{4}$  miles south of Geraldton on the Canadian National railway.

Diamond-drilling was carried on at this property during 1935. In December a small 2-compartment shaft was started. By the end of the year it had been sunk to a depth of 30 feet by hand-steel and windlass.

J. A. Brownlee is in charge. The mine address is Geraldton.

### 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: Dr. W. P. St. Charles, president and treasurer; W. H. Wright, vice-president; A. L. Blomfield, managing director; 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 1,397 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, 1935:—

During the year, 833,094 dry tons of ore were treated, yielding 460,442 ounces of gold and 105,514 ounces of silver, having a gross value of \$16,026,108.57. The total production, after deduction of the federal bullion tax, amounted to \$14,578,936.13.

#### PRODUCTION RECORD

Period	Months	Tons milled	Gross value of bullion <sup>1</sup>	Dividends paid
Mar. 1, 1918, to Nov. 30, 1918.....	9	14,948	\$372,352.35	\$100,000
Dec. 1, 1918, to Nov. 30, 1919.....	9	11,907	302,518.17	100,000
Dec. 1, 1919, to Nov. 30, 1920.....	12	18,889	525,278.38	80,000
Dec. 1, 1920, to Nov. 30, 1921.....	12	21,681	523,597.39	120,000
Dec. 1, 1921, to June 30, 1923.....	19	36,825	850,282.92	160,000
July 1, 1923, to June 30, 1924.....	12	24,223	590,119.98	160,000
July 1, 1924, to June 30, 1925.....	12	96,838	1,812,008.05	600,000
July 1, 1925, to June 30, 1926.....	12	125,676	2,233,475.85	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	5,519,138.86	2,000,000
July 1, 1929, to June 30, 1930.....	12	467,648	6,609,728.42	2,600,000
July 1, 1930, to June 30, 1931.....	12	698,624	9,153,546.62	3,600,000
July 1, 1931, to June 30, 1932.....	12	834,434	13,798,128.33	6,000,000
July 1, 1932, to June 30, 1933.....	12	797,673	13,277,685.72	6,000,000
July 1, 1933, to June 30, 1934.....	12	836,991	16,382,274.27	6,000,000
July 1, 1934, to June 30, 1935.....	12	833,094	16,026,108.57	8,000,000
<b>Total.....</b>		<b>5,638,763</b>	<b>\$94,710,609.30</b>	<b>\$39,020,000</b>

<sup>1</sup>Includes exchange premiums.

## DEVELOPMENT FOOTAGE FOR THE YEAR

Level	Drift- ing	Cross- cutting	Rais- ing	Box- holing	Sub- drifting	Ore and waste passes	Total footage	Dia- mond- drilling		Sta- tion- cutting
	feet	feet	feet	feet	feet	feet		ft.	in.	cu. ft.
200-foot....	99.5	47.3			4		150.8	420		
400-foot....	228.7	71.3	113.9	69.2	117.6		600.7	1,093		
600-foot....	188.8	130.8	179.5		392		891.1	1,378		
800-foot....	51.2	190	836.8		805.7		1,883.7	611	7	
1,000-foot....	163.7	87.6	481.8		900.9		1,634	1,147	11	
1,200-foot....	168.4	129.8	201		395.6		894.8	1,103	2	
1,400-foot....	88.1		152.5		338.3		578.9	70	6	60
1,600-foot....	352.4	361.2	160.2		97.4		971.2	392	8	
1,800-foot....	578.4		49.2		29.6		657.2	263		
2,000-foot....	1,015.3	176.7	535.9		146.5		1,874.4	866	6	
2,200-foot....	444.6		751.5		372.9		1,569	694	3	
2,325-foot....	738.1	43.6	243		123.6		1,148.3	395	11	408
2,450-foot....	697.8		337.5		135.2		1,170.5	682	3	
2,575-foot....	1,387.9	380.6	396.2		339.8		2,504.5	1,125	1	
2,700-foot....	686.1	435	195.4	66.4	206		1,588.9	465	4	
2,825-foot....	272.9	114.5	532.3		24		943.7	1,114		
2,950-foot....	1,208.8	194.4	102.6				1,505.8	269	11	
3,075-foot....	373.9	41.4	170				585.3	440	4	
3,200-foot....	258.2	84.7					342.9	391	1	
3,325-foot....										
3,450-foot....										
3,575-foot....										
3,700-foot....										
3,825-foot....		92.1					92.1	706	9	
3,950-foot....										
4,075-foot....										
4,200-foot....		11				154	165			
4,325-foot....		44.4				93.7	138.1			4,800
4,450-foot....	284	44.3				33.9	362.2	559	4	3,108
Total....	9,286.8	2,680.7	5,439.3	135.6	4,429.1	281.6	22,253.1	14,190	7	8,376

## SUMMARY OF ORE HOISTED FOR THE YEAR

Level	Ore from development	Ore from mining
	tons	tons
200-foot....	184	2,657
400-foot....	1,017	9,821
600-foot....	650	48,684
800-foot....	1,248	62,744
1,000-foot....	687	31,970
1,200-foot....	503	20,246
1,400-foot....	380	31,034
1,600-foot....	324	7,625
1,800-foot....	1,154	4,227
2,000-foot....	4,540	37,032
2,200-foot....	3,007	63,515
2,325-foot....	1,583	93,575
2,450-foot....	1,798	147,262
2,575-foot....	1,354	133,980
2,700-foot....	1,862	43,174
2,825-foot....	39	35,508
2,950-foot....	2,045	17,253
3,075-foot....	282	12,692
3,200-foot....	54	3,036
3,450-foot....		8
4,450-foot....	423	
Total....	23,134	806,043

Development of No. 1 vein has been stressed in order to permit the extraction of ore from this hanging-wall zone, in advance of mining out the footwall ore bodies situated in No. 2 vein.

At the end of the year, there was exposed in drift backs a total of 16,540 lineal feet of ore in which no stoping had been done. The indicated average grade before slashing was 0.67 ounces per ton across 61 inches. Of the total, a length of 10,696 feet was in No. 2 vein and 5,844 feet in No. 1 vein.

The success attending exploration work in the upper and middle levels of the mine, coupled with the present higher value of gold, continues to render unnecessary any immediate further development of lower horizons.

#### **No. 5 Shaft**

To expedite the early removal of all ore in the upper and intermediate levels, it was decided to construct a new main hoisting shaft from surface to the 3,950-foot horizon. This No. 5 shaft was started in the footwall of the No. 2 vein zone, a location advantageous from the standpoint of economy of construction and operation, as well as safety from possible subsidence of ground over stope areas.

Crosscuts were started on certain levels to connect present workings with the new shaft location. From these and other crosscuts, raises will be driven, from which the shaft and station excavations will be completed.

In order to maintain the desired location for No. 5 shaft in the footwall, it was necessary that the upper 70 feet be sunk through the bed of Kirkland lake, now filled with tailings. This work was placed on contract in the hands of the Foundation Company of Canada, a reliable firm capable of successfully completing this particular type of undertaking.

#### **Stoping**

All lower new stoping operations, in No. 2 vein, were started on a filled square-set rill method, considered to be most suitable to the ground conditions. A start was made to prepare for mining, under this method, a block of ground extending from the 2,450- to the 3,075-foot levels. New work consisted mainly of slashing drift walls, timbering, and driving fill raises.

Stoping was resumed on the 2,575- and 2,700-foot levels, using the rill method. Slashing of drift walls in No. 1 vein was partially completed to the 2,825-foot level, and a number of new stopes were started. During the year, 473,022 tons of backfill were placed.

The position of the mine, in regard to reserves of ore, broken and in place, was fully maintained.

#### **Milling**

Large-scale research work was continued throughout the year, resulting in further increase in extraction. A new precipitation and refining plant was completed, to replace the previously existing installation, which had become inadequate to serve present requirements.

### **L. B. United Mines, Limited**

L. B. United Mines, Limited, was incorporated in May, 1934, with an authorized capitalization of 3,500,000 shares of \$1 par value. The officers and directors were: Dr. W. E. Tindale, president; Allen C. McLean, secretary-treasurer; P. J. Elward, M. A. Chadwick, and Stuart Fleming, directors. The executive office is at 767 Yonge Street, Toronto.

The company optioned the property of Centennial Gold Mines, Limited, located in township 29, range 22, in the Michipicoten area, district of Algoma, and started work on April 2, 1935. The property had been idle since December 4, 1934.

The 130-foot, 2-compartment, 33-degree shaft was deepened to 262 feet, and levels were established at 100 and 250 feet. During 1935, a total of 89 feet of drifting and 51 feet of crosscutting was accomplished on the 1st level, and 478 feet of drifting and 100 feet of crosscutting on the 2nd level. Connections were made on the 1st level with two old 110-foot shafts, one on either side of the main shaft, where 47 feet of drifting had been done at that horizon.

A 50-ton amalgamation-flotation mill was installed and put in operation on October 22. By the end of the year it had treated a total of 2,587 tons of ore, obtained from development work and stope preparation. Flotation concentrates, totalling 34 tons, were shipped to Sault Ste. Marie, where the company has established a refinery.

The mill equipment included a jaw-crusher, Marcy ball mill, Dorr classifier, Deister table, 4-cell Denver Sub-A flotation unit, filter, and amalgamation equipment.

The plant included a 218-cubic-foot electric compressor, a 320-cubic-foot electric compressor, and a small electric hoist. Buildings erected in 1935 included an office, mill, cookery, and two bunk-houses.

An average of 33 men was employed during the period of work. A. D. McWilliams, J. E. Ronaldson, and L. K. Lytle were successively in charge of operations. The mine address is Gold Park.

### **Lebel Oro Mines, Limited**

Lebel Oro Mines, Limited, was incorporated in April, 1920. Early in 1936 the capitalization was increased from 3,000,000 to 3,500,000 shares of \$1 par value. The officers and directors are: L. K. Fletcher, president; A. B. Mortimer, secretary-treasurer; W. H. Englebright, E. J. Dwyer, and T. H. Rea, directors. The head office is at Room 10, 320 Bay Street, Toronto.

The property of this company includes the old Long Lake mine, located in township 69, district of Sudbury. It is 16 miles southwest of Sudbury.

Work was resumed at this property in May, 1935, after a suspension of six months. During the balance of the year the work consisted of dewatering the old workings and diamond-drilling 2,391 feet from underground and 1,458 feet from surface. At the end of the year the company was preparing to install a mining plant.

The 200-ton cyanide mill, constructed in 1934, did not operate during 1935. It had been built with the intention of milling the tailings from the original operation, and was not equipped with a grinding unit.

An average of 13 men was employed during the period of operation. The mine address is Box 156, Sudbury. Wm. D. M. Ross is mine manager.

### **Leitch Gold Mines, Limited**

Leitch Gold Mines, Limited, was incorporated in July, 1935, with an authorized capitalization of 3,000,000 shares of \$1 par value. The officers and directors are: K. J. Springer, president; W. E. Segsworth, vice-president; H. J. Mackay, secretary-treasurer; Dr. J. H. C. McClelland, and R. Cryderman, directors. The head office is 320 Bay Street, Toronto.

The property this company acquired consists of about 400 acres in Thunder Bay district, about 4 miles northwest of Beardmore station on the Long Lac-Port Arthur branch of the Canadian National Railways. It is reached by a 6-mile road from Beardmore.

Work was started in August. Following surface work and diamond-drilling, shaft-sinking was started early in November with a gasoline compressor and carried to a depth of 30 feet. The 3-compartment vertical shaft was then colared, a headframe erected, and a mining plant installed. Sinking was resumed on December 29, and was at a depth of 46 feet at the end of 1935. A total of 3,630 feet of diamond-drilling was done in 1935.

The plant included an 8- by 6-inch Ingersoll-Rand hoist and a 530-cubic-foot compressor, driven by a 114 h.p. Diesel engine. Buildings erected included an office, power-house, blacksmith shop, bunk-house, cookery, and stable.

An average of 27 men was employed under the direction of W. J. Hacker. The mine address is Empire.

## 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; D. M. Morin, A. B. Gordon, and D. M. Hogarth, directors. The head office is at 1331 Canadian Bank of Commerce Building, Toronto. The mine address is Oklend.

The property is two miles south of Geraldton, on the Port Arthur-Long Lac branch of the Canadian National Railways, district of Thunder Bay. There is an automobile highway from Geraldton to the mine.

Work was continued throughout 1935. Shrinkage stopes were mined on the 204-, 325-, 445-, and 570-foot levels, and preparations were being made to backfill empty stopes with waste rock.

The plant includes a 125 h.p. boiler, 94 h.p. boiler, a 1,250-cubic-foot Ingersoll-Rand electric compressor, and an Ingersoll-Rand electric double-drum hoist. Electric power was obtained from Cameron falls, 95 miles away.

An average of 170 men was employed during the year, of whom 71 men were underground. A. A. Barton is manager; D. A. Duff is mine captain; and A. Rennick is mill superintendent.

The following is an extract from the manager's report for the fiscal year ending December 31, 1935, and covering further operations to March 31, 1936:—

### Construction

Although the mill was completed and went into operation in November, 1934, the past year was still one of construction. The mill was enlarged and the following equipment installed: a second dewatering thickener, two dewatering filters, a 10-cell Sub-A flotation machine, with conditioner tank, thickener, and filter for the treatment of residues. A roasting plant for the treatment of concentrates has been completed and went into operation on April 1. This plant consists of a 15-spindle Edwards roaster and a complete cyanide plant for the treatment of calcines. Another thickener and filter is now being added to the cyanide plant.

The shaft headframe has been raised 15 feet higher and the capacity of the shaft ore bin increased by 125 tons.

A 2,000-cubic-foot Bellis and Morcom compressor and a 125 h.p. stoker-fired boiler has been added to the power plant. Also, an underground air hoist has been installed for shaft-sinking.

This plant enlargement entailed the following costs:—

Mill enlargement and equipment.....	\$75,510.00
Roasting plant and equipment.....	42,500.00
Power plant enlargement and the purchase and installation of a Bellis and Morcom compressor and a new boiler and stoker.....	19,329.75
Sprinkler system.....	12,827.75
Mill storage warehouse.....	422.65
Machine shop and blacksmith shop addition and equipment	4,652.22
Outside pipe systems.....	8,764.03
Power and light lines.....	1,383.97
Docks, sidings, and fences.....	1,544.87
Shaft-house and headframe.....	2,180.31
New barn.....	1,717.56
Powder magazine.....	882.69
Extensions to bunk-house, hospital, commissary.....	10,327.15
Employees' residences.....	19,934.81
Miscellaneous plant buildings.....	3,421.55
Total.....	\$205,399.31
Further expenditures in mine and plant equipment.....	22,135.49
Total.....	\$227,534.80

### Production

The following is a report on mill operation and production for the year ending December 31, 1935:—

Dry tons milled.....	62,073
Gold production..... ounces	31,445.81
Gold lost in residues..... ounces	4,896.21
Calculated amount gold in mill heads..... ounces	36,342.02
Calculated mill head assay..... ounces	.585
Mill residue assay..... ounces	.0788
Percentage recovery.....	86.51

During 1935 the mill operated 361 days, indicating 98.9 per cent. running time. Tonnage milled was increased from 160 tons to 200 tons per day on September 1. During the year consulting metallurgists concluded that the flotation of refractory sulpho-arsenides from the cyanide plant residue, with subsequent roasting, was fully warranted. This idea was put into practice with the flotation plant operating late in December.

The following figures are typical of mill performance at the present time:—

	Per cent.
Gold recovered by blanket plant.....	65
Gold recovered by cyanidation.....	21.7
Gold contained in flotation concentrate.....	10.5
Gold contained in flotation residue.....	2.8

### Roasting Plant

The results obtained from the first week's operation clearly indicate that the performance is up to expectations; a total recovery of 95 per cent. is reasonably assured and, it is expected, will be further improved during the ensuing year.

### Development

During the year new ore was developed on the 4th level, 400 feet south of the main vein; to date 300 feet of 0.3 grade has been drifted on. Further new ore has been developed on 2nd, 3rd, and 4th levels, a parallel mineable vein zone about 200 feet long on the 2nd level and above the 3rd level. This parallel zone is connected to the main vein by a series of folded quartz veins, making at these points a mineable zone 80 feet in length by 50 feet wide. To date, no development has been done in this area below the 4th level.

Development work accomplished for the year and to March 31st, is as follows:—

	1935	Total
Drifting..... feet	3,187.5	3,836
Crosscutting..... feet	1,024	1,120
Slashing..... cu. ft.	11,283	31,835
Raising..... feet	976.5	1,336.5
Sumps..... cu. ft.	2,004	
Station-cutting..... cu. ft.		9,060
Shaft-sinking..... feet		166.5
Diamond-drilling:		
Surface..... feet	14,966.	19,667
Underground		
Exploration; grouting..... feet	5,508	8,229

### Ore Reserves

	Tons	Ounces gold per ton
Proven ore.....	85,910	0.565
Broken ore.....	22,435	.575
Probable ore.....	135,320	.484
Possible ore.....	77,090	.496
	320,755	0.515

### Operating Costs

Operating costs have been slightly higher than anticipated, owing partly to construction, and an unusual amount of exploration development. Costs (62,073 tons) are as follows:—

	Total cost	Cost per ton
Exploration development and diamond-drilling .....	\$109,732.70	\$1.7678
Mining .....	153,195.34	2.4680
Milling .....	105,758.23	1.7038
Mine office and supervision .....	26,963.60	.4344
General expense at property .....	31,938.63	.5145
Administrative and general expense, Toronto office .....	24,238.47	.3905
<b>Total .....</b>	<b>\$451,826.97</b>	<b>\$7.2790</b>

It is expected that these costs will be lowered during the present year, due to less exploration, greater tonnage milled, and higher recovery.

### Macassa Mines, Limited

The capitalization of Macassa Mines, Limited, 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 145 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.

The following is an extract from the report of the mine manager for the twelve months ending March 31, 1936:—

#### Production

During the year, 69,455 dry tons of ore were treated, from which the gross recovery was \$1,140,470.22 in bullion, or \$16.42 per ton. In addition, sundry revenue amounted to \$1,674.78. The average recovery in ounces per ton was 0.468, with a 93.81 per cent. extraction. The average daily milling rate was 189 tons at 96.62 per cent. running time.

#### Development

As intimated in the last annual report, the mine had reached the stage, both in hoisting facilities and working places, where a much more intensive exploration and development programme could be carried on. As a result, new ore was found on the 1,300-, 1,400-, 2,000-, 2,175-, 2,575-, 2,675-, and 3,000-foot levels. While the 3,000-foot (or bottom) level has still 1,010 feet east and 1,300 feet west to go before reaching the boundaries, the length explored has proved it to be the best level in the mine to date as regards lengths, widths, and grade of ore.

The abnormal exploration and development programme during the past year increased the costs but also increased the ore reserves. As there is still a great deal of exploration to be done both on the 3,000-foot level and all levels and sublevels above, it is deemed advisable to continue at the present rate of work, the object being to further improve the developed ore position. It was decided that opening up levels below the 3,000-foot would be done from a winze, having the hoist and storage pockets on the 3,000-foot level. It will be the same size as the present main shaft.

The cutting-out of an underground chamber on the 3,000-foot level for the hoist and head-frame is nearly complete, and this cost is absorbed in the development cost figure below. Sinking will be under way in May. General mining costs were higher than last year for two reasons: (1) In certain sections stull stoping and backfilling had to be used to prevent dilution of ore; and (2) the broken ore reserve was increased over that of last year, the costs of which were completely absorbed during the year.

The summary of development work is as follows:—

	1935-36	1934-35	1933-34
	feet	feet	feet
Drifting .....	9,094.5	5,988	3,483.5
Crosscutting .....	1,697	1,033	349
Raising .....	1,700	1,409	744
Shaft-sinking .....	101	481	.....
Station-cutting .....	43	91	30
<b>Total</b> .....	<b>12,635.5</b>	<b>9,002</b>	<b>4,606.5</b>
Diamond-drilling .....	10,109	3,489	2,701.5

### Ore Reserves

In the following estimate of ore reserves, only fully developed ore is included.

	Tons	Ounces per ton	Value per ton at \$35
Unbroken ore .....	126,130	0.45	\$15.75
Broken ore .....	13,605	.46	16.10
Surface dump .....	2,612	.43	15.05

In addition to the above-mentioned fully developed ore, there are lengths and widths of lower-grade ore throughout the mine, and also indicated ore of better grade, which as yet is not fully developed.

### Mill

The mill operated efficiently throughout the year. A number of tests have been made, having as their object changes which we think would give us better extraction and lower costs per ton.

### Operating Costs

No deferred development charges were set up during the year. Except for the items of capital expenditures listed below, all costs are included in the following, before provision for depreciation, pre-development, and taxes:—

	Cost per ton milled
Development and exploration .....	\$2.80
Mining (stopping, tramming, pumping, etc.) .....	2.48
Milling .....	1.49
Administration, and general charges (including head office, Mint charges, and bullion-handling charge) .....	.97
<b>Total</b> .....	<b>\$7.74</b>

### Capital Expenditure

A total of \$38,766.98 was spent on additions during the year, as against \$72,249.79 in 1934-35. A good portion of it was on underground equipment, spare motors, and additional company dwellings. The itemized list is as follows:—

Residences (4) .....	\$8,854.37
Substation .....	1,644.21
Machine shop .....	785.41
Assay office and refinery .....	1,576.78
Crusher plant and mill .....	8,000.59
Mine equipment .....	14,143.13
Office .....	404.35
Miscellaneous .....	3,358.14
<b>Total</b> .....	<b>\$38,766.98</b>

It is planned to install during the year a new mine surface hoist and to transfer the original one underground for future work below the 3,000-foot level.

### Mac-Auer Gold Mines, Limited

Mac-Auer Gold Mines, Limited, was incorporated in March, 1934, with a capitalization of 50,000 shares of no par value. The officers and directors were: S. P. Myers, president; C. E. Loy, vice-president; M. Auerbach, secretary-treasurer; L. Chatelle and M. G. Greenblatt, directors. The head office is at University Tower, Montreal.

The company acquired 10 claims in Davis township, and 9 claims in Scadding township, district of Sudbury, located at the north end of Ashganing lake, and work started on May 15, 1935. The property includes claim W.R. 35, on which are located two old inclined shafts, 100 feet and 32 feet deep, respectively, and about 200 feet apart. These shafts were dewatered and sampled, and the 100-foot shaft partially retimbered. About 30 feet of drifting was accomplished with a gasoline compressor at a depth of 50 feet in No. 1 shaft. A 10-ton amalgamation mill was erected and operated for about 10 days.

All work was suspended at the end of August and the mill equipment removed. Buildings constructed included a small mill building and a compressor-house of sheet metal, a canvas cookery-bunkhouse, and two small canvas buildings.

About 10 men were employed under the direction of H. I. Huestis.

### McIntyre-Porcupine Mines, Limited

McIntyre-Porcupine Mines, Limited, has an authorized capitalization of 800,000 shares of \$5 per value, of which 798,000 shares are issued.

The officers of the company are: J. P. Bickell, president; Bernard E. Smith, vice-president; E. D. Fox, secretary; Balmer Neilly, treasurer. The directors are: D. H. McDougall, Strachan Johnston, and R. S. McLaughlin. R. J. Ennis is general manager. The executive office of the company is at 15 King Street West, Toronto. The head office and mine office are at Schumacher.

The company's main property is at Schumacher, in the township of Tisdale, district of Cochrane. The company has also numerous holdings in other parts of the Dominion.

During 1935, McIntyre-Porcupine Mines employed an average of 1,209 men at their Schumacher property. Of this number, 923 were employed underground and 65 were regular mill employees.

The following is taken from the general manager's report for the fiscal year ending March 31, 1936:—

<b>Production</b>	
Ore treated..... tons	\$73,000
Value per ton (0.280 ounces).....	\$9.88
Gross value.....	\$8,621,410.67
Bullion recovered:	
Gold (232,112.054 ounces at \$35.17).....	\$8,162,825.88
Silver (46,048.30 ounces at \$0.604).....	27,813.26
Total value.....	\$8,190,639.14
Recovered per ton (0.266 ounces).....	\$9.79
Bullion melting, refining, and handling charges.....	90,800.26
	\$8,099,838.88
Less Dominion production tax.....	105,587.58
	\$7,994,251.30

## PRODUCTION SINCE THE BEGINNING OF MILLING OPERATIONS IN 1912

Period	Months	Tons milled	Value per ton	Gross value	Recovery per ton	Total value	Price received per ounce for gold
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	\$20.67
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	21.95
Apr. 1, '32, to Mar. 31, '33	12	736,300	8.45	6,224,493.40	8.12	5,981,714.69	22.79
Apr. 1, '33, to Mar. 31, '34	12	776,845	10.68	8,296,704.60	10.24	7,957,252.54	31.50
Apr. 1, '34, to Mar. 31, '35	12	862,100	10.23	8,819,660.27	9.78	8,430,670.26	34.67
Apr. 1, '35, to Mar. 31, '36	12	873,000	9.88	8,621,410.67	9.38	8,190,639.14	35.17
Total		9,263,963	\$9.31	\$86,228,565.31	\$8.85	\$81,954,841.56	

## Mining

Ore broken in stopes	Tons
Ore from development	773,976
	72,716
Total	846,692
Ore hoisted	876,698

## Development

Development work amounted to 35,410 feet. This includes 21,546 feet of drifting, of which 4,518 feet was on line and 17,028 feet in vein material; of this, 6,696 feet was in ore averaging 0.378 ounces per drift width.

## ORE RESERVES, 1935-36

	Tons	Fine ounces gold	Value at \$20.67	Value at \$35.00
Estimated	3,393,905	1,059,962	\$21,909,425	\$37,098,670
Broken	180,815	51,748	1,069,630	1,811,180
Total	3,574,720	1,111,710	\$22,979,055	\$38,909,850
Average per ton		0.3120	\$6.40	\$10.88

## SUMMARY OF DEVELOPMENT AND EXPLORATION, 1935-36

Period	Drifts	Cross-cuts	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	1,817	1,064	78						2,959		4,532
2	1,699	1,150	170						3,019		4,180
3	1,268	1,092	35						2,395		2,627
4	1,269	914	130						2,313		4,010
5	1,447	1,066	107						2,620		4,607
6	1,734	1,049	216						2,999		4,199
7	2,407	660	80						3,147		4,179
8	2,231	1,176	122						3,569		4,188
9	1,860	1,061	32						2,953		5,310
10	2,068	1,304							3,372		4,681
11	1,981	1,223							3,204		5,380
12	1,765	1,069	26						2,860		5,967
Previous to date	21,546	12,828	996						35,410		53,860
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
Total to date	254,202.8	126,553.8	23,555.9	612.7	14,549.4	1,013,582	55,039	139,699	419,514.6	1,208,320	491,488

## Operating Costs

	Total cost	Cost per ton ore milled
MINING:		
Exploration.....	\$93,258.29	\$0.1068
Development.....	494,755.13	.5668
Breaking and stoping.....	2,497,447.19	2.8607
	3,085,460.61	\$3.5343
Milling.....	609,489.38	.6982
Administration and general expense.....	100,286.31	.1149
Total.....	\$3,795,236.30	\$4.3474

## ANALYSIS OF MINING COSTS PER TON MILLED

	Stoping	Drifting	Cross-cutting	Raising	Total cost	Cost per ton
Labour.....	\$1,180,193.42	\$161,820.75	\$81,809.10	\$8,061.23	\$1,431,884.50	\$1.6402
Explosives.....	100,483.98	60,807.27	36,793.70	1,555.27	199,640.22	.2287
Supplies.....	106,567.84	4,322.08	2,619.24	451.79	113,960.95	.1305
Power.....	79,056.79	15,497.72	7,522.49	1,797.09	103,874.09	.1190
Timbering.....	251,820.54			442.98	252,263.52	.2890
Shaft repairs.....	4,077.76				4,077.76	.0047
Backfilling.....	210,683.27				210,683.27	.2413
Retimbering.....	33,412.71				33,412.71	.0383
Guniting.....		1,286.37	7,267.21		8,553.58	.0098
Steel-sharpening.....	36,413.21	13,871.35	7,269.01	760.00	58,313.57	.0668
Drill repairs.....	24,862.80	5,059.12	2,427.93	582.51	32,932.36	.0377
Surveying and engineering.....	33,638.17	6,804.55	3,275.45	747.18	44,465.35	.0509
Sampling and assaying.....	45,598.19	3,607.74	1,745.05	416.11	51,367.09	.0588
Pumping.....	12,575.66	2,442.30	1,185.45	275.39	16,478.80	.0189
Ventilating.....	14,377.66	2,615.80	1,176.30	294.07	18,463.83	.0212
Fire protection.....	888.98				888.98	.0010
Underground lighting.....	11,050.64				11,050.64	.0127
Tramming.....	113,114.32	20,375.07	9,797.26	2,242.17	145,528.82	.1667
Underground crushing.....	7,274.52	492.03			7,766.55	.0088
Hoisting.....	231,356.73	15,239.00			246,595.73	.2825
Total.....	\$2,497,447.19	\$314,241.15	\$162,888.19	\$17,625.79	\$2,992,202.32	\$3.4275
Exploration.....					93,258.29	.1068
Total.....					\$3,085,460.61	\$3.5343
Unit cost per ton.....	\$2.8607	\$0.3600	\$0.1866	\$0.0202		

## SUMMARY OF MILLING COSTS

	Labour	Supplies	Shop repairs and maintenance	Power	Total cost	Cost per ton
Crushing and conveying.....	\$36,329.03	\$29,883.43	\$5,367.68	\$18,930.10	\$90,510.24	\$0.1037
Flotation.....	48,696.67	116,984.96	8,817.22	66,811.91	241,310.76	.2764
Cyanidation.....	40,770.49	163,987.86	5,639.50	24,625.57	235,023.42	.2692
Refining.....	7,055.19	10,546.28	557.65	1,367.28	19,526.40	.0224
Assaying.....	6,347.22	2,775.10	1,311.53	2,020.12	12,453.97	.0143
Mill alterations.....	7,989.07	1,591.87	1,083.65		10,664.59	.0122
Total.....	\$147,187.67	\$325,769.50	\$22,777.23	\$113,754.98	\$609,489.38	\$0.6982

## ADDITIONS TO PLANT BUILDINGS AND EQUIPMENT

Miscellaneous surface buildings and equipment.....	\$24,903.35
Aerial tramway for backfill.....	68,106.34
Miscellaneous underground equipment.....	40,823.30
Buildings and equipment at Mud lake.....	73,138.53
Total.....	\$206,971.52

**General**

New ore developed during the year has been sufficient to fully maintain our ore reserve position. Development work on the upper levels has resulted in finding further extensions to previously worked ore bodies and, as anticipated, these areas continue to contribute large tonnages of good-grade ore.

On the lower levels from No. 12 internal shaft, some of the ground considered favourable for ore has been explored with fair results. Referring to the summary of mine development, it will be noted that No. 22 vein was developed for an additional 1,976 feet in ore averaging 0.360 ounces over drift width.

**Outside Exploration**

Fifty-seven properties were sampled and reported on during the year, and favourable recommendations were made on six. One of these was optioned, and others are under consideration.

Diamond-drilling on properties optioned in Chibougamau, mentioned in last year's report, did not confirm surface sampling, and the option was allowed to lapse.

The option on the O'Leary Malartic group of 19 claims in Guillet township, Lake Expance district, Quebec, was completed, and we now own an 80 per cent. interest in these claims. A shaft was sunk to 375 feet, with levels at 125, 225, and 325 feet; and 1,824 feet of horizontal work developed 24,000 tons of ore, averaging 0.415 ounces per ton. Thirteen other claims adjoining this group were purchased outright, and our prospectors staked 15 claims also adjoining, bringing the total number of claims in this district to 47.

One one of the groups of claims purchased outright, commonly referred to as the Ranger group, a promising discovery was made. Trenching and diamond-drilling have indicated 41,000 tons of ore, averaging 0.31 ounces per ton from the surface to the 125-foot horizon, and established the continuity of the vein with payable values to the 300-foot horizon. A 3-compartment shaft is being sunk to a depth of 550 feet, and a 100-ton test mill is being erected.

**McKenzie Red Lake Gold Mines, Limited**

McKenzie Red Lake Gold Mines, Limited, incorporated February 1, 1933, has an authorized capitalization of 3,000,000 shares of \$1 par value, of which 2,900,000 shares have been issued. The officers and directors are: W. G. Armstrong, president; F. D. Reid, vice-president; H. M. Anderson, secretary-treasurer; M. F. Fairlie, managing director; G. W. Quinn, director. John W. Shaw is consulting engineer, and J. L. Ramsell is resident manager. The head office is at 507 National Building, 347 Bay Street, Toronto. The mine office address is McKenzie Island.

The mine property consists of 11 claims on the northern end of Mackenzie island, in Red lake, in the Patricia portion of Kenora district. Summer transportation to the property is by barge from Hudson. Plane service from Hudson or Sioux Lookout lands passengers, freight, and mail at the mine. Mackenzie Island P.O., established in 1935, is located at the mine. Electric power is supplied to the mine over the company's own line, which taps the Hydro line from Ear Falls to the Howey mine, near the Howey mill.

Underground work was started at this property in the summer of 1933. Development work done since that time to the end of 1935, and during the year 1935, is shown in the following table:—

	To Dec. 31, 1934	1935	Total
	feet	feet	feet
Shaft.....	272	189	461
Winze.....	305		305
125-foot level:			
Drifts.....	838	285	1,123
Crosscuts.....	225	21	246
Raises.....	30	395	425
Box-holes.....			388
250-foot level:			
Drifts.....	1,133	1,295	2,418
Crosscuts.....	269	387	656
Raises.....	210	554	764
Box-holes.....			497
375-foot level:			
Drifts.....	616	882	1,498
Crosscuts.....	98	313	411
Raises.....		351	351
Box-holes.....			100
450-foot level:			
Drifts.....	50	909	959
Crosscuts.....		480	480
Raises.....		79	79

Installation of machinery in the 125-ton cyanide mill, erected in the fall and early winter of 1934-35, was completed in February, and production commenced about March 1, 1935. Tonnage milled in 1935 was 36,117 tons, and production amounted to \$530,857.65, including the premium on bullion sold.

The average number of men employed in 1935 was 88, divided as follows; mine, 45; mill, 8; construction, 13; and surface, 21.

### McLaren-Porcupine Gold Mines, Limited

McLaren-Porcupine Gold Mines, Limited, incorporated in August, 1934, has an authorized capitalization of 3,000,000 shares of no par value. Of this number, 1,500,000 issued for property are pooled, 800,000 have been underwritten, and 700,000 remain in the treasury. The officers and directors of the company are: Dr. W. M. McLaren, president; J. M. McLaren, vice-president; J. J. Gallagher, secretary-treasurer; N. W. Kingsland and Gerard Ruel, directors. Both the head office and the mine office are at South Porcupine.

The property held by the company consists of about 300 acres in Deloro township, district of Cochrane. It is accessible by motor road from either South Porcupine or Timmins.

Buildings on the property consist of a cookery and bunk-house, 24 by 50 feet; an office, 16 by 18 feet; small log cabin, compressor-house and blacksmith house combined, magazine, and mill.

During 1935, mining was carried on from an open glory hole, which has now reached a depth of 50 feet. The material removed from this pit was sorted, and during the year approximately 300 tons was milled. One corner of the glory hole was recently slashed out and will be timbered to serve as a shaft, when proposed drifting from the bottom of the pit commences.

The mill equipment consists of a jaw-crusher, a recently added hammer mill, bin, Kennedy Nutt mill, and blankets. Power for the mill is supplied by Diesel engine. Mining equipment includes a Sullivan portable air compressor, 2-drill capacity; Climax rock drills; and a 5- by 6-inch Jenckes hoist.

During the year about 300 tons were milled with an approximate value of \$5,000, as compared with about 100 tons milled in 1934 with an approximate value of \$1,000.

The average number of men employed per month was 17. J. M. McLaren is general manager at the property.

### J. Bruce McMartin

J. Bruce McMartin, 941 Dominion Square Building, Montreal, Que., is the owner of a group of 9 claims in Rickaby township, district of Thunder Bay, about 10 miles northeast of Jellicoe, on the Long Lac-Port Arthur branch of the Canadian National Railways.

During 1935 underground work was carried on at this property from January 1 to March 10, and from May 6 to November 1. When work was suspended on November 1, the underground development consisted of a 2-compartment vertical shaft, 262 feet deep, 218 feet of drifting and 40 feet of crosscutting on the 150-foot level, and 360 feet of drifting and 45 feet of crosscutting on the 250-foot level. Two small stopes had been mined on the first level, and one on the second level.

A 20-ton cyanide mill was erected early in 1935, and milling started on April 17. The mill was shut down on October 9, after treating a total of 3,295 tons of ore. A Diesel engine was used to supply power.

The mining plant included a 22 h.p. boiler operating an 8- by 10-inch hoist, and a 370-cubic-foot Ingersoll-Rand Diesel compressor.

An average of 23 men was employed under the direction of W. A. Coughlan.

### McMillan Gold Mines, Limited

McMillan Gold Mines, Limited, was incorporated in December, 1926. The capitalization was increased in 1935 from 3,000,000 to 4,000,000 shares of \$1 par value. The officers and directors are: G. M. Miller, president; G. A. Foot, vice-president; F. A. Lafferty, secretary-treasurer; W. J. Hussey, J. M. R. Corbet, C. B. Goldsborough, and R. L. Patterson, directors. The head office is at Sudbury. The property is about 60 miles southwest of Sudbury, in Mongowin township, district of Sudbury. The mine address is Footbanks.

Work was continued throughout 1935. Underground operations and milling were suspended on December 24, and a diamond-drilling campaign was started.

During 1935 a winze was sunk from the 625-foot level to a depth of 275 feet, and levels were established at depths of 750 and 875 feet. The development work accomplished on the various levels during the year and the total to the end of 1935 were as follows:—

Level	Drifting		Crosscutting		Raising	
	1935	Total	1935	Total	1935	Total
	feet	feet	feet	feet	feet	feet
225-foot.....	64	429	13	13	260	292
325-foot.....		1,355		504	90	392
425-foot.....		333		95	100	132
525-foot.....		1,609		639	310	355
625-foot.....		768		143		
750-foot.....	177	177	14	14		
875-foot.....	118	118	45	45		
Total.....	359	4,789	72	1,453	760	1,171

Shrinkage stoping was done on all levels, except the 750- and 875-foot. The 125-ton mill treated a total of 40,213 tons during 1935, of which 33,814 tons was obtained from stoping, 633 tons from development, and the balance from surface dumps. A concentrating jig and amalgamation equipment were added to the mill circuit.

A total of 1,478 feet of diamond-drilling was done from surface, and 2,407 feet from underground.

An average of 82 men was employed during the year, of whom 49 were underground. Jas. G. MacGregor was consulting engineer; George C. Dunn was general superintendent; and W. R. Dennis was mill superintendent.

### **Madsen Red Lake Gold Mines, Limited**

Madsen Red Lake Gold Mines, Limited, was incorporated in March, 1935, with an authorized capitalization of 3,000,000 shares of \$1 par value. The officers and directors of the company are: F. R. Marshall, president; Jos. McDonough, vice-president; W. G. Hughson, secretary-treasurer; G. A. La Bine, A. J. Doane, and M. Madsen, directors. The head office of the company is at 67 Yonge Street, Toronto. The mine office address is Red Lake.

The holdings of this company, 29 claims, are situated at Faulkenham lake, about 7½ miles southwest of the Howey mine, in the Red Lake area, district of Kenora, Patricia portion. The property was bought from Jomac Gold Syndicate and Falcon Gold Syndicate. The claims were prospected and developed by surface trenching and 12 diamond-drill holes in 1935. A vertical shaft, which was started late in the same year with an objective depth of 325 feet, was down about 175 feet at the end of the year. It is located on the hanging-wall side of the vein, which dips toward it at 60 to 65 degrees. It is estimated the vein will be intersected by crosscuts about 200, 150, and 100 feet from the shaft on the 100-, 200-, and 300-foot levels, respectively.

Madsen Red Lake Gold Mines bought the steam plant used in the early stages of development of the McKenzie Red Lake mine. This plant was moved to the Madsen property after the freeze-up in the fall of 1935.

In December, 1935, there were 31 employees at the mine. A. Honsberger is mine manager.

### **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.

Underground operations were suspended in February, 1935. Surface exploration was carried on at the west end of the property during the summer and fall.

An average of 6 men was employed. Jas. G. MacGregor is general manager.

### **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 is mine manager. The mine address is Larder Lake.

Buildings on the property include a log cabin, two bunk-houses, cook-house, office, compressor and hoist house, and headframe.

Operations were resumed in June, 1935, and continued to the end of the year. At the end of 1935 the shaft had been deepened to 140 feet, and a total of 700 feet of drifting and 420 feet of crosscutting had been done on the 125-foot level. Ore hoisted during the year amounted to 2,000 tons and waste to 1,500 tons. An average of 12 men was employed.

### 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 4,000,000 shares of no par value, of which 1,200,000 shares are issued to 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 the property. The officers and directors are: Thayer Lindsley, president; H. H. Sutherland, vice-president; H. Wittingham, secretary-treasurer; W. J. Boland and Jos. Errington, directors. Ernest Craig is general 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 an average of 42 men was employed in the mine, 12 in the mill and 26 on surface, making a total of 81.

The following is a summary of the work done in 1935 as reported by the superintendent:—

Shaft-sinking amounted to 176 feet; raising, 99 feet; station-cutting, 86 feet; sumps, 1,878 cubic feet. Development work, by levels, was as follows:—

Level	Drifting	Crosscutting	Raising	Box-holing
	feet	feet	feet	feet
160-foot.....	151	492	67	105
260-foot.....	595	.....	.....	.....
Total.....	746	492	67	105

From surface, 204 feet of diamond-drilling was done; and from underground, 2,261 feet.

Ore hoisted amounted to 49,487 tons; waste, 9,680 tons; and ore broken in stopes, 73,296 tons.

The mill operated 365 days, treating 48,362 tons, with an average per day of 132½ tons.

The following figures show the gold and silver production, with the total gross value:—

	Fine ounces gold	Fine ounces silver	Total gross value
Bullion shipped.....	9,761.441	1,402.34	\$344,265.14
Slag shipped.....	352.127	248.09	12,558.53
Total.....	10,113.568	1,650.43	\$356,823.67

New construction completed during the year includes the following: headframe, shaft-house, ore bin, power-house and a direct-driven electric hoist and compressor, change-house with lockers and shower baths, new refinery.

### **Matachewan Pioneer Syndicate**

The Matachewan Pioneer Syndicate, capitalized at 7,000 units of no par value, was formed to take over 9 patented claims in Cairo township, district of Timiskaming, which were staked in 1906. During 1935 the syndicate was under the management of C. G. Knott and G. W. Pinner. The head office address is 1109 Northern Ontario Building, Toronto.

During 1935 a 2-compartment shaft was sunk to a depth of 50 feet, and 42 feet of crosscutting was done. Five men were employed under the direction of H. A. Steven. The mine address is Matachewan.

At the beginning of 1936 arrangements were being made to refinance and form a company to be known as Matachewan Hub Pioneer Mines, Limited.

### **May-Spiers Gold Mines, Limited**

May-Spiers Gold Mines, Limited, was incorporated in July, 1934, and is capitalized at 3,000,000 shares of \$1 par value, of which 1,280,000 shares are issued. The officers and directors are: Otto May, president and managing director; Nelson Spiers, vice-president; C. M. Lamb, secretary-treasurer; Geo. C. McCullagh, director. The head office of the company is at 159 Bay Street, Toronto. The mine office address is Red Lake.

The mine property consists of 8 patented claims, located at the west end of Red lake, Middle Bay section, in the township of Ball, Patricia portion of Kenora district. A large part of this group of claims lies under water. The mining plant is located on an island about a thousand feet in length.

A mining plant has been taken in to the property and is partially installed. It includes two 80 h.p. John Inglis R.T. boilers, one 840-cubic-foot Sullivan straight-line air compressor, a 7- by 11-inch Stephens-Adamson steam hoist, and all necessary blacksmith and machine shop equipment. A complete set of camp buildings to house a crew of 36 men has been erected.

A shaft has been dug down to bed rock, a distance of 8 feet, and cribbed in preparation for drilling operations.

Work at the property was reported temporarily suspended late in the summer of 1935. An average of 6 men was employed for the first nine months of the year, under the direction of Nelson Spiers.

### **Minto Gold Mines, Limited**

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

The property consists of the Minto, Jubilee, and Cooper mines, all located in township 29, range 23, in the Michipicoten area, district of Algoma.

Underground operations were continued at the Jubilee mine throughout 1935. Open stoping was done on the 2nd, 3rd, and 4th levels, and the ore transported by truck from the Jubilee mine to the 100-ton cyanide mill at the Minto mine, where it was milled.

The mill operated 340 days during 1935 and treated a total of 34,890 tons of ore, of which 2,212 tons was obtained from the 2nd level, 9,980 tons from the 3rd level, and 22,798 tons from the 4th level.

The development work accomplished during the year at the Jubilee mine consisted of a 150-foot raise from the 2nd level to surface, 30 feet of drifting on the 3rd level, and 63 feet of drifting on the 4th level.

Work was done at the Cooper property from March 15 to July 15. Previous operators put down a 45-degree shaft to a depth of 65 feet. In 1935 a power line was constructed from the Jubilee-Stanley line to the old shaft, and a compressor-house, bunk-house, and cookery were erected. A 310-cubic-foot Ingersoll-Rand electric compressor was installed, and work was then suspended.

An average of 40 men was employed during 1935, of whom 18 were underground. John Knox, Jr., was in charge of operations; Frank McLennan was mine captain; and Wm. Hosking was mill superintendent.

### **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 company owns 15 claims in Lebel township, district of Timiskaming.

The property was operated under lease during the first seven months of 1935 by the Bidgood Kirkland Gold Mines, Limited. An account of this operation appears on page 7 of this report.

### **Morris Kirkland Gold Mines, Limited**

Morris Kirkland Gold Mines, Limited, was formed in January, 1935, with an authorized capitalization of 2,500,000 shares of \$1 par value. The officers and directors are: George W. Morris, president; M. C. Smith, vice-president; Jas. E. Day, vice-president; L. H. Watts, treasurer; Roy Weldon, secretary; W. B. Robb, Dr. W. H. Bennett, C. F. Jordan, H. P. Armstrong, and L. B. Black, directors. The head office is at 902 Kent Building, Toronto. The mine address is King Kirkland.

The company took over the assets of Kirkland Gold Belt Mines, Limited, on a basis of one share of Morris Kirkland Gold Mines for three shares of Kirkland Gold Belt Mines. The property consists of 292 acres in Lebel township, district of Timiskaming.

At the beginning of the year the shaft was 768 feet deep, and 727 feet of crosscutting and 3,529 feet of drifting had been done. During 1935 the present owners did 75 feet of raising, 445 feet of crosscutting, 2,556 feet of drifting, and 740 feet of slashing. A 12,000-gallon sump was cut on the 500-foot level.

An average of 32 men was employed under the management of ~~T. C. Fawcett.~~

### **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.

Operations were renewed in July, 1935, and continued to the end of the year, with an average of 14 men. During that time there were 800 tons of ore and 200 tons of waste mined and hoisted. The production was 31 ounces of crude bullion, having an approximate value of \$930, and 25 tons of concentrates, valued at \$4,500.

At the end of the year the property was leased to Tellaurum Mines, Limited, of which Douglas Mutch is president. The deal was financed through an option given to Thayer Lindsley on 2,000,000 shares of Tellaurum stock.

### **Murray-Algoma Mining Company, Limited**

The Murray-Algoma Mining Company, Limited, was incorporated in January, 1934, with an authorized capitalization of 40,000 shares of no par value. The officers and directors are: Dr. A. Sinclair, president; E. G. Archer, vice-president; G. J. Lamb, managing director; E. L. Lamb, secretary-treasurer; T. E. Carmichael, director. The executive office is at 18 Lansdowne Avenue, Sault Ste. Marie.

The property consists of a group of 18 claims in township 28, range 24, district of Algoma, a short distance west of Hawk Junction on the Algoma Central railway.

During 1935 sampling was carried on until the end of March, and work was then suspended until July. During the balance of the year a 2-mile power line was constructed from Hawk Junction to the property. Buildings erected included a compressor-house, blacksmith shop, cookery, and stable. By the end of the year a 220-cubic-foot Sullivan compressor, driven by a 50 h.p. motor, and an 1,800-gallon centrifugal pump, driven by a 5 h.p. motor, had been installed. It is planned to do open-cut mining and to install a small mill during 1936.

An average of 7 men was employed from July to the end of the year, under the direction of G. J. Lamb. The mine address is Hawk Junction.

### **Murwood Gold Mines, Limited**

Murwood 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 are: A. T. Gilles, president; J. A. Griffith, treasurer; R. E. Hore, Benjamin Meen, Robert Fennell, Dr. A. McD. Murray, and J. R. Gifford, directors. Corporation Management and Executives, Limited, is secretary. The head office is at 304 Bay Street, Toronto.

In October, 1935, work was started under option at the old Big Master mine, located on Upper Manitou lake, district of Kenora. It is about 20 miles south of Wabigoon on the Canadian Pacific railway.

Previous operators sank a shaft to 270 feet and established three levels, on which a total of 1,888 feet of lateral work was done. They also obtained about 5,000 tons of ore from stoping, which was treated in a 10-stamp mill.

By the end of 1935 the company had installed a mining plant, dewatered the mine, and repaired the old buildings and shaft. Sinking was started from the bottom of the 270-foot shaft on January 1, 1936.

The plant included a 45 h.p. boiler, a steam hoist, a 370-cubic-foot Ingersoll-Rand semi-Diesel compressor, and a 220-cubic-foot Ingersoll-Rand gasoline compressor.

An average of 16 men was employed during the period of operation. E. A. Boadway was in charge. The mine address is Wabigoon.

### **Naybob Gold Mines, Limited**

Naybob Gold Mines, Limited, incorporated in January, 1934, has an authorized capitalization of 3,500,000 shares of \$1 par value. The officers and directors are: R. J. Naylor, president; 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.; the head office is at 808 Federal Building, Toronto, and the mine office address is Timmins.

The mine was formerly operated by the Hayden Gold Mines Company, Limited. The property consists of 16 claims in Ogden and Deloro townships, district of Cochrane, about 4 miles south of the town of Timmins.

The property has been developed to date from a 2-compartment vertical shaft, 719 feet in depth. Levels have been established at 100, 200, 300, 400, 550, and 700 feet. Naybob Gold Mines, Limited, has worked on only the 300- and 700-foot levels. The following table shows the work done on these two levels:—

	To Dec. 31, 1934	1935
	feet	feet
300-FOOT LEVEL:		
Crosscutting .....	325	745
Drifting .....	40	390
700-FOOT LEVEL:		
Crosscutting .....	1,030	1,180
Drifting .....	835	1,324
Raising .....	48	219

The company added a ball mill to the old Hayden mill, which consisted of a flotation unit and a cyanide unit. This addition considerably increased the capacity. Milling began March 1, 1935. A maximum capacity of slightly over 100 tons per day was reached, but average tonnage milled to the end of October, when operations ceased for the year, was only about 44 tons. The total tonnage milled was 10,681 tons. The gross value of production was \$23,338.29. A small refinery was erected in 1935.

The average number of men employed during the 10-month period of activity in 1935 was 43. Operations were suspended owing to lack of capital, and negotiations for refinancing are proceeding. Robt. J. Naylor is general manager of the mine.

### Neville Canadian Gold Mines, Limited

Neville Canadian Gold Mines, Limited, was incorporated in March, 1934, with an authorized capitalization of 3,000,000 shares of no par value. The officers and directors are: E. H. Dickenson, president; P. A. Fisher, vice-president; J. H. Thomas, secretary-treasurer; T. M. Mungovan, W. H. Schneider, and L. J. Lahay, directors. The head office is at 347 Bay Street, Toronto. The mine address is Shiningtree.

The property 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 north of Westree, on the Canadian National railway.

Work was resumed at this property on March 14, 1935, after a suspension of three months. It was again suspended at the end of March, after the mine had been dewatered, and the first two levels sampled by the Reward Mining Company, of British Columbia.

The property remained idle until August 14 when Bramor Mining (Ontario), Limited, in return for stock in the company, commenced the erection of a 30-ton

mill. The mine was again dewatered while the mill building was constructed. Work was suspended on October 17 before any mill equipment was installed. G. F. Milne was in charge.

At the beginning of 1936 arrangements were being made to form a company, to be known as Ronda Gold Mines, Limited, to take over the property.

### 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 are: E. E. Watts, president; P. L. Howell, vice-president; H. A. Coon, secretary; J. A. Ross and R. N. Palmer, directors. The executive office is at 1022 Federal Building, Toronto.

The property is located about 3½ miles south of Schreiber, on the main line of the Canadian Pacific railway, district of Thunder Bay.

Work was continued throughout 1935. During the year three new adits were started, making a total of five on the property. A 130-foot 27-degree winze was put down from the 1st level adit on the strike of the vein, and a sublevel was established at the bottom. The lateral work accomplished in the various adits during 1935, and the total to the end of 1935, was as follows:—

Level	Relative elevation	Lateral work	
		1935	Total
	feet	feet	feet
1st level.....	zero	.....	930
Sublevel.....	—50	260	260
Crosscut level.....	—95	370	370
2nd level.....	—175	40	440
No. 11 vein.....	—175	75	75
Total.....	.....	745	2,075

Four small stopes were mined on the sublevel, and two on the 2nd level. The 25-ton amalgamation mill was operated for 192 days during 1935, and treated a total of 1,404 tons of ore.

An average of 37 men was employed during the year. D. E. Graham is in charge. The mine address is Schreiber.

In December a syndicate was formed from shareholders of the company to supply working capital in return for a mortgage on the property and buildings. The syndicate is to control operations during the life of the mortgage.

### Northern Empire Mines Company, Limited

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

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

Work was continued at this property throughout 1935. The 2-compartment

vertical shaft was sunk to a total depth of 667 feet. The development work accomplished during the year on the various levels was as follows:—

Level	Drifting	Crosscutting	Raising
	feet	feet	feet
150-foot.....		18	
300-foot.....	509	135	86
450-foot.....	187	19	
600-foot.....	1,279	230	52
Total.....	1,975	402	138

The amalgamation-flotation-cyanidation mill was operated throughout the year. Additional equipment was installed in August, including two flotation units, two Dorr thickeners, and an Oliver filter, which permitted the tonnage milled to be increased from 125 tons to 150 tons per day. A total of 45,736 tons of ore was milled during 1935, which was obtained from cut-and-fill stoping on the 150-, 300-, and 450-foot levels, and from development work.

The plant included two 1,080-cubic-foot Ingersoll-Rand electric compressors and a double-drum electric hoist. Electric power was obtained from Cameron Falls, 55 miles away.

An average of 123 men was employed during 1935, of whom 82 were underground. R. J. Hendricks was in charge, with P. E. Corrin as mine captain and W. Hargraft as mill superintendent.

### Northern Mines, Incorporated

Northern Mines, Incorporated, was incorporated in Delaware in 1934, with an authorized capitalization of 4,000,000 shares of \$1 par value. The officers and directors for 1935 were: I. E. Haight, president; F. Erion, vice-president; F. Dobmeier, secretary-treasurer; W. B. Woodbury and E. W. De Wilton, directors. The executive office was at 516 Walbridge Building, Buffalo, N.Y.

In March, 1935, this company started work on the property of Wabigoon-Contact Gold Mines, Limited, located at Contact bay, Wabigoon lake, about 7 miles south of Dryden, in Kenora district. Previous operators had put down two 80-degree shafts on the property, No. 1 shaft to a depth of 63 feet without lateral work, and No. 2 shaft to a depth of 100 feet with 40 feet of drifting at the bottom.

The company dewatered and sampled the shafts and carried on surface work. A mining plant was being set up at No. 2 shaft, including a 10- by 12-inch steam hoist and three boilers, totalling 104 h.p., when operations were suspended early in September.

About 15 men were employed under the direction of W. L. Haight.

### Olive Gold Mines, Limited

Olive Gold Mines, Limited, was incorporated in January, 1935, with an authorized capitalization of 3,000,000 shares of \$1 par value. The officers and directors are: Dr. W. C. Ryckman, president; J. J. Hoefle, vice-president; C. V. Jacobs, E. J. Wolfe, and H. F. Lichtenstein, directors. The head office is at 372 Bay Street, Toronto. The mine address is Mine Centre.

The property consists of the old Olive mine, located 4½ miles west of

Mine Centre, district of Rainy River. The Fort Frances branch of the Canadian National Railways is within a short distance of the property.

Previous operators sank a 2-compartment 70-degree shaft to a depth of 251 feet, and established levels at 60, 135, and 245 feet. They did 867 feet of drifting on the 60-foot level, 290 feet on the 135-foot level, and 177 feet of drifting and 65 feet of crosscutting on the 245-foot level. A second shaft was connected with the 1st level 300 feet east of the first shaft; and a third shaft, 50 feet deep, was put down 290 feet east of the second shaft. Considerable stoping was done on all levels, and the ore milled in a 25-stamp mill.

Work was started in May, 1935. The underground workings were de-watered and sampled during June and July. In September the construction of buildings and the installation of a plant was started. By the end of the year a power-house, blacksmith shop, office, bunk-house, cookery, dwelling house, and assay office had been built. A 472-cubic-foot Ingersoll-Rand compressor, driven by a 100 h.p. semi-Diesel engine, and a 9- by 12-inch Jenckes hoist were installed, with the intention of starting underground work early in 1936.

An average of 7 men was employed during the period of work, under the direction of F. G. Huycke.

### Omega Gold Mines, Limited

Omega Gold Mines, Limited, was incorporated in May, 1935, with a capitalization of \$5,000,000 in shares of \$1 par value.

The officers and directors are: J. P. Bickell, president; Balmer Neilly, assistant to the president; E. D. Fox, secretary-treasurer; Dr. A. F. Demary, A. Dorfman, and E. M. Thomson, directors. A. D. Campbell is manager. The executive office is at 15 King Street West, Toronto. The head office and mine office are at Larder Lake.

The company acquired the Costello and Crown Reserve properties in McVittie township, district of Timiskaming. Work was commenced on surface in July, 1935. The Crown, or No. 1, shaft was put into shape for mining operations, a small amount of rock work only being done. A new 75-foot headframe and hoist-house was erected at the shaft. Underground mining commenced in January, 1936.

A complete new 300-ton milling plant was constructed and brought into operation in January, 1936.

Power for the mine's operation was supplied after December 1 by the Hydro-Electric Power Commission of Ontario, which extended its 110,000-volt line from Kirkland Lake to a new substation at the mine.

The following is an extract from the manager's report, dated April 16, 1936:—

The preparation of a report that covers only the first two months' production from a new plant presents certain difficulties, and the results set forth cannot be accepted as indicative of what may be normally expected from such plant after the preliminary and necessary adjustments have been completed. Actual construction of the plant commenced August 1 last, and in the interval the mill has been completed and put in operation and there has been provided the necessary shops, office, boarding house, and other essential and complementary plant and equipment.

Shaft heads were renewed and re-equipped, and underground, on the 300- and 550-foot levels the crosscuts and drifts were enlarged to provide for production equipment. In addition, a certain amount of work in preparation for stoping and early development work was completed.

The tonnage treated during the two months' operations under review came from surface dumps and from the work done underground in slashing and preparing for regular stoping operations. At present raises are started from the 550-foot level on either side of the main hoisting shaft and when completed to surface will provide for cut-and-fill stoping operations. Shaft stations and crosscuts have been enlarged; two connections between Nos. 1 and 2 shafts have been provided and, as soon as stoping operations are well organized, an aggressive plan for further underground development will be formulated and put in effect.

The milling practice finally adopted is an adaptation of the McIntyre system of flotation followed by cyanidation. The mill went into production with few mechanical difficulties and soon demonstrated its capacity to be in excess of 300 tons per day. Indeed, with slight changes and little or no additional equipment, this capacity can be increased to approximately 500 tons per day.

During February and March the mill treated 17,352 tons of ore, from sources previously described, for a net recovery of \$60,992.30, and for a cost, as now computed, of approximately the same amount. As previously explained, these results are preliminary and will be gradually improved. Costs to date have averaged \$3.70 per ton of ore treated.

Ore reserves are estimated at 440,000 tons, averaging 0.197 ounces per ton, and in addition to the ore thus computed, a considerable low-grade tonnage, though indicated, has not been developed sufficiently to permit its inclusion in a reserve calculation.

### Pamour Porcupine Mines, Limited

Pamour Porcupine Mines, Limited, was incorporated in March, 1934, under a Dominion charter. The company is capitalized at 5,000,000 shares of no par value. The officers and directors are: J. Y. Murdoch, president; G. H. Rainville, vice-president; A. Lafontaine, secretary-treasurer; Jules R. Timmins, M. Kendall, E. Hibbard, T. N. Hay, and W. Meen, directors. R. M. Macaulay is general manager. The executive office is at 804 Royal Bank Building, Toronto. The mine office address is Pamour, a post office established in 1935.

Pamour Porcupine Mines, Limited, was formed by the Quebec Gold Mining Corporation to take over three properties known as Three Nations, La Palme, and Porcupine Grande, in all about 800 acres situated in the northeast corner of Whitney township, district of Cochrane, near the east end of the Porcupine area. The Temiskaming and Northern Ontario railway (Timmins branch) passes through the property, as does also the main highway. The property is 6 miles east of South Porcupine.

The following is taken from the general manager's report for the year 1935:—

#### Diamond-Drilling

Diamond-drilling from surface was continued until August, during which time 55 holes were drilled, aggregating 29,105.5 feet. This drilling intersected 2,337 feet of vein material, or about 8 per cent. of the footage drilled. The record is as follows:—

	Feet
Old drilling.....	6,569.8
1934—16 holes.....	5,966.5
1935—55 holes.....	29,105.5
Total drilling to date.....	41,641.8

Most of this drilling was done to locate ore at the 200-foot horizon. A few holes were drilled to locate ore at the 400-foot horizon, with only two holes to locate ore at the 600-foot horizon. Both these two holes cut ore at the 600-foot horizon.

#### Mine Development

The old No. 2 shaft and steam equipment was operated continuously and only shut down at the end of the year. A new large 5-compartment main shaft, located 1,100 feet east of No. 2 shaft, was started in the fall and was sunk and timbered to 356.4 feet deep. Stations were cut at the 200- and 300-foot levels. During the year 3,458.7 feet of development work was done, and the following is the development record of the mine:—

	1935	Total to date
	feet	feet
Shafts.....	356.4	686.4
Winzes.....		33
Drifts.....	1,547.1	3,825.6
Crosscuts.....	1,304.9	2,752.4
Raises.....	250.3	490.3
Total.....	3,458.7	7,787.7

All drifting, crosscutting, and raising was done on the 200-foot level, and the muck was hoisted through the old No. 2 shaft until December, when the new main shaft was ready for use to the 200-foot level and underground work could be speeded up. The development work on the 200-foot level covers a distance of 1,600 feet along the bedding, opening up three different ore sections.

#### Ore Reserves

The property was diamond-drilled from the surface over the area east of No. 2 shaft, but only a restricted area was drilled sufficiently closely to allow of connecting up the ore intersections to form indicated ore. In this area, from No. 2 shaft east to diamond-drill hole No. 53, a distance of 3,000 feet, ore indicated by diamond-drilling aggregated 1,530,000 tons, averaging 0.261 ounces in gold.

Development underground on the 200-foot level so far has proved three ore sections to aggregate 726,000 tons, averaging 0.246 ounces in gold. In mining the above ore there will, of course, be dilution with waste and lower-grade ore, so the grade of ore sent to the mill will be somewhat less than given above.

#### Plant Construction

Construction of a mining plant was started in July and the following construction has been completed: main shaft-house, crusher building with conveyor runways and junction house, hoist- and power-house, substation, shops buildings, change-house, assay office, warehouse and office, central heating plant, elevated water tank, pumping plant, powder magazine, 3 bunk-houses, dining room and cook-house, 7 residences. Plant buildings are of permanent and substantial construction, steel frames on heavy concrete foundations, with a special copper-lined insulboard siding, covered with corrugated iron, or of brick and tile.

Power from the Ontario Hydro Commission's Abitibi development was contracted for in the summer, and a secondary transmission line was built from their substation at Timmins to the mine. Delivery of power at 26,400 volts to the mine substation began in October.

Plans have been completed for a first unit mill. The foundations are completed and erection will begin early in 1936.

#### Parkhill Gold Mines, Limited

Parkhill Gold Mines, Limited, was incorporated in April, 1929, with an authorized capitalization of 3,000,000 shares of \$1 par value. The officers are: Sir Thomas Tait, president; A. P. Earle, vice-president; G. F. Racine, secretary-treasurer; C. F. Elderkin, G. M. McKee, Charles Adams, and Dr. C. A. Peters, directors. The executive office is at 1835 Beaver Hall Building, Montreal. The mine address is Gold Park. The property is located 6 miles from Wawa on the Algoma Central railway, in township 29, range 23, Michipicoten area, district of Algoma.

During 1935 the 2-compartment 40-degree shaft was sunk an additional 197 feet to a total depth of 1,500 feet on the incline; and levels, the 10th and 11th, were established at 1,332 and 1,450 feet.

Development footages accomplished on the various levels during 1935 were as follows:—

Level	Drifting	Crosscutting	Raising
	feet	feet	feet
2nd.....	36		18
3rd.....	4	29	
4th.....			
5th.....	37		
6th.....	41	18	67
7th.....	397		
8th.....	373	69	177
9th.....	1,953	183	504
10th.....	1,597	92	259
11th.....	192	85	24
Total.....	4,630	476	1,049

A total of 20,714 tons of ore was obtained from the mine during 1935, of which 17,420 tons was from stoping and the balance from development. Stopping

was done by open-stoping methods on all levels from the 1st to the 10th, inclusive, although over half of the stope production was obtained from the 8th and 9th levels. A total of 1,371 feet of diamond-drilling was done from underground. An average of 97 men was employed, of whom 67 were underground. R. E. Barrett was in charge.

### **Paymaster Consolidated Mines, Limited**

Paymaster Consolidated Mines, Limited, was incorporated in February, 1930. It has an authorized capitalization of 9,000,000 shares of \$1 par value, 7,761,000 of which have been issued. The officers and directors at December 31, 1935, were: A. S. Fuller, president; E. H. Walker, vice-president; E. L. O'Reilly, secretary-treasurer; A. W. Hodgetts, assistant secretary; Chas. E. Cook, general manager; C. J. O'Brien and H. D. Rothwell, directors. The executive office is at 804 McKinnon Building, Toronto. The head office address and mine office address are both South Porcupine.

Paymaster Consolidated Mines, Limited, holds large acreages in Tisdale township, district of Cochrane. The chief property is the block of ground between the Dome mine and the Buffalo Ankerite mine. There are 6 shafts on this property having an aggregate depth of 3,099 feet. The old Dome Lake or No. 5 shaft and the West Dome (Heinze) or No. 6 shaft are the only two which have been used by this company. No. 5 shaft is 1,097 feet in depth, and No. 6 shaft, inclined at 62 degrees, is 456 feet in depth.

In 1935, 88 feet of crosscutting, 155 feet of drifting, 570 feet of raising, and 296 feet of sinking were done in the No. 5 shaft area; and 511 feet of crosscutting, 2,103 feet of drifting, 155 feet of raising, and 20 feet of sinking in the No. 6 shaft area.

Paymaster Consolidated Mines started milling operations in September, 1934. During the remaining weeks of that year 13,824.1 tons were milled, and the value of production was \$77,949.08. In 1935, 79,844.6 tons were milled, and production amounted to \$587,189.32.

During 1935 the average number of employees at the mine was 192, divided as follows: underground, 121; mill, 17; and surface, 53. A. Pugsley is underground superintendent, and D. Robinson is mill superintendent.

### **Pickle Crow Gold Mines, Limited**

Pickle Crow Gold Mines, Limited, incorporated in January, 1934, is capitalized at 3,000,000 shares of \$1 par value. The officers and directors of this company are: J. E. Hammell, president; A. L. Smith, vice-president; Robt. Fennell, secretary-treasurer; G. A. Cavin, assistant secretary-treasurer; Mrs. Eola Hammell and B. H. Budgeon, directors. The executive office of the company is at 930 Canadian Bank of Commerce Building, Toronto. The head office and the mine office of the company are at Pickle Crow.

The company's property consists of 59 claims in the Pickle Lake-Crow River area, in the Patricia portion of Kenora district. The main claims of the property were originally staked in 1928, and early development work was done by Northern Aerial Minerals Exploration, Limited. The property is reached by airplane from Hudson, Sioux Lookout, or Collins, on the Canadian National railway, to Pickle lake, from which point a truck road, constructed during the summer of 1935, leads to the property, 8 miles east of the lake. Supplies are taken in by water from Hudson over Lac Seul, up the Root river, across a marine railway to Lake St. Joseph, and thence to Doghole bay, which is about 25 miles from the

property. From here supplies are transported to Pickle lake by plane during the summer and by tractor during the winter. Supplies are also freighted by tractor from Savant Lake during the winter.

A mining plant was taken into this property in 1933. The sinking of a 3-compartment shaft was commenced in September, 1933. Since that date operations have been continuous. At the end of 1934, the shaft was down 380 feet; and by the end of 1935, it was 789 feet deep. The following table shows the amount of development work by levels done at this property to the end of 1934 and at the end of 1935:—

Level	Crosscutting		Drifting		Raising		Diamond-drilling	
	To Dec. 31, 1934	To Dec. 31, 1935	To Dec. 31, 1934	To Dec. 31, 1935	To Dec. 31, 1934	To Dec. 31, 1935	To Dec. 31, 1934	To Dec. 31, 1935
125-foot.....	126½	126½	707	1,427	.....	134	347	1,189
250-foot.....	222	222	1,135	1,135	177	177	1,268	1,337
375-foot.....	379	379	1,478	1,529	73	88½	2,180	2,180
500-foot.....	.....	166½	.....	226	.....	.....	.....	202
625-foot.....	.....	155½	.....	.....	.....	.....	.....	.....
750-foot.....	.....	222	.....	.....	.....	.....	.....	.....
Surface.....	.....	.....	.....	.....	.....	.....	3,107	6,604
Total.....	727½	1,271½	3,320	4,317	250	399½	6,902	11,512

A mill, comprising both amalgamation and cyanide units and having a daily capacity of 150 tons, was constructed during the latter part of 1934 and the winter of 1935. The mill was first turned over on April 17, 1935, and actual milling operations were started on May 1, 1935. During the last eight months of the year the mill treated 36,200 tons, having a gross value of \$874,088.72.

During 1935 the following additions were made to the plant equipment: a 1,000-cubic-foot Ingersoll-Rand cross-compound, electrically driven compressor; the 600-cubic-foot Ingersoll-Rand steam-driven compressor was converted to an electrically driven compressor; an Ingersoll-Rand, 42- by 30-inch, class PE-I, 8,000-lb. pull, electric hoist and 60 h.p. motor; a Fairbanks-Morse horizontal split-case, double-action suction, centrifugal pump (for fire protection); and a Continental industrial type engine with automatic starter (attached to pump). An emergency power unit has also been installed. This consists of a gasoline engine and electric generator, which generates 125 horsepower, sufficient to operate all necessary mill units and to light the buildings in case of failure of the main power supply.

The following buildings were erected or completed during 1935: mine warehouse, 26 by 58 feet; machine shop, 26 by 60 feet; mine dry, 30 by 40 feet; compressor and hoist room, 31 by 78 feet; refinery, 14 by 16 feet, equipped; shaft-house and steel headframe, 60 feet in height, completed; standby power unit building, 14 by 16 feet; bunk-house, 26 by 30 feet; 2 dwellings, 22 by 25 feet and 24 by 28 feet; cookery warehouse, 16 by 40 feet; 2 warehouses at Doghole bay, 24 by 60 feet and 24 by 30 feet.

An average of 102 men was employed at the mine during 1935. Alex. G. Hattie is mine manager.

### Porcupine Lake Gold Mining Company, Limited

The Porcupine Lake Gold Mining Company, Limited, was incorporated in 1927, and at that time took over the property of the old Porcupine Lake Gold Mines, Limited; it has an authorized capitalization of 3,000,000 shares of no

par value. The officers and directors are: C. E. Calvert, president; H. H. Sutherland, vice-president; Geo. McKeown, secretary-treasurer; J. R. L. Starr and H. J. Batkin, directors. The head office of the company is at 112 Yonge Street, Toronto. The property, often called the Hunter mine, is located at the northeast corner of Porcupine lake, Whitney township, district of Cochrane.

The mine workings consist of a shaft, inclined at 65 degrees, and one level about 275 feet below the collar of the shaft. About 700 feet of crosscutting and drifting was done on this level by Porcupine Lake Gold Mines, Limited, before the mine was closed down in 1914. From that year until 1927 the property was idle. In 1927 it was pumped out and sampled, and some diamond-drilling was done. Work ceased again in June, 1928, and it was not until November, 1935, that the mine was again pumped out.

Work commenced in September, 1935, with the repairing of several of the old buildings and a diamond-drilling programme. About 2,000 feet of diamond-drilling was done from surface by the Porcupine Lake Gold Mining Company. The mine was pumped out early in November, and on the 23rd of the month Hollinger Consolidated Gold Mines became interested in the property, and sampled it and drilled 8 diamond-drill holes from underground, with a total footage of 1,764 feet. Hollinger completed this work in December, and no further work was done to the end of the year.

The mining equipment now on hand at the property includes an 80 h.p. boiler, which was reconditioned in October; a Jenckes straight-line air compressor, steam-driven, with a steam cylinder, 10 by 12 inches, and an air cylinder, 12 and 7½ by 12 inches; and an 8- by 10-inch steam hoist, built by Ottumwa Iron Works.

Wm. Sixt was in charge of the work done by the Porcupine Lake Gold Mining Company. Geo. M. Henderson was superintendent.

### Red Lake Gold Shore Mines, Limited

Red Lake Gold Shore Mines, Limited, incorporated in December, 1927, has an authorized capitalization of 5,000,000 shares of no par value, of which 4,500,000 shares are outstanding. The officers and directors are: Chas. E. St. Paul, president and managing director; Ira E. Hough, vice-president; Dr. Robt. W. Bruels, secretary-treasurer; Chas. V. Gallagher and Henry A. Newman, directors. The head office is at 244 Bay Street, Toronto. The mine office is at Red Lake.

The holdings of this company consist of 23 claims in the townships of Dome and Heyson, Red Lake area, in the Patricia portion of Kenora district. The mine shaft is about a mile west of the town of Red Lake. The present programme of work was commenced in June, 1934, although surface-trenching had been done on the property some years ago. Shaft-sinking was started late in the summer of 1934. At the end of 1934, the shaft was down 182 feet, with a level at 180 feet; at the end of 1935, it was 435 feet deep, with additional levels at 300 and 425 feet. The following table shows the development work accomplished during the past two years:—

	At Dec. 31, 1934	At Dec. 31, 1935
Crosscutting.....	feet 127	feet 220
Drifting.....	80	1,429
Raising.....		157

Equipment for a mill to be built in 1936 has been purchased. The initial capacity will be 125 tons, and provision will be made for enlarging the capacity to 250 tons if needed.

In 1935, electric power was made available at the mine. The formerly steam-driven compressor of 750-cubic-foot capacity was electrified. The mine pump was also electrified. A new Ingersoll-Rand double-drum hoist was installed in 1935. New buildings erected in 1935 included an assay office, a combined pipe- and machine-shop, and enlargements to the hoist- and compressor-building.

The average number of employees in 1935 was 34. W. P. Mackle is mine manager.

### **Richelieu Gold Mines, Limited**

Richelieu Gold Mines, Limited, incorporated in May, 1934, is capitalized at 3,000,000 shares of \$1 par value, of which 1,614,407 shares have been issued. The officers and directors are: A. B. Stodart, president; W. R. P. Parker, vice-president; W. J. McDonough, secretary-treasurer; H. R. Drummond-Hay and R. Spreckels, directors. The head office of the company is at 330 Bay Street, Toronto. The mine office address is Savant Lake.

The property consists of 24 claims, totalling 854 acres in Thunder Bay district. Fifteen of these claims are in one group, located on a peninsula extending southward into the northeast bay of Sturgeon lake, about 10 miles southeast of Savant Lake station on the transcontinental line of the Canadian National Railways. The sixteenth claim, 104 acres, adjoins the St. Anthony Gold mine, about 4 miles to the southwest. In addition to the above holdings, the company recently acquired 8 claims, comprising approximately 400 acres, known as the Iron Duke group, 6 miles south of the main group.

On the main group, a 2-compartment shaft was started in December, 1934. By the end of 1934 it had reached a depth of 115 feet. Sinking continued in 1935 to a depth of 278 feet. Levels were established at 125 and 250 feet, and exploration by drifting was actively carried on to September 17, 1935, when the mine was closed down.

The mining plant at this property includes two boilers, one of 70 and one of 150 horse-power; a Canadian Ingersoll-Rand 2-stage air compressor, of 614-cubic-foot capacity; and a Canadian Ingersoll-Rand, 8- by 6-inch reversible steam hoist.

The average number of men employed up to September 17, 1935, was 35. J. G. Harkness was mine manager from the commencement of operations till the mine shut down.

### **Rickard Ramore Gold Mines, Limited**

Rickard Ramore Gold Mines, Limited, was incorporated in October, 1934, with a capitalization of 3,000,000 shares of \$1 par value. The officers and directors are: W. H. C. McEachern, president; E. Wise, secretary-treasurer; J. W. Morrison, consulting engineer; H. Hollands-Hurst, mine superintendent; and Jas. Travis, director. The head office is at 601 Concourse Building, Toronto. The mine office is at Iroquois Falls.

The company acquired claims Nos. 18,405, 18,406, 18,407, 19,629, and 19,630 in the township of Rickard, district of Cochrane. The property, which was staked in 1917, was formerly known as the Raty mine. A mining plant was installed and camps were erected.

Previous operators had sunk an inclined shaft to a depth of 100 feet and had done over 700 feet of lateral work on the 100-foot level. The present company began operations in December, 1934, and at the end of 1935 the lateral work amounted to about 1,000 feet. Some 10,000 feet of diamond-drilling and considerable surface-trenching has been done.

### St. Anthony Gold Mines, Limited

St. Anthony Gold Mines, Limited, was incorporated in 1921 with an authorized capitalization of 3,000,000 shares of \$1 par value. The capitalization was increased to 3,300,000 shares in 1934. All shares are issued. The officers and directors at the end of 1935 were: H. P. Bellingham, president and general manager; R. F. Taylor, vice-president; R. F. Cairns, secretary-treasurer; R. Robertson and D. M. Bellingham, directors. The head office of the company is at 159 Bay Street, Toronto. The mine office address is Savant Lake.

The mine property, in the Sturgeon Lake area, lies 12 miles south of Savant Lake station on the main line of the Canadian National Railways, in Thunder Bay district. A 3½-mile wagon road from Savant Lake station leads to the north end of the North arm of Sturgeon lake. From this point transportation to the mine is by water. Large scows and power-boats are used to transport supplies over the water route.

The following is taken from the president's report for the fiscal year ending December 31, 1935:—

Continuous mining and milling operations were carried on throughout the year, and a total of 44,550 tons of ore was treated. The actual cost of mining and treating this ore was \$5.18 per ton.

The total bullion production for the year was \$303,151.80, as against \$123,263.57 in the year 1934, an increase of \$179,888.23, or 146 per cent. There was an operating profit of \$73,516.61. After charging \$37,520.73 for depreciation, \$17,269.00 for development, \$16,684.44 for the balance of rehabilitation, and sundry write-offs and provisions for Dominion and provincial taxes, the sum of \$2,042.44 was transferred to earned surplus.

The following is taken from the mine manager's report for the year ending December 31, 1935:—

#### Mine

A total tonnage of 34,912 tons of ore was broken and 34,538 tons delivered to the mill. This ore, with the exception of 700 tons recovered from the development work on the 500-foot level was drawn from the 250-foot and 350-foot levels. Ore was mined over widths from 5 to 15 feet as against an original width calculated at 5 feet. The balance of the tonnage was derived from the old mill tailings.

A total of 842 feet of drifting and crosscutting was accomplished during the year. The drifting accounted for 579 feet distributed as follows: 250-foot level, 191 feet; 350-foot level, 148 feet; 500-foot level, 240 feet.

The crosscutting done was in connection with the new inclined shaft and distributed as follows: 150-foot level, 114 feet; 250-foot level, 84 feet; 350-foot level, 65 feet.

#### SUMMARY OF WORK ACCOMPLISHED TO DATE

	Feet
New inclined shaft.....	121
Old shaft.....	150
Winzes and raises.....	500
Drifts.....	5,164
Crosscuts.....	1,693
Total.....	7,628

After the 500-foot level was dewatered, drifting was carried on and the main vein was exposed for a total length of 330 feet, with an average grade of 0.40 ounces of gold per ton. This level is much drier than the upper levels, and pumping is carried on only 4 per cent. of the time.

The management decided that economical mining required the excavation of an inclined shaft from the 500-foot level to the surface. This work was started near the end of the year, and a total footage of 121 feet had been excavated by December 31. This new shaft will improve

the working conditions considerably, in comparison with the system of hoisting through a series of winzes, which is not efficient and is more costly. Operating through the new inclined shaft will permit us to save labour costs in tramping, mucking, cage-tending, and hoisting, together with power costs, and should, in the aggregate, account for the majority of the capital outlay during the year 1936.

At this time the small amount of development work that has been done north in the granodiorite does not justify my making any estimate as to ore reserves in this section of the mine, although the vein intersections are large and may be profitably mined on a large tonnage basis.

### Mill

The mill operated 90 per cent. of the possible running time. The tonnage treated was as follows:—

	Tons	Ounces per ton
Old mill tailings.....	10,012	0.17
Underground ore.....	34,538	.26
Total.....	44,550	.....

The average tons milled per day of 24 hours' running time was 136.63 tons. The total gold bullion recovered and shipped was 8,538.6 fine ounces. The total silver bullion recovered and shipped was 1,957.7 fine ounces. The average recovery was 91 per cent. The average cost of milling was \$1.473 per ton. A new crusher, amalgam barrels, and blanket tables were added to the mill circuit during the year.

### Hydro-Electric Power Plant

The power plant was damaged by fire due to lightning. It was found, however, that the undamaged generator supplied sufficient power to carry on all mining and milling operations. The cost of repairs to the plant was fully covered by insurance.

The rapids, about a mile below the power plant, were lowered during the summer, which improved the gross head approximately one and a half feet. This improvement in the gross head relieves us of any further anxiety with regard to power shortage. The plant is now operated by 3 employees where 4 were employed.

### General

Building construction work throughout the year was confined to minor changes in the bunk-house and the erection of a new cabin at the power site. A new stable was erected at the mine. A steam-heating system was installed throughout the mine buildings.

Two major accidents were reported during the year. One of the employees was injured in the mill and fully recovered, the other accident occurred in the mine and proved fatal. An average of 114 men was employed throughout the year. Mine timber and cordwood are being recovered as near to the mine property as possible.

### Developed Ore

While the character of the ore in the mine is difficult to sample, there is, in my opinion, one year's ore available at this time. However, the opening-up of the ore on the 500-foot level for a distance of 330 feet would indicate there is a continuity of ore to a greater depth than now opened up and as formerly indicated by diamond-drilling.

R. P. Teare was manager throughout the year, employing an average force of 108 men.

### 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, Montreal, Que. The mine address is Dymont.

The property of this company includes the old Sakoose mine, located about 6 miles south of Dymont, in Kenora district.

During 1935 the new 2-compartment vertical shaft was continued to a depth of 143 feet. All work was suspended in May.

In August, the assets of the company were taken over by Nordic Sturgeon Gold Mines, Limited, but no work was undertaken by them at this property during 1935.

An average of 31 men was employed during the period of operation in 1935 under the direction of D. H. Traynor.

### **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, Quincey Shaw, and C. D. H. MacAlpine, directors. The head office was at the Bank of Commerce Building, Toronto.

The company continued work, until March 1, under their option, on the old Sultana mine, located about 7 miles southeast of Kenora, and then dropped the option. The work accomplished in 1935 consisted of 79 feet of drifting on the 4th level, 136 feet of drifting on the 7th level, and 1,703 feet of diamond-drilling from underground.

A crew of 23 men was employed under the direction of Cameron McDonald.

### **Selected International Mines, Limited**

Selected International Mines, Limited, an English company, with a capitalization of £1,000, in shares of £1 par value, leased the property of Cheltonia-Swastika Mines, Limited, in June, 1935. C. F. Davies is chairman of the board of directors. Thomas Evans and J. J. L. Helou are directors. The head office is at 33 Chancery Lane, London, W.C.2, England. C. J. Poole was manager at the property, employing 18 men. The mine address is Swastika.

The property consists of 5 claims in Eby and Otto townships, district of Timiskaming. The operating company did 105 feet of shaft-sinking and 60 feet of lateral work on the 100-foot level.

### **Shenango Gold Mines, Limited**

Shenango Gold Mines, Limited, was incorporated in March, 1935, with an authorized capitalization of 3,000,000 shares of \$1 par value. The officers and directors are: Louis Normandin, president; Bruce Cameron, vice-president; James Hutchison, secretary-treasurer; Jack Owens and William Cromar, directors. The head office is at 1107 Bank of Hamilton Building, Toronto.

The property consists of a group of 4 claims in Hawkins township, and one of 12 claims in Walls township, district of Algoma.

During 1935 work was confined to the group in Hawkins township, where open-cut mining was done on a small scale. In November the construction of a 25-ton amalgamation mill was started. By the end of the year the mill building was completed and the installation of equipment begun, with the expectation of starting up the mill in March, 1936. The equipment will include a crusher, Morley mill, rolls, ball mill, and amalgamation equipment, to be operated by gasoline engines.

It is expected that ore for the mill will be obtained from open-cut operations. A 220-cubic-foot gasoline compressor was installed in December.

Buildings erected included the mill, blacksmith shop, office, 2 bunk-houses, and cookery. The mill is located about three-quarters of a mile east of Langdon,

on the Algoma Central and Hudson Bay railway, and about 5 miles from Oba. The mine address is Oba. About 15 men were employed under the direction of Jack Owens.

### **Shinintree Gold Mines, Limited**

Shinintree Gold Mines, Limited, was incorporated in March, 1935, with an authorized capitalization of 1,000,000 shares of \$1 par value. The officers and directors were: Lionel Brooke, president; C. H. Hitchcock, vice-president; W. B. McPherson, secretary-treasurer; Gilbert Bennett and W. J. Laforest, directors. The head office is at 171 Yonge Street, Toronto. The mine address is Shiningtree.

The property consists of claims W.D. 1,406 and T.R.S. 2,507, totalling 126 acres, in Macmurchy township, West Shiningtree area, district of Sudbury. It is 26 miles by road northeast of Westree on the Canadian National railway. Previous owners did some surface stripping and put down a vertical shaft to 36 feet.

The company started work in May. The old shaft was cleaned out and timbered into two compartments, and sinking started with hand-steel and windlass. By the end of the year the shaft had reached a depth of 100 feet, and a level had been started at that depth, on which 26 feet of drifting had been done.

Buildings erected consisted of a bunk-house, cookery, and blacksmith shop. No mining plant or headframe was installed.

An average of 9 men was employed during the last eight months of 1935, under the direction of Lionel Brooke.

### **S. B. Smith**

Dr. S. B. Smith, Cleveland, Ohio, is the owner of claim S.S.M. 301, formerly known as the Van Sickle mine, located in township 29, range 23, in the Michipicoten area, district of Algoma. It adjoins the east boundary of the Parkhill mine. The mine address is Gold Park.

During 1935 the 2-compartment 45-degree shaft was sunk an additional 149 feet, to a total depth of 289 feet on the incline, and a second level established at 261 feet.

Stopes were started on both levels during the second half of the year, from which 6,122 tons of ore was obtained on the first level and 1,534 tons on the second level, by open-stopping methods.

The 15-ton mill installed in 1934 was replaced by a 50-ton mill, which started operating on June 1. The equipment included a Telsmith crusher, ball mill, rake classifier, four Wilfley tables, and amalgamation equipment. By the end of the year the mill had treated a total of 7,946 tons of ore.

A 312-cubic-foot electric compressor was added to the plant. An assay office was constructed in addition to the mill.

Operations were suspended early in January, 1936. An average of 38 men was employed during 1935, of whom 20 were underground. J. C. Canfield was in charge.

### **Sol-D'Or Gold Mines, Limited**

Sol-D'Or Gold Mines, Limited, incorporated in September, 1934, has an authorized capitalization of 3,000,000 shares of \$1 par value. The officers and directors elected at the first annual meeting are as follows: C. M. Edwards, president; E. R. Bremner, vice-president; F. W. Runge, A. B. Wright, and

G. W. Mitchell, directors. A. W. Reynolds is secretary-treasurer for the company. The head office is at Room 505, 140 Wellington Street, Ottawa. The mine office address is Narrow Lake.

The company's holdings, which consist of 24 patented claims and 14 unpatented claims, lie in the northeast corner of Honeywell township, the northwest corner of McNaughton township, and in the block immediately north of these two townships. These claims take in part of the western end of Grace or Rainbow lake, a small lake south of Birch lake in the Patricia portion of Kenora district. Most of these claims were formerly held by T. W. Bathurst, Limited, and more recently by Rainbow Lake Gold Mines, Limited.

The most important discoveries made to date on this property are on claim No. 10,790. Five narrow veins carrying visible gold have been discovered within a few rods of each other. In 1932-33 a Jack Nutt mill was taken into the property, and several hundred tons were milled. The ore was taken from an open cut on the No. 3 or centre vein. The cut has a maximum length of 250 feet and a maximum depth of 40 feet. The ore was sorted before being sent to the mill. The value of production, from 400 tons milled from this cut in 1932-33, is reported as about \$10,000.

Sol-D'Or Gold Mines erected a new mill in 1935 and equipped it with a Mitchell jaw-crusher, a 10-ton Straub ball mill, amalgamation plates, and a Straub table. A new 9 h.p. Diesel engine was bought to supply power for the mill. Milling was commenced about October 1 and continued for two and a half months. In this period 119.38 tons were milled, and the value of production was \$1,390.78.

The following exploration and development work has been done on the property by Sol-D'Or Gold Mines and by former operators: 800 feet of trenching, ranging from 5 to 40 feet in depth, including the open cut from which mill feed has been taken; 2,000 feet of stripping and a number of test pits; 3,000 feet of diamond-drilling (done in the winter of 1934-35). No shaft-sinking has been done on the property.

Buildings include a log-cabin office, log-construction bunk-house, warehouse, powder magazine, cap-house, and pump-house. The last three buildings were erected in 1935.

Milton Hersey Company, Limited, was engaged to direct the operations at the mine and to act as consulting engineers. They have placed Dr. H. S. Hicks in charge of the property as mine manager. An average of 9 men was employed at the mine during 1935.

### **South Vermillion Gold Mines, Limited**

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

The property owned 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.

The 2-compartment vertical shaft was sunk an additional 5 feet by hand-steel during January, 1935, to a total depth of 45 feet. During the balance of the year a bunk-house and cookery were constructed, and surface work was carried on intermittently.

A 300-cubic-foot Ingersoll-Rand compressor and a 175 h.p. boiler were obtained but not put in use.

A. Pacitto was in charge. The mine address is Mine Centre.

### **Stanley Gold Mines, Limited**

Stanley Gold Mines, Limited, was incorporated in November, 1933, with a capitalization of 2,000,000 shares of \$1 par value. The officers and directors are: H. E. Perry, president; J. C. MacKay, vice-president; Mrs. Stanley Siscoe, secretary-treasurer; and Armand Bastien, director. The head office was at 231 St. James Street West, Montreal, Que. The mine address is Wawa.

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 on the Algoma Central railway.

Work was suspended at this property at the end of December, 1934, following the death of Stanley Siscoe, who had been privately financing the work. A 2-compartment inclined shaft had been sunk to a depth of 300 feet, and levels had been established at 123 and 256 feet. A total of 648 feet of drifting and 97 feet of crosscutting had been done on the 123-foot level, and 778 feet of drifting and 71 feet of crosscutting on the 256-foot level.

The property remained idle until December 29, 1935, when dewatering of the mine was started in preparation for the resumption of underground work.

S. MacDougall is in charge of operations.

### **Straw Lake Beach Gold Mines, Limited**

Straw Lake Beach Gold Mines, Limited, was incorporated in August, 1934, with an authorized capitalization of 2,500,000 shares of no par value. The officers and directors are: W. E. Segsworth, president and secretary; L. L. Steindler, vice-president and treasurer; R. J. Jowsey, J. D. Conover, and J. A. Gairdner, directors. The head office is at 67 Yonge Street, Toronto.

The property consists of a group of 9 claims at Straw Lake, district of Kenora, which were taken over from Straw Lake Beach Gold Mines Syndicate, Limited. It is about 35 miles north of Fort Frances, and is reached by a 70-mile route from Emo on the Canadian National railway.

During 1935 operations were carried on until the end of October, when they were suspended for the winter. The 2-compartment vertical shaft was deepened to 320 feet, and a second level established at 300 feet. The total footage of lateral work underground when operations were suspended consisted of 558 feet of drifting and 92 feet of crosscutting on the 100-foot level and 719 feet of drifting and 77 feet of crosscutting on the 300-foot level. A total of 1,560 feet of diamond-drilling was done from surface during 1935.

The plant used included a 310-cubic-foot Ingersoll-Rand gasoline compressor and a 6- by 8-inch Ingersoll-Rand air hoist.

An average of 19 men was employed during the period of operation in 1935. Frank Carnegie was in charge, with A. J. MacDonnell as contractor. The mine address is Emo.

### **Sturgeon River Gold Mines, Limited**

Sturgeon River 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: A. L. Bishop, president; J. M. Wood, vice-president; C. S. Kennedy, secretary-treasurer; F. D. Reid, general manager; A. Longwell,

W. T. Brown, and Fraser Raney, directors. The head office is at 320 Bay Street, Toronto.

The property consists of a group of 7 claims in the Sturgeon (Namewaminikan) River area, district of Thunder Bay, about 8 miles northwest of Nezah station, on the Long Lac-Port Arthur branch of the Canadian National railway.

A 3-compartment vertical shaft was started on May 9, 1935, and completed to a depth of 523 feet. Levels were established at 125, 250, 375, and 500 feet. The work completed on these levels to the end of 1935 was as follows:—

Level	Drifting	Crosscutting	Raising
	feet	feet	feet
125-foot.....	213	29	44
250-foot.....	277	24	57
375-foot.....	426	40	87
500-foot.....	361	180	.....
Total.....	1,277	273	188

A total of 3,200 feet of diamond-drilling was done from surface in 1935.

The plant included two 70 h.p. locomotive-type boilers, a 750-cubic-foot Babcock and Wilcox steam compressor, and a 9- by 8-inch Ingersoll-Rand double-drum hoist. Buildings erected included a hoist-compressor house, boiler-house, blacksmith-machine shop, assay office, dry-house, 2 bunk-houses, office, cook-house, and manager's residence.

An average of 46 men was employed throughout 1935. C. M. Bowyer was in charge. The mine address is Jellicoe in summer and Nezah in winter.

### Supreme Gold Mines, Limited

Supreme Gold Mines, Limited, was incorporated in February, 1934. The authorized capitalization is 2,000,000 shares of \$1 par value. Officers of the company are: Walter F. Stewart, president and manager; H. M. Richardson, vice-president; Harry J. Beck, secretary-treasurer. There is also an advisory board of three: Frank Grew, John Rennie, and Walter G. Lumbers. The head office is at 314 Metropolitan Building, Toronto. The mine office address is Savant Lake.

In September, 1935, the company held 32 claims, east of Couture lake between the North and the Northeast arms of Sturgeon lake, in Thunder Bay district.

A mining plant was freighted into this property in the spring of 1935. It includes one Case boiler of approximately 25 h.p., a 240-cubic-foot Schram portable gasoline compressor, a Ledgerwood tandem-drum hoist, and a tractor. This mining plant has not been set up. Buildings include a combined cookery and bunk-house, office, residence, and powder magazine.

Work during 1935 was confined chiefly to prospecting and trenching. There were 7 men employed at this property at the end of the summer.

### Swain, Harris, and Cavano

Messrs. Swain, Harris, and Cavano hold 9 claims, Nos. 12,254-62, three miles south of the west end of Birch lake in the Patricia portion of Kenora district. On these claims they discovered a rusty zone in which fairly coarse residual gold is found. During the summer of 1935, they carried on small-scale

mining operations on claim No. 12,258, digging up rusty, oxidized material out of small pits, packing it to a stream a few hundred feet distant, and there passing it over crude ripples and blankets on cradles. In this way, handling about half a ton of material per day, they recovered a heavy concentrate of arsenopyrite and gold, but the value of their concentrate is unknown. No report of a shipment of bullion or concentrate had been received up to the end of the year.

The post office address is Narrow Lake.

### 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 270 men was employed during the year.

The following is taken from the general manager's report for the fiscal year ending March 31, 1936:—

#### Production

The mill extraction, based upon Mint assays, plus tailing loss, was 95.95 per cent. for the full year; 96.27 per cent. for the last six months, and 96.40 per cent. for March. Mill heads were lowered slightly to permit inclusion of a greater amount of low-grade and marginal ore.

Fiscal year ending March 31	Tons milled	Production	Average recovery, troy ounces per ton
1931.....	83,034	\$837,013. 97	0.49
1932.....	94,276	948,926. 13 <sup>1</sup>	.49
1933.....	96,140	912,377. 15 <sup>1</sup>	.40
1934.....	98,311	1,558,912. 87 <sup>1</sup>	.52
1935.....	124,956	1,584,817. 39 <sup>2</sup>	.41
1936.....	153,942	1,931,891. 87 <sup>3</sup>	.36

<sup>1</sup>Including exchange on bullion.

<sup>2</sup>Including exchange on bullion, after bullion tax is deducted.

<sup>3</sup>Including exchange on bullion, after deducting bullion tax effective for period April 1, 1935, to May 31, 1935, but before deducting Mint handling charge of 35 cents per fine ounce gold, effective for period June 1, 1935, to March 31, 1936.

#### Mining

Year	Ore broken			Waste			Total ore and waste broken
	In Stopes	From development	Total	Hoisted to surface	Used for backfill	Total	
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
1936.....	111,091	42,183	153,274	12,576	7,607	20,183	173,457

During last year drifting and subdrifting through ore amounted to 3,342.5 feet. This represented 36.4 per cent. of the total advance. Structural features and geological evidence encountered generally throughout the sections mined, remained favourable.

## Ore Reserves

Comparing broken ore reserves as at March 31, 1935, with the figure for the same date in 1936, we have, respectively, 82,990 and 82,415 tons, showing a negligible change, notwithstanding the substantial increase in tons treated last year.

## Operating Costs

	Total cost	Cost per ton ore milled
1932:		
Development and exploration.....	\$184,936.28	\$1.962
Mining.....	285,365.41	3.026
Milling.....	112,630.68	1.194
General charges.....	43,863.49	.465
Administrative charges.....	24,594.16	.261
Bullion selling expense <sup>1</sup> (insurance, shipping, and Mint refining charges).....	5,615.12	.060
Total.....	\$657,005.14	\$6.968
1933:		
Development and exploration.....	\$227,278.95	\$2.364
Mining.....	249,907.58	2.599
Milling.....	105,168.81	1.094
General charges.....	44,083.76	.459
Administrative charges.....	23,437.97	.244
Bullion selling expense (insurance, shipping, and Mint refining charges).....	4,823.89	.050
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.....	42,160.87	.429
Administrative charges.....	34,774.84	.353
Bullion selling expense (insurance, shipping, and Mint refining charges).....	5,912.90	.060
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.....	39,314.93	.315
Administrative charges.....	39,000.00	.312
Bullion selling expense <sup>2</sup> (insurance, shipping, and Mint refining charges).....	5,525.11	.044
Total.....	\$741,278.63	\$5.931
1936:		
Development and exploration.....	\$211,169.44	\$1.372
Mining.....	348,251.50	2.262
Milling.....	167,324.47	1.087
General charges.....	47,641.25	.310
Administrative charges (partly mine).....	59,116.83	.384
Township drainage tunnel expense.....	5,914.12	.038
Kirkland District Hospital building expense.....	3,868.15	.025
Bullion selling expense:		
Insurance, shipping, and Mint refining charges.....	5,834.38	.038
Mint handling charge.....	16,750.88	.109
Total.....	\$865,871.02	\$5.625

<sup>1</sup>The item "bullion selling expense" was included with the item "general charges" in previous annual reports.

<sup>2</sup>Mint bullion handling charge, effective for the month of April, 1934, at 35 cents per ounce, amounted to \$1,007.70, which together with bullion tax was deducted from production.

## Development and Exploration

Class of work	Year ending March 31, 1934	Year ending March 31, 1935	Year ending March 31, 1936	Total from beginning of operations to March 31, 1936
	feet	feet	feet	feet
Drifting .....	4,399.5	8,985	8,837	57,227.5
Crosscutting .....	2,347	2,688	2,875.5	27,701
Raising .....	2,464.5	1,905.5	1,392.5	15,131
Sublevel drifting .....	1,473.5	1,268.5	349.5	9,640
Box-hole raising .....	429	352	301	6,945.5
Winzing .....	97.5			97.5
Shaft-sinking .....	612			5,654
<b>Total .....</b>	<b>11,823</b>	<b>15,199</b>	<b>13,755.5</b>	<b>122,396.5</b>
Per cent. of crosscutting to total of crosscutting and drifting .....	34.8	23.2	24.6	32.6
	cu. ft.	cu. ft.	cu. ft.	cu. ft.
Shaft stations and sump excavations.	19,140	840	1,420	207,278
	feet	feet	feet	feet
Diamond-drilling .....	6,713	15,952	19,359	96,385

*No. 2 Shaft.*—A continued programme of extensive exploration on and between levels was carried out during the year. Particular attention was given to further successful development near the 875-foot level and below the 2,500-foot level, mentioned in last year's report. Approximately one-half of the footage of ore drifted on this year was in these horizons. Upper level work, also continued in volume and wide extent, was productive to an encouraging degree. In addition, ore was developed at the 1,750-foot level on the south vein system, west of the major fault, in an area where previous exploration had been disappointing.

*No. 4 Shaft.*—Of the ore sent to the mill, this part of the property produced 21,552 tons. Considerable exploration has yet to be completed here and this, with clean-up operations, is expected to continue to furnish a fair volume. Beginning with 1933, the tonnage of ore coming from this section of the mine was, respectively, 51,916 tons, 47,189 tons, 36,362 tons, and 21,552 tons.

*Additional Buildings and Equipment.*—These included an extension to the main office, which enlarged the directors' quarters, store-house, engineering office, and general office. A section and fire-wall were also added to the machine shop—steelshop building. Three-ton aluminum skips replaced the two-ton steel units previously used. One agitator and one filter were added to the mill and some additional experimental equipment was purchased for the mill laboratory.

#### Summary

Promising areas in both sedimentary and igneous formation responded well to development, and general conditions appear to warrant continued confidence in profitable operation. Earnings were substantial and in excess of dividend requirements.

Compared with the previous period, the year ending March 31, 1936, showed: production increased by \$347,074.48; 28,986 more tons treated; milling costs reduced by 12.6 cents per ton; and a decline in operating costs of 30.6 cents per ton. Persistent experimental work in the mill has resulted in increased extraction and tonnage, and will be continued.

### Tashota Goldfields, Limited

Tashota Goldfields, Limited, incorporated November, 1932, has an authorized capitalization of 3,000,000 shares of \$1 par value, of which 2,894,598 shares have been issued. The officers and directors are: H. H. Vaughan, president and managing director; Thomas Arnold, vice-president; P. W. Ogden, secretary-treasurer; W. A. Eden, H. Preston Corsan, W. A. RuKeyser, and R. J. R. Stokes, directors. Both the head office and the mine office of the company are at Tashota. The management of this property is controlled by Minefinders, Limited, whose head office is at 100 Adelaide Street West, Toronto.

The property consists of 9 patented claims and 9 unpatented claims, in one group, with a total area of 642.24 acres, lying about 15 miles south of Tashota

station on the main line of the Canadian National Railways, in Thunder Bay district. In winter, access to the property is by way of a 17-mile road; in summer it is reached by an 18-mile canoe route, starting from Paska Siding, and a 6-mile wagon road. A third route by airplane was established in the fall of 1935 from Robinson Lake Siding, 2 miles west of Tashota, to Onaman lake, 4 miles south-east of the mine, and thence by a 4-mile wagon road to the property.

Tashota Goldfields, Limited, succeeded Tashota Gold Mines, Limited. The latter company started underground operations in 1928. To the end of 1935 the following development work had been done: crosscutting, 924 feet; drifting, 2,134 feet; raising, 392 feet; diamond-drilling, 13,415 feet.

Early in 1935 a 50- to 75-ton mill was installed. From April 25 to December 31, 1935, the tonnage milled was 12,828 tons. A Denver jig and blankets catch the coarser gold, and this concentrate is treated in an amalgamation barrel. The greater part of the gold is recovered in a flotation concentrate, which is shipped to a smelter for further treatment. On account of the high cost of summer transportation of this product from the mine to the railway, only about one-third of this had been shipped and treated at the end of the year.

The average number of men employed at the mine in 1935 was 68; of this number, 22 were underground, 6 in the mill, 10 working as construction labourers, and 29 on surface. A. Robertson was acting mine superintendent at the end of the year.

### 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; H. C. McCloskey, secretary; K. P. Emmons, treasurer; P. Nugent Tapley, assistant-treasurer; J. W. Stephenson, assistant-secretary; John F. Lash and John F. Thompson, 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 635 men was employed during 1935 at the mine in Teck township, district of Timiskaming.

The following is an extract from the general superintendent's report for the 12 months ending August 31, 1935:—

During this period the mills treated 383,958 tons of ore from the mine and 40,290 tons of tailing. The total recovery in bullion and precipitate was the equivalent of 144,384.37 Troy ounces of fine gold, and 4,610.25 ounces of this came from retreatment of tailing. After deducting the bullion tax of \$338,281.44, the realizable value of the gold and silver production was \$4,678,875.02. With addition of income from investments, the gross revenue was \$4,810,545.03, or \$11.34 per ton.

The total operating cost amounted to \$2,194,202.93, or \$5.17 per ton milled. After making provision of \$279,453.66 for taxes other than the bullion tax, and adding \$19,027.50, a profit derived from the sale of bonds, the surplus for the twelve months was \$2,355,915.94. Following is an analysis of operating costs:—

	Total cost	Cost per ton of ore treated	Cost per ounce of gold produced
Development and exploration . . . . .	\$332,317.78	\$0.78	\$2.30
Mining . . . . .	1,083,287.05	2.55	7.50
Milling . . . . .	456,809.26	1.08	3.16
General expense . . . . .	286,502.52	.68	1.98
Examination of new properties . . . . .	35,286.32	.08	.25
Total . . . . .	\$2,194,202.93	\$5.17	\$15.19

During the year the sinking of the No. 3 winze was completed at the 50th level, a depth of 6,100 feet below surface. On the 49th and 48th levels, drifting in the ore zone was begun during August. Lateral development on the 47th and 46th levels had exposed on September 1 a total of 463 lineal feet of ore at an average grade of 10.41 pennyweights over 7.8 feet of width. Development of the block of levels from 41 to 45 inclusive, was practically completed during the year, and the ore found totalled 2,065 feet at an estimated average grade of 9.46 pennyweights per ton. Development footage for the year was as follows:—

	Feet
Drifting .....	7,236
Subdrifting .....	4,376
Crosscutting .....	1,903.5
Raising .....	4,989.5
Winzing .....	771.3
Total development .....	19,276.3

Diamond-drill exploration amounted to 18,449.1 feet. Ore produced from drifting and crosscutting totalled 12,655 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 .....	243,660	86,551.7	7.10
Blocked ore .....	440,049	193,504.5	8.79
Total .....	683,709	280,056.2	8.19

### Teddy Bear Valley Mines, Limited

Teddy Bear Valley Mines, Limited, has a capitalization of \$10,000,000, in shares of \$1 par value. 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, which has an office at 503 Royal Bank Building, Toronto. C. Ellwood Hoffman is president.

From April 16 to August 9 operations at the property were confined to diamond-drilling, 602 feet of drilling being done from surface and 2,310 feet underground.

Total development work at October 31 consisted of two shafts, 32 feet and 300 feet deep, 922 feet of drifting and crosscutting on the 150-foot level, and 186 feet on the 275-foot level.

Operations were suspended for the winter months. Edward H. Orser is consulting engineer. The mine address is Lightning River.

### Thesaurus Gold Mines, Limited

Thesaurus Gold Mines, Limited, has an authorized capitalization of 3,000,000 shares of \$1 par value. The officers and directors are: W. L. Forrest, president; G. W. Adams, secretary-treasurer; M. Conkey and P. E. F. Smiley, directors. The head office is at 320 Bay Street, Toronto.

The property consists of 16 claims in Baden township, district of Timiskaming.

There is a 300-foot shaft on the property, and about 300 feet of lateral work had been done on the 100- and 300-foot levels prior to the end of 1924.

In July, 1935, the mine was pumped out, and a small amount of lateral work was done on the 300-foot level. Operations ceased in September. Harry Crawford was manager, employing 8 men.

## 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 1935 an average of 133 men was employed. M. W. Hotchkin, Kirkland Lake, is manager.

The following is an extract from the president's report for the year ending December 31, 1935:—

Your company was formed in January, 1931, to take title to an option upon the Tough-Oakes Burnside gold property in the Kirkland Lake district of Ontario and, later, purchased the property. The property, although idle for several years prior to that time, was the first producer in Kirkland Lake district and contained several miles of underground workings and several shafts, the more important being the main hoisting shaft from surface to the 1,090-foot level and an interior shaft from the 1,090-foot level to the 1,850-foot level, and it was equipped with a mining plant and a cyaniding mill of 100 tons daily capacity.

The foregoing general information is given for the enlightenment of such of the minority stockholders as may have acquired share ownership since the issuance of the last annual report, and for these there is also given the information that of the total of 1,850,000 shares issued of your company, Premier Gold Mining Company, Limited, owns 1,490,000.

Your manager's summary of the exploration and development work done upon your property for the calendar year 1935 is as follows:—

During the year a small amount of surface cross-trenching was done in deep overburden in an effort to trace the eastward continuation of the No. 7 vein, but the results of this trenching were not conclusive. Total development work done during the year 1935 amounted to 8,826 feet, all of which was above the 1,090-foot level. This development consisted of 3,939 feet of drifting, 1,293 feet of sublevel drifting, 2,351 feet of crosscutting, 1,055 feet of raising, 17 feet of winzing, and 171 feet of slashing. Of this total, approximately 2,962 feet was done on ore, breaking 8,738 tons, which was sent to the mill. Approximately 91 per cent. of the year's development was confined to the A-200, No. 3 shaft, 400-, 800-, 893-, 1,018-, and 1,090-foot levels.

The most important development results for the year 1935 were:—

1. Location of the No. 410 drift vein structure, west of the dike fault, which is considered to be the eastward continuation of the North vein system in the Kirkland Lake camp. Its vertical extensions were identified in the No. 306 drift, at the A-300-foot level, and in the Nos. 548, 678, 804, and 928 drifts.
2. The location of the downward extension of the No. 7 vein, east of the dike fault in the No. 211 drift east, at the A-200-foot level, which indicates excellent possibilities for both downward and eastward continuity.
3. Extending the ore on the nearly vertical No. 11 vein to the 800-foot level on the west side of the dike, and from the 100-foot level to the 300-foot level, east of the dike fault.
4. The location of the No. 921 drift vein east of the dike from its junction with the North branch of the South break, in the No. 1,031 stope upward to the No. 808 drift on the 800-foot level.
5. Locating ore on the North branch of the South break to the east of the dike, in the Nos. 1,031 and 1,099 drifts.

Production figures for 1935, compared with those of the year 1934, are:—

Year	Tons milled	Average ounces gold per ton	Ounces fine gold produced	Percentage mill recovery
1934.....	36,230	0.583	20,401	96.6
1935.....	35,360	.592	20,200	96.5

The estimated ore reserves broken and unbroken at December 31, 1934, were 60,550 tons, averaging 0.63 ounces gold per ton, and at December 31, 1935, were 82,650 tons, averaging 0.57 ounces gold per ton. This means that 57,460 tons of new ore, averaging 0.52 ounces gold per ton were found and opened up by the exploration and development of 1935.

Earnings for the year 1935, after deducting administration and taxes, but before deduction of \$60,894.25 depreciation and depletion, were \$280,118.32.

### **Tombill Gold Mines, Limited**

Tombill Gold Mines, Limited, was incorporated in October, 1935, with an authorized capitalization of 1,000,000 shares of \$1 par value. The officers and directors are: P. E. Hopkins, president; Fred Searls, Jr., first vice-president; D. E. Thomas, second vice-president; A. W. Burt, secretary; Carroll Searls, assistant secretary; Henry E. Dodge, treasurer; T. A. Johnson, H. D. Smith, W. R. G. Johnson, and C. R. Ellis, directors. The head office and mine office are at Empire. The executive office is at 171 Yonge Street, Toronto.

The property consists of a group of six claims in Lindsley township, district of Thunder Bay, located immediately to the west of the property of Bankfield Gold Mines, Limited, near Magnet lake.

The Newmont Mining Company of New York has optioned a minority interest in this company, under an agreement which gives them the management of the company.

Work was started in November, and by the end of 1935 a bunk-house, cook-house, warehouse, blacksmith shop, and powder magazine had been erected. A vertical 3-compartment shaft had been sunk with hand-steel to a depth of 21 feet, and a headframe constructed. A mining plant, including a 60 h.p. locomotive-type boiler, a portable Diesel compressor, and an 8- by 6-inch Ingersoll-Rand double-drum hoist, was in transit to the property.

R. J. Hendricks was in charge.

### **Vimy Gold Mines, Limited**

Vimy Gold Mines, Limited, owns 320 acres in Hislop township, district of Cochrane. The company is capitalized at 1,000,000 shares of \$1 par value. The officers and directors are: Douglas Jones, president and manager; Joseph Berini, vice-president; Frank N. Bowes, secretary-treasurer; Nelson A. McDougall and J. A. Mongeon, directors. The head office is at Timmins, and the secretary's office is at 906 Excelsior Life Building, Toronto. The mine address is Ramore.

A 25-ton mill was installed on the property in 1935 and operated for a short time with ore from an open cut. A 2-compartment shaft, begun late in the fall, had reached a depth of 35 feet at the end of the year.

Joseph Perini was in charge of the work, employing about 20 men.

### **Wells Longlac Mines, Limited**

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

The option which the company held on the Stagee property in the Mine Centre area was dropped at the end of February, 1935, after a total of 125 feet of drifting had been completed on the 100-foot level.

The property owned by the company consists of 15 claims in the Magnet Lake section of the Little Long Lac area, district of Thunder Bay. It is to the east of the Bankfield property.

During 1935 surface work and diamond-drilling were carried on at this property. During the year 4,062 feet of diamond-drilling was done, making a total of 24,641 feet accomplished to the end of 1935. No construction work was

done, nor was any machinery installed during the year. The equipment of the company used at the Stagee property was brought to Kenwell, 3 miles from the Magnet Lake property, and stored there.

W. L. Brown was in charge of the work at the Magnet Lake property. The mine address is Geraldton.

### **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 capitalization was increased to 3,000,000 shares in July, 1935. The officers and directors were: H. D. 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 mining 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.

In 1935 underground work was carried on from the first of the year until the middle of February, during which period 341 feet of drifting and 66 feet of crosscutting was accomplished on the 500-foot level, and 1,855 feet of diamond-drilling from underground. Operations were not resumed until the middle of December, when a start was made to take down backs on the 100-foot level in preparation for stoping.

At the end of September the construction of a 50-ton amalgamation-cyanidation mill was commenced, and at the end of the year it was expected that it would be completed and in operation in February, 1936.

The mill equipment includes a Dodge crusher, Allis-Chalmers ball mill, Dorr rake classifier, two blanket tables, two Dorr agitators, two Dorr thickeners, two Oliver filters, and a Merrill-Crowe precipitation unit. It is to be operated by a 264 h.p. Ruston Diesel engine, direct-coupled to a 219 k.v. a. generator.

An average of 31 men was employed during 1935, under the direction of C. L. Spencer. 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, of which 1,999,205 shares have been issued. The officers and directors of the company at December 31, 1935, were: F. J. Bailes, president; H. Hunter, secretary-treasurer; W. S. Hall, A. J. Doane, B. Johnston, and W. T. McEachern, directors. The head office is at 11 King Street West, 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.

Operations were resumed at this mine in July, 1935, after an eight months' period of idleness, during which period the company was reorganized. During July, the plant was reconditioned and the mine dewatered. Underground exploration work was carried on throughout August and most of September. During October some diamond-drilling was done from surface, but all operations were again suspended on October 27, 1935. During the four months' period

when operations were carried on, an average of 16 men was employed, under the direction of C. H. E. Stewart.

The following figures show the amount of development work done at the property in the past two years:—

	1934	1935	Total
	feet	feet	feet
Shaft (vertical 2-compartment).....	200	17	217
Crosscutting.....	95	49.7	144.7
Drifting, 200-foot level.....	280	347	627
	cu. ft.	cu. ft.	cu. ft.
Station-cutting.....	1,260	724	1,984

No additions were made to the plant or equipment during 1935.

### 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: E. L. Miller, president and managing director; W. H. Wright, vice-president; P. H. Gerhard, secretary; Gerard F. Miller, treasurer; M. W. Summerhayes, general manager; Oliver G. Donaldson and James Y. Murdoch, directors. The head office is at Fort Erie. The mine address is Kirkland Lake.

An average of 779 men was employed during 1935 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, 1935:—

During this period 350,196 tons of ore were treated, containing 211,674 ounces fine gold and 31,716 ounces fine silver. There was realized from marketing this bullion, \$6,844,539.20.

The average grade of the ore going to the mill at \$20.67 per ounce was 0.625 ounces, or \$12.919 per ton, with a recovery of 0.605 ounces, or \$12.503 per ton, an extraction of 96.78 per cent.

#### ANALYSIS OF OPERATING COSTS

	Total	Cost per ton milled
Development, exploration, and pumping.....	\$488,238.04	\$1.394
Stoping.....	713,853.98	2.038
Transporting ore (hoisting, etc.).....	260,997.94	.745
Milling charges.....	462,896.59	1.322
General surface charges.....	35,476.49	.101
Stock transfer, dividend, and annual report expense.....	13,632.13	.039
Employees' group insurance, silicosis, workmen's compensation, property taxes, and insurance.....	69,584.97	.199
General and undistributed charges (storehouse, hospital, maintenance miscellaneous mine buildings, mine management and administration, exchange, legal expenses, miscellaneous).....	141,857.96	.405
Depreciation buildings and equipment.....	292,287.17	.835
Marketing bullion.....	23,148.06	.066
Mint bullion handling charge.....	21,375.92	.061
	\$2,523,349.25	\$7.205
Provision for taxes (exclusive of bullion tax).....	470,000.00	1.342
Amount written off, shaft No. 4.....	85,299.62	.244
Total.....	\$3,078,648.87	\$8.791

SUMMARY OF DEVELOPMENT AND EXPLORATION  
August 31, 1935

	Drifting	Shaft-sinking	Cross-cutting	Raising	Total footage	Diamond-drilling	Excavation
August 31, 1934..	feet 136,626	feet 10,681	feet 48,110	feet 9,178	feet 204,595	feet 104,391	cu. ft. 398,168
Fiscal year.....	20,483	535	3,892	1,298	26,208	16,801	85,384
August 31, 1935..	157,109	11,216	52,002	10,476	230,803	121,192	483,552

PRODUCTION RECORD, 1921-1935  
(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.) <sup>1</sup> .....	193,441	13. 56	2,623,456	12. 63	2,443,760	550,000 <sup>2</sup>
1934 <sup>3</sup> .....	330,741	13. 68	4,525,150	13. 07	4,321,945	2,750,000
1935.....	350,196	12. 92	4,524,193	12. 50	4,378,326	3,300,000
Total.....	2,877,740	\$12. 41	\$35,724,776	\$11. 44	\$32,914,214	\$13,131,250

<sup>1</sup>In 1933, the fiscal year closing changed from December 31 to August 31; the years 1921 to 1932, inclusive, are calendar years.

<sup>2</sup>April and July dividends only.

<sup>3</sup>The 12 months of the fiscal year ended August 31, 1934.

MILLING STATISTICS

September 1, 1934, to August 31, 1935

Ore milled.....	tons	350,196
Average value per ton.....		\$12. 919
Gross value.....	\$4,524,193. 19	
Loss in tailings.....	145,867. 02	
Net value recovered.....	\$4,378,326. 17	
Average tons milled per day.....	959. 44	
Per cent. of possible running time.....	95. 94	
Tons 100 per cent. running time.....	1,000	
Solution precipitated.....	tons	1,369,884
Solution precipitated per ton of ore.....	tons	3. 91
Value per ton in tailings.....		\$0. 417
Per cent. extraction.....		96. 78
Cyanide consumed per ton of ore (K.C.N.).....	lbs.	0. 535
Zinc consumed per ton of ore.....	ounces	1. 956
Zinc consumed per ton of solution.....	ounces	0. 500
Lime consumed per ton of ore.....	lbs.	3. 595
Steel consumed per ton of ore, ball mills.....	lbs.	2. 685
Steel consumed per ton of ore, tube mills.....	lbs.	2. 593
Cost of flotation reagents consumed per ton of ore.....		\$0. 048
Average value of pregnant solution per ton.....		\$3. 166
Average h.p. consumed per day.....		2,410
Average h.p. consumed per ton milled.....		2. 513
Power cost per h.p. consumed.....		\$55. 43

N.B.—All values at \$20.67 per ounce.

## ORE RESERVES ESTIMATE

	Tons	Ounces	Grade	Value at \$20.67 per ounce
On hand August 31, 1934.....	1,185,204	0.639	\$13.20	\$15,643,197
Developed in fiscal year.....	409,649	.507	10.48	4,292,223
Milled in fiscal year.....	1,594,853	0.604	\$12.50	\$19,935,420
	350,196	.625	12.92	4,524,193
Ore reserves, August 31, 1935.....	1,244,657	0.599	\$12.38	\$15,411,227

ADDITIONS TO PLANT, BUILDINGS, AND EQUIPMENT  
September 1, 1934, to August 31, 1935

Mill structure and equipment.....	\$20,754.67
Shops and equipment.....	4,279.28
Power-house and electrical equipment.....	53,422.88
Assay office.....	102.00
General surface and buildings.....	24,498.44
Sprinkler system.....	6,718.88
Tailings disposal.....	29,107.41
Underground equipment.....	7,449.54
Substation.....	2,427.37
New buildings.....	1,325.67
Offices.....	6,465.47
Total.....	\$156,551.61

### Development

The policy outlined in our report of 1933, to as soon as possible complete the development and mine out a number of the upper levels, with the object of reducing the maintenance cost of having so many levels producing and, too, the need as deeper workings are opened up, to facilitate ventilation, has been rigorously followed. The results have been the finding of considerable new tonnages of ore of lower grade. At the present time we have 28 operating levels, none of which can yet be abandoned.

This programme together with the fact that the present developments are in the more easterly and westerly areas, where the ore occurrences are more scattered and of somewhat lower grade, has resulted in the percentage of ore developed and the grade of ore found being lower. There were 409,649 tons of new ore developed, and after deducting 350,196 tons milled, 59,453 tons were added to ore reserves. Of the 20,483 feet of drifting, 7,654 feet was on ore.

The preparations for sinking an interior shaft to open up the mine below the 3,900-foot level, as outlined in our last report, were completed, and the sinking of this shaft is now actively being carried out. There were 535 feet of shaft work done during the year, all in the new interior shaft, 290 feet above the 3,900-foot level and 245 feet below that level. At the present writing the depth of this shaft is 4,300 feet.

### Milling

It is satisfactory to note that the per cent. extraction is considerably better than our pilot mill work indicated, and while the extraction for the whole period under review is 96.78 per cent., the extraction for the last quarter was 97.04 per cent.

### General

The trouble which existed in the refining of our precipitates, and referred to in our last report, has been completely overcome and our new process is enabling us to check satisfactorily with the Mint, the difference in assays during the twelve months' period being only 0.013 per cent.

## 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, W. C. Young, Roy Driscoll, 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 39 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 no par value. The officers and directors are: 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 mine office is at Gogama.

The property includes a group of claims at Clam lake on the west boundary of Chester township, district of Sudbury. Work was suspended at this property in February, 1935, after a 2-compartment vertical shaft had been sunk to a depth of 100 feet, and 100 feet of lateral work done at that depth.

Work was then transferred to the property of the Martin Syndicate, consisting of a group of 25 claims at the north end of Three Duck lakes in Chester township, west of and adjoining the Gomak property. During the balance of the year about 600 feet of diamond-drilling was done, as well as surface trenching and pitting. Operations were carried on under a percentage of profits agreement.

An average of 4 men was employed during 1935, under the direction of C. T. Young.

### **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 and refinery in Brougham township, Renfrew county, operated almost continuously during 1935. Graphite to the value of \$78,500 was produced.

An average of 9 men was employed in the mine, and 25 in the refinery. 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 1935 some 19,569 tons of rock were hoisted. An average of 53 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 92 men.

There were hoisted 28,461 tons of rock. Of this, some 2,716 tons of crushed and fine-ground gypsum were sold, and the rest was manufactured into land-plaster, 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 shares of \$1 par value, of which 700,000 are issued. The property is in Bagot township, Renfrew county. The officers and directors are: F. L. Stinson, president and manager; E. A. Dempster, vice-president; W. G. Chipp, secretary-treasurer; Geo. Joynt and John Thomson, directors. The head office is at 710 Excelsior Life Building, Toronto. Work was started on May 17, 1935, and continued to the end of the year with an average force of 15 men. The mine address is Ashdad.

The following work was done during the year: drifting, 631 feet; cross-cutting, 422 feet; shaft-sinking, 65 feet; station, 12 by 12 by 12 feet; ore hoisted, 976 tons; waste hoisted, 2,974 tons.

## **NICKEL AND COPPER**

### **Cuniptau Mines, Limited**

Cuniptau Mines, Limited, has an authorized capital of 3,000,000 shares of \$1 par value, of which 2,500,000 shares have been issued. The property consists of 62 claims in Strathy township, district of Nipissing.

The officers of the company are: B. W. Watkins, president; A. L. Herbert, vice-president; W. G. Watkins, secretary-treasurer; Gordon McLaughlin and Ian MacLaren, directors. The Mining Research Corporation are consulting engineers. Geo. M. Lee is mine manager. The mine address is Goward. The head office is at 465 Bay Street, Toronto.

In January, 1935, a small quantity of ore was tested in the 50-ton blast furnace. During the rest of the year operations were confined to surface exploration, with an average force of 10 men.

In November funds were raised by the sale of treasury stock to enable the purchase of concentrating and converter equipment, and to carry on further underground work.

### Falconbridge Nickel Mines, Limited

The officers and directors of Falconbridge Nickel Mines, Limited, are: Thayer Lindsley, president; N. F. Parkinson, secretary-treasurer; Halstead Lindsley and J. G. Hardy, vice-presidents; 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 mine, concentrator, and smelter in Sudbury district, and a refinery at Kristiansand, Norway. Ernest Craig is general superintendent of operations in the Sudbury district; J. R. Gill, assistant general superintendent; E. J. Martin, mine superintendent; R. C. Mott, concentrator superintendent; and M. J. Tamplin, smelter superintendent. During 1935 an average of 567 men was employed, of whom 185 were underground. The mine address is Falconbridge.

The following is an extract from the annual report of the company for the year ending December 31, 1935:—

As heretofore, interruptions to continuous operation were due entirely to necessary periodic repair campaigns in the single-unit smelting plant.

#### Mine Development

Development footages attained during the year, and combined over all levels, distribute as tabulated below:—

Drifting and crosscutting (including slashing).....	feet	5,708
Raising (including slashing).....	feet	1,813
Ore passes (including slashing).....	feet	869
Fill passes (including slashing).....	feet	416
Box-holes.....		6
Diamond-drilling.....	feet	4,805
Station-cutting.....	cu. ft.	47,389
Loading station.....	cu. ft.	7,620
Shaft-sinking.....	feet	856

Practically all lateral work along the ore zone was confined to the 500- and 1,200-foot levels. On the former, an advance of 986 feet was made easterly in ore averaging 15.1 feet in width, though of slightly below mine average grade. This drive continues in ore at 1,600 feet from No. 5 shaft. On the 1,200-foot level, 153 feet and 807 feet were driven east and west, respectively, from No. 5 shaft in ore of mine average grade, with a mean width of 12.5 feet. Both these faces continue in ore.

No. 5 shaft was deepened 856 feet to a point slightly below the 1,400-foot level. Stations were established on the 200-, 325-, 1,200-, and 1,400-foot levels, and a loading station commenced at 1,350 feet. Stations for three levels between the 500- and 1,200-foot horizons are yet to be taken out. As the 1,200-foot level is a main haulageway, considerable work was carried out in anticipation of the large tonnage to be handled. A pump sump of sufficient size to accommodate a large volume of water is being excavated.

Steps were taken during the year to abandon the shrinkage method of mining and adopt the cut-and-fill system, with the conversion of active shrinkage stopes to the new practice. In preparation for this, as well as to back-fill the old stopes as they are emptied, a fill pass system was established near No. 1 shaft and two further series of passes were commenced, one located west of No. 1 shaft and the other east of No. 5 shaft. Ore passes were completed from the 350- to the 750-foot levels. At present, cut-and-fill stopes are yielding 25 per cent. of the ore hoisted, and this figure will be increased as the shrinkage reserves are drawn.

**Ore Reserves**

Ore reserves, computed as at December 31, 1935, are tabulated hereunder:—

	Tons
Ore reserves as at December 31, 1934.....	2,960,238
Plus new ore added 1935.....	1,436,780
<b>Total.....</b>	<b>4,397,018</b>
Less: drawn during 1935.....	337,543
<b>Total ore reserves (averaging 1.93 per cent. nickel and 0.91 per cent. copper), December 31, 1935.....</b>	<b>4,059,475</b>

**Mining**

The results of mining activities during the year are set out in the following table:—

BROKEN ORE IN STOPES	
	Tons
Balance December 31, 1934.....	509,742
Broken during 1935.....	170,196
<b>Total.....</b>	<b>679,938</b>
Less: hoisted from stopes during 1935.....	292,601
<b>Broken ore reserves December 31, 1935.....</b>	<b>387,337</b>
ORE HOISTED	
From stopes, 1935.....	292,601
From development, 1935.....	25,781
From concentrating dump, 1935.....	16,762
From development dump, 1935.....	2,399
<b>Total ore to crushing plant, 1935.....</b>	<b>337,543</b>

**Crushing, Sorting, and Transportation**

From 337,543 tons of ore delivered to the crushing plant, 35,206 tons, or 10.4 per cent., of waste was eliminated by sorting. The balance, amounting to 302,337 tons, was transported over the aerial tramway to the treatment plant bins.

**Smelter**

The reduction plant was in operation 346.93 days, or 95.3 per cent., of possible time. That the plant is being burdened beyond its limit is reflected in higher metallurgical losses as the result of slightly increased production.

Results of operation tabulate as below:—

Total ore treated.....	Short tons 302,510
Matte produced.....	10,029.50
Nickel in matte produced.....	5,651.55
Copper in matte produced.....	2,597.26
<b>Metals per ton of ore:</b>	<b>Pounds</b>
Nickel.....	40.97
Copper.....	19.71
<b>Metallurgical losses per ton of ore:</b>	
Nickel.....	3.43
Copper.....	2.54

**Construction**

An extensive construction programme at No. 5 shaft embraced the erection of a steel head-frame, power-house with hoisting and compressor equipment, change-house with office accommodation for the mine staff, carpenter shop, combined drill-steel and repair shop, central heating plant and substation. All buildings are of steel and concrete-block construction with fireproof roofing. A substation was also erected at the property by the Hydro-Electric Power Commission, and 25-cycle power at 26,400 volts was being delivered before the end of the year. Standard-gauge track to the extent of almost 1½ miles was laid during the year to tie in the future ore and backfill handling system. Additional grinding, flotation, and thickening equipment was added in the concentrator.

Housing facilities were further increased by the erection of a number of dwellings. In addition, a spacious community hall was built for the use of employees and their families.

### Refinery

The refinery, which is located in Norway, operated very steadily throughout the year, keeping in step with the somewhat increased matte production. A certain amount of additions and alterations took place, which raised the total capacity of the plant, including capacity for custom matte, to 7,000 short tons of nickel annually, at which rate it occasionally operated.

Custom matte was received regularly at a rate of 1,000 long tons of nickel annually. The plant for separation of precious metals started delivery of gold, silver, platinum, and palladium. The quality was found satisfactory, and the marketing took place without difficulty. The quality of the nickel and copper was maintained to the satisfaction of the market at the high quality previously set.

For the year 1935, the amount of metals in matte received from the smelter, the refinery production, the metals in process, and 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. . . . .	10,421,850	4,768,704
Produced in marketable form during the year. . . . .	10,753,756	5,029,525
Metals in process of refining at end of year. . . . .	2,260,586	427,043
Metals in matte on hand at end of year. . . . .	715,864	319,041

### Marketing

This key factor in our business was favourable during the year and reached a peak in the third quarter. European exchange difficulties, of course, had their effect, as did the observance lately of "sanctions." At that, sales of nickel totalled 10,829,865 pounds and of copper 5,129,483 pounds, which closely parallels our year's production, and closed the year with little change in stocks. These continue to be lower than we would like to see, but should be reinforced by the steps now taken to increase production by the end of 1936. Forward bookings for 1936 deliveries are again higher than in prior years.

### International Nickel Company of Canada, Limited

The authorized capital of the International Nickel Company of Canada, Limited, 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 officers 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 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 Mond, Thomas Morrison, Seward Prosser, and Grant B. Shipley.

The directors whose term expires in 1937 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 executive office is at 67 Wall Street, New York, N.Y., and the general offices 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 Copper Cliff and 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 following information is extracted from the annual report of the company covering the year ending December 31, 1935:—

### General

The progressive improvement in your company's business, which started in May, 1932, continued throughout 1935. Total sales of nickel were in excess of those recorded during 1929, which formerly was the peak year in the history of the nickel industry, and consumption was well diversified geographically and industrially. New sales records were achieved, not alone for nickel but for copper and the platinum metals as well.

During the year operations at mines and plants were conducted without interruption, and output was increased in order to meet the growing demand for your company's products. As a result of these activities pay-rolls increased in all plants, and unemployment was reduced in Sudbury district as well as in the town of Port Colborne, where your Canadian nickel refinery is located.

Attention is called to the redemption of outstanding debentures and to the acquisition of the minority interest in the Ontario Refining Company, Limited. The former transaction, by eliminating all funded debt, leaves your company and its subsidiaries in an entirely unencumbered financial position; and the latter gives your company full ownership in the copper-refining enterprise which was organized in 1929 primarily to refine your company's copper.

A net profit of \$26,086,527.47 was realized after all charges, including provision for taxes, depreciation, mine depletion, and other purposes. After payment of preferred dividends of \$1,933,898.75, there remained \$24,152,628.72, or \$1.65 per share of common stock. Cash on hand of \$30,473,311.32 indicates a strong financial position, which is now more than ever necessary to assure at all times adequate production facilities and a continuation of aggressive market development to meet the exigencies of expanding business.

There follows a classified digest of essential facts concerning your company's varied activities during the year under review.

### Sales

Your company's sales of nickel in all forms, including nickel in alloys, amounted to 129,850,207 pounds, comparable with 91,459,554 pounds in 1934, an increase of 42 per cent. Sales of nickel in products of the Port Colborne and Clydach refineries amounted to 105,620,318 pounds, comparable with 73,964,621 pounds in 1934, an increase of 43 per cent. Sales of nickel in products of the Copper Cliff smelter amounted to 4,085,570 pounds, comparable with 1,357,008 pounds. Sales of nickel in products of the rolling mills at Birmingham, Glasgow, and Huntington, and of the foundry at Bayonne, totalled 20,144,319 pounds, comparable with 16,137,925 pounds, an increase of 25 per cent.

Sales of Monel metal, a nickel alloy made direct from Creighton ore, totalled 13,411,624 pounds, comparable with 10,763,821 pounds in 1934, an increase of 25 per cent.; sales of pure rolled nickel were 9,339,595 pounds, comparable with 7,469,914 pounds, an increase of 25 per cent., and sales of Inconel increased from 428,605 pounds to 609,632 pounds, or 42 per cent.

Sales of copper increased from 194,870,682 pounds in 1934 to 233,003,392 pounds, or 20 per cent.

Gold sales were 69,944 ounces, comparable with 74,375 ounces in 1934; silver sales were 3,160,222 ounces, comparable with 1,006,808 ounces; and sales of the platinum metals were 128,874 ounces, comparable with 124,424 ounces. Sales of selenium were 72,616 pounds, comparable with 73,516 pounds in 1934; and sales of tellurium increased from 1,110 pounds to 9,987 pounds.

### Mines

During 1935 a total of 3,382,409 tons of ore was mined and shipped to the smelters at Copper Cliff and Coniston. All of this ore was extracted from the Froid and Creighton properties, which were operated continuously throughout the year. The Froid mine furnished 2,875,599 tons, and the Creighton mine 506,810 tons.

Development work in the Froid was carried on at a rate to conform to ore requirements. The advance of shafts, drifts, and crosscuts, raises, winzes, and box-holes for the year was 16,012 feet, bringing the total development footage in this mine to 183,211. There are now available for production 103 stopes and 16 pillar stopes, having respectively a daily capacity of 125 tons and 55 tons each.

In the Creighton mine development work was advanced 9,200 feet. Good progress was made in shaft-sinking and surface-plant construction. It is expected that this undertaking will be completed during the current year and that ore from this development will be available in 1937. The new shaft, 16 feet by 28 feet in cross-section, is being sunk to a depth of 4,200 feet and will be served by a hoist capable of handling 4,000 tons of ore per day.

By replacing mild steel skips with lighter skips made from nickel steel, the hoisting capacity at the Froid and Creighton mines has been increased approximately 15 per cent.

### Smelters

The concentrator treated 2,584,666 tons of ore, the largest tonnage handled since this plant was built. Further improvements in metallurgy were effected, and from the standpoint of efficiencies and recoveries results were the most gratifying thus far attained. Milling was in-

creased to 8,000 tons per day, and it is planned to expand capacity to 11,000 tons per day during the current year. Results have further shown the value of research experimentation, and work of this character will be intensified when the new research laboratory is completed.

At the Copper Cliff smelter there were produced 118,016 tons of bessemer matte and 121,574 tons of blister copper. All of the reverberatory furnaces, five in number, and all twelve converters, were in use from February until the end of the year. Operating results were satisfactory in respect to tonnage of ore smelted, fuel consumption, and slag losses. The Orford process department was operated throughout the year with improvement in costs, partly due to the increased tonnage of bessemer matte consumed.

The Coniston smelter, with the exception of the month of July, ran continuously with four blast furnaces and five converters in operation. Ore to the amount of 790,351 tons was processed, and 54,248 tons of bessemer matte produced. Plant practice was efficient as reflected in the higher percentage recovery of metal from ore smelted.

### Hydro-Electric Plants

Your company's hydro-electric power plants are in good condition, and the capital expenditures thereon during the year were comparatively small. All of the plants are fully equipped and were operated throughout the year to the extent of the available water supply. Power purchases from the Hydro-Electric Power Commission of Ontario, including the requirements of the Port Colborne nickel refinery, totalled \$759,906.07.

### Refineries

*Port Colborne Nickel Refinery.*—Increased demand for nickel necessitated operating the electrolytic plant at capacity for the first time since additional units were installed in 1929. The year began with six circuits in service, to which were added during the year the three reserve circuits, this bringing the refinery to maximum output. There was produced 80,381,532 pounds of nickel in all forms. Continuous research and experimentation have resulted in many minor process improvements through which improved quality of product and lower costs have been attained.

*Ontario Refining Company, Limited.*—There was a substantial increase in the tonnage of blister copper treated at this refinery, and plant output and copper shipments increased correspondingly. Refined copper production was 109,966 tons, comparable with 95,558 tons in 1934. Shipments of refined copper were 107,032 tons, comparable with 97,292 tons in 1934.

A new selenium plant was completed and put into operation in March, 1935, thus enabling your company to produce a substantially larger quantity of this metal. In order to eliminate silver losses and to further increase recovery of selenium a Cottrell electrical precipitator was installed and has shown satisfactory results. A plant to produce "single" and "double" nickel salts for the Canadian market was authorized in 1935 and is now completed and in operation.

An electric furnace installation for producing high-quality copper wire-bars and other shapes, authorized in 1935, will be put in operation during the current year. Research work was continued in all departments. Many improvements have resulted, and in consequence cost has been lowered and quality bettered.

Your company purchased for \$1,175,000 the 10 per cent. minority capital stock of the Ontario Refining Company, Limited, and the latter is now a wholly owned subsidiary.

### Ore Reserves

Proved ore reserves at December 31, 1935, were 205,590,592 tons. Additional ore proved during the year amounted to 4,573,538 tons.

### Outlook

International use of nickel for industrial purposes is essentially dependent upon assured source of supply, prompt deliveries, and price schedules advantageous to consumer and producer alike. Furthermore, it is necessary at all times, while avoiding undue expansion, to maintain reserve productive capacity and adequate stocks of metal. In furtherance of this policy your plants in Canada and Great Britain are being enlarged with due regard to balanced operations from mine to market.

Sales and development activities, now world-wide in scope, have been augmented as new uses for your metals have been found. The potential field of application for nickel is extensive and in a large measure still unexplored.

The trend of consumption has been upward for nearly four years and more nickel is being used currently than ever before. It is not unreasonable to assume that with a continuation of your company's established methods this upward trend will continue as world trade improves.

### Employees

The total number of employees at the year end was 12,452, distributed as follows: Canada 8,117, Great Britain 2,990, United States 1,293, other countries 52. Employees on December 31, 1934, numbered 9,154. The increase, amounting to 36 per cent., was due to the increased scale of operations and to the construction work in progress in Canada and Great Britain.

During 1935 an average of 1,894 men was employed at Copper Cliff, 456 at Coniston, 2,243 at Frood, and 883 at Creighton. Of these, an average of 1,835 was employed underground at Frood, and 552 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 Frood mine.

### **Van Nickel Mines, Limited**

In January, 1935, the name of Delta Metals, Limited, was changed to Van Nickel Mines, Limited. It has an authorized capitalization of 4,000,000 shares of \$1 par value. Wm. Spears is president, and Dr. W. R. Naylor, vice-president. The head office is at 43 Victoria Street, Toronto.

In March work was started on the property of the Delta Mines Syndicate, located about 5 miles northwest of Worthington in Drury township, district of Sudbury.

In August a 2-compartment vertical shaft was started. Sinking was suspended at the end of September at a depth of 65 feet, and surface work done for the balance of the year.

The plant installed included a 55 h.p. boiler, an 8- by 10-inch steam hoist, and a 200-cubic-foot compressor, which was replaced by a 1,000-cubic-foot compressor after sinking was suspended. Buildings erected included a powerhouse, magazine, and cap-house. A bunk-house, cookery, office, blacksmith shop, and assay office had been erected in previous years.

An average of 12 men was employed during the year, under the direction of W. F. Taylor. The mine address is Worthington.

## **PEAT**

### **Caledon Peat Company**

A few miles south of Orangeville, in lot 27, concession I, Caledon township, Peel county, the Caledon Peat Company produced from 100 to 150 tons of peat fuel, which sold at approximately \$10.00 per ton. The work was done under the direction of C. H. Burbridge and J. Pollock, Brampton.

The deposit is quite small, only 3 to 4 acres. The peat ranges from 4 to 5 feet in thickness with a few inches of humus and grass covering it. The actual operation consisted in cutting the peat out in blocks and spreading it on the ground to dry.

In quality the peat fuel is fairly good, having a low ash and good heating content. The operation ceased in the fall of 1935.

### **H. L. Hodgkins and Son**

At a peat operation near the Forks Road, 5 miles from the village of Wainfleet, Wainfleet township, Welland county, 75 tons of peat fuel was produced and sold in the neighbouring towns. The fuel sold for \$7.00 per ton at the bog, and \$8.00 per ton delivered. The operators are H. L. Hodgkins and son, R.R. 2., St. Ann's.

The peat is about 5½ feet thick. The upper 1½ feet is a mossy peat, which is sold to the nurseries for packing trees and shrubs; the lower 4 feet is a fair quality peat, rather high in ash.

The raw peat is processed in a manner similar to the Leasa operation near Stratford. The raw material is fed into a rebuilt clay pug mill, mixed, caught

on drying racks, and placed in the open to dry. In all, about 7 men were employed for the greater part of the summer months.

### **Wm. Leasa**

The largest peat operation in the province for the past year is located in lot 11, concession X, Ellice township, county of Perth, some seven miles north of Stratford. The operator is Wm. Leasa, Milverton.

The deposit is 1,200 acres in size. The area is wooded around the margin with small poplar, and in the centre, grasses and small shrubs are abundant. The thickness of peat utilized for peat fuel is only one foot.

The peat fuel is prepared by passing the raw peat through a clay pug mill, in which the peat is mixed to a soft plastic pulp. By means of a force feed the soft pulped peat is extruded from shaping mouthpieces on to drying racks. When only partially dry, the peat blocks are taken off the racks and placed in a drying shed.

During the summer of 1935 between 550 and 800 tons of peat fuel was produced and sold at \$7.00 per ton, delivered. The quality of the fuel is fairly good, having a high heating content, but also high in ash.

### **Northern Peat Company**

The Northern Peat Company, under the direction of W. B. Brewer, Timmins, produced and sold in Timmins 100 to 150 tons of machine-made peat fuel at approximately \$9.75 per ton delivered, or 18 cents per bushel.

The deposit is located 5½ miles west of Timmins in lot 8, concession III, Mountjoy township, district of Cochrane, and is estimated to contain at least 100,000 tons of peat. The thickness varies from a few inches at the margins to over 20 feet in the central zone.

In much the same manner as the Leasa and Hodgkins peat operations, raw peat is cut and broken down by knives rotating in opposite directions. The pulped peat then passes through extruders on to racks and is dried.

During 1936 the operator will try out new methods of handling both the raw and pulped peat. Handling of the raw peat is a very important factor, since seven to nine tons of raw peat are required to make one ton of salable peat fuel.

### **G. Runke and Sons**

G. Runke and Sons, 115 Cameron Street, Kitchener, produced and sold about 115 tons of peat fuel from a small bog, 20 acres in extent, situated in the upper part of the German tract, lot 55, Waterloo township, Waterloo county. The fuel sold readily in Kitchener, and according to the operators many times the quantity produced in 1935 can be sold in the area surrounding the deposit.

The thickness of peat that is used for peat fuel runs from 1½ feet to 2 feet. Approximately 8 inches of moss, covered by grass and small shrubs, overlies the peat. The quality is excellent, being low in ash and high in heating value.

The processing is carried on with a rebuilt brick press, which produces a very solid peat fuel, which sells at \$7.00 per ton, delivered in Kitchener.

From 7 to 10 men were employed for the greater part of the summer.

## RADIUM

### Canada Radium Mines, Limited

Canada Radium Mines, Limited, has a capitalization of 2,500,000 shares of no par value, of which 1,561,037 shares have been issued. The property consists of 750 acres in Cardiff township, Haliburton county. The officers and directors are: K. W. Wright, president; I. L. Fletcher, secretary-treasurer; Frank Austin, managing director; A. Arthur, Geo. F. McCandless, E. W. Austin, 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 388 feet, with levels at 125, 250, and 365 feet. Approximately 1,200 feet of lateral work has been done.

About 15 men are employed at the mine.

## SILVER AND COBALT

### Bellorain Mines, Limited

Bellorain Mines, Limited, has an authorized capitalization of 1,000,000 shares of no par value. M. Lebovitz, Cobalt, is president; and Max Kaplan, Kirkland Lake, is secretary-treasurer. The address is Box 206, Cobalt.

The company acquired the old Bellellen property in South Lorrain township, district of Timiskaming. Previous operators had sunk a shaft to a depth of 400 feet and done considerable lateral work.

The present owners operated from July 15 to November 10, 1935, employing an average of 24 men. Some 77 feet of diamond-drilling was done; ore hoisted amounted to 39.5 tons; and shipments of ore, having a value of \$1,687 in silver and \$3,067 in cobalt, were made.

### 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 the year 74 feet of drifting was done and 854 tons of ore were hoisted, from which 279,414 ounces of silver were produced. An average of 72 men was employed.

### Cobnor Silver Mines, Limited

Cobnor Silver Mines, Limited, owns one claim of 40 acres in the township of Bucke, district of Timiskaming. The company is capitalized at 750,000 shares of no par value. The officers and directors are: M. King, president; Norman D. Johnston, vice-president; C. B. Munday, secretary-treasurer; Percy Luscombe, managing director; Edmund Eaves and Edward Smith, directors. H. F. Fancy is mine manager. An average of 20 men is employed.

The property was reopened on September 9, 1935, and the following work was done to the end of the year: drifting, 485 feet; crosscutting, 20 feet; ore hoisted, 900 tons; waste hoisted, 900 tons. About 20 tons of cobalt ore was shipped. The mine address is Cobalt.

### **Comet Leasing Company**

Jas. H. Price and Bruce Williams, of Kirkland Lake, leased the Drummond mine in Coleman township, district of Timiskaming, under the name of the Comet Leasing Company.

Two men were employed throughout the year. Shipments totalling 23,010 ounces of silver, valued at \$14,862, were made.

### **Dean and Downey**

J. C. Dean and Ralph Downey, of Cobalt, leased the surface at the Wettlaufer mine in South Lorrain township, district of Timiskaming, and employed 3 men from April 24 to September 24 in picking over the dumps.

From 135 tons of ore shipped, a recovery of 6,538 ounces of silver, valued at \$4,309.00, was obtained.

### **Hudson Bay Mines, Limited**

The property owned by Hudson Bay Mines, Limited, in Coleman township, district of Timiskaming, was leased to several operators during 1935.

Shipments of ore yielded a total of 1,527 ounces of silver, valued at \$774. The company's address is Box 700, New Liskeard.

### **George Martin**

The Crown Reserve mine in Coleman township, district of Timiskaming, was leased to George Martin, of Cobalt.

Three men were employed from May 1 to December 31 sorting ore from the dumps, and 4 men were employed in the mill from June to October.

Shipments amounting to 10,551 ounces of silver, valued at \$6,208, were made.

### **H. G. Miller**

H. G. Miller, Silver Centre, leased the dumps on the Canadian Lorrain property, in South Lorrain township, district of Timiskaming, and employed three men during part of October and November picking over the rock in the dumps. A recovery of 812 ounces of silver, valued at \$357, was obtained from 16 tons of ore shipped.

Mr. Miller also leased the Keeley mine in South Lorrain township and employed four men from May to November to pick over the dumps. Shipments from this property yielded 2,412 ounces of silver, having a value of \$1,226.

### **A. G. Morgenthalor**

A. G. Morgenthalor, 2108 South Second Street, Philadelphia, Pa., acquired the old Beaver mine in Coleman township, district of Timiskaming. The property was operated throughout the year, with an average force of 8 men.

Development work amounted to 112 feet of winze-sinking, 180 feet of drifting, and 30 feet of crosscutting. About 305 tons of ore were hoisted, which yielded 51,771 ounces of silver, valued at \$31,770.

### **Morrison Mines, Limited**

Morrison Mines, Limited, has a capitalization of \$3,000,000, in shares of \$1 par value. The officers and directors are: Horace F. Strong, president and

manager; H. D. Fripp, vice-president; Jas. F. Cunningham, secretary-treasurer; W. W. Robinson and Jos. Montgomery, directors. The head office is at 165 Sparks Street, Ottawa.

The property consists of two claims, T.C. 204 and 205, in Nicol township, district of Timiskaming.

Operations at the mine were resumed in June, 1935, after a period of idleness since December, 1930. The shaft was sunk an additional 162 feet, and new levels were established at 500 and 575 feet. The following table shows the work done on these levels:—

	500-foot level	575-foot level
Drifting .....	feet 192	feet 44
Crosscutting .....	120	86
Raising .....	66	.....

About 700 tons of ore and 3,800 tons of waste rock were hoisted. Production amounted to 28,526 ounces of silver.

An office and an addition to the shaft-house were built. Operations ceased at the end of the year, during which an average of 18 men was employed.

#### **Mosher, Richardson, and Lafrange**

I. E. Mosher and associates, of Cobalt, leased the Buffalo mine in Coleman township, district of Timiskaming, and made a clean-up of the mill from June 10 to October 12, 1935.

Some 46 tons of residues and precipitates, having a silver content of 5,597 ounces, valued at \$3,582, were sold to Noranda Mines, Limited.

#### **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, Cobalt, is general manager.

Mining operations at the property in Coleman township, district of Timiskaming, consisted principally of the extraction of cobalt ore at No. 81 shaft. An average of 38 men was employed, some in mining work and some on surface, in connection with shipping residue and general clean-up.

The following is an extract from the general manager's report for the year ending December 31, 1935:—

Operations at the Cobalt property were of the same nature as in the previous year, consisting largely of mining cobalt ore, shipping cobalt-nickel-arsenic residues, and recovering silver clean-up from various parts of the property, all operations showing a profit. Total ship-

ments amounted to 4,380 tons, as against 1,692 tons in 1934. There was an increased demand and higher prices for cobalt, with the result that shipments of residue were 1,000 tons greater than in 1934.

The following shipments were made during the year:—

	Tons	Ounces silver
Fine bullion.....	39.75	1,158,985.50
Clean-up.....	552.32	57,800.22
Leasers' ore.....	1,884.39	90,883.58
Residue.....	1,615.13	112,673.43
Cobalt ore.....	288.49	.....
Total.....	4,380.08	1,420,342.73

There was considerable variation in the price of silver, the variations at times being extreme from day to day, with comparatively long periods of more or less constant quotations. The year opened at 55 cents; a low of 53½ cents was recorded on February 1; a high of 81 cents on April 26; the average for the year was 64.27 cents, closing at 49¾ cents. During most of February and March of 1936 the price has been fairly constant at 44¾ cents.

The stock of refined bullion held in storage at Cobalt was sold in December at varying prices, averaging 62 cents per ounce. This silver was held during the severe decreases during the past three or four years, including the low of 24¼ cents in 1932.

There still remains some indeterminate amounts of cobalt and silver in scattered surface workings and in dumps, which might be profitably concentrated if prices for both metals remain at their present levels.

Some ore was also obtained on the property by leasers. The recovery is given in the company's table of shipments above.

### 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 105 men are employed. The mine address is Cobalt.

The following development work was done in 1935: drifting and cross-cutting, 4,585 feet; raising, 446 feet; sinking, 10 feet.

The following table shows the ore hoisted and milled in 1934:—

	Tons
Total tons broken.....	44,597
Ore hoisted.....	25,860
Waste hoisted.....	16,553
Ore milled.....	25,863
Custom ore milled.....	4,649

The silver recovered amounted to 1,036,643 ounces, of which 138,783 ounces was from custom ore. There were shipped:—

Cobalt.....	lbs.	60,545
Copper.....	lbs.	35,969
Lead.....	lbs.	13,136
Gold.....	ounces	6.7

#### 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 95.

The 1934 report is as follows:—

Drifting .....	Feet
Crosscutting.....	1,871
Raising.....	963
Sinking.....	24
	56
	Tons
Ore stoped.....	18,918
Ore and waste broken.....	28,375
Ore hoisted.....	20,691
Waste hoisted.....	7,559

### J. C. O'Donald

In 1935, J. C. O'Donald, Cobalt, leased the old Silver Queen mine in Coleman township, district of Timiskaming, for three years.

During the year a shaft was sunk 64 feet and a shaft-house, machine shop, and dry were built.

About 60 tons of low-grade ore was hoisted, and 500 tons of waste. The production for the year amounted to \$1,269 in silver and cobalt. An average of 12 men was employed under Mr. O'Donald's supervision. The post office address is Box 286, Cobalt.

### C. W. Price

The Foster mine in Coleman township, district of Timiskaming, was operated under lease by C. W. Price, Cobalt, who employed 2 men. Shipments of ore yielded 1,591 ounces of silver, having a value of \$969, and cobalt to the value of \$130.

### Rowe and Stuckey

Alfred Rowe and Charles Stuckey, of Cobalt, leased the surface and dumps of the Frontier mine, in South Lorrain township, district of Timiskaming, during 1935. Shipments of silver ore and mill rock yielded 14,000 ounces of silver and 13,000 pounds of cobalt.

### Sandoe and Moyle

The Temiskaming mine in Coleman township, district of Timiskaming, was leased to Richard Sandoe and H. Moyle, of Cobalt.

Production amounted to 10,246 ounces of silver, valued at \$6,660, and 12,844 pounds of nickel-cobalt ore, valued at \$534.

### Silver Cliff Syndicate

R. H. Lyman leased the old Silver Cliff mine in Coleman township, district of Timiskaming, in April, 1935, and operated it as lessee until August. From then until November 26 he operated as manager for the Silver Cliff Syndicate. Mr. Lyman died on November 30.

During these operations there were sent to the O'Brien mill 694 tons of ore, which yielded 19,404 ounces of silver, valued at \$11,836.

### Silverado Gowganda Mines, Limited

Silverado Gowganda Mines, Limited, held under lease nine claims in the Gowganda area, Leith township, district of Timiskaming. F. E. Forster, 347 Bay Street, Toronto, is secretary of the company.

Work was started on May 15, 1935, and continued until December 1, an average force of 20 men being employed. About 387 feet of drifting and 78 feet of crosscutting were done.

### Donald E. Sirola

Donald E. Sirola, Kirkland Lake, operated the Colonial mine in Coleman township, district of Timiskaming, under lease, from June to December 31, 1935. Production amounted to 11,860 fine ounces of silver and 669 pounds of cobalt. An average of 7 men was employed.

### Smith Cobalt Mines, Limited

Smith Cobalt Mines, Limited, has a capitalization of 4,000,000 shares of \$1 par value. The officers and directors are: W. H. Smith, president; A. A. Amos and E. F. Armstrong, vice-presidents; A. Kelso Roberts, secretary-treasurer; R. D. Hoffman, director. The head office and mine office are at Cobalt. The secretary's office is at 320 Bay Street, Toronto.

The property is in Coleman township, district of Timiskaming, east of Cross lake. Operations were carried on from May to December 31, 1935, an average of 21 men being employed. The following work was done:—

Level	Winze-sinking	Station-cutting	Drifting and cross-cutting	Raising	Stoping
	feet	cu. ft.	feet	feet	cu. ft.
450-foot.....	17	3,259	931	19	1,508
500-foot.....	59	520	365		

About 9,570 pounds of cobalt ore was shipped. The late G. S. Scott was manager until August, and was succeeded by D. G. Russell.

### A. Wood

The old mill of the Dominion Reduction Company, at Cobalt, was leased to A. Wood. Two men were employed from July 5 to November 10 in making a clean-up of the plant. Screenings from the mill site yielded 10,694 ounces of silver, valued at \$4,307, and 165 ounces of gold, valued at \$5,198. This mill at one time treated high-grade gold ores from several Ontario properties.

### TALC

#### Canada Talc Company, Limited

The mine and mill of the Canada Talc Company, Limited, at Madoc, Huntingdon township, Hastings county, were operated throughout the year with an average force of 18 men. The officers and directors of the company are: W. S. Morden, president; E. S. James, vice-president; Roy Taylor, Madoc, secretary and manager. The company owns 50 acres. The capitalization is \$50,000.

During 1935, 250 feet of shaft-sinking and 850 feet of drifting were done. Ore hoisted and milled amounted to 6,379 tons.

#### 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 head office and mine office are at Madoc.

The property, which is called the Henderson mine, consists of 400 acres in Huntingdon township, Hastings county.

The production for 1935 was 7,330 tons mined and milled. L. Ashley is manager. About 12 men were employed in 1935.

## METALLURGICAL WORKS

### Algoma Steel Corporation, Limited

During 1935 only one blast furnace was operated by the Algoma Steel Corporation, Limited, located at Sault Ste. Marie. No. 4 furnace was in blast from February 8 to December 31, and produced a total of 119,394 gross 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 January 1 to February 1, and from June 20 to December 31, in 1935.

The production for the year was as follows:—

	Gross tons
Pig iron.....	64,484
Spiegeleisen.....	8,937
Total.....	73,421

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

The average number of men employed during 1935 was 102.

### Canadian Industries, Limited

During 1935 the plant of Canadian Industries, Limited, located at Copper Cliff, was in continuous operation.

The three 50-ton-per-day sulphuric acid units were operated to capacity. These units manufacture the acid from converter gases produced at the smelter of the International Nickel Company. The oleum unit was also operated to capacity.

The nitre-cake unit, in which sodium sulphate is treated with sulphuric acid to produce nitre cake, used in the Orford process of separating nickel from copper, was operated at about 70 per cent. of capacity.

An average of 46 men was employed. E. Jordon was plant manager.

### Deloro Smelting and Refining Company, Limited

The blast furnace at the plant of the Deloro Smelting and Refining Company, Limited, operated for short periods during each quarter in 1935. Silver production amounted to 2,090,737 ounces. Arsenic and cobalt products, including stellite, were also produced.

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; S. B. Wright, general manager; F. A. Bapty, secretary-treasurer; R. A. Elliott, works superintendent.

### **International Nickel Company of Canada, Limited**

The refinery of the International Nickel Company of Canada, Limited, at Port Colborne was operated continuously throughout the year. An account of the operations appears on page 100 of this report.

### **Ontario Refining Company, Limited**

The copper refinery of the Ontario Refining Company, Limited, situated at Copper Cliff, was operated continuously during 1935. Operations were increased from 85 per cent. of the rated capacity of the plant at the first of the year to about 95 per cent. at the end of 1935.

By-product departments were further expanded. A new selenium recovery plant was built and put in operation in March. A Cottrell unit was being installed at the end of the year to reduce the dust losses in the by-product departments.

The refinery operated chiefly on blister copper from the smelter of the International Nickel Company, although several lots of gold ores, gold-bearing slags, and mattes from various Canadian mines were treated during the year.

An average of 547 men was employed, in comparison with 462 in 1934. F. Benard was plant manager.

### **Steel Company of Canada, Limited**

The Steel Company of Canada, Limited, operated "B" furnace for 365 days, with a production of 208,230 gross tons of pig iron.

The average number of men employed was 87. 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. The address is Hamilton.

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## 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.
Anglo-Huronian, Ltd.	Vipond	W. R. Adam	Timmins.
Arbade Gold Mines, Ltd.	Arbade	W. R. Osborne	10 Adelaide St. E., Toronto.
Ardeen Gold Mines, Ltd.	Moss	R. Massey Williams	Tip Top Spur, via Port Arthur.
Argosy Gold Mines, Ltd.	Argosy	J. W. Robertson	Casummit Lake, via Sioux Lookout.
Ashley Gold Mining Corporation, Ltd.	Ashley	J. W. MacKenzie	Elk Lake.
Bankfield Gold Mines, Ltd.	Bankfield	O. L. Knutson	Geraldton.
Barry-Hollinger Mines, Ltd.	Barry-Hollinger		57 Bloor St. W., Toronto.
Bidgood Kirkland Gold Mines, Ltd.	Bidgood		Kirkland Lake.
Bilmac Gold Mines, Ltd.	Bilmac		33 Temperance St., Toronto.
Bob Tough Gold Mines, Ltd.	Bob Tough		207 Turner Bldg., Hamilton.
Bousquet Gold Mines, Ltd.	Bousquet	Lionel Brooke	171 Yonge St., Toronto.
Buffalo Ankerite Gold Mines, Ltd.	Buffalo Ankerite	Chas. L. Hershman	South Porcupine.
Canusa Gold Mines, Ltd.	Canusa	Robt. Schram	South Porcupine.
Casey Contact Gold Mines, Ltd.	Brennan-Kenty	H. M. Parrington	South Porcupine.
Central Patricia Gold Mines, Ltd.	Central Patricia	A. J. Anderson	Jellicoe.
Central Porcupine Mines, Ltd.	Central Porcupine	F. G. Stevens	Pickle Crow.
Churchill Mining and Milling Co., Ltd.	Churchill	R. R. Clark	Schumacher.
Clark Gold Mines, Ltd.	Clark	John Y. Cole	45 Richmond St. W., Toronto.
Cole Gold Mines, Ltd.	Cole	C. L. Laederer	Dymont.
Concordia Gold Mining Co., Ltd.	Jones-Porter	Russell Cone	Cole.
Cone, Russell C. (under lease)	Lucky Coon	John Redington	Timmins.
Coniaurum Mines, Ltd.	Coniaurum	D. C. McKechnie	Mine Centre.
Consolidated Mining and Smelting Co. of Canada, Ltd.	Afton	C. A. Seaton	Schumacher.
	Cordova		Sudbury.
	Golden Horn.		Cordova.
	McKenzie	A. S. Hudson	Matheson.
	Rich Rock	C. E. White	Flinton.
Cooper, W. D., and Barry, P. A. (under lease)	McIntyre Birch Lake.		
Corless Patricia Gold Mines, Ltd.	Corless Patricia	W. M. Rice	Jackson Manion.

OPERATOR	MINE	MANAGER	ADDRESS
GOLD—Continued			
Coulson Consolidated Gold Mines, Ltd.	Coulson	E. B. E. de Camps	Painkiller Lake, via Matheson.
Craig Gold Mines, Ltd.	Craig	M. H. Froberg	330 Bay St., Toronto
Darwin Gold Mines, Ltd.	Darwin	J. F. R. Akehurst	Gold Park.
Delnite Mines, Ltd.	Delnite	Peter De Santis	Timmins.
De Santis Porcupine Mines, Ltd.	De Santis	J. H. Stovel	Box 1299, Timmins.
Dome Mines, Ltd.	Dome	J. G. Cross	South Porcupine.
Duport Mining Co., Ltd.	Duport	J. M. Forbes	Kenora.
Edgelake Gold Mining Co., Ltd.	Edgelake		Box 128, Schumacher.
Edwards Gold Mines, Ltd.	Edwards		302 Sterling Tower Bldg., Toronto.
Elizabeth Gold Syndicate.	Elizabeth		9 Adelaide St. E., Toronto.
Falcon Gold Mines, Ltd.	Elizabeth		200 Bay St., Toronto.
Foley O'Brien Corporation, Ltd.	McCConnell	Lionel Brooke	South Porcupine.
Fort Hope Consolidated Gold Mines, Ltd.	Foley O'Brien		507 Confederation Life Bldg., Toronto.
Fox Lake Gold Mines, Ltd.	Fort Hope		Esplanada.
Franklin Gold Mining Co., Ltd.	Fox Lake	L. W. Adams	330 Bay St., Toronto.
Gillies Lake-Porcupine Gold Mines, Ltd.	Ontario Champion	G. C. Chase	Box 2048, Timmins.
Gilmour Gold Mines, Ltd.	Gillies Lake-Porcupine	A. A. Kenmiger	Gilmour.
Gold Eagle Gold Mines, Ltd.	Gilmour	F. M. Passow	McKenzie Island.
Golden Summit Mines, Ltd.	Gold Eagle	Wm. J. Simpson	Sesekinika.
Gomak Mines, Ltd.	Golden Summit	R. D. Jones	Gogama.
Halcrow-Swayze Mines, Ltd.	Gomak		709 Excelsior Life Bldg., Toronto.
Hard Rock Gold Mines, Ltd.	Halcrow-Swayze	J. C. Dumbrille	Geraldton.
Harkness-Hays Gold Mines, Ltd.	Hard Rock	J. F. Anderson	Schreiber.
Hillside Gold Mines, Ltd.	Harkness-Hays		645 Queen St. E., Sault Ste. Marie, Ont.
Hollinger Consolidated Gold Mines, Ltd. <sup>1</sup>	Hillside		Ramore.
Hollinger Consolidated Gold Mines, Ltd. (under option).	Brennan David (Hislop)	John Knox	Timmins.
	Hollinger	G. F. Gibbs	Tionaga.
	Horwood Lake (Smith-Thorne)		
Horseshoe Mines, Ltd.	Horseshoe	Frank Williams	Box 811, Kenora.
Howey Gold Mines, Ltd.	Howey	Edward Futterer	Red Lake.
Hudson-Patricia Gold Mines, Ltd.	Hudson-Patricia	J. M. Thompson	Narrow Lake, via Sioux Lookout.
J-M Consolidated Gold Mines, Ltd.	J-M Consolidated	D. M. Thomson	Jackson Manion.
Kenora Prospectors and Miners, Ltd.	Cedar Island	Hilding Johnson	Kenora.
Kirkland Consolidated Mines, Ltd.	Kirkland Consolidated		702 Excelsior Life Bldg., Toronto.
Kirkland Lake Gold Mining Co., Ltd.	Kirkland Lake Gold	P. J. Harris	Kirkland Lake.
Lafayette Long Lac Gold Mines, Ltd.	Lafayette Long Lac	J. A. Brownlee	Geraldton.
Lake Shore Mines, Ltd.	Lake Shore	E. W. Todd	Kirkland Lake.

<sup>1</sup>See also Young-Davidson Mines, Ltd.

L. B. United Mines, Ltd. (under option)	Centennial	L. K. Lytle	Gold Park
Lebel Oro Mines, Ltd.	Long Lake	Wm. D. M. Ross	Box 156, Sudbury.
Leitch Gold Mines, Ltd.	Leitch	W. J. Hacker	Empire
Little Long Lac Gold Mines, Ltd.	Little Long Lac	A. A. Barton	Oklend.
Macassa Mines, Ltd.	Macassa	G. A. Howes	Kirkland Lake.
Mac-Auer Gold Mines, Limited	Mac-Auer	R. J. Ennis	University Tower, Montreal, Que.
McIntyre-Porcupine Mines, Ltd.	McIntyre-Porcupine	J. L. Ramsell	Schumacher.
McKenzie Red Lake Gold Mines, Ltd.	McKenzie Red Lake	J. M. McLaren	McKenzie Island.
McLaren-Porcupine Gold Mines, Ltd.	McLaren-Porcupine	J. Bruce McMartin	South Porcupine.
McMartin, J. Bruce	Dikdik	G. M. Miller	941 Dominion Square Bldg., Montreal.
McMillan Gold Mines, Ltd.	McMillan	A. Honsberger	Sudbury.
Madsen Red Lake Gold Mines, Ltd.	Madsen Red Lake	Jas. G. MacGregor	Red Lake.
Manitoba and Eastern Mines, Ltd.	Manitoba and Eastern	John Campbell	Timagami.
Martin Bird Syndicate	Martin Bird	Thos. L. Wells	Larder Lake.
Matachewan Consolidated Mines, Ltd.	Matachewan Consolidated	H. A. Steven	Elk Lake.
Matachewan Pioneer Syndicate	Matachewan Pioneer	Nelson Spiers	Matachewan.
May-Spiers Gold Mines, Ltd.	May-Spiers	John Knox, Jr.	Red Lake.
Minto Gold Mines, Ltd.	Cooper	John Knox, Jr.	Wawa.
Moffatt-Hall Mines, Ltd.	Jubilee	C. F. Tuer	Wawa.
Morris Kirkland Gold Mines, Ltd.	Moffatt-Hall	T. C. Fawcett	Haileybury.
Munro Croesus Mines, Ltd.	Morris Kirkland	J. E. Grant	King Kirkland.
Murray-Algoma Mining Co., Ltd.	Munro Croesus	G. J. Lamb	Haileybury.
Murwood Gold Mines, Ltd. (under option)	Murray-Algoma	E. A. Boadway	Hawk Junction.
Naybob Gold Mines, Ltd.	Big Master	Robt. J. Naylor	Wabigoon.
Neville Canadian Gold Mines, Ltd.	Hayden	D. E. Graham	Timmins.
North Shores Gold Mines, Ltd.	Neville Canadian	R. J. Hendricks	347 Bay St., Toronto.
Northern Empire Mines Co., Ltd.	North Shores	F. G. Huycke	Schreiber.
Northern Mines, Incorporated	North Lake Empire	A. D. Campbell	Empire.
Olive Gold Mines, Ltd.	Wabigoon-Contact	R. M. Macaulay	516 Walbridge Bldg., Buffalo, N.Y.
Omega Gold Mines, Ltd.	Olive	R. E. Barrett	Larder Lake.
Pamour Porcupine Mines, Ltd.	Omega	Chas. E. Cook	Pamour.
Parkhill Gold Mines, Ltd.	Pamour	Alex. C. Hattie	Gold Park.
Paymaster Consolidated Mines, Ltd.	Parkhill	W. P. Mackle	South Porcupine.
Pickle Crow Gold Mines, Ltd.	Paymaster	H. Hollands-Hurst	Pickle Crow.
Porcupine Lake Gold Mining Co., Ltd.	Pickle Crow	R. P. Teare	112 Yonge St., Toronto.
Red Lake Gold Shore Mines, Ltd.	Porcupine Lake (Hunter)		Red Lake.
Richelieu Gold Mines, Ltd.	Red Lake Gold Shore		330 Bay St., Toronto.
Rickard Ramore Gold Mines, Ltd.	Richelieu		Iroquois Falls.
St. Anthony Gold Mines, Ltd.	Raty		Savant Lake.
Sakoose Gold Mines, Ltd.	St. Anthony	C. J. Poole	231 St. James St., Montreal, Que.
Selected Canadian Golds, Ltd. (under option)	Sakoose	Jack Owens	Bank of Commerce Bldg., Toronto.
Selected International Mines, Ltd. (under lease)	Sultana	Lionel Brooke	Swastika.
Shenango Gold Mines, Ltd.	Cheltonia-Swastika		Oba.
Shuntree Gold Mines, Ltd.	Shenango		Shiningtree.
	Shuntree		

OPERATOR	MINE	MANAGER	ADDRESS
<i>GOLD—Continued</i>			
Smith, S. B.	Van Sickle	Dr. S. B. Smith	Cleveland, Ohio.
Sol-D'Or Gold Mines, Ltd.	Sol-D'Or	Dr. H. S. Hicks	Narrow Lake.
South Vermillion Gold Mines, Ltd.	South Vermillion	A. Pacitto	Mine Centre.
Stanley Gold Mines, Ltd.	Stanley	S. MacDougall	Wawa.
Straw Lake Beach Gold Mines, Ltd.	Straw Lake Beach	Frank Carnegie	Ermo.
Sturgeon River Gold Mines, Ltd.	Sturgeon River	C. M. Bowyer	Jellicoe.
Supreme Gold Mines, Ltd.	Supreme	Walter F. Stewart	Savant Lake.
Swain, Harris, and Cavano	Swain-Harris-Cavano		Narrow Lake.
Sylvanite Gold Mines, Ltd.	Sylvanite	C. E. Rodgers	Kirkland Lake.
Tashota Goldfields, Ltd.	Tashota	A. Robertson	Tashota.
Teck-Hughes Gold Mines, Ltd.	Teck-Hughes	R. J. Henry	Kirkland Lake.
Teddy Bear Valley Mines, Ltd.	Teddy Bear Valley	Edward H. Orscr	Lightning River.
Thesaurus Gold Mines, Ltd.	Thesaurus		320 Bay St., Toronto.
Toburn Gold Mines, Ltd.	Toburn	M. W. Hotchkiss	Kirkland Lake.
Tombill Gold Mines, Ltd.	Tombill	R. J. Hendricks	Empire.
Vimy Gold Mines, Ltd.	Vimy	Joseph Perini	Ramore.
Wells Longlac Mines, Ltd.	Magnet Lake	W. L. Brown	Geraldton.
Wells Longlac Mines, Ltd. (under option)	Stagee		
Wendigo Gold Mines, Ltd.	Wendigo	C. L. Spencer	Kenora.
West Red Lake Gold Mines, Ltd.	West Red Lake		11 King St. W., Toronto.
Wright-Hargreaves Mines, Ltd.	Wright-Hargreaves	M. W. Summerhayes	Kirkland Lake.
Young-Davidson Mines, Ltd. (under agreement with Hollinger Consol. Gold Mines)	Young-Davidson		Elk Lake.
Young-Shannon Gold Mines, Ltd.	Young-Shannon	C. T. Young	1 Toronto St., Toronto.
	Martin	C. T. Young	1 Toronto St., Toronto.
<i>GRAPHITE</i>			
Black Donald Graphite Co., Ltd.	Black Donald	R. F. Bunting	Calabogie.
<i>GYPSUM</i>			
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.....	Ashdad.
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## NICKEL AND COPPER

Cuniptau Mines, Ltd.....	Cuniptau.....	Geo. M. Lee.....	Goward.
Falconbridge Nickel Mines, Ltd.....	Falconbridge.....	Ernest Craig.....	Falconbridge.
International Nickel Co. of Canada, Ltd.....	Creighton.....	S. J. Kidder.....	Creighton.
Van Nickel Mines, Ltd.....	Frood.....	F. J. Eager.....	Frood.
	Delta.....	W. F. Taylor.....	Worthington.

## PEAT

Caledon Peat Co.....	Lot 27, con. I, Caledon tp., Peel co.....	C. H. Burbridge.....	Brampton.
Hodgkins, H. L., and Son.....	Wainfleet tp., Welland co.....	H. L. Hodgkins.....	R.R. 2, St. Ann's.
Leasa, Wm.....	Lot 11, con. X, Ellice tp., Perth co.....	Wm. Leasa.....	Milverton.
Northern Peat Co.....	Lot 8, con. III, Mountjoy tp. Cochrane dist.	W. B. Brewer.....	Timmins.
Runke, G., and Sons.....	Lot 55, German tract, Waterloo tp., Water- loo co.	G. Runke.....	115 Cameron St., Kitchener.

## RADIUM

Canada Radium Mines, Ltd.....	Canada Radium.....	Frank Austin.....	Cheddar.
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## SILVER AND COBALT

Bellorain Mines, Ltd.....	Bellen.....	Max Kaplan.....	Kirkland Lake.
Cobalt Properties, Ltd.....	Cobalt Properties.....	Arthur Brocklebank.....	Cobalt.
Cobnor Silver Mines, Ltd.....	Cobnor.....	H. F. Faney.....	Cobalt.
Comet Leasing Co. (under lease).....	Drummond.....	Bruce Williams.....	Kirkland Lake.
Dean and Downey (under lease).....	Wetflauffer.....	Ralph Downey.....	Cobalt.
Hudson Bay Mines, Ltd.....	Hudson Bay.....	George Martin.....	Box 700, New Liskeard.
Martin, George (under lease).....	Crown Reserve.....	H. G. Miller.....	Cobalt.
Miller, H. G. (under lease).....	Canadian Lorrain.....	H. G. Miller.....	Silver Centre.
Morgenthalor, A. G.....	Keeley.....	A. G. Morgenthalor.....	Silver Centre.
	Beaver.....		2108 South Second St., Philadelphia.

OPERATOR	MINE	MANAGER	ADDRESS
<b>SILVER AND COBALT—Continued</b>			
Morrison Mines, Ltd.	Morrison	I. E. Mosher	165 Sparks St., Ottawa.
Mosher, Richardson, and Lafrange (under lease)	Buffalo	Hugh Park	Cobalt.
Nipissing Mining Co., Ltd.	Nipissing	W. A. O'Flynn	Cobalt.
O'Brien, M. J., Ltd.	Cross Lake	H. G. Kennedy	O'Brien.
O'Donald, J. C. (under lease)	Miller Lake O'Brien	J. C. O'Donald	Cobalt.
Price, C. W. (under lease)	Silver Queen	C. W. Price	Cobalt.
Rowe and Stuckey (under lease)	Foster	Alfred Rowe	Silver Centre.
Sandoe and Moyle (under lease)	Frontier	Richard Sandoe	Cobalt.
Silver Cliff Syndicate (under lease)	Temiskaming		Cobalt.
Silverado Gowganda Mines, Ltd. (under lease)	Silver Cliff	F. E. Forster	347 Bay St., Toronto.
Sirola, Donald E. (under lease)	Silverado	Donald E. Sirola	Kirkland Lake.
Smith Cobalt Mines, Ltd.	Colonial	D. G. Russell	Cobalt.
Wood, A. (under lease)	Smith Cobalt	A. Wood	Cobalt.
	Dominion Reduction Co. mill		
<b>TALC</b>			
Canada Talc Co., Ltd.	Connolly	Roy Taylor	Madoc.
Geo. H. Gillespie Co., Ltd.	Henderson	L. Ashley	Madoc.
<b>METALLURGICAL WORKS</b>			
Algoma Steel Corporation, Ltd.	Iron blast furnace	Jas. H. Bell	Sault Ste. Marie, Ont.
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 smelter	M. J. Tamplin	Falconbridge.
International Nickel Co. of Canada, Ltd.	Nickel-copper smelter	Peter Macdonald	Copper Cliff.
Ontario Refining Co., Ltd.	Nickel-copper smelter	Peter Macdonald	Coniston.
Steel Company of Canada, Ltd.	Nickel refinery	H. W. Walter	Port Colborne.
	Electrolytic copper refinery	F. Benard	Copper Cliff.
	Iron blast furnace	R. A. Gillies	Hamilton.