

The Influence of the Cobalt Camp on the Mining Industry of Canada

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INTRODUCTION

THE subject assigned to me tonight gives unlimited scope. The material available is so voluminous and leads into so many ramifications, and the memories of the Camp are so vivid and treasured, that it is difficult to decide just what to use. Then, too, the geologists are the story-tellers of our tribe — I am only a hard rock miner.

Members of the Cobalt Branch and Cobalters everywhere will agree without question that this Cobalt camp has been the greatest of all influences on Canadian mining. To those who do not know Cobalt, our opinion may seem prejudiced and our statement exaggerated.

Be that as it may, discussion on this subject can be profitable, since it is worthwhile now and then to think on 'whence we came' and 'where we are going'.

In the revival of interest in the Cobalt camp, we hope our guests may feel some of the old Cobalt Spirit, which has become the Spirit of the North.

Visitors may even, while here, catch a glimpse of that whimsical little guardian spirit of the camp — the original goblin, the *Kobold* — for which Cobalt was named.

While *Kobold* brings that good luck which plays so important a part in mining, he can have his evil moments, as in his original German home. There, when he made the silver disappear from their good ore, they cursed the grey ore, calling it *Kobold*.

Although this little goblin has frequently upset our best mining plans and geological calculations, he has played the game as well. He placed some silver on the surface, and when he hid it at depth he left clues for its finding. He has rewarded many who sought his treasure and is still rewarding those who

have persevered and had faith in him. His influence and that of Cobalt camp has probably had a greater influence on your work and your mining areas than you realize.

It would be pleasant, for myself, to reminisce on 'The Good Old Days in the Best Old Town' — to recall many of the outstanding personalities — to talk of the easy wealth to some, the tough slugging and disappointments to others — the triumphs and the tragedies — the hard work and the hard play.

It would be easy for me to see, sitting amongst you, the crowd of young men of the early days, gay, eager, rugged, and loyal, willing to gamble their strength or their last dollar on a new venture, a hockey game, or to help a friend — the finest this country had. But I must not dwell on this phase. Cobalt still lives and is still proud of her sons; including this younger generation.

Let us consider, here, the tremendous growth of the Canadian mining industry of which Cobalt was the accelerator. In nickel, platinum, and asbestos, Canada is the world's leading producer. Production of aluminium, petroleum, and iron ore has grown by leaps and bounds. Silver mining is here revived, and again promises greatness. Gold mining, which has been the vitalizing force and the basis of Canada's mining, is ready to enter its greatest epoch of expansion, if the price of gold rises, as rise it must if ever the world is to return to economic sanity.

May I cite some approximate figures to illustrate how important Canada's mineral production, and in particular that of the Cobalt and some other Ontario camps, has been to the Dominion's economy: Value of total mineral production to 1950, \$15 billion, of which metals accounted for \$8 billion. Ontario's metal production, \$4 billion, about one-half of it gold, with the output from Porcupine mines alone amounting to about \$1 billion at July, 1950. The

Cobalt camp with metals — chiefly silver — to the value of \$300,000,000, about one-third of which amount has been distributed in dividends.

Let us think back to the conditions in Canada at the time when Cobalt's silver was discovered. In 1904, Ontario — since that year Canada's main source of metals — produced only \$2,300,000. Sudbury's output of nickel and copper, though having been higher for two years previously, had in that year a value of only \$1,840,000, or approximately that estimated for the Cobalt area in 1950.

The total production from Sudbury from 1890 to 1904 had been only \$16,600,000, which, while considerable, was surpassed by Cobalt's silver production in each of the years 1911 and 1912.

Sudbury's future was, of course, assured from the known ore reserves, but the picture at that time did not encourage Canadians to participate either in investments or operations.

The Sudbury production of 1903 and 1904 was practically the only metal coming from the Precambrian rocks of the great Canadian Shield, the backbone of Central Canada. The metal mines of British Columbia were in the younger rocks of the Cordillera; the oil, gas, and coal of Alberta were in sediments beneath the plains; the coal and metals of the east were mostly in Palaeozoic rocks. The bulk of the United States metal production, also, was coming from these younger rocks.

Yet it was the central Precambrian Shield on which the hopes of the few Canadian geologists and mining men were fixed. Michigan copper and Minnesota iron were coming from the Precambrian.

Gold, lead, zinc, iron, and copper had been found in the rocks of eastern Ontario and adjacent Quebec, but mining of these metals was uneconomic. Northwestern Ontario had had promising surface showings of gold; mining them had been disappointing. A rich deposit of silver

*McIntyre Porcupine Mines, Limited.



Arthur A. Cole, President 1916-18 (left), and August D. Campbell. Mr. Cole holds one of the first specimens of gold ore taken from outcrop on the Hollinger property, in December, 1909.

had been mined at Port Arthur, but was apparently exhausted.

Despite Sudbury, mining in Canada's Precambrian was then mostly "Hope Deferred".

Unheeded were the words of the Ontario Provincial Geologist, Dr. W. G. Miller, when, in his 1902 report, he said of the area from Lake Temiskaming to the Height of Land, "There is a great variety of rocks. Deposits of value will be found by prospecting". Unheeded, too, was the 1899 report of Professor W. A. Parks, of the University of Toronto, on his trip with surveyors through the heart of the Porcupine area. He there stated, "Soft and rusty schists were noted east of Pearl lake. Assays showed gold. The region south of the trail to Porcupine lake promises reward to the prospector". Dr. Parks had put his finger on what later became the greatest gold area in Canada, yet such was the disappointing reputation of the Ontario Precambrian rocks that the words fell on deaf ears. No one responded.

BIRTH OF COBALT CAMP

Then came Cobalt with its remarkable finds of ores of cobalt and nickel, rich in native silver, rich beyond dreams.

The truth of this was but slowly realized, even by those who made the discoveries. McKinley-Darragh's find of heavy ore at the south end

of Cobalt lake was found to contain silver only on assays by Milton Hersey.

LaRose's discovery at the north end of the lake was described as one of copper ore. Dr. Miller knew that samples from it were of high-grade cobalt and nickel ore, but on visiting the discovery he was astounded by what he saw. Silver-blackened plates, and slabs of it, and a polished 'silver sidewalk' — all right on surface.

One of the most remarkable and richest deposits of metal in the world had been discovered close by a rock-cut of the Ontario Government railway being built north to the farm lands.

Silver, not remote, but within a night's Pullman ride of Toronto and Montreal, and within easy railway reach of the populous northeastern United States, with its immense wealth ready for pioneering investment.

Canada's mining future was assured. By the end of 1904, the major veins of the camp had been discovered, ownership of properties had been established, production was under way, and cash returns were being received from the smelters.

The operators were either the original discoverers, or purchasers, such as the Timmins Brothers and Associates of LaRose, O'Brien, Ferland, Jacobs of Kerr Lake, Trethewey and Leonard of Coniagas. All were Canadians of small means and

little or no mining experience.

In that first year, the geological formations of the area had been identified and their relations to the silver deposits determined by Dr. W. G. Miller and his student and assistant, Cyril W. Knight.

Mining geology was established as a practical science and henceforth was a definite part of our mining.

Years of underground mining determined the extent of these rock formations and the main geological features of the camp.

Years of work were also required to work out and practice the new and highly technical processes of concentrating the lower grade ores and then recovering the silver and the various by-product metals from the concentrate and high-grade ore.

Work on the geology and metallurgy still continues.

I assume that you are familiar or becoming familiar with the general geology of the camp as early determined by Dr. Miller and Cyril Knight. This and much of the detailed structure is shown by sections in their reports. Briefly, we have Huronian sediments, laid down on Keewatin volcanics and cut by a diabase sill of undulating dip, and the whole sliced down by glaciers to show silver veins of a geological vertical depth of about 2,000 feet.

COLEMAN AND MILLER

Here I must digress to pay tribute to those early geologists who mapped these rocks and played such an important part in Canadian mining. Personally, I pay my first tribute to Dr. A. P. Coleman, my Professor of Geology at Toronto, and to his student and field assistant Milton T. Culbert in the mapping of the Sudbury Nickel Basin—the basis of Dr. Coleman's classic report.

Mr. Culbert, under whom, as a student, I worked at the O'Brien mine at Cobalt, taught us to look for silver in the diabase, so like the Sudbury norite. Through his influence, the O'Brien mines at Cobalt and Gowganda mined more silver from the diabase sill than all of the other mines of the silver area put together.

Yet, tonight, it is of the late Dr. W. G. Miller I would speak.

Dr. Miller, a graduate of the University of Toronto, as a Professor at Queen's before he became Provincial Geologist for Ontario, inspired a galaxy of brilliant Canadian mining engineers who became active at Cobalt, along with graduates of other Canadian and United States universities. Of these young men, Cyril Knight, Miller's early assistant, gave us that most com-

plete 1922 Report on the Cobalt area.

On the Square in the town of Cobalt stands a monument to Dr. Miller. Let me read the inscription, which may be taken also as referring to the Cobalt camp itself:

WILLET GREEN MILLER

To Cobalt he gave its name and a place among the great mining camps of the world. He read the secrets of the rocks and opened the portal for the outpouring of their wonderful riches. His monument is Northern Ontario.

While standing before this monument, geologists and miners might well call to mind the words spoken to Moses: "Take off the shoes from off thy feet, for the place whereon thou standest is Holy Ground".

The reading of the secrets of the main structural geological features of Cobalt required many years of underground mining. Even today, much remains to be discovered, particularly in regard to faults and their significance. This is one place where it pays to find faults. But let no one tell you that faults were disregarded in the early days. At that time the popular riddle was, "Why is Cobalt like a family quarrel?", and the answer: "Because there are faults on all sides".

MOUNTING PRODUCTION

In those early days, hopes continued to mount as more and more silver was produced. Production of \$112,000 in 1904 jumped to \$1,400,000 in 1905 and to over \$16,000,000 for 1912, and most of it was profit. This verified Dr. Miller's earliest pronouncement, that "the veins are so remarkably rich that a very narrow vein could be mined at a handsome profit". As production and profits continued to mount, the camp became the lodestone attracting men and capital not only to Cobalt but also to the great region of similar rocks in the Montreal River country and to the north of lake Temiskaming.

The silver veins served the same purpose which the gold placers of Australia, California, and British Columbia had served in their day. They attracted all kinds of people. Most important, they attracted young Canadians from many walks of life, but particularly that large group of university graduates in engineering and science who were destined to become leaders in the development of our mineral industry.

In its first eight years, Cobalt had produced silver to the value of \$82,000,000 and paid dividends of \$40,000,000. The discovery in the Pre-

cambrian rocks of northern Ontario of minerals of any grade of richness could never again be reasonably doubted.

Those of you who know what the lesser early gold production at Kirkland Lake and Porcupine meant to those areas and to mining can, by comparison, well imagine what that Cobalt production meant.

In contrast to Cobalt, the mines of the Kirkland Lake camp produced, in their first eight years, gold to the value of \$4,030,000, and paid \$680,000 in dividends. Porcupine produced \$361½ million and paid \$11 million in dividends. But, before that gold production even started, hundreds of would-be prospectors had come to share in the new-found silver wealth. They searched the surface for new veins. They spread out south, west, north, east, wherever there was diabase rock.

New discoveries of silver were made in the outlying areas of South Lorrain by Bob Jowsey and Keeley, at Elk Lake by Jack Hammell, and later at Gowganda by Yink Thorne. Results in these areas were, on the whole, disappointing to the prospectors, because the mining there required expensive shaft sinking and underground work beyond their resources.

Those prospectors, nevertheless, taught in a hard school, learned how to travel through swamp and bush, by lake, river, and portage, in fly season and in sub-zero weather. They learned to distinguish rock formations and trace ore indications. Since the Mining Law of those days required discovery of valuable mineral 'in place', these men were real prospectors, not merely claim stakers. They and their disciples were perhaps the most active and successful mine finders that this, or any, country has known. They, with the early generation of mining engineers, were the men who were to discover and develop our great gold mines, and establish mining throughout the great Canadian shield.

MEN OF COBALT TREK NORTH

Their first venture into the gold areas was north by the Blanche river to Larder Lake. In 1906, a party from the University mine at Cobalt, headed by Kerr, made a discovery at Larder Lake which years later became the Kerr-Addison mine. Larder Lake's early discoveries created much activity, but did not prove up at the time. Later, prospectors grub-staked from Cobalt, New Lsikeard, and Haileybury pushed north along the extending

Temiskaming and Northern Ontario railway. At that time Cobalt, and later Haileybury, was the recording centre for the whole North.

Knowing the spectacular success of surface prospecting at Cobalt, the prospectors now heeded the advice Dr. Parks had given in 1899. By canoe and the long portage, they crossed to Porcupine lake. There, the Dome, McIntyre, and Hollinger, the three greatest gold deposits of the area, were discovered almost simultaneously through several surface showings. *Porcupine was the real first fruit of the Cobalt Camp.*

Hollinger was discovered by Benny Hollinger, Alex Gillies, Miller, and Middleton; Dome by Wilson of Massey and his party, including Preston; McIntyre by Sandy McIntyre; Armstrong-Booth by Bill Smith.

Dome was bought very soon, for his principals, by Tom Jones, Manager of the Buffalo mine at Cobalt.

As an outstanding example of Cobalt's influence in Porcupine, let us consider the Hollinger. That great mine was purchased, financed, developed, and brought into production, with ownership retained, by the syndicate of the Timmins Brothers, MacMartin Brothers, and Dunlap, all of the famous LaRose. Their profits from Cobalt were re-invested in Hollinger. This syndicate staffed the Hollinger from Cobalt, from whence, too, came their early miners and construction and mill men. A remarkable testimony to the influence their early Cobalt training had on such men is that, through the years, they still call themselves "Cobalters". Percy Robbins, Manager of McKinley-Darragh, was the first Hollinger General Manager. The Hollinger owners and Robbins brought men from Cobalt, whose names are a part of the Porcupine saga. To mention but a few:

Sandy Globe, Chief Assistant, from McKinley-Darragh

Mascioli, Construction Boss, from O'Brien

Blackman, Pritchard, Lowe, Adams, from McKinley-Darragh

Art Young, Henry Skavlem, from Meteor

Charles G. Williams, later Professor of Mining at U. of T.

Cobalt's further influence in Porcupine through her men would be a whole evening's talk in itself. Let me mention only a few who have contributed.

The late J. J. Denny — Rated Canada's most brilliant precious-metal metallurgist, came from the Coniagas and Nipissing to McIntyre.

Balmer Neilly — President of McIntyre, was Manager of the Penn-Canadian mine, on Diabase mountain.

Bob Dye — Vice-President and General Manager of the Dome, was Engineer-Metallurgist at the Buffalo — going to the Dome *via* the Keeley, Teck-Hughes, and Vipond mines.

John Reddington — First Superintendent of the old Trethewey and Coniagas mines, opened and managed the Coniagaurum for Coniagas and is given the credit for the development of that deep, productive mine, where he still resides.

Kirkland Lake — This rich gold area was the discovery of Cobalt prospectors and mine developers, who came to Swastika by rail, then travelled east by trail and canoe.

Tough-Oakes Mine (now the Tourn) — At the east end of the Kirkland camp, where gold was found by the Tough Brothers, partners of Harry Oakes, and which was the first producer in the area. There, rich high-grade gold ore from a narrow vein was bagged and shipped to a smelter in true Cobalt style. The mine was operated and financed at first by Clem. Foster, of the Foster mine, with Charlie O'Connell, former Manager of the Waldman, in charge and with M. W. Hotchkin as his Chief Engineer: Cobalt men all. Hotchkin, now General Manager of the mine, is with us tonight.

Teck Hughes, discovered by Hughes of the town of Haileybury and by Sandy McIntyre, and *Kirkland Lake Gold*, were financed and managed by Buffalo and Beaver interests, respectively.

Macassa — The Baby of President Bob Bryce, a former Manager of the Silver Queen.

Wright-Hargreaves — Discovered by Bill Wright who worked in Cobalt, lived for years in Haileybury, and is probably still the largest individual shareholder in Kirkland Lake Mines.

Harry Oakes' Lake Shore — Where Ernie Martin found the first gold, had, as its first Manager and successful underground developer, John Morrison from the O'Brien mines of Cobalt and Gowganda.

WESTERN QUEBEC'S DEBT TO COBALTERS

Next came Western Quebec, where what is now Noranda's Horne mine was discovered by Ed. Horne for his New Liskeard Syndicate. That mine, first developed from Haileybury, opened the flood gates of mine finding and develop-

ment in Western Quebec. Quemont, its latest producing neighbour, was a protégé of Mining Corporation, of Cobalt, and was brought into production under its late President, Ike Waite, early Mining Engineer at the Hargreaves mine at Cobalt.

Noranda, finally financed to production by Hollinger money, may fairly be called a grandchild of Cobalt. Its empire of gold mines, which include three Porcupine mines — Pamour, Aunor, and Halnor — and the great Kerr-Addison, are Cobalt's great-grandchildren. Hollinger's Labrador Iron is another grandchild.

The first successful gold mine of the Western Quebec area was the O'Brien-Cadillac, discovered by Dumont and Miller, of New Liskeard, for the O'Brien and operated from Cobalt.

Among others from the Cobalt area who will be readily recalled as opening up Quebec are the Cockerams, the Gambles, the McDonoughs, Stanley Siscoe, Alex Perron, and Fred Thompson.

Though extensions of mining into northwestern Ontario, Manitoba, and the North West Territories, were not so directly connected with the Cobalt area, yet the influence persisted. We have thus:

Howey Brothers, of Haileybury, at Red Lake.

Willans, of Cochenour-Willans, who one day left his cabin by the lake at Haileybury, and has not since been heard from.

Jack Hammel, at Flin Flon, Howey, Pickle Crow, and elsewhere.

The McDonoughs — everywhere — and one as President of Madsen Gold Mines.

Gilbert Labine, of Haileybury, discoverer of silver and radium at Eldorado, from reading a tip *re* cobalt bloom at Great Bear lake, and going after it.

Moshers and others, at Little Long Lac and Newlund.

Ernie Neeland and Anderson, at Giant Yellowknife.

Thompson, at Thompson-Lundmark.

While we have been considering far fields, let us not forget the contributions, perhaps less spectacular, of the men and companies who continued production in this camp.

CONTRIBUTIONS TO MILLING PRACTICE

Let us consider a few in milling. While cyanidation of gold was first practised in South Africa and of silver in Mexico, the O'Brien at Cobalt had the first all-cyanidation

mill in northern Ontario. Other Cobalt mills also used cyanidation, Buffalo being first, on some of their slime tailings. Successful research into treating those difficult ores helped in Ontario gold cyanidation.

The art of table and other ore concentration was also advanced by such notable wet metallurgists as Fraser Reid of Coniagas, and the late Matt Fairlie, of Mining Corporation. Prof. H. E. T. Haultain, of the University of Toronto, has been the Dean of Milling in Canada, teaching Fraser Reid, a Queen's graduate, when they were at the Craigmont corundum mines. Bert Banks, the distinguished Mill Superintendent and Metallurgist at Cominco's Sullivan mine, was another Haultain pupil, and was employed, while a student, at the O'Brien Gowganda mine.

Flotation was first used in Northern Ontario on Cobalt's ores. Later, the process was applied successfully for the first time to gold ores at McIntyre, by the late J. J. Denny from Nipissing. Flotation in gold mills is now almost standard practice.

In other directions, Cobalt has been a pioneer. The law and order which never previously had been associated with new mining towns was established at Cobalt by Provincial Constable Calbick, now retired Sheriff here. To his untiring, honest efforts, and his outstanding personality, not only mining, but Canada as a whole, owes much.

Cobalt also led in accident-prevention and promotion of health in mines. Dr. C. H. Hair, Medical Officer for the Ontario Mining Association, was one of Cobalt's earliest's doctors.

Lung X-ray examinations for the detection of silicosis were first made in Ontario in the Cobalt Masonic Hall, through Chief Inspector of Mines, Thomas Sutherland, formerly local Inspector at Cobalt. That miner's disease was fortunately not a serious factor at Cobalt.

The discovery of the use of aluminum powder for the prevention of silicosis by the McIntyre Research team of Robson and Denny was undoubtedly prompted by Jim Denny's use of aluminum in silver metallurgy at Nipissing.

The Ontario Mining Association, of whose influence in mining you are aware, grew from the Temiskaming Mine Managers' Association, its first two Managing Secretaries, Balmer Neilly and his successor George Bateman, going to Toronto direct from Cobalt.

The Pearces brought the *Northern Miner* from Cobalt to Toronto, and to the mining world.

One could go on endlessly recounting the accomplishments of Cobalters and the influence of the Cobalt Camp on the Canadian mining industry. But enough: I will not even tell you of the great development of cultured music at the mines due to the *Cobalt Song*.

CONCLUSION

To sum up:

Cobalt's spectacular silver deposits established faith in Canada's Precambrian.

Cobalt was the cradle of Canadian mining, and the post-graduate school of Canadian prospectors, engineers, mining geologists, and metallurgists.

Cobalt stimulated the adventurous spirit of those young Canadians who first served at Cobalt and those who joined them later.

These men, and those who learned through them, have been largely responsible for the discovery and development of Canada's far-flung mining areas.

They have, to this day, a majority share in the management, wealth, and administration of Canada's mining industry.

As citizens, too, they have not been surpassed.

The influence of the Cobalt camp will never die. It will carry on long after the source is forgotten. Do not think that mining triumphs are things of the past. Greater miracles await you, and your children. Canada is vast and rich in minerals — follow the lure.

*"In the strength of our forefathers
we go,
Not in their footsteps.
Their stars we follow
Not their dead camp-fires"*.
