

NORANDA

Roberts

# NORANDA

Leslie  
Roberts



CLARKE  
& CO. LTD.



# NORANDA

Leslie Roberts

*Illustrated with endpaper maps and a 16-page Picture History of Noranda*

ED HORNE never could tell why, in his prospecting trips, he kept returning to the Rouyn district of north-eastern Quebec. There were few records of successful gold strikes in that area and the country could scarcely have been less inviting. Only the presence of a chain of lakes and rivers, with difficult portages, made access to the area possible at all. But Ed Horne kept coming back to Rouyn on the hunch that "it didn't seem sensible that all the good geology should quit at the Ontario border". So enthusiastically did Horne talk of the prospects of Rouyn that he interested in his prospecting a syndicate of twelve men who, among them, raised the impressive sum of \$225 to grubstake Horne's further explorations.

Horne made his strike. At first sight it seemed no paragon but it attracted the attention of Thomson and Chadbourne, two American mining engineers of international reputation who had formed a syndicate of investors to explore the possibilities of mining in Canada. The syndicate acquired an option on the Horne claims, and the fabulous history of Noranda began.

Noranda proved rich beyond Ed Horne's wildest imaginings. With its production of gold and copper ore and of sulphur and iron it furnished the makings of a well-balanced mine. But, before they could exploit this potential wealth, the men who made the great Noranda mine had first to conquer a wilderness. They cut winter roads through the forests and, over the pack-

*(Continued on back flap)*

*(Continued from front flap)*

ed snow, they sledged in heavy mining machinery. Using ski-equipped airplanes and motor-driven barges on the lakes, they established and maintained communications till they could persuade the appropriate authorities to build roads, lay steel for railroads, and run power lines. They cleared a site and built a smelter and a mill. Then, in the heart of the wilderness, they created a modern city.

When their work at Noranda was done they reached out and acquired other holdings — in Quebec's Gaspé Peninsula, in Ontario, and beyond Canada in Nicaragua. Subscribing to the theory that Canadian ores should be processed in Canadian plants, Noranda has acquired or built such organizations as Canadian Copper Refiners, Canada Wire and Cable, Noranda Copper and Brass, and a sulphur-iron processing plant at Welland. From Ed Horne's strike in Rouyn township a great industrial empire has grown.

Leslie Roberts first saw Noranda when, as a young reporter, he flew in from Haileybury among the screaming wires of a surplus World War I aircraft. He has known personally many of the men who built Noranda and from the beginning he has watched its development closely. In *Noranda*, his account of the founding, development, and expansion of this great Canadian company, Mr. Roberts has written an important and exciting fragment of Canadian history.

NORANDA  
Roberts  
Clarke Irwin  
\$5.00



# NORANDA

Leslie  
Roberts

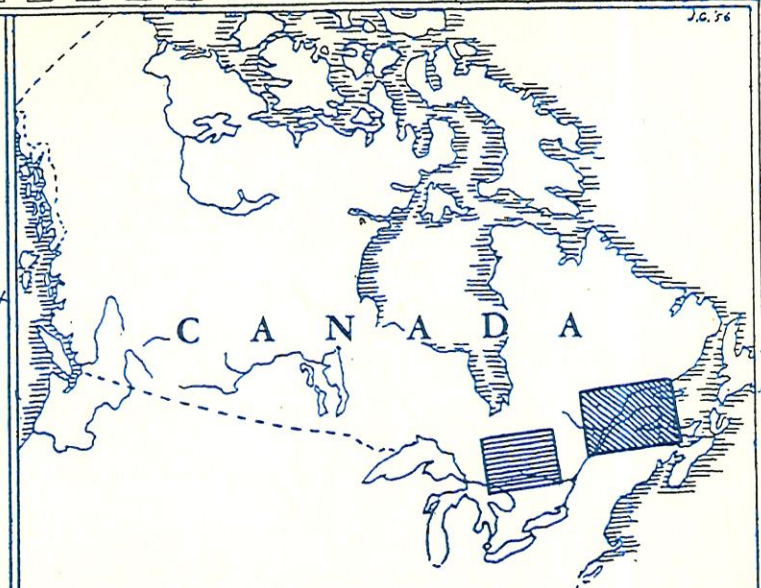
NORANDA

Leslie Roberts



CLARKE  
IRWIN





NORANDA & DISTRICT  
with detail showing  
Position in Canada of  
NORANDA & GASPÉ



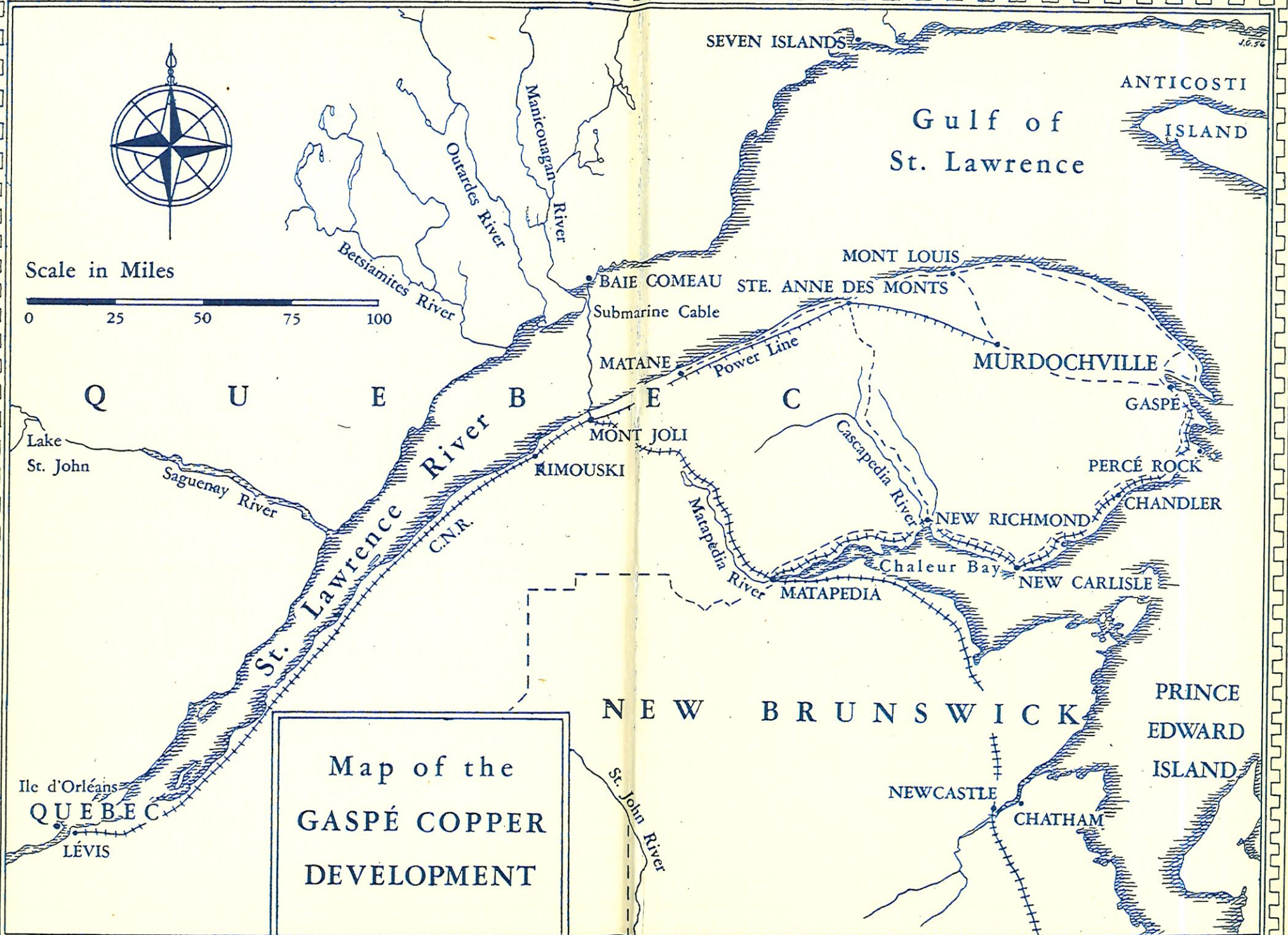
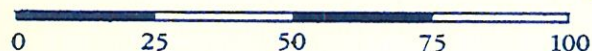
Scale in Miles







Scale in Miles





*Books by* LESLIE ROBERTS

THESE BE YOUR GODS

WHEN THE GODS LAUGHED

SO THIS IS OTTAWA

WE MUST BE FREE

CANADA'S WAR IN THE AIR

MALTA SPITFIRE (*With* Flt.-Lt. George F. Beurling,  
D.S.O., D.F.C., D.F.M.)

CANADA'S WAR AT SEA

THE MACKENZIE

HOME FROM THE COLD WARS

CANADA: THE GOLDEN HINGE

# NORANDA

Leslie Roberts



CLARKE, IRWIN & COMPANY LIMITED  
TORONTO



COPYRIGHT, CANADA, 1956  
*by* CLARKE, IRWIN & COMPANY LIMITED

FOR M. AND J. H. R.  
WITH LOVE

Printed in Canada





James G. Munro

## FOREWORD

PUBLICATION OF THE HISTORY of Noranda commemorates the passing of a milestone of tremendous importance in our history, not merely to the owners of the Noranda enterprise but to Canada: the coming into production of a great new Noranda-owned mine in the heart of Gaspé, suitably called Gaspé Copper. Noranda began with the taming of the frontier in northwestern Quebec province. This book ends with the industrializing of another, the mountainous region of the Shickshocks, our greatest undertaking since the opening of the Horne Mine. In a broader sense it is the story of how Canada is becoming a powerful nation, under the leadership of men who expand its frontiers by developing its resources, creating modern communities in yesterday's wilderness and providing more and more work for Canadians to do.

When Leslie Roberts was asked to undertake this book, that was the story as he saw it. To most readers his name will be familiar as that of an author who has been writing of Canada's northward drive throughout his adult life in his books and for such important magazines as the *Saturday Evening Post* in the United States and *Maclean's* in Canada. This is his fourteenth book and virtually all have been on Canadian themes. He was one of the first writers to tell the Noranda story in print—and he has been travelling the frontier ever since his first visit to Rouyn in the 1920's.

This is his book, in the sense that it is written by an informed outsider taking his own look at events and people and writing of them as he sees them. The thoughts and views expressed are his independent conclusions. As an entity they combine into what he calls "a fragment of Canadian history".

Noranda's people are proud of what has been accomplished, as I am proud of my association with them. But it is a humble



pride, and behind it is our knowledge that none of it could have happened if Canada had not been what it is, a great and rich young nation, whose frontiers beckon the man in whom the spirit of high adventure is strong. So long as that spirit lives, Canada will continue to grow. Only from that spirit can a great nation emerge, as I believe profoundly that it will.

JAMES Y. MURDOCH

## PREFACE

THIS BOOK HAD ITS BEGINNING on the afternoon train which runs from Toronto to Montreal. The year must have been 1938. It came of a chance meeting between Jim Murdoch, then and now Noranda's president, and myself. We talked about Noranda. If memory serves, I asked, "When are you going to get down on paper the human record of what Noranda has done, while the men concerned are all here to tell the story?" Murdoch said, "Why don't you take it on?" And that is how this book began.

Between that time and the outbreak of war in 1939, I visited Edmund Horne on his farm in Nova Scotia, spent weeks in Humphrey Chadbourne's New York office, visited Sam Thomson at the Seigneury Club, talked with Waite and Fletcher and many another. Hibbert and Roscoe already were among my friends. So were most of the citizens of Rouyn and Noranda whose names appear in this work.

Then the war broke out and the notebooks were filed away. All concerned had too much else to do to think about this book. The notes did not come out again until 1953.

To me what has been written is something much more personal than the history of a mining company, its developing empire and the new places which it has brought into Canadian civilization. Rouyn-Noranda was my first mineral rush, and I saw it first in 1924. The original visit was made from Haileybury, among the screaming wires of an ancient aircraft left over from World War I. Other visits were made as the railroad was on the way in, as the smelter was being built, and for years thereafter, when production had begun at the Horne. The result is that I always think of western Quebec as peculiarly *my* camp, from Vimy Ridge to Tremoy Road, and from Rouyn to Val d'Or and on to Chibougamau.

That early experience conditioned an adult lifetime of report-



ing which has taken me from Labrador to the Yukon, from Gaspé to Great Bear Lake, to write magazine articles about one of the largest, richest and emptiest pieces of real estate on earth, a country far greater than the whole of India and which makes a puny dwarf of Texas. More important, it is a country destined to be one of the great nations of the earth, and what will make it great is the work of people of the kind who move in and out of these pages. The people who are making Canada great are out on its broad frontier, seeking, finding and developing its resources. These are the doers—and the basic doer is the prospector, who is the motive power of it all.

I want to thank Jim Murdoch for having been on that train. My thanks go to a host of Noranda people whose names will keep turning up as you read. To single out one man of more than a hundred, I must name H. L. (Bill) Roscoe, for a friendship which goes all the way back to the early days of Noranda, and, perhaps most of all, for having rubbed a writer's nose on the grindstone during the days while this book has been going through a typewriter.

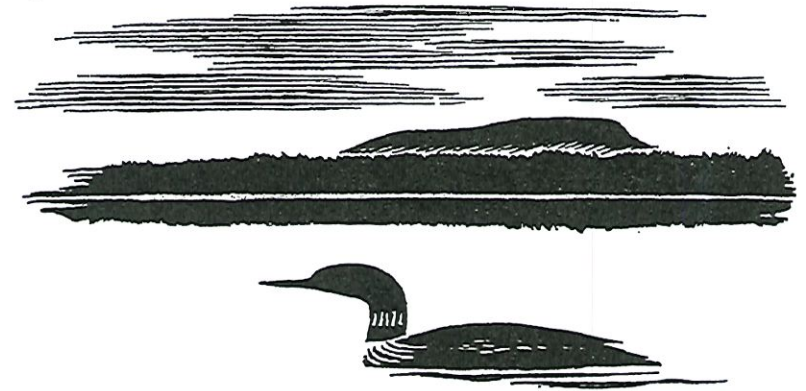
LESLIE ROBERTS

*Westmount, Montreal,  
Canada,  
February 4th, 1956*

## CONTENTS

| CHAPTER                            | PAGE |
|------------------------------------|------|
| 1 IN THE BEGINNING                 | 5    |
| 2 HORNE COMES TO LAKE OSISKO       | 15   |
| 3 THE THOMSON-CHADBOURNE SYNDICATE | 35   |
| 4 THE MAKING OF A MINE BEGINS      | 55   |
| 5 THE VISTA UNFOLDS                | 77   |
| 6 FROM MINE-IN-THE-MAKING TO MINE  | 103  |
| 7 THE GOLDEN ERA DAWNS             | 113  |
| 8 THE FIRST GOLDEN YEARS           | 127  |
| 9 THE TREE PUTS OUT BRANCHES       | 139  |
| 10 THE WAR YEARS                   | 149  |
| 11 A NEW FRONTIER IS OPENED        | 167  |
| 12 THE COURSE OF EMPIRE            | 195  |
| GLOSSARY OF MINING TERMS           | 209  |
| APPENDICES                         | 214  |
| INDEX                              | 219  |





## ILLUSTRATIONS

*Frontispiece*

JAMES Y. MURDOCH, ESQ., O.B.E., Q.C., LL.D.

BETWEEN pages 114 and 115 there is a 16-page illustrated section which, in photograph and map, presents graphically the story of the development of the Noranda enterprises from the prospecting trips of Edmund Horne to the building of Murdochville in the Gaspé Peninsula.



NORANDA



## THE NORTHERN FASTNESS



## CHAPTER ONE

### IN THE BEGINNING

THIS IS THE STORY of the changing of a wilderness of muskeg and fire-ravaged forest into a modern civilization; of Noranda and the opening of the great mining fields of western Quebec. It is the story, too, of the founding and growth of the great Noranda mineral empire, an empire of many mines and great processing plants, which has sprung from that one mine which changed the wilderness, and of Noranda's contribution to the growth of a great and virile young nation, Canada,

Three decades have passed since the gangling superstructure of Western Quebec's first headframe was raised against its background of stump and rock. With the exception of a few colonists huddled against the Canadian National's northern transcontinental line, the region was devoid of population in the early 1920's. Only an occasional trapper or hunter penetrated the fastnesses of what is now the great copper-gold empire which lies east of the border of Northern Ontario and south of the Canadian National Railway's transcontinental steel. Quebec itself possessed virtually no hardrock mining industry then, none in its untapped northern reaches. Hundreds of miles away, in the agrarian Eastern Townships, one copper mine, the Eustis, had operated for many years, but not steadily. No lode-gold mines had been developed, although some placer mining had been done in the southern part of the province. The production of asbestos in the Thetford district, the operation of one lead-zinc property of economic importance in Portneuf County, fifty miles west of the city of Quebec, and the intermittent production of some 125 tons of copper per month at the Eustis, comprised, in actuality, the province's mining industry as the term is used for purposes of this work; this is an area six times as large as that of Great Britain.



Then came Edmund Horne, financing on a shoestring provided by a group of business men in the towns of Haileybury and New Liskeard, Ontario, and staked claims soon to become one of the world's great mines. After Horne came capitalists, engineers, geologists—men of courage, science and vision who refused steadfastly to accept the view advanced by many of their own colleagues that the isolated nature of the country spelled certain defeat for their project. They fought with unflagging zeal, with their own money and their own reputations as business and mining men at stake. They fought not merely to wrest riches from the ground, not merely to win wealth for themselves, but to push back the frontier and to prove again that geographical isolation is no barrier to human progress. They fought, too, with the romantic figure of Lady Luck ranged on their side. None of them has ever denied it. None ever would, for she has been the patron of every great mining camp in the history of the metals and without her help no man ever unhitched his pot of gold from the rainbow.

First, they had to vanquish the wilderness. They summoned to their aid, for the first time in the history of northern commercial transportation, the airplane, shod with skis to land on the frozen lakes—the new pack horse which in all truth “gave Canada the North”. They cut winter roads through the forest, using the snow as the carrying agent for their first heavy mining machinery. Others of their number haunted the offices and ante-rooms of government officials until they were able to prove, by the results of the work they had done in the wilderness, that the building of permanent roads would repay the public purse a thousandfold. Ultimately they were able to convince railway operators that the laying of steel into the new camp would result in profitable freight and passenger traffic. Only then, when the right of way was being opened across the muskeg, and the smelter site was being cleared, could they begin to feel they had the wilderness licked. Yet, even after this, Lady Luck still had to deal the biggest hand of all! That was—and is—the great kidney of the H orebody, discovery of which rocketed Noranda from the status of a good mine to that of a supermine, almost over-

night. The Lady still smiles, as witness the discovery of the great mass of pyrites at great depth in the parent mine, which will make Noranda a major producer of sulphur and iron. And she smiles too, in distant places, as in Gaspé, where a vast new project—the mining of “mountains of copper”—had just begun as this book was finished.

The Noranda empire-builders brought a great mine to production, and broke down the barriers of the frontier by bringing modern transportation and power to its door. They did more. They built a modern city in the wilderness, in which modern homes, schools, hotels, churches, shops and theatres soon appeared along paved streets lighted by electricity. Modern sanitation and an ample supply of pure water removed the fear of pestilence and epidemic while the camp was still in its infancy. Hospital facilities brought modern surgical aids and attention to the citizens of the new town. Meanwhile, across a bay of Lake Osisko, another community had mushroomed into existence overnight. This was the raucous, madcap boom town of Rouyn, soon to take on the routine tenor of industrial life and to become the supply centre for other mines and mining communities, results (if only indirectly) of the foresight and tenacity of those who pioneered at Noranda and the world-wide interest which they caused to be focussed on the new camp. So rapidly did they grow that soon the two towns became almost one in the visible sense, if not in the administrative, twin cities which in 1956 housed more than 25,000 prosperous people and were Canada's forty-fourth community in size, towns with the air of youth's jaunty virility, with the sheen of newness still on them, yet with the serious quality of youth-going-somewhere. That was Noranda, less than thirty years after the smelter stack sent up its plume of smoke into the northern sky—the plume that to the approaching voyager by air stands like a beacon to the homing mariner. From this great beginning Noranda has moved forward to even greater things. But here in the wilderness the cornerstone of empire was laid.

It was said, a few paragraphs ago, that the history of mining in the province of Quebec, prior to development of the copper-



gold fields on its western tundra, was not one of great productivity, so far as the metals are concerned. The story of mining in Quebec begins with the early settlers along the Saint Lawrence and their need for the implements of daily life. Probably even before that time aboriginal inhabitants made use of such native metals as they could find and beat them into crude shapes for agricultural and warlike purposes. But neither they, nor the white men who followed them, knew the techniques of the prospector or geologist, for they were virtually unknown at that time, in North America at least. Nevertheless, old records show that more than two centuries ago bog-iron ores were mined and smelted in the Saint Maurice Valley, adjacent to what is now the industrial city of Trois Rivières and that castings and wrought-iron pieces were fabricated. Even before this a limestone quarry had been opened by the settlers at Quebec, where a kiln was built as early as 1620. But such activities are far removed from the term mining as we know it today.

The auriferous sands of the Chaudière River in Beauce County, south of the Saint Lawrence, were the scene of the first gold production in the province, some \$2,000,000 being extracted between 1875 and 1885, the period of great placer activity. Production continued intermittently until 1912, but never touched the peak again.

Occurrences of copper-bearing ores were reported from several areas in the southern section of the province as early as the middle years of the nineteenth century, the first corporate operation recorded being that of the Megantic Mining Company, established in 1848 for the purpose of developing a deposit in the township of Inverness. Several other properties were worked from time to time, principally during the Civil War years (1861-1865) when demand for the metal carried the price of copper to a mark of fifty-five cents a pound. Of the properties prospected and developed in the counties of Brome, Shefford, Drummond, Richmond, Sherbrooke, Wolfe and Megantic, all close to the United States boundary—few survived, though there has been a revival of activity in recent years. The Eustis, in Ascot Township, was long the most famous. Here lenticular bodies of almost

solid pyrite, with accompanying chalcopyrite, were mined to a vertical depth of more than 5,000 feet. Considerably more than a million tons of ore, ranging in copper content from two to eight per cent, were hoisted in the period from the opening of the mine during the Civil War copper boom to the cessation of operations at the end of 1939.

In the realm of asbestos great development was witnessed following discovery of extensive deposits of its silky fibres in the serpentine rocks of the Eastern Townships, at Thetford and Coleraine, in the 1870's. There, from small beginnings, an industry has grown from which the bulk of the world's supply of this invaluable material is drawn today. Apatite, the crystalline phosphate of lime, was produced on the Gatineau and Lièvre Rivers from 1875 until the discovery of richer bodies in Florida and Tennessee caused abandonment. Mica has been mined for more than fifty years, chiefly in the region immediately north of Ottawa, on the Quebec side of the river from which the Canadian capital derives its name. Output to an annual value of \$300,000 was maintained for many years, but competition from Indian and Madagascan mica caused this industry, too, to decline.

Actually the finding of lode-gold in Quebec antedated Horne's discovery on the banks of Lake Osisko by several years. In 1906, two French-Canadian prospectors, Olier and Renault, residents of Ville Marie, made a strike near Lake Fortune, in what is now the township of Beauchastel. Due to what was then regarded as the region's inaccessibility, however, the Lake Fortune ground was not exploited until the years following the opening of Noranda.

Four years later, in 1910, the first gold rush in the province's history occurred in country contiguous to the region soon to become the hub of a great mining empire. The scene was the townships of Joannès, Bousquet and Cadillac, which lie considerably east and north of the Olier-Renault strike at Lake Fortune. Interest persisted through two seasons and in 1911 J. J. Sullivan made the discovery on the shore of Lac de Montigny which was to come into production many years later as the Sullivan Mine, near which several other important producers were



opened later. A strike made on an island in the same lake ultimately became the spectacular Siscoe, now mined out. But none of these finds reached an advanced stage of development until the Horne claims had been staked and subjected to energetic development. In fact it is accurate to say that development of the Sullivan-Siscoe-Lamaque area followed that at Noranda and was, in the final sense, an offshoot of the great Rouyn rush of the early and middle 1920's, as were other developments of the western Quebec district.

One further reference to the period prior to the end of World War I and the record of the early years is complete.

Lead and zinc in commercial quantity and quality were discovered in 1910 in the township of Montauban, Portneuf County. Shipments of ore from the Tetreault Mine began in 1913 and continued for some years.

These, then, were the early phases of mining history in Quebec. The reader will have noted that they were in the main isolated occurrences which did not establish an industry on what could be regarded as a sound footing. Actually, prior to the discovery and development of Noranda, Quebec was largely overlooked by the seeker after either precious or base metals, despite great finds close to the interprovincial boundary in Ontario. Thus, in 1926, prior to the commencement of production at Noranda, output of the province in metals totalled a mere \$1,879,528. Ten years later a figure of \$30,643,787 had been reached—an increase sparked by the development of Noranda and its effect upon exploration throughout the area commonly called Western Quebec. During that decade Noranda itself expended \$36,000,000 in supplies, \$10,800,000 in transportation, \$10,500,000 in taxes, \$24,000,000 in wages, emptying a constant stream of dollars into the economic bloodstream of a nation and a continent. By the end of World War II, the mineral production of the province had reached a figure of \$150,000,000 a year. It has been rising ever since, and touched a total of \$385,427,501 in 1955; a spectacular performance of which Noranda may well be called the bellwether.

This, then, is the story of the changing of a wilderness of

muskeg and fire-ravaged forest into a modern civilization. But it is far more than that. It is the story of how, from these beginnings, an empire has grown, an empire which has reached into new wildernesses to tame and civilize them, and into the older centres to make available for man's use the many refined products derived from the raw materials surrendered by Nature and found with the smiling aid of Lady Luck!





## THE PROSPECTOR

## CHAPTER TWO

### HORNE COMES TO LAKE OSISKO

THE STORY OF EDMUND HORNE belongs among the classics of mining lore. In it are combined all the elements with which the writer of fantastic tales of fiction has regaled his readers; to them are added new elements, new story angles, some of which when seen in retrospect assume a quality which not even the writers of fanciful mining tales—and their name is legion—have had the temerity to employ. To suggest that certain aspects of the story put a strain upon the credulity of the layman is to commit a masterpiece of understatement.

Horne was a miner and prospector of wide experience long before he ventured into the wilds of Rouyn township. As a youth of nineteen, in that part of Nova Scotia where every male child used to be born with the glint of gold in his eyes, young Horne found a job at the Oldham Mine, located not far from his boyhood home at Enfield. First as deckman, then underground and, finally, around the battery of stamps with which the Oldham mill was equipped, he stayed there four years before the miner's age-old malady, wanderlust, seized him for the first of many times. The original infection was provided by tales of distant goldfields, told in the Oldham bunkhouse by Nova Scotia miners who had come home to work for a brief period, for Nova Scotians are the greatest tribe in all North America for leaving home and coming back again. Horne turned his face westward, securing no relief for the itch of "prospector's feet" until he had reached Colorado and found employment near Aspen. Six months later he fell seriously ill. On reaching convalescence he obeyed the Nova Scotian's impulse and went home to recuperate.

Health recaptured, the young miner decided to remain in his native province at least long enough to earn a stake with which



to finance new wanderings. He worked for three years at the Renfrew and then for brief periods at the Rawdon, Malaga and Whiteburn properties in Queen's County, until approximately four and one-half years had been spent among the synclines and anticlines of the Bluenose country; too long for any bred-in-the-bone gold hunter to stay in one place. Thus 1897 saw young Horne on his way to the Slocan country in distant British Columbia, where he worked for four years in gold mills at Nelson, at the Athabasca and at the Ymir.

Once again Horne returned to Nova Scotia and once again to the Renfrew, spending a year in its stamp mill and out in the bush, prospecting. Thence he moved on to the Saint Anthony as mine-and-mill manager, but came home once more to the Renfrew, which always beckoned to him when distant fields lost their verdure. This time he spent two and one-half years prospecting; a small part of it cutting wood for the boiler-house. "But I didn't cut much," he said with a grin, one summer's day in the 1930's, leaning against the woodpile on this selfsame Renfrew ground. Why should a young man stay home and cut wood, when there is all the world to be seen and feet are itching for the trail?

This time he travelled in a direction directly away from former haunts and found himself prospecting in Labrador, where he stayed through one season. At the close of this season he decided that he had drunk his fill of fly-ridden summers, early freeze-up, endless northern winters and water-logged break-up times. Horne believed then that he had recovered forever from the agues of the mining fever. "Henceforth," he said, "I was determined to give the bush a wide berth. I had decided to work for a living like a city-bred man!" So he went to Manchester, England, of all places for a prospector to go!

No permanence attached to the arrangement, whether because Horne disliked Manchester—a common ailment among those who enjoy the sun—or because he had heard or read of new gold finds. Horne himself could not remember his reasons for departure. He rubbed the grime of Lancashire from his eyes

before he had been there long and decided to try California and mining again, bringing up in Johnsville, where the hills are high and the snows deep. There he remained until the spring of 1908, skiing to work on wintry mornings and liking the climate, but still not finding his pot of gold. Then, in 1908, Horne heard the distant strains of the Cobalt Song and betook himself post-haste to Northern Ontario and the opening of the most important chapter of his wandering miner's odyssey.

In Cobalt he worked in the mines and mills adjacent to the Silver Sidewalk of that boom camp's heyday. But the bush and the rainbow's end persisted in their call and soon he was on his way to Gowganda, where he spent the greater part of two years, prospecting, staking and carrying on assessment work on his ground, until he sold it for \$15,000 and began to think there might be such a thing as miner's luck.

He stowed the \$15,000 in his poke and wondered what to do next. While he was thinking and taking his ease in Cobalt, news of Porcupine and the great adventure called Hollinger seeped down the grapevine telegraph from the north. Ed Horne shouldered his packsack and joined the trek. He arrived in the roaring new gold camp not far behind the first stakers, but Horne found nothing to capture his fancy. In due course he made his way back to Swastika and east from there into Kirkland Lake, arriving with the advance guard and staking ground in the new camp even before the arrival of its two heroic figures, Oakes and Wright. He staked what became known as the Kirkland Townsite claims in 1911, abutting on what was to become the famed Wright-Hargreaves Mine. "I thought I was going to make some quick money for sure," he said, years afterwards, "but the luck was no good. The good stuff was all across the street at the Hargreaves, although I did cash in, in a small way, later."

Probably it was just as well. Had Horne struck it lucky on the Townsite claims he might never have ventured across the border into Quebec. But his luck was out in Kirkland, and Horne began to cast about. First he made a hurried visit to the Lightning River country, thence down to Cobalt again, where



he was successful in persuading a group of friends to grubstake him on his first tour over the interprovincial boundary into Quebec and the region around Lake Osisko.

One day, when talking of Noranda, Horne was asked why he suddenly liked Quebec. He scratched his head and grinned.

"Well," he said, "it didn't seem sensible to believe that all the good geology would quit at the Ontario border, just because somebody had drawn an imaginary line there. The country had been on my mind for two or three years, even though I knew its isolation would make the job of raising mining money difficult. Besides, a fellow could probably shoot the odd moose, and the fishing was sure to be good!"

The first visit to Lake Osisko was uneventful. Early in the season rumours had been heard of a gold find "about two townships" east of Rouyn, and a few prospectors had gone in, among them C. A. (Clem) Foster of Haileybury. Foster returned from northwestern Quebec before Horne set out. As he told the story around Cobalt and Haileybury, the rumour of a gold strike was unfounded. Horne, his plans already laid, decided to carry them out in any case, and persuaded Bob Bryden, another well known northerner, to accompany him.

They entered the Quebec hinterland by canoe, by way of the Ottawa and Kinojevis Rivers, studying the general geology of the region as they moved along. Near Turnback Lake they encountered a man named Richmond, prospecting a molybdenite showing, their only meeting with another human being during a stay of one month. Leaving Richmond to his molybdenite, Bryden and Horne fitted their plans to the name of the lake and turned back, branching away from the Kinojevis at Routhier Lake and swinging off to Lake Osisko by way of Rouyn Lake. There they camped, spending several days searching for signs of geology favourable to the deposition of gold, but discovering nothing of moment. Horne returned to Cobalt and his backers empty handed, but with the conviction firmly rooted in his mind, nevertheless, that the unexplored wilderness of Western Quebec was worth serious investigation. "My strongest impression," he said, years later, "was that of favourable mineralization around

Osisko. I knew I'd be coming back!" His backers felt otherwise, however; for that was the end of the Cobalt syndicate.

For three years thereafter the much-travelled prospector failed to revisit his dream country. Nobody could be persuaded to grubstake such a venture. The region was "too isolated". Horne spent his summers, instead, in Kirkland Lake, Porcupine and Boston Creek, the winters at New Liskeard, contriving somehow to eke out subsistence. At last, in 1914, the tug of the Quebec bush and memories of its geological structure became too strong to resist. Horne decided that he must revisit Rouyn township.

He persuaded Bert Armstrong of New Liskeard and Bert McDonell of Buckingham, Quebec, both experienced bushmen, to accompany him. A new route of entry into the country was chosen, to avoid the rigours of paddling the Ottawa and Kinojevis, much of the time in stiff currents, and the backbreaking toil of packing load and canoe over portages, on which not even crude trails could be found.

Travelling north, the trio launched their heavily freighted canoe from Klock's Farm, near the Quinze dam, making their way thence into Quebec by what Horne called the "chain-of-lakes" route, which leads through the waters of Barrier and Pelletier Lakes. From Pelletier Lake they portaged into Osisko, down what is now Rouyn's paved and lighted Main Street, pitching camp close to the spot where Horne and Bryden had been three years before. What is now Noranda ground was prospected and a showing of well-mineralized, heavily fractured rhyolite was discovered slightly to the south of the original Number One shaft, which would not be sunk for almost another decade.

"I found the change in the general character of the rocks more pronounced, accompanied by a general disturbance and lots of fracturing," Horne reported later. He liked what he saw.

The three partners spent several days on the scene and as many nights debating the problem of staking. The spectre of isolation haunted their leader. The fact that the district could be reached only by canoe, over difficult portages; the obvious impossibility of bringing in equipment and supplies by this method; the



problem of raising money for exploration; even the question of recording claims, and thereby calling general attention to the neighbourhood, claims which later might lapse for lack of funds or facilities for doing necessary assessment work, and so be restaked by others: these were the deterrent factors. Opposed to these was the always present possibility of others making a strike and staking the ground, should Horne and his friends go away and leave it open.

Horne scratched his head and wondered. This time he had come on something which he believed to be worthy of serious examination. But the problems of Nature remained almost insurmountable, unless a man had strong financial backing and Horne had nothing beyond his own meagre funds. Meanwhile, supplies were running low. Outside, in the country of telephones, telegraphs and newspapers, the world had gone to war. Markets had crashed. Exchanges had closed. No one had money to squander on wildcat mining gambles. The decision rested with Horne. "I decided," he said, many years later, "to take home a bunch of samples for assay. If they kicked, that would be time enough to come back and stake." The others agreed. Horne took one last look at his rhyolite, pulled his last catch of fish from Osisko and dug his paddle into the waters of Rouyn and Routhier Lakes, into the Kinojevis, across the portage to the Ottawa and home.

Bitter disappointment lay ahead. The rhyolite samples, when assayed, gave no indication of gold. That day, outside the assay office in Haileybury, Horne decided to forget it and get on with the job of earning a living. "I was all washed up on golden dreams," he said.

But a prospector's dreams die hard and Horne spent most of the next two summers wondering when somebody else would stumble on his rhyolite and, having time and an outfit for thorough exploration, set the mining world on fire with a spectacular strike. To his friends around the hotels and bowling alleys of the New Liskeard-Haileybury-Cobalt region he talked incessantly of the country, always in terms of a stake and another try.

Meanwhile a prospector must eat. The open seasons of 1915

and 1916 were spent in Boston Creek, prospecting and taking out timber, coupled with assessment work on ground already held in his name in that area. A prospecting trip was made into Lightning River. Kirkland Lake was revisited. The Townsite claims had been optioned to a man named Bob Lyman, Horne retaining an interest, and, as Kirkland mushroomed into its first glory, a deal was made which netted sufficient money to enable Horne to finance his next prospecting venture.

World War I settled down to its long drag-out. Men had come to accept war as "normal" and, having to live, so far as possible had resumed their habitual ways of life. Money was becoming available again to the mine-hunter, but not much of it for the seeker after gold. The search was for the base metals, the armament minerals. Realizing this, but never dreaming for a moment that Osisko's shores concealed, as well as gold, a great enrichment of copper, Horne decided to be his own grubstaker.

Now came the task of choosing a companion for the next venture. Around the bowling alleys of New Liskeard he had come to know a young Jewish tenderfoot, Dave Solomon by name. The youngster, hearing of the impending journey, begged to be taken along. "He was a good kid," Horne said of him. "Green as the devil, but plenty of guts and a good bow paddler. That was all he had. But I took him anyway. He worked out fine!"

The 1917 visit was of approximately a month's duration. Sourdough and tenderfoot made their way across country, through the chain-of-lakes, and pitched their tent beside Osisko. Horne prospected the lakeshore for several days, while Solomon remained in camp to attend to the cooking. Northwest of the hill where the Noranda smelter now stands, adjacent to the point where the Number Two shaft ultimately went down, Horne found signs of what was later revealed as a massive body of rhyolite.

Again he faced the problem of risking all his money in staking and elementary exploration. Had he discovered any spectacular showings he would have thrown his last dollar into the pot. But, so far, everything he came upon was a "teaser", carrying



just enough mineralization to keep a believer interested and coming back for more. Again he decided to wait. Again he turned his bow towards home. But this time he was almost stampeded into staking, for on the way out Horne and Solomon met four other prospectors, in two groups, the second on Turn-back Lake, whither Horne and Solomon had paddled to examine the ground that Richmond had been prospecting for molybdenite in 1911. Horne found himself facing the possibility that either group might visit Lake Osisko, stumble by chance on his camp-site, and be led thence to the scene of his discovery on the hill. Should he return and stake? Supplies were low, for he and Solomon had stayed in the country as long as their larder permitted, leaving little margin for the outbound journey. Still he feared that his ground might be in peril of discovery, now that others were feeling their way into the country. He decided to run the chance of his miner's luck holding. It did, possibly because Rouyn Lake and Lake Osisko were off the main stream of Kinojevis travel, such as it was. Certainly if other parties entered Osisko that autumn they did not visit the ground that became Noranda or, if they did, they passed by, unseeing.

Horne returned to New Liskeard determined to form a new syndicate whose members would be in a position to grubstake a prospecting expedition and to foot the bills for recording claims and subsequent surface work. Surely, he thought, enough money could be found around the three towns, New Liskeard, Cobalt and Haileybury, to let him come back and stake the ground which his prospector's sense told him had the makings of a mine. But new assays ran disappointingly low. Times were hard, money was elusive and little interest was being manifested in gold ventures. Down in Toronto Harry Oakes was peddling the shares of Kirkland Lake's spectacular Lake Shore for pennies, to keep development going. Months passed and still Horne found no takers. The war ended and the world entered upon the turmoil of the first days of peace. The proceeds of the Kirkland Townsite deal were gone and Horne had nothing to show for his cash and his journeys in the bush but his own belief in the country. Unless he could infect others with that belief he might

as well turn his eyes elsewhere, or go back to work in somebody else's mine. The time had come to stake or forget it. But two years passed, and he could do neither.

Around the Grand Union Hotel in New Liskeard Horne continued to talk Quebec to any of his friends who would listen. Most of them scoffed. But some at least professed to be interested, among them John L. Bucher, the hotel-keeper. Together Horne and Bucher talked with others. Almost invariably the answer was the same: "Suppose you do find a mine? To whom are you going to peddle it, away out there in the wilderness? And is this the time, anyway, to be looking for gold mines, with the gold business deep in the doldrums?"

Horne's reply was, "Stake now and hold for better times." His point of view was not easily translated into enthusiasm in his friends. It was not until the spring of 1920 that he was able to find a sufficient number of supporters to knot together a shoe-string to provide immediate funds. Several meetings were held in the Grand Union Hotel, meetings not notable for the enthusiasm of those present. At last, however, an agreement was reached and the Tremoy syndicate contract was hammered out, specifying the monies to be raised and the ultimate division of profits, as, if and when they might be made. The key word, of course, is "if".

A copy of that agreement is on the desk as I write. It bears no dateline and its legal status might well have been called into question. It remains, nevertheless, the basic Noranda contract and it has translated a few hundreds of dollars into many millions. It made several men independently wealthy. It gave others, who did not choose to wait for long-pull profits, thousands per cent in quick turnover. It would be pleasant to say that it is unique among mining documents, but such a view would be far away from fact, for it is from such beginnings as this that many of the great mines of the world have come.

Under the terms of the contract, nineteen sixty-fourths of any profit were to be divided between Horne and Ed Miller of New Liskeard, who was to accompany Horne as his prospecting partner. Five sixty-fourths each were to go to H. O'Grady, John



Varette, James Taylor, John Bucher, J. Brett, J. Kirkwood, Len Hill and O. E. Varette. The remaining five sixty-fourths was to be divided between J. C. Redpath and Doctor D. Fleming. With the exception of Horne and Miller, funds were paid into the syndicate treasury on the basis of twenty-five dollars for each five sixty-fourths interest. Thus the financial foundation on which Noranda was built, if we overlook Horne's small expenditures for earlier visits to the country, totalled \$225. Horne's picayune grubstake would be turned into more than a quarter-million in cash and an interest of more than six per cent in one of the world's richest mines, and the empire founded upon its wealth. True, the Tremoy partners added to the pot from time to time in dribbles, until a total in excess of \$3,000 had been contributed. But this was the beginning, a meeting of twelve men in the back room of a north country hotel, the signing of a handful of cheques. To some of these men, twenty-five dollars represented a major gamble.

Provision was made in the agreement for future levies "to carry on necessary work on any claims that may be staked", to which "all parties . . . will pay equal amounts", any defaulter to be deprived of his holdings should he fail, or not desire, to contribute.

Two years to raise a grubstake of \$225! Two years to find the scant funds required to enclose the boundaries of one of the world's great mines! In such fantastic fashion has the history of mining been written.

Horne and Miller set out for Quebec during the month of August, crossing Lake Temiskaming from Haileybury to Ville Marie on the Quebec shore to secure necessary mining licences from the Recorder on their way into the country. From there they proceeded by the arduous river route until they came in due course to Lake Osisko. As soon as camp had been pitched, Horne led Miller back into the bush and showed him the two points at which rhyolite had been found on his previous visits. After that they prospected the immediate vicinity for several days, but found nothing of importance, because of the deep overburden covering

the bedrock beneath. Miller liked the fracturing of the rocks on the hill, where Horne had been before, but agreed that it showed nothing of a spectacular nature. On September 11th, 1920, therefore, they decided to stake. They enclosed a total of seventy acres, the ground in which lay a great portion of Noranda's millions, the huge, rich H orebody included.

Their staking finished, and freeze-up not far distant, Horne and Miller struck camp and left for the south, travelling by the Kinojevis-Ottawa Rivers route and coming out at Ville Marie, where they recorded their ground. Less than four weeks from their departure, the prospectors returned to New Liskeard to report to their associates on their journey and to lay plans for further work in 1921.

The next season witnessed the beginning of surface exploration which was to result, more than a year later, in bringing the property to the attention of the men who were to make a mine at Noranda. Adding another of the Tremoy partners, Brett, to their crew, Horne and Miller packed supplies into Lake Osisko immediately after break-up and set to work to prospect and trench the ground already staked and to examine the outlying area.

Nineteen hundred and twenty-one was the year when, to quote Horne, "we began to find something". As a first step, stripping of the rhyolite showing was undertaken, adjacent to the point from which Number Two shaft was to be sunk later. Channel-sampling of a trench across this outcrop gave gold values of from \$3 to \$5 per ton, at the going price of gold—\$20.67 an ounce—the first visible encouragement, beyond that of general geology, which Horne had encountered since first he had visited the district.

The partners then moved across to the vicinity of the subsequent Number One shaft and proceeded to strip and trench their second showing. This time greater encouragement came their way, for the results of their channel sampling returned assays running from \$15 to \$32 per ton in gold. Recognizing the improving nature of the ground, the prospectors immediately staked an additional 160 acres, east and south of the original



claim, some of it in Miller's name—it became known as the Miller Claim—the rest in Horne's, but all of it actually for Tremoy.

Half way through the summer, before the move to the second showing, the two partners returned to their base, taking with them their first trench samples for assay. They arrived to find interest in their undertaking awakening in the three jumping-off towns, Cobalt, Haileybury and New Liskeard. Field scouts for numerous mining companies were listening with attentive, if doubting, ears to tales of Horne's activities in the Quebec hinterland. Most of them dismissed the tales with a snap of the fingers and a laconic "Too far away." Here and there other prospectors were deporting themselves with the studied secrecy peculiar to their guild when great plans are afoot. Such are the phenomena which precede any great mineral rush. Horne and Miller, knowing the symptoms, decided to hurry back to Osisko and to complete as much work and additional staking as might be possible before the descent of winter.

While in New Liskeard, however, they made contact with a man named Reddington, a field scout for Coniagas Mines, who told them, on their departure for Quebec province, that he hoped to come in and examine their showings before freeze-up. Back in the Osisko country, their summer's assessment work completed and supplies beginning to run low, Horne and Miller waited day after day for their man to come, for a deal with such an important company as Coniagas might mean money for development and profit for themselves and their partners. But the days drew in towards winter and still no Reddington came. Freeze-up impended. Food was down to a rationing basis. Still they waited, and still no visitor came. Finally, with ice forming in the bays and along the smoother stretches of the rivers, they could wait no longer. Loading their sacks of samples into the canoe, they turned towards home, arriving a few brief days before the country became locked in the jaws of the northern winter.

They left Ville Marie on the last homeward lap, loading their canoe on the deck of the trans-lake steamboat, which was making one of its final trips of the season. In due course they came to

the Haileybury dock where in the act of unloading their canoe, their loose gear, packsacks, sleeping bags and the residue of the season's supplies, went overside into the lake. Frantically they salvaged what they could, but, as darkness fell, Horne realized that he had lost, somewhere at the bottom of Lake Temiskaming, the packsack containing the most prized of his channel samples from the hilltop at Osisko. The results of a summer's work in the bush rested in twenty feet of water, whose surface might freeze solid any calm night. Each succeeding day Horne fished from the end of the Haileybury wharf, grappling for his packsack. Night after night he returned to his room, discouraged. At last, on the sixth day, Horne's patience was rewarded when the rock-filled packsack broke surface on the prongs of his grapple. Those were the samples which kicked back with thirty dollar assays and kindled the first hot interest in Rouyn.

Results of the assays from Horne's waterlogged packsack quickened the interest of every member of the syndicate. During the winter meetings were held, plans discussed and new money raised. In February, Horne and Miller were busily engaged in assembling supplies, as it began to be patent that the opening of the lakes and rivers would see the beginning of a rush into the Rouyn region. Presscott Woodward, a tailor recently arrived in New Liskeard and a newcomer to the syndicate, was added to the working party, exchanging his labour and time for a share in whatever proceeds might accrue and becoming the thirteenth and final member of the Tremoy group. In March, Horne, Miller and Woodward set off from New Liskeard to travel as far as possible by rail through Kirkland Lake and strike overland across the Quebec border.

From the end of steel they rode on a lumber sleigh for a short distance, then donned snowshoes and hauled their outfit by toboggan through the bush and over the frozen surface of wind-blown lakes. Their object was to reach Rouyn before break-up and to stake as much new ground as possible before the opening of the waterways brought a horde of prospectors into the country. Following the general route of Horne's chain-of-lakes, they consumed nine days in making the journey from the head of



Long Lake to Rouyn, by way of Kekikoo and Pelletier Lakes, much of it in the blinding snows of an equinoctial blizzard. In summer such a distance could be traversed by canoe in a day.

Worn and trail-weary, the party reached the claims in the dying days of March and immediately set to work to add to the holdings of the syndicate. Food supplies sufficient to last from three to four weeks had been brought along on the toboggan, but almost two of those precious weeks had elapsed before they were organized for the task in hand. Stormy weather for the outbound journey might call for spending at least a week in the bush before any place of habitation could be reached. They staked, therefore, in haste, adding four hundred acres to those already recorded, an area surrounding the existing Tremoy ground. Their stakes driven home, Horne, Miller and Woodward turned west and made for the provincial border and civilization with all haste. They reached New Liskeard late in April and immediately made plans to return and carry on additional surface work. Meanwhile they visited the Mining Recorder's office in Ville Marie, to record the new staking.

Events now began to happen rapidly. In the centres "outside", the eyes of the mining world began to turn towards Rouyn. Prospectors began to move into the country, seeking new showings to stake, or opportunity to "tie-on" to Horne's ground at Lake Osisko. The Tremoy syndicate began looking for outside money to finance its venture, while its members dug into their slender bank accounts for funds to enable Horne and Miller to continue their work. In this way, \$3000. was raised and spent.

Re-outfitted, Horne and Miller were back at Rouyn in June and began to blast into surface exposures, running a trench eighty-five feet in length across the principal rhyolite showing, which assayed about four dollars' gold per ton. A section in the centre ran considerably higher.

On the last day of sampling, a smudge, used to keep the flies away, set fire to the undergrowth while Horne and Miller were at lunch. In speaking of this experience Horne dismissed it in five words: "We had a close call." But the call was close enough to drive the men down to the lake, until a change in

the wind blew the bush fire in the making into barren ground.

After the fire, Horne thought it would be a good time to see if he could find any float or outcrop on the burned-over ground, and discovered what proved later to be Noranda's A orebody. It was covered with overburden, but there seemed to be a slight, projecting ridge, also covered. Horne drove his pick in, to see if the rock was near surface and struck it within six inches. He then cleaned off a small section. It was smooth and hard and would not break easily, but on driving his pick into it, Horne discovered that the rock was full of sulphides. He and Miller exposed about two feet of rock and sampled it. Later, when assayed, it carried ten dollars per ton in gold. (The reader is asked to remember that the price of gold was then \$20.67 an ounce, as compared to \$35 today.)

Meanwhile, M. J. O'Brien, Limited, a Canadian mining corporation of renown, sent a scout to look at Horne's ground. He reported favourably to his principals, who notified the Tremoy group that as soon as their field engineer, then in Manitoba, returned to the east, they would make a thorough investigation. Before that time arrived, however, the Horne option had been snapped up elsewhere.

By midsummer the members of the syndicate were feeling the tingling excitement which comes to the mining man who has something to sell and buyers in sight. In July the rumour ran around the three towns that Guggenheim money was beginning to feel its way towards Quebec. About the same time J. W. (Jack) Morrison, an engineer formerly with Lake Shore, and a close personal friend of Horne, visited the property and sampled the rhyolite in five foot sections across eighty feet. A flinty section in the centre of the body gave \$75 in gold per ton, a five foot section on either side of this about \$5. The remainder of the Morrison assays averaged \$2.40 per ton. Where Horne had secured an assay of \$10 per ton over two feet, Morrison's samples ran \$12 per ton across three feet. This section ultimately was proved to be the rim of the A orebody.

Through Henry A. Wentworth of Boston, Morrison was successful in interesting an American group in the property's



chances. A consulting geologist was despatched to Canada and Horne and Morrison hastened to Haileybury to meet him. When the visitor heard of the location of the ground, however, and that all supplies must be freighted over one hundred miles of tortuous rivers and portages by canoe, he turned thumbs down, sight unseen, and returned to the United States, leaving in Haileybury and New Liskeard a disappointed group of syndicate partners.

Horne's backers had not much longer to wait for action, however.

Some months prior to this, about the time Horne was making his wintry journey across country, two United States' mining engineers of international repute, S. C. Thomson and H. W. Chadbourne, had formed a syndicate to explore the possibilities of mining in Canada, particularly in Northern Ontario and the Kirkland Lake area. To them, through Peter Graham, a well known Haileybury mining man, Morrison sent his report on the Horne claims, with strong personal recommendations. As a result Chadbourne left at once for New Liskeard and Haileybury, arriving towards the end of July 1922, and immediately entered into negotiation with the Tremoy partners for an option on their ground. A deal was completed late in August.

At this juncture, the story leaves the maker of the strike and his backers, as they would no longer be a part of what soon became the Noranda organization. It is only right at this point, therefore, that tribute be paid to Edmund Horne and the members of the Tremoy syndicate. Horne's name is written in imperishable letters in the annals of the mineral kingdom. To him, as finder and staker of Noranda, for his patience and determination, honour certainly belongs, for he laid the cornerstone on which the mining industry of Western Quebec has been built. But for Horne, the great industrial area of which Lake Osisko is now the hub might still be barren bush. It was Horne who stood firmly to his belief that the isolation could be beaten, who insisted that the geological structure at Lake Osisko, the big gossan, or "iron hat", on the hilltop was favour-

able to rich depositions of commercial ore. Time and money soon established the rightness of his belief.

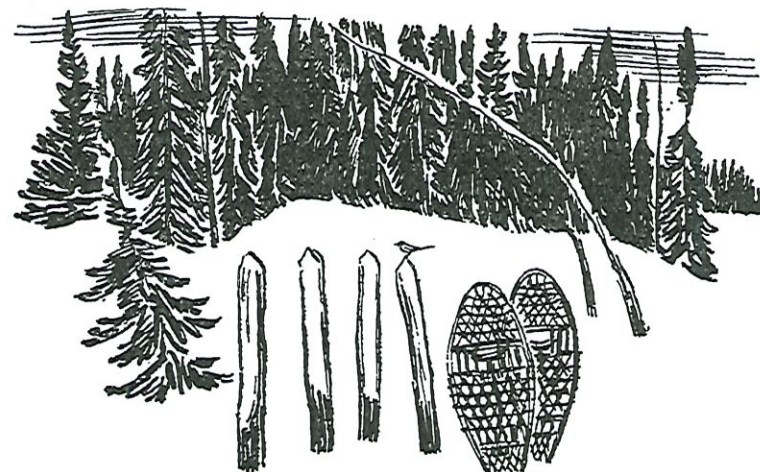
To those associated with Horne in the Tremoy syndicate, too, honour belongs for their perseverance and willingness to gamble with what, on the face of it, was a long-shot risk. They were not rich men. Yet once they had signed their first twenty-five dollar cheques they went along with Horne to a man, finding the monies required for licences and recording fees and for the surface work which brought such amazing results.

What has become of the courageous few who found the dollars to give this great mine its start and so established mining as a major industry in still another Canadian province? Some have died. Most of them lived to enjoy the fruits of their gamble as men of considerable substance. A few sold out, content to accept what seemed at the time to be a handsome profit of tens of thousands per cent in relation to the investment involved, a profit which soon was proved to be a mere bagatelle compared to that which accrued to those who held on.

Horne returned to his beloved Nova Scotia, this time with wealth in his pockets. In 1927, shortly after Noranda reached production, he purchased a large farm in a beautiful lakeside setting several miles from the village of Enfield and turned his attention to pure bred cattle. First with Holsteins, later with Herefords, he gained Canada-wide recognition as a stockman, carrying away ribbons and prizes from many of the country's most important fairs and exhibitions. But cattle were not enough to fill the waking hours of the veteran prospector and, in 1937, the call of the bush proved too strong to be denied. Horne turned again to his old love, the Renfrew, and delved again into its anticlines in search of precious metal. To see him on the streets of Halifax, you would have marked him as an elderly, prosperous man of business, probably a farmer in a big way, as he was, but certainly not as a lifelong prospector. But when you saw him on surface, or underground, at the Renfrew you met the real Edmund Horne, for his heart was always the mine-hunter's heart. In this he never changed.



So Horne and the Tremoy partners moved on, replaced by another group of adventurous spirits, who brought to production one of the world's great mines and founded and built the Noranda empire.



## EXPLORATION



## CHAPTER THREE

### THE THOMSON-CHADBOURNE SYNDICATE

SHORTLY AFTER THE END OF WORLD WAR I, two mining engineers were introduced in a New York skyscraper office and immediately became friends. Even early acquaintance revealed a common viewpoint, for each was keenly interested in the possibilities of mining in northern Canada, a region only then coming to the forefront as one of the world's great potential mineral areas. Friendship soon led them to look towards Canada together. They became partners at once in spirit and soon in fact. To the partnership they brought different temperaments and varied abilities which proved to be ideally suited to each other once they had joined forces.

At the time when S. C. Thomson was introduced to H. W. Chadbourne, Edmund Horne was "at rest" in New Liskeard, during one of the seemingly endless periods of delay, while he looked for a grubstake with which to return to Rouyn and Lake Osisko for his fourth visit. His Kirkland Townsite bankroll had already been spent in Rouyn township. The Tremoy syndicate was not yet born. How chance brought together, first, Thomson and Chadbourne, and then, these two and Horne, is the essence of the story of the Thomson-Chadbourne syndicate, parent of Noranda, founding organization of the Rouyn-Noranda camp and of the mining industry of western Quebec.

When Sam Thomson and Humphrey Chadbourne met for the first time, Thomson was a gold-mining engineer with a quarter-century's experience, renowned as one of the Rand's premier consultants, a man who had participated since 1893 in the search for precious metals. Chadbourne's experience, gained principally in the United States, was equally wide in scope, particularly in relation to the association between mine-making



and mine-financing. Thomson, then, brought to the partnership more than twenty years in gold mining on two continents, North America and Africa, while Chadbourne gave it a sound experience of American mining, added to financial associations which assured ample monies to carry out any programme on which they might embark.

After pursuing academic studies at Yale, young Thomson had entered the School of Mines at Columbia University, from which he had been graduated in 1893. He left immediately for California, then reaching out towards its greatest gold boom. A year later, while bound east to holiday at his family home in Pennsylvania, the young engineer was asked by the great John Hays Hammond to go to Africa. Thomson asked for time to consult his family. His father counselled against the offer, urging the son to remain in his native land. So the young engineer went back to the golden west.

The Hammond offer was repeated a year later and again Thomson set out for the east to consult his father. While *en route*, however, he read that Hammond had just been sentenced to death for his participation in the Jameson Raid. "I decided," Thomson said, years later, "that it was probably not the best time to go." (The sentence on Hammond, of course, was not carried out.)

Soon a third South African offer came, from Thomas H. Leggatt, and this time the young man turned his steps towards the Rand, where he arrived in 1898 to serve as Leggatt's assistant for four years, thereafter to spend twelve additional seasons (1902-1914) in charge of the mining operations of Norman and Company and Sir Abe Bailey. During that time Thomson's major concerns were the Witwatersrand Deep, the Treasury and Great Central mines. Many other properties came under his charge, as well, so that by the time he left Africa, Thomson was widely known to the gold-mining fraternity. During his stay in South Africa, Thomson saw service as a lieutenant in the British Army, through the later phases of the Boer War.

It was Thomson's plan, on leaving the Rand in 1914, to engage in consulting practice in London, England, principally

for Sir Abe Bailey and his associates. World War I intervened while he was on holiday in the United States, however, thus reserving Sam Thomson's future to Canadian mining, and to Noranda.

When Thomson first met Chadbourne, America was just settling down to the ways of peace. Chadbourne, as well connected in New York financial circles as in the mining industry, was the scion of mining royalty, for his father was Thomas L. Chadbourne, general counsel of Calumet and Hecla. The son, who was to play so great a role in establishing the Noranda enterprise, was born in the heart of the copper country of northern Michigan, at Houghton, on November 4th, 1885. After receiving his formal education at Milton Academy, Milton, Massachusetts and at Harvard University, young Chadbourne moved on to the Michigan College of Mines, from which he was graduated in 1909 with the degrees of Bachelor of Science and Mining Engineer. Rounding off his technical studies with Columbia University's special short course in geology, he set out in search of experience, gravitating, as was only natural, to his native Michigan, where he worked in smelters and mills and as a surveyor in the copper mines. Thence he moved along to Nevada and California, working first as assayer and then as an engineer. Experience in the coal mines of Pennsylvania followed. Then, turning his attention to oil, Chadbourne acted as a field scout for companies operating in Oklahoma, Texas and Wyoming. Following the sale, in 1913, of a group of important mining properties in which he held a large interest, Chadbourne announced his intention of retiring from active practice in 1913 and became a gentleman farmer.

But retirement was not for Chadbourne. A venture into everyday commerce as district manager in the south central states for one of the great automotive corporations could not provide the flavour of excitement which a mining man craved. By the time of his first meeting with Sam Thomson in 1920, Chadbourne already had returned to mining and had assumed charge of exploration work for an important New York group. From this, through conversations with Thomson and other



friends about the great possibilities each foresaw among the rocks of the north, it was only a short step to formation of the Thomson-Chadbourne syndicate in 1921.

It was each engineer-partner's view that tremendous possibilities lay dormant under the virtually unscratched surface of Canada's Pre-Cambrian Shield, provided the investigator appreciated the risks involved in gambling on the future of a country that was then considered inaccessible wilderness, even by many members of their own profession. Although neither Chadbourne nor Thomson had actually mined in Canada, each enjoyed wide acquaintance in the country, each had more than a passing knowledge of its geology, each had the firm belief that Canada stood at the gateway to a great future in mining.

They talked often of the north; in their offices, and over leisurely luncheons lasting deep into the afternoon. Each agreed with the other that the real job was to go out and look for new mines, that the only proper support for such a search was that of men of substance who would be willing to ride a long-shot gamble.

"We didn't want any borderline mines, any low-grade ore-bodies and high-scale bush costs. We were out for a big mine. All or nothing." That was the programme, their estimate of what the future must be when they joined forces and formed the Thomson-Chadbourne syndicate in February, 1921.

Such a policy obviously called for associates who could and would gamble on these wide-open terms. They found them in Thomas L. Chadbourne, brother of H. W., an outstanding corporation lawyer in New York; in Harry G. Haskell, vice-president of E. I. DuPont de Nemours Company of Wilmington, Delaware; Robert W. Pomeroy, retired capitalist of New York; James A. Archibald, president of the Miners' National Bank of Pottsville, Pennsylvania; Hugh C. Wallace, United States ambassador to France; Percy A. Rockefeller of New York; Alfred J. Brosseau, president of Mack Truck, New York; F. Ward Paine, broker, of New York and Boston; John H. Brooks, broker, of Wilkes-Barre, Pennsylvania; G. P. Bartholomew of American Smelting and Refining Company, New York; William Boyce

Thompson, of Yonkers, N. Y.; Irving W. Bonbright of New York and William E. Corey, formerly president of United States Steel Corporation. A glittering array!

No mining venture ever began with stronger backing, for here were men whose combined fortunes ranked as a king's ransom; fourteen men of wealth, associated with two prominent engineers. To their numbers, later, were added four others; Pierre Jay Wurts, James Y. Murdoch (first and continuing president of Noranda Mines, Limited), John B. Holden and Fred Hellman. These, with the assistance in the final stages of that peerless Canadian mine-maker, the late Noah Timmins, through his Hollinger Consolidated, brought Noranda to the status of a great mine within the space of five years!

The Thomson-Chadbourne syndicate inverted Edmund Horne's *modus operandi*. First, Horne found his mine, then cast about for grubstakers to enable him to prise open its rocks. Thomson and Chadbourne found their grubstakers first, and then set out to look for their mine.

In the beginning the syndicate turned its attention to Kirkland Lake, its directing partners firmly believing that the camp's great break would be found to extend west and east beyond the original limits of its development, as has since been clearly established. Thirty claims lying to the east of the Tough-Oakes (later re-named Toburn) were optioned during the summer of 1921, the ground subsequently being sold to Continental Mines, Limited, for \$18,177.60 in cash, \$35,000 in optional payments distributed over a two-year period and 18,750 shares of Continental stock. The syndicate also acquired the United Kirkland ground in the western sector of the camp, adjoining Kirkland Lake Gold and some drilling was done on claims which ultimately formed a part of the rich Macassa mine. The option was dropped later in the season. During 1921, between fifty and sixty claims were staked in Gauthier township, east of Kirkland, and an option was taken on the Elston-Dunkin property in the same township, where an energetic diamond drilling campaign was undertaken.

Throughout that winter and the early summer of 1922, the



syndicate managers pursued their policy of examining properties, letting it be known throughout the north that they were in the market for anything good, but that borderline properties were of no interest. So matters continued until early in July, when Chadbourne and Thomson received the message from Peter Graham, urging on their attention the claims staked by Edmund Horne beyond the border in Quebec. By that time Horne's claims had been given preliminary examination by Jack Morrison. The American engineer who turned the deal down from a hotel room in Haileybury had come and gone. But Morrison left no doubt as to his opinion and already had told Horne. "If this one doesn't make good, I don't know any that will!" Graham suggested that Thomson and Chadbourne should investigate. Chadbourne wired from New York that he would leave for the north on the next train.

On arrival in Haileybury Chadbourne immediately took steps to acquire the Morrison report, which was based solely on the engineer's examination and sampling of two or three trenches showing an abundance of heavy sulphides, but which had not given spectacular assay results. Obviously, however, this was likely ground, the sort of geology in which big mines are made. That is what Chadbourne and Thomson read between the lines. They decided without delay to open negotiations with the Tremoy syndicate with a view to securing a long-term option, sight unseen.

It was no easy task which Chadbourne set himself, a task of negotiating with thirteen individual partners, among whom there was neither unanimity of will nor wish. In the beginning, conversations occurred mainly between Hill and Horne for Tremoy, and Chadbourne and his lawyer, H. L. Slaght of Haileybury, for the would-be purchasers. So long as discussion remained within this orbit little difficulty was encountered, for both Hill and Horne were well disposed towards Chadbourne's proposals. Although these did not promise immediate cash benefits, they assured the stakers return of their investment in the near future, in the event that preliminary examination should reveal the suitability of the ground for serious exploration,

with added assurance of early cash profits and continued participation, in the event of a mine being brought in. Difficulties began to occur, however, as soon as concrete proposals were carried from the negotiators to the other Tremoy partners. Some demanded an immediate cash payment, at least of sufficient size to refund monies laid out for Horne's grubstake and for recording and assessment work. Others wanted the entire transaction carried through on a money basis, without stock participation. Others again wanted part cash, part stock. The Tremoy partnership quickly became a house divided and it was only with extreme difficulty that Chadbourne and Slaght ultimately were able to bring all thirteen together.

Day in and day out Chadbourne worked on new proposals, on modifications, revisions, and revisions of yesterday's revisions. Night after night he returned discouraged to his hotel. On at least one occasion he was on the point of returning to New York. But each time he went back to the negotiating table, determined to make one more attempt to bring home to Horne's backers that here, at least, was an opportunity to let somebody else spend money on their claims, that the developers' luck would be their luck, that if the buyers were to forgo their option at any stage the ground would revert to its original owners; that they couldn't lose; that they might all win fortunes.

On August 11th, the opposition capitulated. A bargain was struck, under which the Thomson-Chadbourne syndicate optioned a ninety per cent interest in the Lake Osisko ground for \$320,000 in cash, the first payment of \$5,000 to be made at the beginning of January, 1923, to be followed by similar instalments at intervals of six months until January 15th, 1928; the residue to be payable on the final option date. The continuing ten per cent interest, it was agreed, should take the form of shares in any operating company the Thomson-Chadbourne syndicate might subsequently incorporate to finance its activities on the Horne ground.

The thirteen Tremoy partners signed on the dotted lines. Chadbourne tucked his contract into his brief case and made ready to leave for New York. Thomson left at once to arrange



for supplies and all details necessary to set in motion a new mining effort in the wilderness. Another phase of the Noranda saga had begun.

Now they must find a man to direct operations in the bush. As always in this remarkable venture, the man appeared at the psychological moment.

One day while Thomson and Chadbourne were first turning their eyes towards the Kirkland Lake country, a mining engineer sat alone at lunch in the old Queen's Hotel in Toronto, wondering where he could find a job. As he sat, a bellboy entered the room and, making his way among the tables, in a sing-song voice cried, "Call for Mr. Thomson!"

A wiry-framed guest, slightly under medium height, whose face wore the marks of exposure to the elements, arose and beckoned the youngster, glanced at the message and left the room. To the jobless engineer who watched him go, memory flashed back across the years.

As the diner returned, the engineer accosted him.

"Are you Sam Thomson?" he asked.

The older man admitted his identity. The other introduced himself as L. K. Fletcher and recalled that the Fletchers and the Thomsons had been neighbours and close friends in Pennsylvania.

They sat and talked. Thomson spoke of the syndicate in which he had just become a principal, of its plans, its backers, its organizers' hopes. And what was Fletcher doing?

Fletcher answered that he wasn't doing a thing, unless Thomson counted looking for a job employment enough on its own account. The older man extracted a notebook from a pocket, wrote Fletcher's address in it and said, "Maybe I can do something about that. If anything turns up I'll get in touch with you."

Fletcher continued his search for a post. Before one turned up, however, a letter arrived from Sam Thomson in Kirkland Lake, suggesting that he take the first train north and go to work for the Thomson-Chadbourn syndicate. Fletcher prompt-

ly abandoned his job-hunt, routed out his bush clothes and caught the northbound sleeper.

At the outset he supervised the work then in hand on the United Kirkland claims. Three months later, Thomson placed him in charge of the syndicate's exploration department. In July, 1922, when Chadbourne was on his way to Haileybury to negotiate with Horne and his associates, Fletcher was at the old Hilltop property in Boston Creek, then being examined by the Thomson-Chadbourn syndicate. He was still at the Hilltop when a message came from Thomson that a party of ten must be organized forthwith to proceed to Quebec to examine the Tremoy ground and do initial surface work. Should Fletcher go himself? His instructions were to keep himself mobile, to be ready to go anywhere at a moment's notice, and Quebec was not a region conducive to mobility. Then, too, other examinations pended. The task of finding a capable, satisfactory engineer to take charge at Lake Osisko was not one which could be solved at a moment's notice.

Several hours later, Fletcher was pacing the station platform at Swastika, jumping-off point from the Temiskaming and Northern Ontario's (now the Ontario Northland) main line for its branch running into Kirkland Lake, still wrestling with his problem. Should he pick up a crew and go to Rouyn himself? If not, who could be found to take the job?

As he pondered his problem, another traveller, southbound, taking a stroll as he waited for his train's locomotive to take on water, stopped and said. "Hello Fletcher!" Fletcher abandoned his reverie abruptly and shook hands. Where might Waite be going? Home to Peterborough, that gentleman replied. How about Fletcher? What was he doing? Suddenly the thought came to Fletcher, "Here is the man we need for the Rouyn job!" Was Waite free to take a crew of ten men into Quebec to make an examination? he asked. Waite was, provided Fletcher would give him three or four days' leeway to make a quick visit to his home in southern Ontario. Fletcher mentioned terms. Waite accepted them. Fletcher agreed to assemble a crew and organize



supplies. Waite would hurry back to pick up men and materials at Haileybury, and go into the country by the Kinojevis route. So was settled the arrangement under which the late J. H. C. (Ike) Waite, M.E., made the first thorough geological examination in Rouyn.

Waite established his camp on the Osisko shore towards the end of August, having packed in sufficient supplies to last until freeze-up — drill steel, a small smithy, powder, the tools of the prospector's trade. Using two motor boats and towing loaded canoes, the vanguard of the Noranda mining army proceeded through the Ottawa to the Sturgeon Falls portage, where one power boat was left behind. The party moved on north with the balance of its water equipment laden to the gunwales. A few days behind them came Arthur Cockeram, an expert bushman and prospector who was already familiar with the district, the man once sent to the Horne claims by M. J. O'Brien Limited.

Waite set to work to clean out Horne's trenches and to prospect the surrounding ground. Before the work had been in hand more than three or four days, however, an incident occurred which changed the immediate aspect of Rouyn township development, and provided the spark which kindled one of the greatest gold rushes in the history of North America. What is more, it delayed continued examination of the Horne claims, and, for the time being, focussed attention, even of the Thomson-Chadbourne field staff, on ground other than that destined to become the Noranda mine.

Early in September a prospector named Powell arrived at Waite's camp beside the lake, poorly supplied, short of food and in need of succour. To Waite he spoke excitedly of an area rich in gold-bearing veins two or three miles to the west of the Horne ground. His information, said Powell, had been gleaned from reports issued by the Geological Survey of Canada. He added that he planned to visit the section as soon as he had rested, provided Waite would let him have enough supplies to carry him along. Waite agreed and, a few days later, Powell departed.

The prospector returned to Osisko Lake on September 20th and announced that he had found a quartz vein near Rosebury Lake, two and one-half miles west of the Horne, which he had staked. The vein, according to Powell, was strong and of promising appearance, but gave low pannings and, so far as he could see, did not carry any free (visible) gold. Waite immediately optioned the claims Powell had staked, signing the contract in the name of the Thomson-Chadbourne syndicate. The engineer then decided—as seemed reasonable under the circumstances—to divide his crew, leaving one section to carry on work at the Horne while the second group explored the Powell, as the latter ground seemed then to be of more promising nature than the Horne claims.

Meanwhile Arthur Cockeram's brother, Bob, arrived at the Thomson-Chadbourne camp and Waite entered into an agreement with him to proceed at once to Rosebury Lake and examine Powell's strike. On the following Monday a message was received from Cockeram that the Powell looked encouraging and on the Tuesday Arthur Cockeram and Waite followed the faint trail to Rosebury Lake, where they found that Bob Cockeram had already staked two claims, one for the Thomson-Chadbourne syndicate, the second in his own name. With his assistance and that of two of the Thomson-Chadbourne crew, five additional claims were staked that day. Arthur Cockeram left the next morning for Ville Marie to record this ground, which would later be known as the Chadbourne group.

At this juncture several members of Waite's crew complicated the circumstances of life at Lake Osisko by demanding release from their employment in order to stake and prospect on their own account. The favourable nature of the Rosebury Lake area made it apparent to any experienced bushman that as soon as news of the discovery reached the outside world a rush of prospectors would ensue. Waite pointed out that this could not possibly happen for at least several days, until Cockeram had turned up at the Mining Recorder's office in Ville Marie. Later, and before the anticipated rush could begin, he would give



them time off to stake for themselves. The men accepted the proposal and work went on again, two remaining at the Powell ground to strip and trench the vein, the remainder being retained at the Horne to push the work forward there.

The Powell vein was bared in thirteen places for a distance of 1,540 feet. Sixty-nine samples were taken from these exposures and were sent for assay to Kirkland Lake. Isolated showings far to the north and to the south of the main find were also trenched, but intervening stretches of considerable length were left untouched because of the heavy overburden and the lack of time for extensive operations before the freeze-up.

Waite was highly encouraged by the results obtained at the Powell.

"The quartz," he reported to Fletcher, "is well fractured, well stained and looks favourable. It does not appear to be highly mineralized, but on panning shows good amounts of fine sulphides, much larger than would be expected. In almost every instance the more sulphides in the pan, the better the panning. The mineralization consists of fine sulphides, mostly crystallized, and no interfering minerals were found. Out of about 100 pannings along the vein, only two or three blanks were found. The pannings were not, however, what might be called good, but judging from the specimen assays that were run, the estimate should be doubled. On this basis I would expect the vein to run six or seven dollars over a width of approximately five feet."

Waite also expressed the belief that parallel veins would be found. "I am convinced," he wrote, "that Powell's information about a rich vein is correct. Whether or not we are on the right vein I cannot say, but it answers much of the description which he originally gave me."

Meanwhile Waite and his crew were also turning a portion of their attention to the area surrounding the Powell option, as the section was rapidly becoming what is known in prospectors' vernacular as "hot". Men were beginning to pour into the district as news of the strike seeped through to the outside world. Mention of Rouyn began to be made by the press. Only the

nearness of freeze-up prevented a stampede of major proportions from being set in motion at once.

Despite the general, and increasing, interest in the Rosebury Lake area, Waite carried on surface work at the Horne, though with only a part of the crew, which already had lost twenty per cent of its strength, two men having quit their jobs. His mining man's heart, however, lay two and one-half miles west of the Horne, as well it might, to judge the two sites by surface showings. Over on the Powell, strong quartz veins were seen in the outcrops. An important strike could be made any day, whereas no definite quartz veins had been found on the Horne claims. Nobody dreamed then that here, under a shallow mantle of soil, lay a great "iron hat", covering the head of one of North America's great mines. Nobody dreamed of copper in Rouyn. The search was all for gold. Therefore it was not surprising that the first-comers, in their desire to remain in the van of the rush, pushed on with the search for precious metals in the section which at first appeared most favourable to high-grade discovery. They were utterly wrong, though there was no means of knowing it then. Not many years later, the Powell would be the satellite, providing only fluxing ore for the Noranda smelter, while the neglected Horne claims would be the source of all wealth.

Waite attempted to secure all possible information from surface exploration of three distinct groups of claims, the Horne and Powell options, plus the ground which had been staked by his own party in the Thomson-Chadbourne interest. The two last named, the Powell and the Chadbourne, were regarded as the principal shots in the syndicate's locker by its man in charge in Quebec at the time. The Horne claims might almost be described as the syndicate's orphan. In fact, Waite wrote the Cockerams in October: "In so far as can be determined, the 'cream' of the country is the Cockeram (Chadbourne) group, the Powell group and your own claims." Clearly Waite did not then think highly of the Horne.

This viewpoint was not held only by Waite. When the actual rush began in the spring of 1923, its axis was the Powell area



and it was from this sector that the staking stampede fanned out to Osisko, Lac Pelletier and on to what later became the Stadacona and Granada Mines.

The Waite party left the district in October 1922 in order to reach civilization before freeze-up, no permanent winter line-of-supply having as yet been established. Up to that time a total of 6,760 acres had been staked in Rouyn township. The Thomson-Chadbourn syndicate, as behoved first-comers to the new camp, occupied a commanding position in the most favourable areas, due to the foresight of Chadbourne and Thomson in acquiring Horne's claims, sight unseen, and to Waite's and Cockeram's readiness to seize the opportunity presented at Rosebury Lake. Of this acreage a total of 1,360 acres were controlled by the syndicate, including the 760 acres of the Horne option. An additional 1,230 acres were reported as being "in friendly hands".

Waite and his divided, reduced crew experienced great difficulty in completing their work before freeze-up. Staking had occupied much of their time, which otherwise would have been devoted to surface exploration. This, nevertheless, was of major importance, in order to enable the Thomson-Chadbourn syndicate to spread its mining bet across the favourable sections of the field. The fact that work was being carried on at two widely separated points, between which the only means of communication was a rough pack trail running through a jungle of swamp and bush, obviously retarded the effort. Because camps had been built at Lake Osisko, temporary as their nature was, the Horne claims remained the centre of supply from which sharpened steel and rations must be packed every day through the bush to Rosebury Lake, and the dulled moils packed back for resharpening. To such difficulties was added the weather problem, for snow fell during eight of the party's last ten days in the country, making productive work virtually impossible. At last, shortly after mid-October, fearing immediate freeze-up, Waite led his men out. Already several inches of snow lay on the ground. Further exploration was out of the question for a party equipped only for advance-guard work.

All tools and cookery equipment were cached at the camps on the Horne. Ore samples from the Powell, the Chadbourne and the Horne, food for the return journey and all perishable supplies were loaded into the expedition's one motor boat and an outsize freight canoe, and in these the party set out over the Kinojevis, following the river to the long cross-country portage into the Ottawa. On its far side the second motor boat, left behind on the inbound journey, was picked up. Considerable equipment was stowed at the Riordan paper company's lumbering camp to be brought later to Ville Marie by alligator, an amphibian craft used by lumber operators in the northern woods.

Ville Marie was reached the second night out from Lake Osisko. There the motor boats and canoes were left, to be brought over to Haileybury as soon as good sleighing could be had. Thus the Thomson-Chadbourn syndicate's first brief season's work in Rouyn closed.

The year 1922 witnessed two other events of primary importance in the setting of the Noranda stage: the formation of what became the parent operating company, and installation in its senior executive office of the young Toronto attorney who became the company's first president, an office still occupied in 1956 by James Y. Murdoch, O.B.E., Q.C., LL.D., who is also chairman of the board.

Throughout its history the Noranda company — if we may attribute for the moment to the corporate entity qualities usually associated with individuals — has manifested what is tantamount to genius in finding, by accident or design, the right man for the job. The coming together of Humphrey Chadbourne and Sam Thomson, their blending of organizing energy and mining genius, provides the first example. The discovery of Fletcher, a highly capable exploration engineer, by Thomson and of Waite by Fletcher, followed the pattern. The selection of Murdoch as president provides a third instance. That this genius has carried on through the years is witnessed by many other names which will appear in the record as the story unfolds; the names of men like Hibbert, Roscoe, Hall, Bradfield and Porritt.

When Chadbourne and Thomson came to Canada, they



consulted John B. Holden, Q.C., of Toronto, because of that eminent barrister's close association with the mining industry and the Hollinger interests in particular. Later, while on a visit to Toronto in connection with syndicate affairs, Thomson had occasion to visit Holden's law offices. There he met Jim Murdoch in the senior partner's absence and formed an instant liking for him. Later he said to Chadbourne in Kirkland Lake, "When next you have business in Holden's office, Chad, ask for this young fellow Murdoch. He's a live wire."

Chadbourne followed Thomson's advice and came to share his opinion. Soon the young attorney was asked to become Noranda's president, a post which, on acceptance, he did not regard as his life's work so much as a service to be rendered to a valued client by a hard-working barrister.

It is intriguing to speculate on what any man's career might have been had he not taken a turning on one day in his life which at the time he seemed to take by chance. In Murdoch's case, it is plain that he would have become one of the nation's outstanding lawyers and because of his association with the Holden firm—in which he remains a partner—and the firm's association with Hollinger, it is not hard to believe that mining would have attracted him, and that he might have become what is sometimes called a mining lawyer. But another turning was taken in the service of a client, with the result that the young attorney, nine years out of Toronto's Osgoode Hall law school, swiftly established himself as a mining executive and went on to become one of the mining world's luminaries. J. Y. Murdoch's keen mind and its remarkable power of decision, more than any other human factor, has been responsible for Noranda's success and the bringing in, not merely of the Horne, but of the series of mines culminating in the development into production of Gaspé Copper. Even more important, in the sense of his contribution to the Canadian nation, was his vision in undertaking the processing and manufacturing plants which carry the raw Noranda product to the finished stages in Canada, as wire, cable and other industrial materials. That is the vision the young Toronto lawyer saw early in his career in Noranda,

and it is the true Canadian vision. Today he serves more than Noranda and its myriad affiliates in mining and manufacturing. Industry and business have sought his services in such widely diverse areas as insurance and banking (he is vice-president of the Bank of Nova Scotia), paper making, oil (British American), office equipment (chairman of the board of Office Specialty Co.), and big league hockey (he is one of the original directors of Toronto's Maple Leaf Gardens). Business activities have taken him into many fields, ranging from the directorates of mining companies not directly associated with Noranda—Hollinger and Wright-Hargreaves, to name two—into cement, and Canada's important Chartered Trust Company. As a private citizen he represents the Government of Ontario on the board of trustees of the Toronto General Hospital, and the Canadian federal government as a member of the National Battlefields Parks Commission. For war service he was awarded the Order of the British Empire, and his honorary degree as Doctor of Laws comes from the great French-language university, Laval, in the ancient city of Quebec. Fishing for salmon on the Gaspé's Dartmouth River has perhaps been his greatest joy, these many years.

A chance remark made by Murdoch was responsible for Noranda Mines, Limited, being formed in 1922. Early in April that year, several months before the signing of the Horne option and before Thomson and Chadbourne had so much as heard of Osisko Lake, Chadbourne visited the Holden office and, taking Thomson's advice to "ask for Murdoch", invited the lawyer to leave for Kirkland Lake with him that night to attend a meeting with a group of prospectors from whom Chadbourne expected to acquire a valuable mining option. Later, as they sat together in their Pullman discussing the business which had brought them together, Murdoch asked if he might see the Thomson-Chadbourne syndicate agreement.

After reading it through, Murdoch turned to Chadbourne and asked, "In goodness' name, who drew *this* up?"

"My brother Tom," Chadbourne answered with a smile. "Why?"



Murdoch sums up his feelings today with the un-lawyerlike query, "Was my face red?" He continues, "I, a youngster, calling into question a contract drawn by a lawyer of Tom Chadbourne's reputation!"

But Chadbourne wanted to know what might be wrong with the document and Murdoch pointed out that under Canadian laws syndicate members assume personal responsibility for liabilities incurred by their managers.

"Then we'll have to incorporate a company right away," Chadbourne said, "because the men Sam and I have in this outfit aren't the kind of fellows I'd want to load with a lot of liabilities they have no responsibility for."

Thus the chance remark of a young attorney marked the beginning of the corporate Noranda, for on their return to Toronto Chadbourne instructed Murdoch to incorporate at once and letters patent were sought and received in May, 1922, although the Noranda Mines organization was not completed, and did not take over from the syndicate, until December.

The year 1922 closed, therefore, with the parent mine discovered and under preliminary exploration, with the basic company formed and a young lawyer installed as president who would soon be recognized as a leader among Canadian mining executives.

And why the name, Noranda? All manner of answers may be heard. The writer has no intention of getting into the debate, because he does not know what happened and is not sure that anyone else does. What *can* be said is that the name is clearly an abbreviation of Northern Canada, which may first have been written on the back of an old envelope as "Norcanda", that the "c" was lost somewhere in the shuffle and "Noranda" born.



## CIVILIZATION ARRIVES



## CHAPTER FOUR

### THE MAKING OF A MINE BEGINS

THE YEAR 1923 will long be remembered in Canadian mining lore as the year of the rush to Rouyn. Few, if any, have equalled it. With the Powell as its hub, the spectacular proceedings moved out in a constantly enlarging circle, with scant time available to the serious prospector to study the ground about him. If he did, others, less scrupulous, might surge over him, without waiting to investigate geology, and stake the area on which the serious-minded prospector had been concentrating his attention.

By mid-March 86,000 acres had been staked, much of it without serious preliminary investigation. By mid-summer party after party, their canoes laden to the gunwales with the freights peculiar to the wilderness gold-hunter—sleeping bags, cooking utensils, tools, handsteel, food—were making their way over the 125 miles of watercourse and portage from Lake Temiskaming to Lake Osisko.

But as the year marked the first movement of a wild new golden symphony in which the serious mine-maker and the wild-cat promoter, the strong and the weak, the honest man and the knave, the engineer, the geologist, the Cousin Jack, the flotsam, the jetsam and the camp follower soon were all to perform, so did 1923 mark the steadier tempo of the beginnings of the Noranda theme-song. Possessed of well-favoured ground in the heart of the new area—the Powell, which set the rush in motion; the Chadbourne-Thomson-Cockeram claims; the Horne (Tremoy) option—the men behind Noranda's search for metals now began to turn serious attention to development of their share of the potential mining field in which they were the pioneers.



After studying Waite's 1922 report, it was decided to send a permanent crew into Rouyn. L. K. Fletcher was placed in charge, with field headquarters in Haileybury as the most accessible point from which men and materials could be moved, by water or by rail-and-land.

Fletcher assembled a crew of forty men early in the year, principally around Kirkland Lake, and proceeded northeast to Rouyn township overland from the end of Temiskaming and Northern Ontario steel, a distance of seventy miles. Experienced miners were not to be found; even men with established records in the bush as lumberjacks or trappers were scarce. Fletcher took what he could get and set out by way of the crude winter road from Dane, south of Kirkland Lake.

On arrival the party made its way directly to the Powell where eight log camps were built, including combined staff-and-store house, stable, assay office, ice house, powder house and bunkhouses. The work of trenching, stripping and sampling the vein actually began on April 12th. By June 15th, 4,146 feet of trench had been dug and 33 feet of rock pits sunk, from which 323 samples had been cut and assayed. Meanwhile detachments had been sent out from the main party to conduct preliminary examinations at the Chadbourne and Horne Groups and to cut crude roads and trails to connect the various groups, a total of nine and one-half miles of road and three miles of trail.

By midsummer attention had been largely diverted from the Powell to the Chadbourne claims, as a result of the encouraging showings found by the small crew which Fletcher had established there. Fletcher, in short, was just as convinced as Waite had been in 1922, that the Horne was Noranda's poorest show. Meanwhile a diamond drill had been brought in by the drilling firm of Smith and Travers, under contract to Noranda, and was set up on the Powell early in July, two holes being drilled to depths of 240 and 396 feet respectively to determine the dip of the vein. This done, work at the Powell slackened, as negotiations had been entered into with Nipissing Mining Company, Limited, from which an agreement emerged on October 20th

whereby Noranda relinquished its option to a new company, Powell-Rouyn Gold Mines. Two thirds of the capitalization was optioned to Nipissing for \$375,000 to be expended in development, Noranda retaining the minority interest. Noranda's major exploration activity then turned from the Powell to the Chadbourne claims.

The new sector comprised a total of 454 acres in which interesting surface showings had been uncovered by Fletcher's skeleton crew. Into the principal showing four parallel trenches were blasted to ten-foot depths to bare the clean, unoxidized rock for sampling. These trenches exposed an area approximately 200 feet square in which two parallel sections of commercial ore striking roughly from northwest to southeast were indicated.

By the beginning of September 1923, 1,915 feet of surface trenching had been dug on the Chadbourne in addition to that already done by the "advance party" between April 28th, when the first discovery was made, and mid-June. Four hundred and thirty-eight feet of rock-trenching had also been opened, and eight shallow pits had been sunk, 280 samples being cut and assayed.

Enthusiasm ran high as the Chadbourne responded favourably to surface exploration. A decision was taken in September to sink a shaft and undertake serious underground examination. A two-compartment shaft was started with handsteel that autumn, but progress was slow, owing to lack of equipment. Hand work was continued to a depth of 50 feet. By midwinter, however, Fletcher succeeded in bringing a 60-HP boiler, a compressor, and a six-by-eight hoist over the winter road from Dane. The party set out for Rouyn with its freight loaded on sleds of the four foot width in general use in Ontario bush operations. After passing the interprovincial boundary, however, the gauge changed to the three-foot runner-width of French-Canadian Quebec and teamsters found themselves pulling into a road through which they could not pass. The sled-tracks simply didn't fit and the bush was not cut far enough back for clearance. Thus, for almost fifty miles it became necessary to cut



back timber and widen the haulage way, and great difficulty was encountered. But the plant reached the new camp intact. At the end of March, 1924, the shaft had reached a depth of 135 feet, *en route* to the 150 foot horizon. So Western Quebec's first shaft was sunk. "Developments during the next few months," Thomson and Chadbourne reported at the end of March, "should be significant." They were—but not in the manner which the report foresaw.

The closing months of 1923, then, saw the Powell option abandoned, so far as actual work by Noranda was concerned, and the Chadbourne taking its place as what for the moment seemed to be the outstanding shot in the company's locker. Actually an incident characteristic of the history of mining the world over—an incident composed of mining luck and human shrewdness in equal parts—led to the first major discovery at the Horne at the very time when the focal point of interest was the Chadbourne ground.

Completion of the negotiations with Nipissing had released the diamond drill from service at the Powell. As surface work at the Chadbourne began to be more revealing, day by day, Fletcher decided to move the Smith and Travers rig across country and to put down a series of holes on the Chadbourne ground. So the drill with its wood-burning boiler and cumbersome equipment — an outfit infinitely more difficult to transport than the mobile, gas- or oil-driven units common to the bush today — was packed across to the Chadbourne, where it was in process of being set up when Sam Thomson arrived in camp over the water route.

"What in hell are you going to drill here, and why?" Thomson asked his resident manager.

Fletcher replied that this seemed to be the best ground in the country for exploration. Why *not* drill it?

"Maybe you're right about it being the best ground," Thomson answered. "Maybe. But we *own* this ground and we can drill it any time, while over at the Horne we only have an option and we're paying good money to keep it alive. Better

get this outfit over there pronto and let's find out if we have anything!"

That is how the first diamond drill came to the Horne mine, the drill that hit pay ore in its second hole.

Before that time one of Fletcher's detachments had done some trenching and stripping on the Horne-Miller optioned ground. First they had cleaned out Horne's original prospect trenches, after which the work done by Waite's crew in 1922 had been re-checked. Generally speaking, however, this was a new start from scratch, tantamount to a first serious look at Horne's ground.

Fletcher sent the drill across to the Horne, but maintained his headquarters at the Chadbourne, where new camps had been built before the shaft was started. When the Smith and Travers crew set up on the claims optioned from the Tremoy syndicate to start their first hole, the drill shanty was the only sign of human activity on what is now the Noranda minesite.

Earlier surface work had indicated the presence of three potential orebodies and of these the first was situated about four hundred feet from the west boundary of what was then called the Miller claim. Into this showing, at its most favourable place on surface, therefore, the first diamond drill hole was sent in at a flat angle. It drew a blank.

The drill was then moved overland about 1,000 feet south-east from the first location, where solid masses of sulphides, discovered in 1922, had been sampled cursorily in one trench, returning an assay of \$6 gold per ton over 37½ feet and a low copper content, 1.5%. On this site the drill was set up during the latter part of August to cut underneath the trench on a flat angle into the ground below and beyond. It hit!

Sent to a depth of 153 feet, the first 13 feet of core were lost in the casing, although it was evident that the drill had entered massive sulphides as soon as it left the collar. From 13 to 62 feet, 49 feet of core gave .329 ounces per ton in gold and 0.92% in copper. But this was only the beginning. From 62 to 143 feet, a total of 81 feet, although gold value dropped to .27



ounces per ton, copper stepped up to 8.45%! Here, then, was the first indication that Noranda might have the makings of a copper mine, as well as a gold mine, in its Horne claims! Here, too, was the first indication that Noranda possessed anything of major mineral importance in the ground on which Ed Horne had gambled his grubstakes for so many years. This was the true beginning of Noranda, the discovery of what was soon to be known as the D orebody.

Results from this spectacular drill hole touched off a tremendous wave of interest not only in Noranda's Horne property, but in the whole Rouyn field. Members of the mining fraternity who had scoffed or called the country too isolated, suddenly began to pay heed. The public, still denied general participation in the big show, turned to almost any venture carrying the magic name, Rouyn. As happens in every new camp, the unwary were often taken in by the vendors of "moose pasture". Others lost their money in ventures that were well worth a try.

Noranda's management now began to press exploration of the Horne claims with vigour, with the emphasis on diamond drilling.

Hole Number 3 was put down into the same structure as that intersected by the successful Number 2, but was disappointing. Number 4 hole was even more disappointing for although it revealed a nine foot section of sulphides from 46.5 feet, this assayed only .1165 ounces gold per ton and .15% copper. This hole was abandoned at 124 feet on encountering a diabase dyke, a barrier which caused the cessation of drilling in many of the early holes which, had they continued, would have passed through the dyke into ore of commercial grade beyond. The wisecracks began to call the Horne just another morning glory.

But hole Number 5 gave the Jeremiahs their come-uppance. At 32.5 feet the drill penetrated 28 feet of material which returned .668 ounces of gold per ton and 2.56% copper. Then, after passing through slightly more than 100 feet of barren rock, the drill again entered rich ore and for 51.5 feet (from 178.5 to 235 feet) the core assayed .242 ounces per ton in gold and 11.47% copper! Continuing down, between 265 and 352

feet, it passed through ore assaying .070 ounces gold per ton and .40% copper. Drilling was abandoned when barren diabase came into the core at 375 feet. As in the case of hole Number 4, if Number 5 had been pushed on through the diabase, it would have entered rich ore beyond. The two rich sections through which the drill had passed were subsequently identified as belonging to the B and A orebodies, the former from 32.5 feet to 60.5 feet, the latter from 178.5 to 230 feet.

Drilling of the Miller claim of the Horne group was continued in the vicinity of these two successful holes throughout the autumn and winter of 1923-24, twenty-three holes being sent down in an area 700 feet in length by 300 feet wide for a total of 5,829 feet of core. This drive resulted in delineating roughly the A, B and C orebodies and in indicating 375,000 tons of ore of an estimated gross value of \$7,600,000 from surface to 120 feet.

Meanwhile plans were being laid for sinking a prospecting shaft. As soon as sufficient snow had fallen to cover the tree-stumps and make the winter roads passable to sleighs, two 50-HP boilers, a 400-foot straight-line compressor and an eight by ten hoist, with accessory equipment, were assembled at Dane and moved into camp over the same route as that which the Chadbourne plant had travelled during the previous winter. Transport difficulties were still almost insuperable but the teams won through and in the spring of 1924 equipment for the first sinking operation at the Horne was strewn about the hill-crest, awaiting assembly. How different transportation in the bush had become by mid-century, when bulldozers and grubbers cleared winter roads in jig-time and heavy tractors hauled equipment in!

Headquarters for the company's entire Rouyn operation were now established at the Horne, where log buildings, including a three-room cabin, two bunkhouses to accommodate thirty men each, cookery and kitchen for one hundred men, staff house, root house and stabling for six teams, were erected. Drilling continued through the spring and early summer and the site of the first prospect shaft was spotted to intersect Number 5



drillhole. On July 12th, 1924, work was discontinued at the Chadbourne claims and all effort concentrated on the Horne. Late that month sinking operations were begun by Nick Orick, a well known shaft contractor from Cobalt. At the end of 1924 the shaft had been sent down to a depth of 124 feet and a station cut 106 feet below surface, from which 1,256 feet of drifting and cross-cutting had been done. The new mine was on the way at last!

Scarcely had the shaft penetrated the overburden when massive chalcopyrite was entered. The formation persisted for more than 100 feet, finally pitching out of the shaft adjacent to the station at the 106 foot level. Shaft samples taken at intervals of five feet from the four walls gave an average of \$6.66 in gold per ton and 14.69% copper, an overall average of \$44.45 to the ton at going metal prices. This clearly implied that a highly profitable venture lay ahead, though the future alone could provide the answer to the mine-maker's everlasting question: How much of it is there? More important, however, was the discovery that copper was present in what appeared to be commercial quantity, and certainly in quality.

What had been designated as Number 3 orebody during early surface exploration and drilling, including the showing into which the shaft had been sunk, was soon discovered to consist of a series of overlapping lenses and these were given the designations A, B, C and D orebodies, a method of alphabetic labelling which was subsequently followed throughout the mine, and continues to this day. As soon as the first-level station had been cut, attention was turned to exploration of these bodies by drifting and cross-cutting. The A orebody which pitched away from the shaft near the station, was opened for 100 feet, known as the South Drift. Eight drill holes sent out laterally from it established its average width as forty feet. Drift sampling throughout the hundred-foot length gave an average return of 17.57% copper and \$7.63 per ton in gold, a rating of \$53.31 to the ton, a remarkable figure as an average over such a lineal distance and width, and in relation to the gold and copper prices then current.

One hundred and forty feet from the shaft, cross-cuts were started east and west from the South Drift. Forty feet to the west, the B orebody was entered, its width being established as 61 feet. Assays returned an average of \$6.86 in gold per ton and 7.77% copper, the equivalent of \$27 to the ton. In the other direction, C orebody was encountered after the cross-cut had penetrated sixty-five feet. This lens proved to be of forty-five foot width and to average \$2.11 per ton in gold and 7.07% copper, or \$20.48 to the ton.

The estimate of ore in these three lenses between surface and the first level showed 239,000 tons of ore averaging \$27.48 to the ton, having a gross value of \$6,567,000. Thomson, Chadbourne, their financial associates and their young lawyer-president, could, and indubitably did, now tell each other, "We have found a mine." Indeed they had. But they still didn't realize *what* a mine!

D orebody, which lay to the north of the shaft, had been cut by Number 2 drill hole and again by Number 17. A third hole, started underground from the North Drift, had also intersected it. Although it had not been sufficiently explored by the end of 1924 to be ranked as partially developed ore, mine officials were able to estimate it as containing 85,000 "indicated" tons averaging \$4.20 per ton in gold and 8% copper, a gross value of \$2,125,000.

Meanwhile another lens, designated as E, had been discovered 350 feet to the east of the shaft, this being intersected by two parallel drill holes a hundred feet apart. An estimate of the indications of this orebody, between surface and shaft-bottom, gave \$3.60 per ton in gold and 5.24% copper, a total value of \$2,195,000 and \$17.22 to the ton of ore.

The former Number 1 orebody, so named in the trench in which it had originally been seen by Horne and Waite, was renamed F, to conform with the new method of designation. It lay adjacent to the west line of the Miller claim and about 1,100 feet northwest of the original shaft. This had been intersected by four diamond drill holes in a length of 400 feet. A second prospect shaft was sent down into this lens and, at the



end of 1924, was at a depth of 73 feet, where work was halted due to shortage of compressed air for the drills. It was continued later, when a second mining plant could be brought in.

No other indications reached by surface exploration and diamond drilling were included in the assessment of ore conditions at the end of 1924, although other potential orebodies had been uncovered. One of these, later to be known as G, had been discovered on surface and subjected to preliminary drilling. This, subsequent events proved, was entirely a gold-bearing body, covered by shallow clay overburden. It returned intriguing values in the cores—at times in excess of a half-ounce gold per ton.

The largest sulphide mass found was about 700 feet long and 200 feet wide in places, but it was cut by so many dykes that it was not clear whether it was one body or a group of small lenses. Trenching and two shallow diamond drill holes failed to disclose ore of commercial grade, although fair values obtained in two or three short sections of drill core held out the hope that closer exploration might reveal small shoots of ore here and there. This body was designated H. Soon it would be a magic letter!

Fifteen months from the time of the strike in the Number 2 drill hole, the position of the mine was assessed as follows:

|                            |                |
|----------------------------|----------------|
| Partially developed ore:   | 239,000 tons   |
| Gold value:                | \$6.20 per ton |
| Copper:                    | 8.18%          |
| Average value per ton:     | \$27.48        |
| Gross value:               | \$6,567,400.   |
| Ore indicated by drilling: | 372,500 tons   |
| Gold value:                | \$5.15 per ton |
| Copper:                    | 4.04%          |
| Average value per ton:     | \$15.65        |
| Gross value:               | \$5,840,000.   |

By combining its partially developed and indicated ore, therefore, there was in sight at the Horne at the end of 1925 virtually within 100 feet of surface and in a closely defined area, 611,500 tons of ore averaging \$5.57 per ton in gold and

5.66% copper. The average per ton content of this could be valued at \$20.29 (at \$20.67 gold and 13¢ per pound copper), giving a gross value of \$12,407,400. The miracle had happened. It would be the first of many. And no small part of that miracle would be the association of copper and gold, the basis of a balanced mine economy.

First, the drill had hit home; the drill brought into the wilderness across seventy miles of virgin country. The first sinking plant, transported with tremendous difficulty over winter roads which had never been planned for the movement of heavy machinery, had struck commercial ore at the grass roots. Underground, the rock drills, though hampered in their work by a constant scarcity of compressed air, had established the continuity and solidity of the first orebodies subjected to exploration. Seven distinct lenses of commercial ore had been found. All this had been accomplished in the space of less than two years, less than a year and a half from the day when Chadbourne had closed a deal in Haileybury.

But not all the world "outside" was skeptical of the possibilities of success. There was always someone with belief, someone with the spirit of pioneering adventure to lend an ear, no matter what the occasion and its need. Almost from the inception of the Noranda enterprise H. W. Chadbourne found such a man at his service in the person of the late Hon. J. E. Perrault, under whose supervision the puny mining industry of Quebec came, as the responsible minister in the provincial cabinet.

Too much cannot be said of Perrault's farsightedness, his ability to envision the advantage to accrue to the province and its government in the event of success being achieved. Although he was no mining man, the minister nevertheless was an experienced bushman, ardent fisherman and hunter, no armchair bureaucrat but a public official bent on finding out for himself. Humphrey Chadbourne had gone to Perrault's office in the role of envoy from the pioneers of West Quebec, shortly after closing his option with the Tremoy syndicate in Haileybury. From the outset he met a cordial reception in the provincial capital. In the government ranks were skeptics, who refused



to believe that vast depths of hidden wealth lay beneath the timber and swamp of the northern counties of Temiscamingue and Abitibi, but Perrault was not one of them.

"Prospect and examine your ground," he said. "Find something on which to base a belief, even a hope, that a mine can be made. Do that and you will not find us slow to help you. As soon as you have started your work let me know and I'll come north to study your needs and to find out how the provincial government can assist."

On June 2nd, 1923, Perrault reached Angliers, the Canadian Pacific end of steel, then and now, and the handiest jumping-off point for the Ottawa-Kinojevis water route. On the 3rd he proceeded by motor boat as far as the Sturgeon Rapids portage, where he spent the night in the J. R. Booth lumber camp. Next day he crossed the portage to the Kinojevis and proceeded north by launch, reaching Rouyn Landing late that afternoon. At the landing he found nothing but a fire ranger's cabin. Making his way over the rough trail through the bush he arrived at the Noranda headquarters, then still maintained at the Chadbourne claims. From this base he tramped the new mining field for several days, studying the wilderness and its needs, journeying as far as Lake Fortune, with Alderson and Mackay of the then newly founded Aldermac venture, and returning to civilization by way of Lake Opasatika.

"Your first need, obviously, is roads," he told Chadbourne when the latter visited the minister after his return to Quebec. "I'll see that you get them."

Almost immediately the government announced that it would construct a permanent road, through its Colonization Department, from Makamic, approximately forty-five miles north of Rouyn on the transcontinental railway. This would run directly south into the embryonic mining camp, carrying on thence to Angliers, sixty-five miles south of Rouyn on the Canadian Pacific, thereby providing ingress from two railheads. First, however, it would be primarily a winter road from Makamic to Rouyn. Subsequently another trunk route was surveyed, from Rouyn westward to Cheminis on the Ontario boundary, establishing

contact with Kirkland Lake, the T. and N. O. Railway and the great mining centres of northern Ontario. It would soon become the main arterial route leading south to Toronto.

"The duty of the government was apparent," Mr. Perrault said later. "In a country such as Canada the government which does not lend every possible assistance to those who seek to open the way to natural resources does not deserve the name government. We decided from the beginning that as we were dealing with responsible people who were spending their own money, the least we could do would be to provide them with, or assist them to obtain, every facility for opening up the country as development progressed: with roads, then railways and all the other essentials of modern industry it lies within a government's power to give."

When you pause to consider that Rouyn and Noranda passed from the wilderness stage to that of urban communities with all amenities in four years, the government's part in that achievement is something of which Quebec can be proud. The help was soon more than justified. In return for roads, for subsequent assistance in bringing in the first railway and for other forms of co-operation, the province soon would collect millions of dollars a year in taxes from the district.

"So our investment was not a bad one, even without considering the employment which resulted, the development of other mines, the growth of other communities, the tremendous sums expended for supplies and machinery and the new wealth created," Perrault was to say towards the close of his days in office.

By the end of 1924, the Rouyn rush was becoming almost frenzied. In the cities "outside", new company incorporations, often based on claims on which not a tap of exploration had been done, but which were touted as "in a straight line from Noranda"—a favorite slogan of the day, and obviously true, but meaningless—happened by the dozen every day. Their penny-priced shares were absorbed, as quickly as certificates could be printed, by a gold-hungry but often ill-informed public. Not all the public offerings were of this order, by any means,



for many represented *bona fide* attempts of serious mining men to establish new producers, as may be seen from the mines which came to production—some after many years of struggle, financial and geological—in other parts of the camp. But this was the beginning of an era of high, wide and handsome promotion, from which the jackals reaped their dubious reward, for governments had not then devised the intricate labyrinths through which the share vendor must walk today.

Rouyn itself quickly assumed the qualities which have attached to booming mining camps in song and story. The search for gold has always attracted the devil-may-care and the adventurer, and Rouyn was no exception. Shacks sprouted along its stump-ridden trails as quickly as axe, saw and hammer could throw them together. Over the water route from the south and the trails from the steel came the first waves of a stampede of human flotsam and jetsam on the make; gamblers, bootleggers, harpies, all the human camp followers which Hollywood, and now television, regard as the colour of mining adventure. Fresh from the isolation of the bush with money in his pocket, in search of such fun and hilarity as the camp could provide in the new shack-city, the prospector came to their places of business. No trouble to find the relaxation he sought in Rouyn along the lakeside trail known as Vimy Ridge. Money flowed in a steady stream across the gaming tables from dark to dawn and on to dark again. Beer sold for a dollar a bottle — the small bottle. Consignments of legitimate liquor, illegitimately acquired by the fine art of ordering in fictitious names to overcome the limitations of Quebec's "bottle a day per person" of that era, were retailed by the drink in the blind pigs at prices calculated to return two thousand per cent profit. One or two keen-minded citizens even were able to establish a thriving trade as junk dealers, by collecting each morning the night's empty bottles among the stumps and, by building fences with empty beer kegs, store their picked-up glassware until opportunity presented itself to ship the empties out. Down by Duprat Creek a "restricted" district was set up, where the red lamps were hung. Provincial police were sent in, but the officers soon

discovered that the wilderness had them licked. Arrest presumably leads to incarceration of the arrested person and appearance before the bar of justice, the only bar conspicuous by its absence from sprawling, brawling young Rouyn. For a time a log cabin was utilized as a temporary lock-up for those who, having imbibed too freely, showed a fondness for amusements likely to annoy more sober-minded townsmen. But its utility was largely nullified by the fact that, as soon as sleep wore away the effects of liquor, the prisoner found no difficulty in prising loose an upper log or two and making his escape. Jail, in short, was little more than a warm place in which to sleep off the effects of too much rotgut. Even so, Vimy Ridge, the scene of revelry by night, and sometimes by day as well, was soon to be tamed.

Food and lodging, excepting the cookeries and bunkhouses on established mining operations, were at a premium. Bacon and eggs varied a diet of eggs and bacon in the so-called restaurants of Rouyn. Plain biscuits, usually soggy, retailed at eighty cents a pound. Half the eggs shipped in to private traders were in no condition for human consumption on their arrival. An occasional pig would retail piecemeal at fantastic prices. Boneless meats shipped in from Haileybury — boneless because of the cost of transportation — enjoyed a freight rate of twenty cents a pound. Imagine, then, the price of a steak dinner! But what was money to the adventurous spirits who were Rouyn's first citizens? Tomorrow a man could be an embryo millionaire!

Not all those who came with the first wave were of the half-world. Most of them were serious fellows "looking for a break", for the chance to establish themselves on the ground floor in what might some day be a flourishing industrial community, natural born traders looking for a new market in which to buy and sell, and so win fortune. They came and they stayed, long after the flotsam and jetsam had moved on to greener fields, or had been invited to leave. With these sober fellows, or soon after them, came their families. Graded streets began to replace the stump-strewn trails, homes took the place of shacks.



The town of Rouyn began to take shape in its clearing between the forest and the lake.

In the beginning it was known as Rouynville Townsite and consisted of Blocks 8 and 9 of the township of Rouyn, situated on the south side of Osisko Lake. On September 13th, 1924, the owners of this townsite contracted with a veteran realty man, Nelson Pinder, who had arrived in camp that day, to act as their selling agent and 281 lots in Block 8, the present business district of Rouyn, were staked off and offered for sale at prices ranging from \$150 to \$400. No more than twenty cabins stood on the Block at that time, a majority of the settlement occupying a huddle of shacks down on the lake front. Pinder's first task, then, was to persuade owners and occupants of these cabins to purchase lots in the Townsite and to move their cabins, or build new ones, there.

More substantial owners of cabins, such men as the Gambles, who had been leading stakers in the district, as Jimmie Green, owner of the Osisko Hotel, and Postmaster Dumoulin, were given lots in the Townsite on payment of one dollar, provided they would erect substantial buildings. It is interesting to note that Green's lot was subsequently transferred to the federal government and became the site of the solid brick post office building, erected at a cost of \$40,000.

During October and November, 1924, approximately twenty buildings were constructed on Block 8, the principal difficulty being that of obtaining sawn lumber, which had to be floated down Villemontel Creek from the transcontinental railway into the Kinojevis and thence to Rouyn Lake. Here it was taken from the water and drawn the remaining mile and one-half into Rouyn, where it found a ready market at \$75 per thousand feet. The settler's problem, once he had bought his common spruce flooring and carried it off to his shack, was to get it laid for floor or roof with all possible despatch, else it would warp and set itself in curved or elliptical shapes from which it could never be straightened.

That winter the snow-road was cut from Makamic on the transcontinental, and another from Cheminis on the Ontario

boundary, as the Hon. J. E. Perrault had promised. Thereafter supplies came through with less trouble and freight cost, but the winter of 1924-25 was one of considerable difficulty in the camp; a period during which either pestilence or semi-starvation might easily have struck the young community. Miraculously, neither did.

Probably the heyday of Rouyn's wild boom days should be set as the summer of 1925—of which more will be read in a succeeding chapter—a season during which members of the best and worst elements of humanity made their way in by land, water and air. It was late that summer when the first provincial police officers arrived and Pinder was sworn as Justice of the Peace, a role concerning which he later wrote: "There was not very much that the police and myself could do, other than to warn some of the more dangerous persons to move out, as there was no permanent lock-up in which to lodge a prisoner if the police were forced to arrest anyone."

When the police found it absolutely necessary to make an arrest for some alleged crime of violence (crimes which were relatively few, all things considered), the next task was that of lodging the culprit in jail. The procedure was to conduct the prisoner to Rouyn Lake and load him into an outboard-motored canoe which carried him—without handcuffs, else he might fall into the water and drown—up the Kinojevis and Villemontel Creek, to the courts which sat at Amos, the county seat. There the officers must wait to give evidence before the local magistrate so that considerable delay was entailed. Consequently, the police sought to avoid arrest in all but exceptional cases, for when "the law" was absent from camp, disorderly elements staged celebrations beside which their usual rough and ready deportment seemed tame. Strangely, Rouyn came through with extremely little major crime, most of its problems arising from what may be termed alcoholic horseplay on the one hand and the presence of a minority of undesirables on the other. Tough though it was, Rouyn was never a knife-and-gun town. Bare knuckles were the adjudicators of most of its disputes.

The shipping in of liquor through the mails gave rise to



a local problem which was difficult to resolve. Shipped to consumers presumed by the Quebec Liquor Commission to be *bona fide* purchasers, bottles were sent forward by water from Angliers by registered post, thereby achieving right of way over first class mail. Often as many as from seventeen to twenty bags of registered post, all containing liquor, would await the north-bound mail boat's departure from Angliers, so that insufficient room remained to carry the ordinary business correspondence of the camp.

On June 26th, 1926, Rouyn was incorporated as a village. Due to the strange stories which had reached the outside world concerning bizarre goings-on in the booming raw mining community—stories which lost nothing in the re-telling and which undoubtedly were enlarged by the lack of knowledge of many provincial administrators of the nature of new mining developments—Oscar Morin K.C., Deputy Minister of Municipalities, was sent in to supervise the first election. To his surprise, no "incidents" occurred.

The choice for mayor was unanimous, the office falling to Joachim Fortin, a civil engineer and road contractor, at that time engaged in opening roads into the district for the provincial government. French-speaking residents then gathered in Fortin's office and named five of their number as aldermanic candidates. Meanwhile representatives of the English-speaking population met in the building which housed the Church of England and selected five of their number for office. These ten men were then duly nominated the next day and, after nominations, the groups again retired to eliminate two names from each, so that six aldermen might be chosen, three from each racial element. Those chosen were Doctor M. S. K. Rudd, Charles Sullivan, Nelson Pinder, R. Gagné, N. E. Larivière (who later became representative in the Legislative Assembly at Quebec for the riding of Temiskamingue, of which Noranda and Rouyn are a part) and D. O. Ducharme.

This body functioned until 1927, the town of Rouyn being incorporated by the Legislature on April 1st in that year. The first town council was composed of Joachim Fortin as mayor,

D. O. Ducharme, T. J. McManus, Edward Charlebois, Charles Sullivan, A. Menard, Nelson Pinder and A. A. LaFerté as Secretary-Treasurer.

Once town incorporation had been effected, with the arrival of the railway, the reaching of the production stage at Noranda, across the lake, and the introduction of many civilized amenities, Rouyn gradually lost its madcap tone and assumed the more sober aspects of the modern industrial community supported by payrolls rather than by a claim-boom.

During the days of Rouyn's gaudiness, life moved in far different tempo on the hillcrest at the Horne. There, as 1925 opened, preparations were in hand for enlarged development of the young mine, for further exploration of its orebodies and a search for new zones of enrichment. At the beginning of the year, Noranda stood at the gateway to one of the most important years in its history, a year which was to close with many problems resolved, but with new ones awaiting solution. In this approach to their tasks, those charged with the duties of mine-making bent their necks to the yoke with all the earnestness of an organized group with a known destination in mind. Rouyn, in its youth, was the town of the rugged individualist, drawn from every rank and station in society. The town of Noranda, across the end of Lake Osisko, began and continued as an organized and disciplined community. In this lies the essence of their remarkably diverse beginnings.

As to the Noranda enterprise at this stage of its development, it is fitting to emphasize the teamwork which made progress effective through the clear division of responsibility. Humphrey Chadbourne could be called the young company's diplomatic agent, a convincing negotiator because he believed in the future. Jim Murdoch, the legal mind down in Toronto, was the executive administrator—the man who could "do anything and get anything" was Chadbourne's description. But perhaps the greatest contribution of the period was Sam Thomson's, on the day he ordered Fletcher back from the Chadbourne to the Horne.





DEVELOPMENT



## CHAPTER FIVE

### THE VISTA UNFOLDS

THE VISITOR TO NORANDA and Rouyn in 1925 who came back for a second look towards the end of 1926 saw changes which no layman dreamed could happen in so short a time.

In 1925 he would have seen at Noranda the beginnings of an underground operation powered by steam boilers, fired by wood cut from the surrounding clearing. Around the shaft-head were temporary log buildings and quarters for the handful of men on the job. Essential supply, including heavy machinery, was then being hauled into camp over the rough winter roads from Cheminis, close to the Ontario border, and south from Makamic on the transcontinental railway. If the visitor came during the summer of that year, probably he travelled by canoe, driven by "kicker"—the standard outboard motor—over the Ottawa and Kinojevis rivers. Or he may have flown in from Haileybury among the screaming wires of an aircraft bought for a song from World War I surplus, which an enterprising young man had put into service on the Rouyn run—the first air line (a fancy term by today's standards) to carry paying passengers into the Canadian north.

Late in 1926, the visitor could travel by rail in a comfortable sleeping car from Montreal as far as Taschereau, the whistle stop on the Canadian National's main line, forty miles to the north, whence a branch had been driven down to the new mining camp. From Taschereau the ride would not be too comfortable, perhaps, but at least it would be warm and, by comparison with any other transport, luxurious.

On reaching the end of the steel he would see all the signs of vigorous industry, a yard filled with switching tracks, cement foundations poured for permanent buildings, the beginnings



of an orderly townsite, electric power delivered on overhead wires from a distant hydro plant to replace the wood-burning boilers.

He would see sharp contrasts in the ways of human living, too. At Noranda an orderly community was taking form, soon to become a planned and handsome town. He would realize, almost on his first day, that its leaders were working miracles to assure proper sanitation, pure water supply and other amenities to guard the health of the resident against epidemics which could wreak havoc in an isolated community. He would see, too, the sharp contrast between law and order in the town on the Noranda bank of Lake Osisko, and the slowly disappearing rough-and-tumble of Rouyn across the bay. In 1925 he would have seen a Rouyn that was raucous and wide open, though new elements were hard at work on a clean-up. By the end of 1926, he would have found, even there, the beginnings of orderly community life. The pioneers who would soon be the well-to-do merchants and professional men of the north country were bringing in their families, and when wives and families appear, law and order soon follow.

A good many visitors, unacquainted with the life of the frontier, failed to take into account the evolution that was afoot. Some were members of the writing trade who neglected to look below the surface, and went home to write of Rouyn's wildness, seeing nothing of its possibilities as a creator of new wealth for Canada, nor realizing that soon the wild element must move along to new pastures, or adjust itself to the rules of communal living. Like every other new town in history, Rouyn took umbrage when its townsfolk read the fancy tales written by these visitors in their ignorance of the frontier.

Rouyn's growing pride, its faith in its own future, its belief that northwestern Quebec would become one of Canada's great mining fields, was demonstrated by the camp's first newspaper, the *Copper-Gold Era*, a sheet multigraphed in purple ink, which made its first appearance on Wednesday, September 15th, 1926.

In a front page editorial the new-born paper said:

What does the outside world think of Rouyn? What does the outside world know of Rouyn?

Much has been written of the wildness, the lawlessness, the wickedness of the camp by people who have spent two or three days here and who have, we venture to say, let their imaginative powers lead them rather beyond the absolute truth. One gentleman who favoured us with his presence for a short space last fall announced that Rouyn was the worst he had known, his experience covering apparently most of the camps since the boom days of '97. He spoke of naked women careering through the streets in broad daylight and solemnly asserted that two houses out of every three were occupied by bootleggers.

The Rouyn Mining District, too, has had its share of adverse criticism since it first came before the public eye in 1922. The Quebec mining laws, the railroad, the power question, have all caused much dissatisfaction and uneasiness from time to time. Rumours and counter-rumours have sped abroad and it was difficult to get at the truth.

The aim of the *Copper Gold Era* is to set before those who are interested a true and unembellished account of conditions and progress in what is possibly destined to be one of the foremost copper-gold mining camps of the age.

The Noranda workings in 1925 showed steady, though not spectacular, progress. The year opened, to quote managing directors Thomson and Chadbourne, with Horne's strike "grown from a promising prospect to a developed mine, needing only railway transportation to bring it into profitable operation". Sufficient work had been done to convince directors and shareholders of the mine's possibilities. Now came the task of bringing a similar conviction to those who could provide the country with the facilities essential to a major operation.

At the mine itself, the Number 1 shaft was sent down an additional 204 feet during 1925 to a depth of 328, new levels being opened at 206 and 306 feet, on which the ore lenses encountered on the higher horizon were explored. At Number 2 shafthead, plant was installed, duplicating that at Number 1, and the shaft



was carried down 85 feet to 158 feet by a firm of outside contractors, Prichard and Lively. A working level was opened at 140 feet, which corresponded to the 106 foot level in the first shaft (due to the contours of the ground at surface). The two were then joined by the famed Montreal Drive, so named either for its length (its crew maintaining that they must be burrowing all the way to Montreal) or for its extremely wet condition, for in those days Montreal was the recognized Mecca of the thirsty, as the province of Quebec had never yielded to the North American urge, common at that time, to dry a continent by law. The most important fact about the Montreal Drive, however, is that it passed through the top of the H orebody, which a little later would be the huge block of ore that made the Horne a great mine. On the level through which the drive passed, assays were thin, and management did not know at the time whether it would "make ore" or not. This was nevertheless the actual strike of the fabulous H.

Developments underground during 1925 were successful on the two new levels and a considerable increase in partially developed and indicated ore was recorded. As at January 1st, 1926, the managing directors were able to report 944,525 tons of developed ore, averaging \$5.54 per ton in gold and 6.7% copper; a gross value of \$21,686,294 with copper calculated at 13 cents, or of \$22,951,957 with copper rated at 14 cents, the newly established practice in a booming copper market.

Mine development was not the sole preoccupation of Superintendent Fletcher and his crew, however. The constant fire hazard, coupled to the need for fuel for the boilers, necessitated immediate enlargement of the mine clearing and this was increased from 39 to 262 acres during the year. Seven thousand cords of wood were piled close to the boilers, the slash being burned as part of the clearing operation.

Supplies to a total of 510 tons were freighted to the property in 1925. A two-storey office, doctor's cottage and dispensary, a third bunkhouse, assay crusher house and pumping station were added to the surface buildings.

As the success of the mining venture became certain, those

at its helm set to work to put their corporate house in order. The reader will recall that when H. W. Chadbourne completed the agreement in Haileybury with the Tremoy partners, \$320,000 in cash and a ten per cent interest in whatever company might be formed to operate the property had been agreed as a price, with cash payments to be made over a period of several years and a large lump sum at the end, if the property "came through". Clearly it was doing so. Thus it was proposed to approach the vendors with a view to making immediate final settlement, in cash and stock. In March, 1925, Noranda's directors sought an increase from \$1,000,000 to \$2,000,000 in the capital stock of the company by the creation of 10,000 new shares of \$100 par value. On March 27th, shareholders were informed of the change in capital structure and granted the right to purchase one share for every two then held, at a price of \$100 per share, the right to purchase expiring on May 2nd. The response was instantaneous placing the company in an advantageous position to enlarge the development of its principal property and to acquire outright title to its claims.

The next step was to establish a place for the safe-keeping of joint interests in the Horne. For this purpose the Horne Copper Corporation was formed, with the intention of turning over ten per cent of its capital to the Tremoy group and the remainder to the Noranda treasury, Horne Copper Corporation being set up as a 2,000,000 share company, with stock of no par value.

Negotiations were now entered into with Horne and his associates, looking towards final settlement. The Tremoy syndicate members agreed to accept \$250,000 in cash, plus 200,000 shares of Horne Copper. These shares were then turned over to the grubstaking group, all assets of the mine being simultaneously conveyed to the new company.

The new set-up was likely to prove unwieldy, necessitating, as it would, the complete segregation of everything pertaining to the growing mine from such other operations of the parent company, Noranda, as might develop. New negotiations were undertaken, to persuade the Tremoy members to exchange their Horne Copper shares for those of Noranda, which late in 1925



had again changed its capital structure, to 2,000,000 shares of no par value.

The new negotiations were not completed without difficulty. President Murdoch visited Haileybury for a final meeting, which took place in the dining room of the local hotel. Noranda's president outlined the company's position, offering 125,000 shares of Noranda (6.25% of the total capitalization) in exchange for the 200,000 shares of Horne Copper held by the original grubstakers. Considerable discussion followed. Finally a spokesman announced that the meeting would have to be polled. One by one the members agreed to the proposal, until only two or three remained in opposition.

"I'm against it," exclaimed an elderly gentleman near the end of the list.

"Why?" asked the chairman.

"Well, I am deaf and didn't hear all this young lawyer said, but I'm against it because I don't think we should follow this slicker from Toronto!"

In the end the dissenting voices fell silent, and the transaction was completed.

In such a venture, during its early days, major problems do not come along one by one. They may be resolved singly. But they move slowly forward towards solution in parallel channels. As Noranda's principals worked towards outright ownership of the optioned Tremoy claims, they were also setting in motion other prerequisites of their frontier-busting task. Of these none ranked higher than transportation. As early as 1924 J. Y. Murdoch with Chadbourne and Thomson had entered into negotiations with the Canadian National Railways to convince the government-owned road of the ability of the Rouyn area to support a line connecting the camp with the C.N.R. transcontinental tracks.

Three possible rail inlets to Rouyn were available, because the district, in a sense, was a hinterland with sparsely settled regions already served by railways within reasonable distance in three directions, roughly north, south and west. The Canadian Pacific could thrust north from Angliers, its end-of-steel on the

water route, some sixty miles south. The Temiskaming and Northern Ontario, through its subsidiary, Nipissing Central, was at Larder Lake, Ontario, approximately fifty miles southwest. The Canadian National's Quebec-Cochrane-Winnipeg line passed less than forty-five miles to the north, through Amos and what was then O'Brien, a name soon to be changed to Taschereau, in honour of the then Prime Minister of Quebec.

An approach to the C.P.R. revealed a lack of interest in pushing north from Angliers to Rouyn. Attention was turned, therefore, to the Canadian National and on October 18th, 1924, the late N. A. Timmins, president of Hollinger Consolidated Gold Mines, who was already deeply interested in the Noranda project, called on Sir Henry Thornton, president of the C.N.R., to suggest that a branch be constructed south from the Quebec-Cochrane route into Rouyn. Sir Henry immediately instructed his Bureau of Economics to look into the project and a period of examination and negotiation followed.

On October 31st Noranda's managing directors outlined the physical aspects of the Noranda enterprise in writing to the railway, pointing out that in three years a total of \$760,000 cash had been subscribed by a handful of New York and Canadian business men, first in the search for favourable mining properties in Canada, later in developing claims in Rouyn township.

"The great widths of ore encountered in our preliminary drilling and the already proven extent of these deposits in an area roughly 1700 ft. by 1400 ft. and 455 ft. in depth, in our opinion, leaves no doubt as to the great success of this operation on a large scale," the managing directors said in their brief to the railway.

It was the company's plan, they continued, to erect a plant to treat 500 tons of ore daily, as soon as railroad facilities became available, the estimated cost of attaining production being between \$2,000,000 and \$2,500,000. Mine and plant would employ 500 men and support a community of from 1,500 to 2,000 people, an extremely modest estimate in respect to Noranda, as events soon proved, and one which did not take into account the mineral development of the district as a whole.

Explaining that the location of the smelter must depend to



some extent upon the cost of obtaining and hauling fluxing ores, as well as on that of electric power, the brief then outlined potential inbound daily freights as follows:

1. 250 to 350 tons of siliceous ore or quartz
2. 60 tons of coke
3. 50 tons of limestone
4. Supplies, such as powder, lubricants, hardware, etc., for mine and mill
5. Supplies for a town of 1,500 to 2,000 people.

Outgoing freight would include eighty tons of blister copper daily, plus the normal haul from such a community. In addition the coming of the railway would give impetus to development of other properties, create a market for farm produce and bring about the development of an agricultural community. This, the letter pointed out, had been the history of the T. and N.O. in opening Northern Ontario.

On the strength of this summarizing of the situation, Canadian National engineers and economists began an examination of the possibilities. The resulting report was by no means unanimously in favour of the project. The C.N.R. had troubles of its own. It had only recently been put together by the Canadian government to operate a group of bankrupt roads and weld them into a single coast-to-coast system. Any proposed new construction had to be urgently needed for its sponsors to secure a hearing.

Meanwhile the company had another card in its deck—the possibility of persuading the Ontario government to extend its T. and N.O. line across the interprovincial boundary into Rouyn. There was every indication that Ontario was literally reaching for the opportunity. This immediately quickened the interest of the Canadian National and that of the Quebec government. Should Quebec sit idly by and see all the traffic from a potentially great new mining and colonization area diverted to Ontario and Toronto? This might well be tantamount to economic annexation of northern Quebec by the sister province. Quebec said no, and drew up its chair to the conference table to take a hand in the railway game.

Long weeks of negotiation followed, during which the Hon.

J. E. Perrault's belief in the Noranda project was constantly heard. To his cabinet colleagues, none of whom was experienced in mining or mine-making, few of whom knew anything of the north, he preached constantly the tremendous possibilities opening up to the people of the province, and the wealth which would accrue to Quebec should success attend this venture. On March 12th, 1925, J. Y. Murdoch announced that Canadian National facilities were assured, though the steel would not come through for a year and a half.

When the Canadian Pacific line had been built from Mattawa to Ville Marie and Angliers as a colonization and lumbering project, construction had been heavily subsidized by the provincial administration. The government had hoped that the privately-owned road would be prepared to continue north and tap the mine fields. That willingness seemed to exist only if Quebec was prepared to pay the bill from its own pocket and to that suggestion the province would not agree.

The provincial government at Quebec then turned serious consideration to a proposal that it should assist the Canadian National to construct a line south from its transcontinental and undertook to subsidize the venture to the extent of \$250,000 in five yearly instalments of \$50,000 each, the first to become payable on February 1st, 1927, provided the line should be completed and in operation at that time. This was to be payable to the Canadian National direct, as the operator of the line, although construction would be undertaken by a subsidiary.

The Canadian National finally agreed to go ahead on these terms, Noranda guaranteeing the carrier against losses up to a sum of \$100,000 a year. O'Brien, renamed Taschereau, was selected as the starting point for the line. The government also allocated to the Canadian National an advantageous power site on the Ottawa River and this, in turn, the railway sold to Noranda. Later this power site was handed back to the province by Noranda and developed by the government of Quebec for northern use.

From these negotiations, the Rouyn Mines Railway Company was incorporated on April 3rd, 1925, with authority to construct



a line "from a point on the National Transcontinental (C.N.R.) near O'Brien, south to a point in the Township of Rouyn, with power to construct branch lines". By amending legislation enacted in March, 1926, the name was changed to National Transcontinental Branch Lines Railway Company, neither the rights nor the obligations of the company being changed.

Once the C.N.R.'s die was cast, a merry race ensued for first entry into Rouyn township between the Nipissing Central and the Canadian National, in which the provincial administration at Quebec threw the solid weight of its influence behind the project sponsored by the federally-owned road, to the point of taking injunction proceedings to prevent the Nipissing from crossing the interprovincial boundary. The fight was lost in the courts by virtue of the fact that the Nipissing's charter gave it the right to construct lines anywhere in Canada. Quebec probably had not expected to make an injunction stick, but the proceedings delayed construction for sufficient time to permit the Canadian National to build its line down from the north in advance of the Nipissing's drive from the southwest, and provide Rouyn and Noranda with their first railway transportation.

Definite plans for C.N.R. construction were laid early in 1925, when a route was surveyed southeast from the transcontinental at O'Brien, through the townships of Privat, Aiguebelle, Destor, Dufresnoy and Clericy to the southeast corner of Lake Osisko.

Contracts for the work of constructing the line were let to Foley Brothers, Incorporated, and to Chambers, McQuigge and McCaffrey Company, Limited, the railway company furnishing the ties and rails and erecting its own telegraph lines and buildings. It was no easy line to build. The cuts involved driving through a great deal of hard clay material and rock. Embankments were built in several places across low muskeg flats, where cross-logging was necessary before laying embankment material. To cross Lake Lois, two thirty-five foot steel deck plate girders on pile piers were used. Track reached the outskirts of Rouyn on October 25th, 1926.

Finance played an important role in Noranda's activities in 1925 and 1926. Funds in quantity were required to carry out

plans already in motion, but the directors were determined not to dilute the holdings of those who had run the big risks, by further issues of common stock. The heavy outlay required to bring the mine into production must be made through short-term financing.

Originally the board had been composed of J. Y. Murdoch, president; S. C. Thomson and H. W. Chadbourne, managing directors and T. L. Chadbourne and H. G. Haskell. In 1925 the number had been increased to nine, those added being Irving W. Bonbright, W. D. Baldwin and Percy A. Rockefeller of New York and Noah A. Timmins of Montreal, president of Hollinger Consolidated Gold Mines. As a large shareholder in Noranda and head of one of Canada's wealthiest mining operations, Timmins was instrumental in bringing together the principals in Hollinger and Noranda, with the result that the former agreed to advance to the latter the sum of \$3,000,000 "for the purpose of providing the necessary buildings, plant and machinery to fully equip the company to carry on its operations as a Mining and Smelting Company and to provide working capital".

The bonds to secure this loan were issued in the name of Horne Copper, as all assets of the mine had recently been conveyed to that corporation in making settlement with the Tremoy partners. The bonds were of ten-year duration, redeemable at any time at 105 and accrued interest, and were secured by a mortgage deed under which they became a first charge against all properties, rights, privileges and franchises of the company, excepting the townsite, power and railway rights of way and terminal facilities.

Certain features of the bond agreement merit mention, notably the sinking fund provision, under which the company covenanted to set aside the sum of two dollars for every ton of ore mined and processed and twice annually, beginning on July 1st, 1927, to show a statement of tonnages, for which payment was to be made within three months. No funds were to be advanced under terms of the agreement until Noranda (Horne Copper) had expended a million dollars on development and construction. Throughout the life of the bonds Hollinger was accorded the



right of one representative on the board. As a bonus for its loan, Noranda agreed to transfer 30,000 shares to Hollinger, these being issued *pro rata*, as bonds were issued and paid for. (By the end of 1928, \$550,000 had been paid off against the Hollinger bonds, or the sum of two dollars per ton on 275,000 tons of ore mined and treated. In three years of production, the mine repaid the bond issue through its per ton contributions to the sinking fund.)

Four men who joined the corporation in the 1925-26 period were soon to rank with the production leaders of the industry anywhere in Canada. These were the late Ernest Hibbert, Noranda's first general manager, his first and only assistant, his successor, and, in 1956, the senior vice-president of the company, H. L. Roscoe, and J. R. Bradfield and R. V. Porritt, in 1956 vice-president and general manager respectively.

English-born, Hibbert had received his technical training at the Royal College of Science and the Royal School of Mines in London, leaving England immediately after completing his course to join the Caylloma Silver Mining Company in Peru as assistant assayer and surveyor, rising to the position of mill superintendent. Next he served on the staff of the Spassky Copper Mines in Siberia, with which he remained until 1907. In 1907-08 he was general manager of Etruscan Copper Estates in Italy. Then for three years he was assistant manager of the spectacular Le Roi No. 2 in British Columbia. In 1910 he joined British Columbia Copper as superintendent of the Mother Lode Mine and general mining superintendent of all properties under the company's control. The outbreak of war found him at Sudbury as superintendent of mines of British America Nickel Corporation. Resigning, he proceeded overseas as a lieutenant in the 16th Canadian Infantry Battalion and was wounded at Ypres in 1916, returning thereafter to British America Nickel with which he served until the mine closed down some years later.

In October, 1925, Ernest Hibbert was in New York, thinking seriously of accepting a post in Bolivia, in charge of a tin mine. While negotiations were proceeding, however, he learned that the position of manager at Noranda was open. In fact, his name

was suggested by Robert Stanley, who was president of International Nickel, to the managing directors of the Canadian enterprise. Would Mr. Hibbert like to call and have a chat with Mr. Chadbourne? Mr. Hibbert would and did. After brief negotiation a contract was arranged and Hibbert left for a short holiday in his native country before proceeding to his new post in the north as Noranda's first general manager.

The man who was to bring the Horne Mine to production and serve for many years thereafter as its general manager, reached Haileybury, *en route* to his job, on December 7th, 1925. Thence he proceeded north to Cochrane and east to Makamic by rail, arriving to find the winter road into Rouyn impassable for lack of snow. After several days, snow fell and he was able to proceed by sleigh, covering the journey in one long day.

With Hibbert's arrival, Fletcher, a specialist in early-stage exploration, left the Horne to assume charge of the company's work in the field, a position he later resigned to take up consulting practice in Toronto. Hibbert immediately turned his attention to the essential tasks of creating an industrial plant in the heart of yesterday's wilderness and of bringing into being, side by side with plant development, a modern community in which those who earned a livelihood in mine, mill or smelter would establish their homes.

The task called for tremendous energy on the one hand and a phlegmatic disposition on the other, qualities which events soon proved to be admirably combined in Hibbert's personality. The first job was to select a smelter site and this was done by Thomson, Chadbourne and Hibbert shortly after the new general manager's arrival in the north.

The decision to proceed with a smelter, taken as soon as it was known that the railway would come into Rouyn, involved immediate enlargement of the company's freighting and supply services to carry it through the rail construction period. The hiring of a considerably enlarged crew would entail bringing in much more food. Tools, drills, explosives for blasting open the foundation excavation, all manner of material, would be needed, in order that preliminary work might go on while the con-



tractors were driving their right of way through the bush to reach Rouyn with steel. Plans must be made to provide for more than 100 men through the five weeks of break-up in the spring, when all contact with the outside world would be cut off. Five hundred tons of materials and supplies had been brought in the previous winter, but only with great difficulty. Much more would be required now, if work was to proceed with anything resembling efficiency.

Hibbert sat in his office and pondered the problem. To confine winter freighting to the vital necessities and rely on the water route during the coming summer would involve freighting costs of \$100 a ton, a prohibitive figure. Hibbert surveyed all the possibilities, the alternative of using the Makamic road from the north, or the Cheminis route from the southwest, and decided that the latter would be the cheaper haulage way. He found a contractor, Walter Little, ready to perform the task to be done.

"Guarantee me 1,000 tons and \$23 a ton and I'll move anything you can think up," said Little.

"That's a bargain," Hibbert replied—and 1,100 tons of material and food came in before Little's teams and sleighs began to bog down in the melting snows of spring in 1926.

"I was a jack-of-all-trades rather than a mining man that winter and most of the next year," Hibbert said, many years later in his comfortable office under the smelter stacks. "On the workaday side there was a mine to develop, and we got along as best we could with that, without electric power. Somehow we kept things going with the smelter excavation, too. But those were the things we knew how to do. The jobs which puzzled me and which were the hardest nuts to crack were the sort of Great White Father jobs a man has to take on when he is opening a new community, as well as a mine, at one and the same time, fifty miles from his next door neighbour and any convenient source of supply and transport."

Several months prior to the coming of Hibbert, Fletcher had impressed into the company's service a young doctor, Ernest Linklater, who had graduated from the University of Toronto in 1922 and, a year later, had married a young woman whom he

had met as a student. On May 14th, 1925, Doctor Linklater had flown in from Haileybury with Pilot Bill Broché of Laurentide Air Service in an elderly flying boat of the pusher type. Six weeks later, on June 30th, Mrs. Linklater arrived via the water route crossing the lake from Haileybury to Ville Marie by boat, thence to Angliers by rail and on by the small steamer *J. R. Booth* to Sturgeon Rapids, over the portage to the Kinojevis and on to Rouyn Landing in the Noranda-owned motor boat *Sturgeon Rapids*. Noranda's "first lady" arrived to find her doctor husband established in a log shanty, busy with his tasks of healing the sick and binding the wounds of the maimed.

That summer the doctor's cottage and dispensary were erected, the house containing, *inter alia*, a four-bed infirmary, where the young doctor's wife soon became adept in administering anaesthetics and in treating the sick when her husband was away in the bush, sometimes for days on end, to tend a sick, or injured prospector or miner. Linklater was then the only medical man from Makamic to Kirkland Lake, more than 100 miles apart.

"I was just a plain hewer of wood and drawer of water," Mrs. Linklater was to say later, "but there was always time to bake a cake a day—and by bed time the cake would invariably have disappeared into the patients in the infirmary." At that time Mrs. Linklater was the only woman resident on the Noranda side of Lake Osisko. Her only congenial associate on the Rouyn side was a Mrs. Stafford-Carey, who had just built the camp's first moving picture theatre.

Hibbert's first concern was for the health of his isolated community. "The easiest thing in the world," he told Doctor Linklater, "would be to pick up a first class typhoid epidemic. First thing we must do is to inoculate everybody on this side of the lake. After that we won't hire a man unless he agrees to inoculation before going on the payroll."

Hibbert and Linklater soon discovered that inoculation was easier to order than to do. When the edict was issued, many of the residents of the bunkhouse let it be known they were not submitting themselves to any fancy medical ideas. They had come to Noranda to work, not to have needles jabbed in their arms.



Many of them were of the hard-bitten breed which follows the bush trail from mining camp to mining camp and did not hold with new-fangled notions. (There would be a considerable change today among bush-workers, though only thirty years have gone by.) Others were drawn from the flotsam who had drifted into camp with the first wave of the boom. These, too, wanted no part of medical science bestowed on their persons, excepting at such times as illness or accident struck them down. So trouble seemed to be brewing for the new general manager and his medico. Nevertheless Hibbert was determined to go through with the programme; the risks to life in a growing community equipped only with haphazard sanitation and water supply demanded it.

"There was no point in charging at it like a mad bull," Hibbert said. "The job called for diplomacy and finesse."

Among the men were a number of returned soldiers who, like their general manager, had undergone inoculation and vaccination on joining the army and who had been given ample opportunity to study the control of disease under the precautionary measures taken in war. Hibbert decided to make this group the fulcrum on which to swing his lever and through them he worked all his arts of persuasion on the others. A few fell into line. Many still held back. Finally the general manager called a muster parade in the bunkhouse and addressed the full complement, stating the company's policy and calling for support from those willing to accede to it. Group by group the men fell into line, until all signified their willingness to submit to Linklater's needle. Thereafter, until a supply of chlorinated water was assured, no man was accepted for employment until he gave his consent to inoculation. Such are the tasks of the wilderness mine-maker!

Almost immediately on arrival Hibbert turned his attention to laying out a townsite about the mine. Early in 1926 a contour survey was made and several thousand feet of soundings were taken to ascertain the depth to bedrock, so that when sewage and water systems were installed a minimum of rock excavation would be necessary. Next a plan was drawn to suit the ground and work started on the clearing. E. W. Neelands and A. Hogg

were engaged to lay out the townsite, as chief engineer and assistant, and plans were then drawn. Two hundred and ninety-seven acres were cleared and burned over and the one hundred acres most centrally situated were stumped and grubbed and subdivided into 494 building lots. Broken stone from the mine dump was used to surface three miles of streets. Twenty-five thousand yards of earth and rock were moved. Two and three-quarter miles of drainage ditches, many of which were so constructed as to be available for future use, when water and sewage mains should be installed, were excavated along the sides of roads and lanes. Before the end of 1926, plans were under way for piping water into the town and surveys had been made of sites for water filtration and purification plant and for a sewage disposal plant. A well-appointed guest house, six houses for staff members and their families, two new permanent bunkhouses to accommodate seventy-two men each and a temporary bunkhouse to accommodate eighty men, were built during 1926 in the new town clearing. The mine maker's job does not begin and end with the development of ore.

When Ernest Hibbert came to Noranda, the first stirrings of civic spirit already were to be noticed in Rouyn, the straggling cabin-town beyond the lake, but they were extremely faint. As early as March, 1925, members of the camp's Roman Catholic community had sent a petition to the bishop at Haileybury, asking that a priest be sent to them, pointing out that their nearest confessor was forty-two miles away, at Makamic. On June 1st, a young priest named Pelletier left for the north by way of Angliers and the water route, reaching Rouyn Landing on the 3rd, and walking into camp over the corduroy road which Fletcher's men had built across the muskeg. Finding lodging in the provincial fire ranger's cabin on the Rouyn shore of Osisko, the priest began laying plans for a school. Even at that early date forty children of school age were in the camp.

On July 4th, Monsignor Rheaume, bishop of the diocese, arrived to pay his first visit, accompanied by Father Pelletier who had gone out to Haileybury to meet him. That night, after discussing church problems, the bishop lay down to rest in the



ranger's cabin, next door to which stood the home of a famous lady of the day, known to the camp, in which she plied a prosperous bootlegging traffic, as Big Jessie. During the night the door of Jessie's shack was hammered on lustily by a thirst-ridden client, who refused to go away, despite the lady's protests.

"Help! Murder!" Jessie shrieked through an open window, no doubt enjoying her own contribution to the uproar. Certainly Jessie could look after herself. Taking the law into her own capable hands, she poured a kettle of boiling water out of a window onto the visitor, whose yells were now joined to her own shrieks.

The kettle emptied, Jessie made her escape by a rear window, though wonder has been expressed by some who knew the lady as to how she squeezed her avoirdupois through the gap. As Jessie departed, her "customer" smashed his way in, only to find her gone, whereupon in alcoholic rage he set about breaking every stick in the place. This time the provincial police arrived and took the man away. A row could be tolerated, but not the destruction of personal property which could not be replaced.

The one-man riot had shattered the slumbers of the bishop, who came to his priest's breakfast table hollow-eyed and yawning.

"How did you sleep last night?" he asked Father Pelletier when the abbé had joined him.

"Never better. The long journey made me ready for bed," was the reply.

"Is it always the same here during the night?" the bishop inquired.

"Oh yes, much the same," the priest replied, knowing nothing of what had occurred to ruin his superior's rest.

"Father," Mgr. Rheume said with admiration in his tone, "I realize that I have chosen the right man for this place!"

As soon as the head of the diocese had returned to Haileybury, Father Pelletier set about building his combined church and school. Foundation timbers were cut around the shores of the lake and towed across to Rouyn by motor boat, usually with the priest at the tiller. Finer materials were sent in over the water-

way from Haileybury. In the meantime Peppin's dance hall, which stood on what is now the corner of Perrault and Galipeault Streets, was used for services until a large tent was secured.

On October 23rd, 1925, Father Pelletier and Doctor Linklater went out to Routhier Lake to meet an incoming party of Grey Nuns of the Cross, who had been sent from the Mother House of their order in Ottawa, under Sister Marcelline, to take charge of the school. The building was completed in November and classes started without delay.

Always in rapidly growing communities population increases more rapidly than amenities can be provided. By the summer of 1926 the Roman Catholic congregation had overflowed its tent home and moved to the Regal Theatre on Perrault Street, then only recently built. At that time four events occurred in the theatre each Sunday: Church of England service was held at 11:00 a.m.; the newly organized town council sat at 3:00 p.m.; Methodist worshippers foregathered at 5:00 o'clock and at 7:30 the movies began. Time was allotted during this already busy day for the saying of mass, however, and the theatre remained the home of all churches for several months to come.

During the winter of 1925-26 Rouyn's first major surgical emergency occurred when a young man named Dupuis was stricken with acute appendicitis and Doctor Rudd, newly arrived in camp, saw that an operation must be performed at once to save the patient's life. His condition was too far advanced to allow time to remove him to a hospital "outside". Dupuis was laid on a table in the classroom where Rudd, with the assistance of Sister Mildred of the Grey Nuns, a graduate nurse, performed Rouyn's first operation. The patient recovered.

The incident brought home to residents of the camp their common danger. Immediate agitation for a hospital was organized. But while the run-of-mill citizen talked, Father Pelletier acted. At once he ordered building materials and brought as much in over the winter road from Cheminis as the lateness of the season would permit, being forced to leave a considerable quantity behind when break-up intervened. The remainder



came in during the spring and by autumn the camp was served by a hospital of twenty-five beds, equipped with its own electricity, water purification plant and other refinements. Its first major operation was performed by Doctor Linklater that fall. Noranda's first doctor continued for many years as chief of staff of the completely modern institution at the bend of the lake between Rouyn and Noranda, where the original building still stands, but is used as a convent. Known as the Hospital of the Holy Angels, the institution was built with diocesan funds and staffed, as was the first school, by Grey Nuns.

Such, then, was the nature of public-spirited enterprise in which priest and layman joined hands in pioneer days. In all these enterprises the Noranda company and general manager Hibbert were constant and willing participants, no matter whether the locale might be Rouyn or the Noranda townsite. This was a job in which all men of good will could pool their efforts.

"I remember receiving a visit from Father Pelletier one day," Hibbert said on one occasion, "and being asked to say whether, in my opinion, the school to be built in Noranda, whose construction the company would finance, should be a frame structure, or one of brick and tile.

"It wasn't a good day to ask me such questions. Things hadn't been going too well underground. Ore had neglected to turn up at the spot where we expected to find it in the drift.

"Give me two weeks to decide, Father," I said, without revealing my reason for delay.

"Two weeks later the priest came back. I told him the school should be built of brick. We had found the missing orebody."

In the spring of 1926 Hibbert was joined at Noranda by his associate of many years at Sudbury, H. L. Roscoe, who assumed the post of assistant general manager. Roscoe was Michigan bred and born, a native of the great copper fields of the Peninsula and a graduate of his home state's outstanding School of Mines. Closely associated with Hibbert at British America Nickel, as his assistant manager, Roscoe had remained behind in charge of the mine after it had been closed down, in the early

1920's, and was on the point of accepting a post in Bolivia when Hibbert's invitation arrived. "We're not going to South America," he told his wife happily, "we're going to Noranda!" Roscoe arrived in March, 1926, and assumed full responsibility for opening up the mine underground.

A few weeks later, R. V. Porritt, who had served with Roscoe as mine engineer in Sudbury, arrived to take a position as the latter's assistant. He had walked in from Cheminis after the winter road had broken up, fording *en route* numerous swollen streams where the water was often waist-deep. He was made welcome in the staff house, a single-room log cabin with a large lumberman's stove in the centre and eight cots ranged around the walls.

Porritt, in 1956 general manager of Noranda Mines and its subsidiary Gaspé Copper Corporation, graduated in mining from McGill University in 1922. After British America Nickel closed down in 1924, Porritt worked as a miner, then as a foreman, in the International Nickel Company's Creighton Mine, leaving there to join his former associates, Hibbert and Roscoe at Noranda.

About a month after Porritt's arrival, J. H. Gillis, who had been appointed superintendent of construction, arrived from New York with his assistant, J. R. Bradfield. Each had worked on the design of mine and smelter plant in the New York office of A. E. Wheeler, an eminent consulting metallurgist. Gillis had considerable experience as a surveyor, draughtsman and construction superintendent and had been associated with Hibbert and Roscoe at British America Nickel, where he was construction superintendent. Bradfield, a classmate of Porritt's at McGill, had taken his degree in civil engineering. Jobs in his profession were scarce at the time, so he had moved to the eastern seaboard of the United States, where he worked on numerous construction jobs, including the building of Yankee Stadium in New York City. When he heard that A. E. Wheeler had been commissioned to design the mine and smelting plans for the Horne, he sensed an opportunity to return to Canada, and obtained work as a



draughtsman in Wheeler's office. Gillis was so impressed with his energy and ability that he chose him to go north as his assistant. Bradfield stayed on after the construction work was completed and in 1956 is vice-president of Noranda Mines.

Before Gillis and Bradfield arrived, the decision had been made to carry out construction as a company project in co-operation with the Wheeler organization, instead of letting the work to a general contractor. Work was started immediately after Gillis and Bradfield appeared in the spring of 1926 and was rushed on in every kind of weather condition, pointing for a production target date before the close of 1927.

In order to have foundations ready for the erection of structural steel, which was scheduled to come in with the first railway trains, 1800 barrels of cement had been brought over the snow road from Cheminis during the winter of 1925-26 and a like amount was shipped down the partially built railroad during the summer of 1926 as far as Windfall Rapids and the rest of the way on scows over the Kinojevis River. Pouring of cement began on September 1st, 1926.

On October 28th, the last spike was driven in Noranda's yards, and waiting trains of freight began to trundle south from the sidings at Taschereau. Structural steel and more cement were the mine's first requirements. Before the end of the year, 1,500 tons of the former had been received, of which 605 tons had been erected. Fifty-four hundred yards of concrete had been poured. In addition, a network of two miles of standard gauge track ran through the company's yards, with ten switches. The final smelter plans had come through in June, 1926, and the sites of main buildings and tracks were staked before the month was out. Excavation work for the machine shop followed.

Developments were hampered through 1925 and 1926 by lack of power, as all plant still depended on wood-burning boilers for its energy. Negotiations had proceeded with the Northern Canada Power Company for the building of a transmission line, but little enthusiasm for the project had been shown by the utility company. Northern Canada about-faced, however, after

studying development evidence. A transmission line was run from the Quinze Dam, near Angliers, into Rouyn Township and power reached Noranda, although not in immediately sufficient quantities to drive its machines, on December 7th, 1926, thus completing another phase in the development of a mine.

Despite the difficulties of pre-railway, pre-hydro days, and the fact that 1925 and 1926 were a period of preparation and organization, 6,734 feet of development drifting and cross-cutting were done in 1926 while 7,414.5 feet of diamond drilling was completed underground and 387 feet from surface, to bring the drilling total to 32,727 feet. In 1926, the mine's first working shaft, Number 3, was driven up from the 300 foot level to surface, where it was widened out and cemented to a depth of 30 feet. On surface, foundations were poured for the hoist-house, change-house and drill-sharpening shop and for the head-frame piers. Other surface construction included oil house, core house, 25,000 gallon water tank with pumps and pipe lines and a temporary warehouse. Indicated tonnage by then was shown as 1,022,425, with gross value of \$25,100,000, the rating of copper being cut back to 13 cents a pound. Average grade was given as \$5.03 per ton gold and 7.51% copper. A zinc orebody discovered near Number 2 shaft showed an indicated tonnage of 53,000, averaging 10.4% zinc, but insufficient drilling had been done to delineate the body fully.

A mine well on the road to production, a smelter under construction, a townsite laid out, plans laid for schools, churches, public buildings,—that was Noranda at the close of 1926. Across the bay was Rouyn with its new hospital, school, church services, motion pictures, its first newspaper and its shops. The railroad, the power line, the delineating of new orebodies in the mine on the hilltop—these were the milestones of Noranda's and Rouyn's progress from the day in 1922 when H. W. Chadbourne left a Haileybury hotel with an option to buy a mining property in his pocket, to another, at the close of 1926, when Chadbourne stood with J. Y. Murdoch on the smelter site. The plant had already doubled in size in its builders' minds from the original concept



of 500 tons a day. To the young lawyer beside him, Chadbourne said:

"Jim, I still don't know whether we are right in going to 1,000 tons. We sure are taking a chance."

To which Murdoch replied:

"Chad, this will either stand as a monument to our damned foolishness and gambling spirit, or as one to our sagacity and foresight."



CONSTRUCTION



## CHAPTER SIX

### FROM MINE-IN-THE-MAKING TO MINE

"DURING DECEMBER 10,740 tons of ore and flux were shipped to the smelter."

Thus, in a laconic sentence, lifted from general manager Hibbert's report for 1927, is told the story of more than five years' effort to establish a mine in the depths of the wilderness.

Much of the story of that long and arduous journey has been told in preceding chapters. There remains the task of tying together loose ends, in order that the position of Noranda on the day when income began to appear on the ledgers may be complete.

The blowing-in of the first 500-ton unit of the 1,000-ton smelter marked a definite milestone, at which it may be well to pause momentarily and look back up the road which had been travelled.

What was Rouyn township in 1922? What was Rouyn township at the end of 1927?

On the day of acquiring the Tremoy option, Rouyn and the site of the Noranda mine were merely pin-pricks on the map of a virtually unexplored strip of wilderness. A line drawn cross-country from any point on the T. and N.O. north of Haileybury to any point on the transcontinental from the Ontario border to Senneterre would have encountered no place of human habitation, other than an occasional trapper's cabin or an isolated lumber camp. When Waite led his first party into Lake Osisko the country was considered inaccessible by many. There Waite and, after Waite, Fletcher, had set about looking for a mine which gave only vague clues to the existence of commercial minerals, expressed in widely separated surface showings, through the medium of that exasperatingly inexact science, geology. Be-



tween occasional small outcroppings, trees and hard clay to the depth of several feet must be removed in order to find bedrock and examine it. Large areas of swamp overlaid much of what became the Horne mine. Beyond the difficulties of the country itself, man was constantly harassed by problems of communication and supply; at first he could not remain in the hinterland more than a few weeks at a time, because of the problems of food and gear. The first parties came and went by canoe and when the canoe-load of provender began to run low they must leave, or starve, for Nature offered little in the way of support to resident or passer-by, excepting fish.

Into this country, then, lines of communication were thrown. Power-craft designed to pass through the shallows of creeks, as well as to ride deep water under heavy loads, were placed on the main water route. Portages were cut to make overland packing as easy as possible. Men and materials began to move in a constant stream over the only and always difficult means of ingress. For winter transport there were crude lumbering roads, passable only after tree stumps had been covered with snow in overland sections and the frozen surfaces of lakes and rivers. But trees must be cut back and new sections of road opened. Once the bald essentials of communication had been established, a community of forty, fifty, finally a hundred, men must work together in close quarters in log bunkhouses, deep in the bush, while others "outside" faced the problems of sending in food and materials, so that men might live and work and a mine be developed.

Gradually the problems of communication were overcome. Winter roads were improved and reached north, west and south to make contact with the railways. But, as work advanced, problems constantly became more acute as the necessity for bringing in more and heavier equipment increased. Without that equipment development could not be enlarged; without enlarged development the mine could not be opened up; unless the mine could be opened up the communications essential to the country could not be established. That was the essence of the problem.

Now time crosses a bridge five years in length. In the depths

of the wilderness two towns join hands around the bend at the corner of a lake; the one neatly aligned and squared as befits a community carefully projected and planned, the other sprawling wherever the whimsy of man, the squatter, has taken it, but each already moving with the drive of community spirit. On the crest of a low hill towers a tall stack and, beneath the stack, an orderly array of industrial buildings into which raw rock is poured, later to emerge as blister copper units still containing gold and silver. The towers of the transmission line pierce a narrow clearing in the forest and emerge into the townsite. The clangour of locomotives resounds across the town as long freights snake into the sidings and Pullmans roll to a halt beside the new station. Overhead airplanes thrum. Children dawdle along newly laid streets on their way to school. Housewives scurry about the morning's shopping. Motor cars jounce down still rough-surfaced streets. Men in white stand over the sick and the maimed while gentle nuns administer to their comfort. Ministers exhort men and women to a better way of life. Public-spirited citizens gather to pass controlling by-laws. A modern settlement has taken shape in the depths of the northern hinterland. All this has occurred in the five brief years since Waite beached a canoe on the shore of Lake Osisko.

Nineteen hundred and twenty-seven was a year of steadily increasing bustle. Deeper went the mine as Roscoe drove his underground crews to constantly increasing effort. Raises were thrust into proven orebodies from the three main levels, in preparation for the provision of smelter feed. Stopes were opened. The three existing levels were prepared for mining, soon to take the place of exploration in the upper reaches of the proven zones.

Meanwhile the working shaft was steadily sent deeper and at the end of the year had reached 591 feet, with new levels opened on the 400 and 500 foot horizons. Drifting operations on the two new levels reached the edges of an orebody which, in the near future, was to lift Noranda into the banner class among the world's mines.

In 1927, 35 feet of new ore was tapped on the 400 level, aver-



aging \$5.17 in gold per ton, and 1.11% copper. A hundred feet further down a zone 30 feet in width was reached, averaging \$3.40 to the ton in gold and 2.4% copper. To its discoverers this was merely the finding of what appeared to be another body of pay-rock of average value. Nobody then dreamed that one of the great mining finds of the century had been struck. The fact that ore had been found in a new place was sufficient in itself to lend elation to the mining mood.

The only extent to which general manager Hibbert was willing to commit himself at the end of 1927 was to say that the new levels were now in the same stage of development as that which had obtained on the higher horizons two years previously.

Work on the smelter was rushed through the depths of the long northern winter and the brief summer and autumn of 1927. Now came the drive to production in which economy often was sacrificed for speed. It was long-term economy, however, in view of Noranda's commitments.

The labour force in employment during the winter of 1926-27 at times reached as high as 600, with 400 as an average, exclusive of underground hands. Twenty-four hundred tons of steel, 500,000 brick and 4,000 cubic yards of concrete were placed during the winter, work often being carried on in temperatures as low as fifty below zero. For months the mercury seldom reached as high as the thawing point. All conditions considered, little labour time was lost on account of weather.

That the circumstances under which work proceeded were of extreme difficulty is made clear in notes culled from Bradfield's diary. They tell a story that requires no embellishment:

"Tuesday, Jan. 11; Very cold. Temp. 40 below last night. Practically no brick work done. Special train in afternoon, but no switching done."

"Sunday, Jan. 23; Cold. Brick layers laid off work in afternoon."

"Mon. Jan. 24: No steel erected. Cold wind."

Other fragments of the Bradfield record tell of frozen switching engines, of steelworkers forced to come down from their narrow perches atop the smelter skeleton, else the icy northern

blast might blow them down, of material shortages, of freights arriving with materials for future use but none for the present need, of other shipments undelivered when trains were stalled in snowdrifts—the grim tale of a job rushed to completion under conditions for which no precedents were known, because there were no precedents. By mid-April all buildings were well on the way to completion. The pouring of cement for the stack foundation was finished early in the morning of Easter Sunday, April 17th. On Easter Monday the work of anchoring two huge roasters was finished and four others were in place by the 20th. Three days later the stack had begun its upward journey towards the northern sky. Accompanying all this was the constant sound of concrete pouring into the frames to hold it until, hardened, it would bind together and grip the great machines. "Poured last coal silo base" . . . "Poured roaster beams" . . . "Poured piers and bearings." So ran the theme song of Bradfield's diary through the summer and into the fall. Then, briefly interspersed between a sentence telling of the arrival of a shipment of pipe and the starting of a brick wall, comes an item which reads:

"Friday, Dec. 16-17; Weather partly fair, partly snow, not cold. All busy in smelter trying to get out the first pour of copper. First pour made about 4 a.m. Saturday."

But 4 a.m. Saturday, as a weary construction engineer saw it, was "late Friday night"!

Mine and smelter plant were arranged in compact array. Ore in transit remained under cover from the moment of reaching surface until slag was hauled off to the dump, and copper taken from the smelter building in cars for shipment.

Receiving its first shipment of 10,740.5 tons of ore from the mine, the smelter was swung into action on the night of December 16th-17th, 1927. At year's end the item "Blister copper on hand" was carried for the first time in a Noranda balance sheet. Its value was \$14,103.42!

Noranda had come into production!

Perhaps at no time during his years of service to the company was Ernest Hibbert's quiet genius for getting things done seen to such great advantage as during the hectic months of the con-



struction period. Millions of dollars were being ploughed into the construction of buildings and in equipping them with the machinery essential to ore treatment. Roscoe's mining and development crews were busy underground twenty-four hours a day. Power problems were constant. Transportation difficulties seemed never to end. Hibbert's days telescoped into each other, for the general manager was the final court of appeal and each day's problems were many, diverse and often new and unique. Yet somewhere in his highly efficient organizer's mind he found a space in which to concentrate upon looking after the human beings who served Noranda, and their dependents, and to provide an organized community in which those who would become permanent workers in mine and smelter might live in contentment.

Early in 1927 the Montreal firm of DeMartigny and Bruneau were appointed exclusive realty agents for the Noranda townsite. Various areas were set aside into zones with reference to the types of building which might be erected. Though it was, of necessity, organized at the outset by the company, Noranda was always a town where the individual was encouraged to buy and own his own home.

On April 7th, 1927, an auction of lots was held in the warehouse building, each purchaser acquiring a ninety-nine-year lease. Residential lots sold at prices ranging from \$700 to \$850, but business area lots reached to high figures, the Imperial Bank paying \$5,000 for a corner in the business section. The first streets to be built on were 7th and 8th, the former as a business district, in which purchasers must undertake to construct brick-veneer buildings, while frame buildings were permitted on 8th. The United Church was the first place of worship erected, followed by those of the Church of England and Roman Catholic congregations. Each church was given its lot. The Catholics did not build until 1929, but mass was held each Sunday in the large bunkhouse down by the lake. J. Y. Murdoch was the town's first mayor, in which office he served until 1929. (In the province of Quebec it is general practice, as new frontier industrial towns are organized, to place administration in the

hands of top corporation officers until such time as the community "settles down". Civic elections are then held and the people take over.) Notary Frédéric Hébert was secretary-treasurer. In 1955, Mr. Hébert was mayor of Noranda. Until then, at no time in the town's history had there been a contested election.

The provincial government enacted laws during the construction period to protect Noranda from nuisance value attacks and grudge suits, which are always likely to happen in new enterprises in new communities. Of these, the first declared that in the event of damage resulting from fumes from a smelter built in the township of Rouyn, in a place approved by the Lieutenant Governor in Council, no recourse should lie, provided plans and specifications had been approved by the Minister of Mines of the province. The second stated that the building of a smelter in the township of Rouyn, or surrounding townships, could not be prevented by any such legal proceedings as injunctions and that recourse should be in damages only, thus destroying the possibility of delays being incurred by attempts to halt construction through the courts.

Important corporate events paralleled the construction period in the acquisition by Noranda of a majority interest in the nearby Waite-Ackerman-Montgomery and Aldermac Mines, eighty per cent in the former case and sixty per cent in the latter.

R. V. Porritt became manager at the Waite, where complete mining plant had been installed and a two-compartment shaft sunk to a depth of approximately 200 feet. From this shaft lateral work was in progress at the end of 1927, developing an orebody located by diamond drilling.

At the Aldermac where a large tonnage of copper-zinc ore had been indicated by diamond drilling, a two-compartment shaft had been sunk to a depth of 550 feet. At the end of 1927, it was being thrust down farther, with an objective of twice the original depth, or 1,100 feet. Stations had been cut at 125, 250, 375 and 500 feet levels. Ernest Craig was placed in charge of the Aldermac operation.

These were the first two items of Noranda's expansion pro-



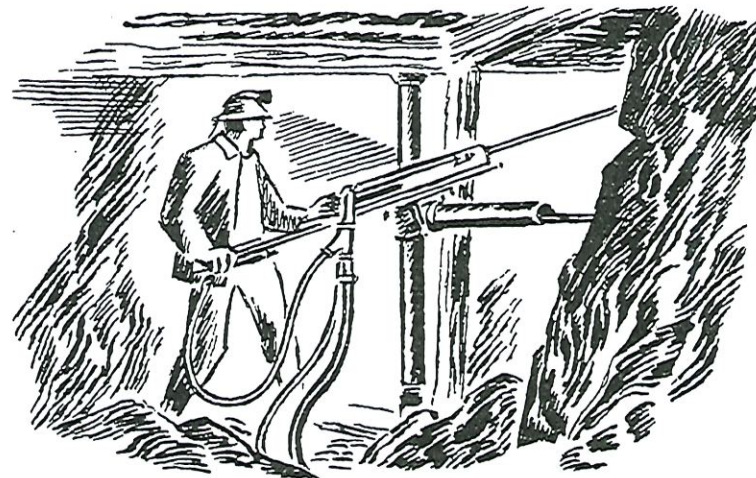
gramme. In the light of the tremendous external growth which was to come later, they are of great import as sign posts pointing to the future.

A majority of the members of the new boards of these two companies were drawn from the membership of the Noranda board, in which several changes were made about this time, due to the passing of control of the company from American hands north across the Canadian border. Four American directors, the Chadbournes, H. W. and T. L., Rockefeller and Baldwin, left, and were replaced by Hon. F. H. Phippen, K.C., A. L. Ellsworth, W. H. Beatty and W. S. Walton, all of Toronto. Thomson, Haskell and Bonbright remained of the United States' directors, as did Timmins and Murdoch of the former Canadian representation. H. W. Chadbourne was to return to the directorate later. As the mine reached production Thomson and Chadbourne had retired as managing directors and all executive responsibility was moved to J. Y. Murdoch's office in Toronto.

Midway through 1927 the capital structure of Noranda was changed from 2,000,000 shares of no-par value to 2,250,000. One hundred and ninety-seven thousand, one hundred and forty-two shares were offered to shareholders at \$15, on a one-for-ten basis, while 144,024 shares were released from the treasury to N. A. Timmins and N. A. Timmins, Incorporated, in exchange for options held by them on the Waite and Aldermac mines. By these transactions Noranda acquired control of these two companies. Thirty thousand shares were issued to Hollinger Consolidated Gold Mines under the terms of the loan contract to which reference has been made.

Five years had passed. A mine had come into production, a new segment of Canadian civilization had been carved out in the north. The fringes of one of the world's richest orebodies had been tapped. The company's policy of acquiring major interests in outside mines had been born.

"During December 10,740 tons of ore and flux were shipped to the smelter."



## PRODUCTION



## CHAPTER SEVEN

### THE GOLDEN ERA DAWNS

IN MAY, 1928, the mine was on its way down to new horizons. With Noranda in production and copper from Western Quebec reaching the world market, the Number 3 shaft was being sent from 500 feet—then the lowest working level—to a new depth below 1,000.

Where the cage touched bottom on the 500, a floor of rock had been left. Under it the shaft-sinking crew were driving downwards, from a manway around the flooring. For 350 feet the deepening shaft passed through barren rock, which surprised no one, for the new hole had been adjudged to lie midway between two bodies of ore, accessible to each.

At approximately 850 feet, however, Noranda's whole future suddenly changed. Heavy sulphides appeared in the shaft walls and bottom. Assays showed high copper content. Excitement ran through the mine office on surface. In places mineralization touched as high as 20% copper. Those experienced mining men, Hibbert and Roscoe, kept their fingers crossed and their lips buttoned.

As the hole went deeper, the copper in the walls and bottom persisted. When the shaft hit 1,040 feet, the diggers halted and a station was cut on the 975 horizon. Roscoe, as the man in charge underground, did not wait for the floor of rock under the 500 to be removed, shaft-timbering to be completed and the cage installed. Drills, steel, dynamite and men were lowered by mine-bucket and a cross-cut started from the new station, post-haste. Yet, in the experts' opinion, the shaft had merely run into a narrow band of rich sulphides. None thought in terms of a great new body of ore.

At the 975 station, the shaft was in copper running between



18% and 20%, wall to wall. As the cross-cut was driven out, it stayed in enriched sulphides all the way to the north wall, a distance of approximately 150 feet. The "narrow band" theory had been dissipated. This was a new orebody. But how big was it?

That summer must have been a time of tremendous tension and excitement. As Roscoe recalls it, he and Hibbert were like two race-horses straining against the starting gate. Day after day they went down in the bucket together, the heavy-set general manager and his slim and shorter assistant. To look at the cross-cut face and walls was like looking into a jeweller's window to their ore-experienced eyes. The assays from every shift's work were awaited with excitement and studied like precious stones, as indeed the samples were in terms of the mine's life and earnings.

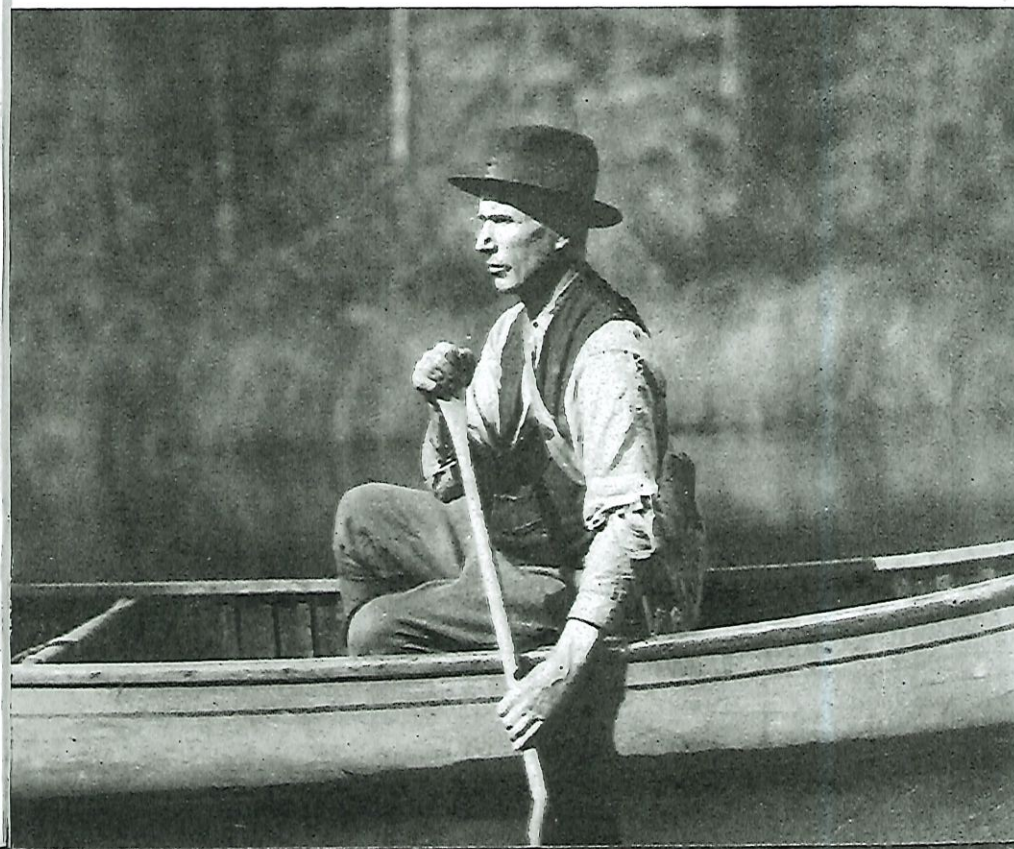
When the cross-cut hit the north wall it had come through 150 feet of ore averaging 12% copper and \$4 in gold per ton. Here the rock drillers turned, drifting east and west along the wall of country rock. The drift remained in ore for 417½ feet going west, and for 120 feet east, where it hit the diabase dyke which strikes across the Rouyn field from north to south. The western drift gave 7.3% copper and \$4.20 in gold per ton over its full length. The shorter eastern drift averaged 6% copper with good gold values. Later the crews drove 85 feet through the barren diabase and struck another 200 feet of rich copper-bearing stuff on the far side.

The next task was to test depth and to reach out with flat drill holes, and others at angles, from the drift on the 975. A vertical hole sent down from the shaft bottom ran out of ore 120 feet below the new mine-floor. From the drift on the 975, flat holes were sent out at intervals of 100 feet and others at a downward angle of 45 degrees. Some of them went through barren rock for more than 50 feet and then into ore again—not as rich as the jewelry store the crews had struck in the shaft, but good pay dirt at that! The inclined holes struck another lens, 120 feet below the 975 foot level. That, in capsule form, is the story of the discovery of Upper H. The top of it had been sliced before, when the Montreal Drive was being cut from shaft

## *A Picture History of Noranda*

### EDMUND HORNE AND HIS RIVER

The year may have been 1911, or any other season before he chipped his first samples from the outcrops on the hill above Lake Osisko. Snapshots of Ed Horne and his partners—his canoe and the Kinojevis River—are "as scarce as free gold in a diabase dyke". If there were others, this alone seems to have survived. It reflects a continuing aspect of the prospector's trade. In a changing North, where much transportation is by plane, where scientists record favourable rock conditions on delicate instruments, where the bush is cleared by bulldozers and grubbers, and prefabricated towns are built in a year, the mine-finder remains much as he was. When the ice goes out he pushes his canoe into the stream, beaches it at his chosen site, puts up his tent, rolls out his sleeping bag, cooks his bacon and chips samples off the outcrops in search of minerals and fortune, as Ed Horne did before Noranda was born.

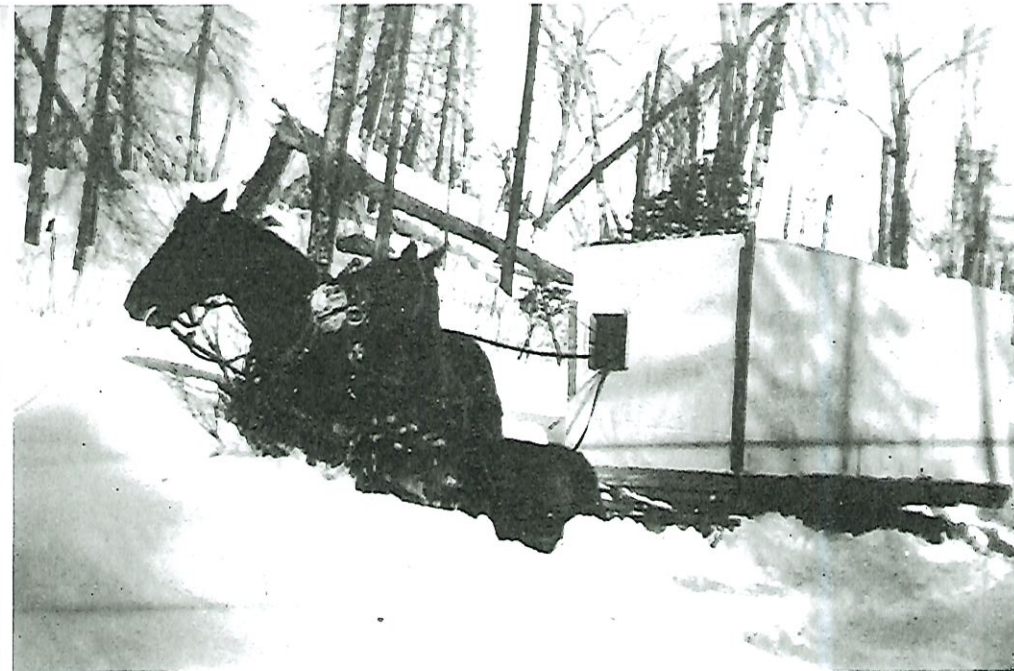






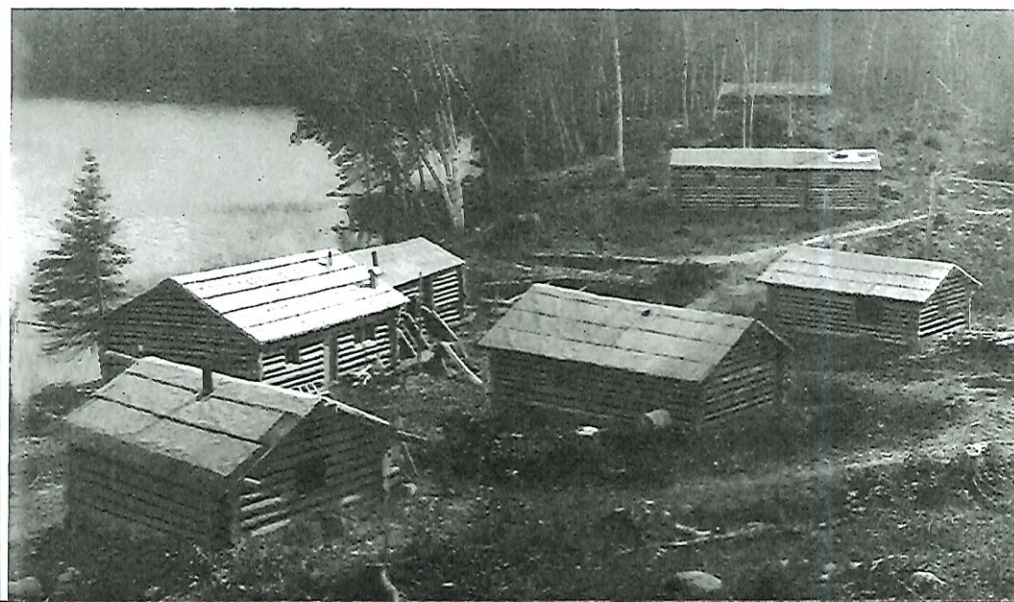
#### THE NORANDA VANGUARD ARRIVES

J. H. C. (Ike) Waite led the first exploration party to the Horne claims in August, 1922. They came, as Horne so often had travelled, by the Kinojevis River, packing in a small smithy, drill steel, sledge hammers, powder, tools, tents, and food enough to last until freeze-up. Waite set to work at once to clean out Horne's trenches and to prospect the surrounding area which Humphrey Chadbourne had optioned sight unseen from Horne's Tremoy Syndicate. The party stayed in the country till well into October, working at the Horne and staking new claims.



#### THE TRAIL—AND THE END OF THE TRAIL

The first diamond drill, indeed the first of almost everything that became Noranda, was hauled in from the steel over crude winter roads. But by 1924 things were settling down. The first camps on the Horne, where handsome Tremoy Road now curves around the shore of Lake Osisko, were no millionaire's fishing club; but they were warm, tight and "home".







#### THE FORWARD DRIVE

In 1925 boilers at No. 2 shaft were powered by 7,000 cords of wood from the clearing. A mine was in the making, as was the wide-open town of Rouynville, though Main Street was peaceful enough when its picture was taken on January 3rd, 1926.



#### MEETING THE TIMETABLE

The summer of 1926 was a hard-driving time on the Noranda hill-top. The railroad builders were on the way down from the north. The smelter had to be ready. Ancillary buildings must be constructed. Innumerable jobs must move forward in parallel columns, every one on time, to reach the deadline of Production Day. Above is the opening of the trackage line to what became the smelter's slag dump. Below, a surface crew clears the machine shop site.

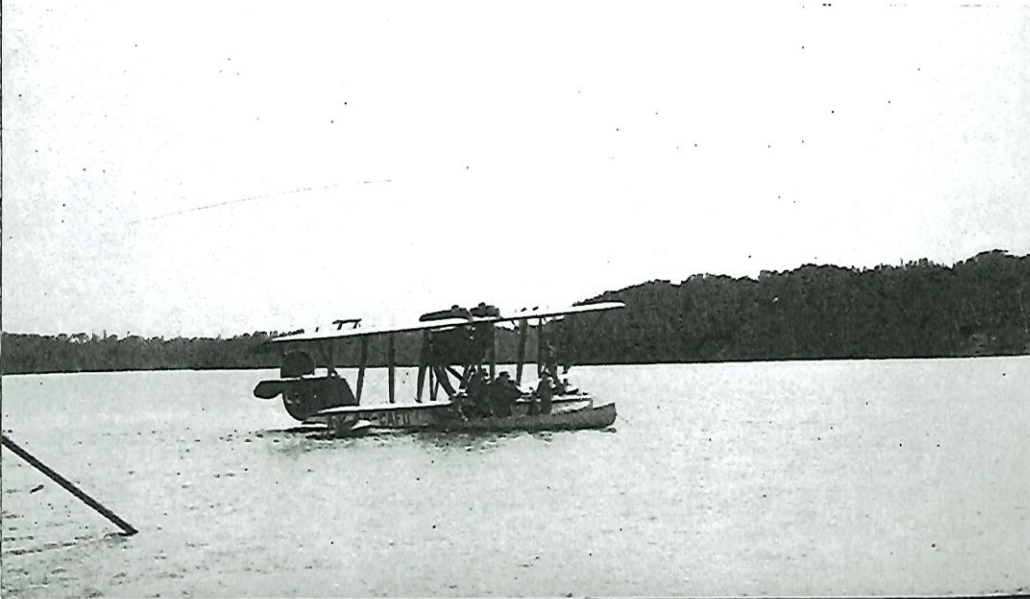






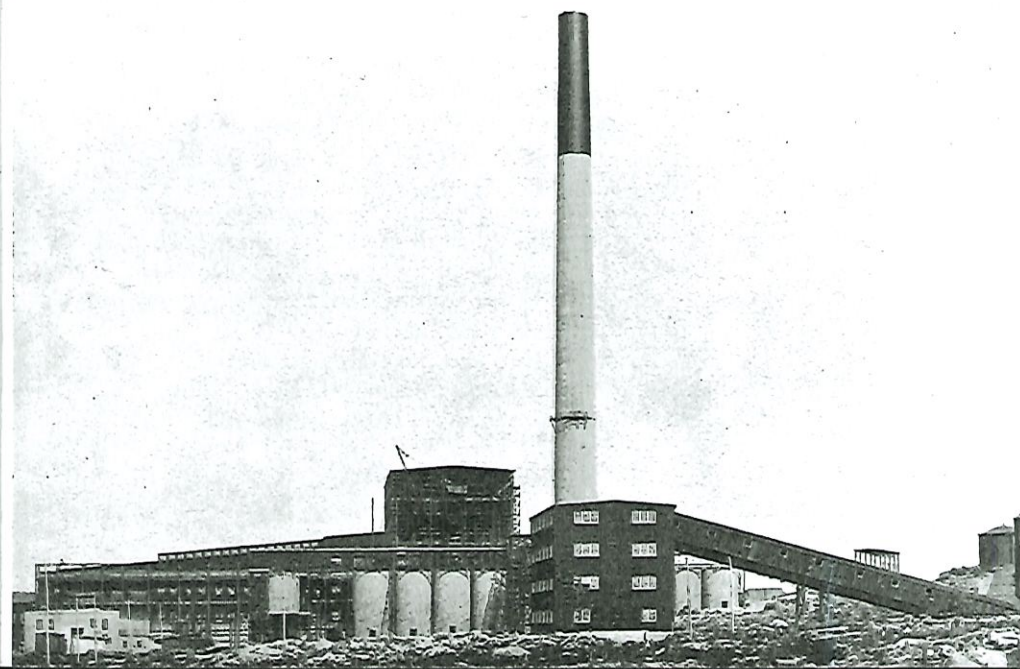
### THE RAILROAD TAKES OVER

Canadian National steel arrived at the Horne Mine on October 28th, 1926. Track-laying trains travel backwards, pushed ahead as the steel is hoisted off flat cars and swung into place (see rig in background). Ties were laid by man-power. The coming of the railroad was a big day for Noranda. The struggle with winter roads had ended. Steel for the smelter and a score of other buildings would soon be rolling in. But on the Canadian frontier the railroad is the last means of communication to arrive. It comes only after the new country has been proved, when the freights are ready to roll. Long before the rails, nowadays, comes the airplane, though even the planes were trail-blazers in Noranda's early days. The flying boat, below, flew in from Haileybury on July 5th, 1926. Its passengers were Sam Thomson and L. K. Fletcher.



### "NO STEEL ERECTED TODAY—COLD WIND"

The big girders came down the railroad. The smelter skeleton rose against its black background of bush. In their diaries construction men damned the weather. But on December 27th, 1926, the power line came in; by August, 1927, the smelter stack stood high above a gear-cluttered yard; and at the end of the year General Manager Hibbert could report: "During December 10,740 tons of ore and flux were shipped to the smelter." Noranda was in business at last!

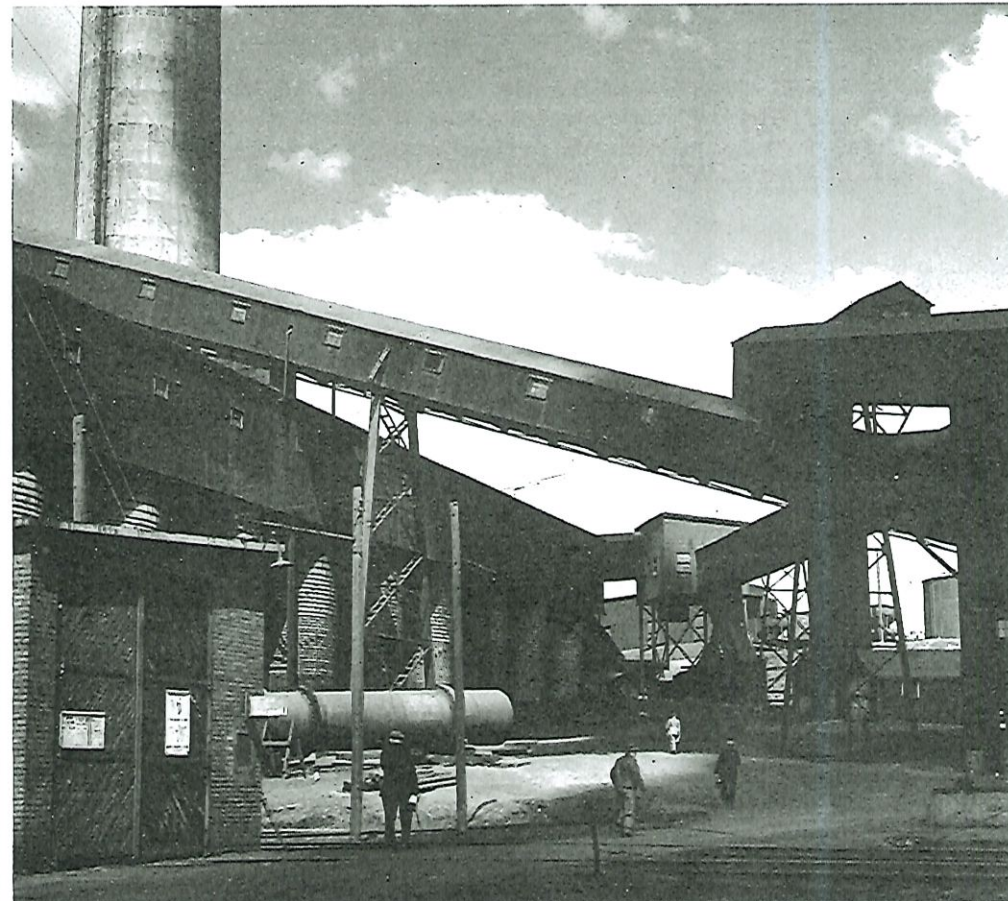






#### THE MEN WHO MADE NORANDA

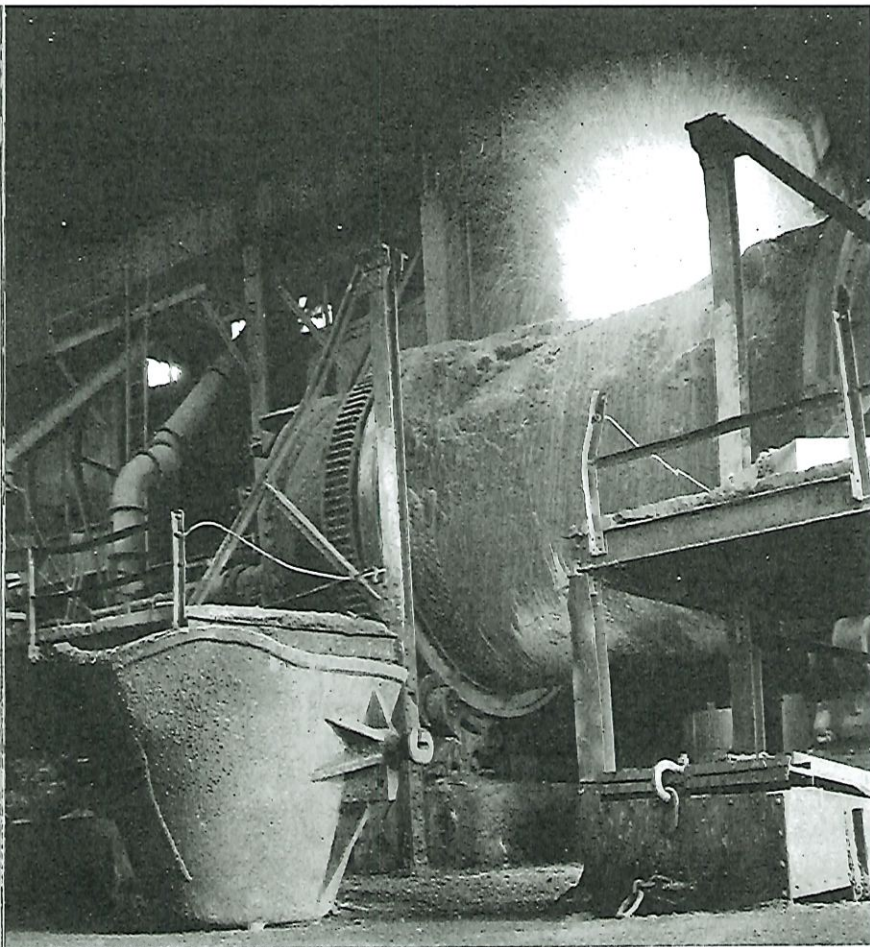
On the tenth anniversary of the establishment of Noranda Mines, December 17th, 1932, a reunion took place at the Horne mine which brought together virtually all those who had been associated with its development. It was a gala day. The mine had come to production. The great H orebodies had been found. Smelter and concentrator were handling more than 3,500 tons of ore every day. More than 63 million pounds of fine copper were produced that year, and almost 350,000 ounces of gold. The camera recorded the meeting, the only known occasion on which such a gathering occurred. On the porch of the original Manager's Residence were posed (back row, left to right) Bert Rae, Jules Timmins, Oliver Hall, Sam Thomson, Edmund Horne, Ernest Hibbert and H. L. Roscoe. In front are L. K. Fletcher, J. H. C. Waite, A. L. Ellsworth, J. Y. Murdoch, N. A. Timmins, F. M. Connell, former Secretary Tom Hay and Norman Urquhart. Humphrey Chadbourne was not present. He stands, at left, at the headframe of No. 3 Shaft during a 1927 visit to Noranda.



#### THE CHANGING YEARS

If it is difficult for the newcomer to today's Noranda to visualize the Noranda that was in the days of Horne and Fletcher and Waite, try to imagine what today's Horne Mine and its vast surface plant must mean to a visitor who saw it in the middle 1920's and has not seen it since. To photograph it from the air can give only the most general impression of bigness; to picture it from within poses an equally difficult problem. It can only be portrayed piecemeal. Here is just one corner of the mine-yard as it is in 1956. A smelter stack rises in the left-hand corner. Mammoth carrier-ways rise above the ground level. Hopper-cars stand on the track, seen through a skeleton of steel. Early-comers stroll in, carrying lunch-boxes on their way to go on shift in the smelter.





#### THE MAJESTY OF PRODUCTION

The scene is the smelter, on the aisle before molten copper is poured. The time, 1956. The feeling is of bigness, as thousands of tons of ore and concentrate pass through the huge, high-ceilinged building every twenty-four hours, pouring out copper anodes in the thousands for shipment to the refinery at Montreal East, and on again to be spun into wire, cable and other metal products, all produced from the raw rock of Canada, on Canadian soil. That has been the "inside story" of Noranda. Where others have been content to sell raw ore, or to ship out their concentrate, Noranda from the outset has bent itself towards final-product fabrication, the surest mark of industrial efficiency to be found in a young country whose future is closely tied to the successful development of natural resources and their fabrication at home.

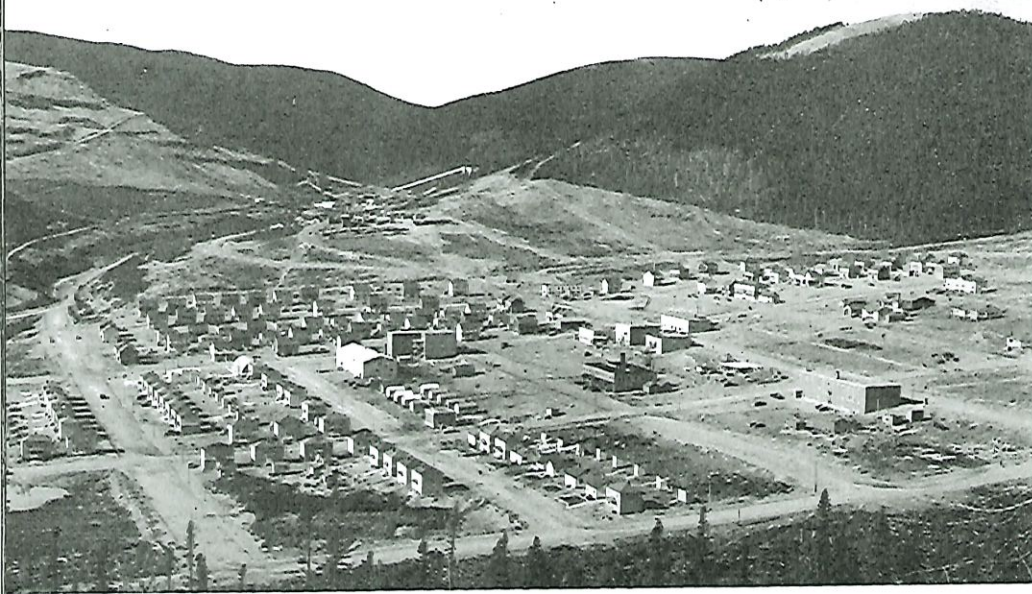


#### THE NEW EMPIRE RISES

Fighting it out with Nature has been the history of the frontiersman, and the mine-maker in particular. Today the fight is made with mammoth machines and power. The bulldozer and the truck have replaced the horses which fought through the snows to Rouyn. Highways are driven through to ease the task of the pioneer. But the fight remains rugged, and rugged it was in the heart of Gaspé's Shickshocks. Here a truck fords the Madeleine River, and concrete fill is poured on the site of Gaspé Copper's smelter stack.

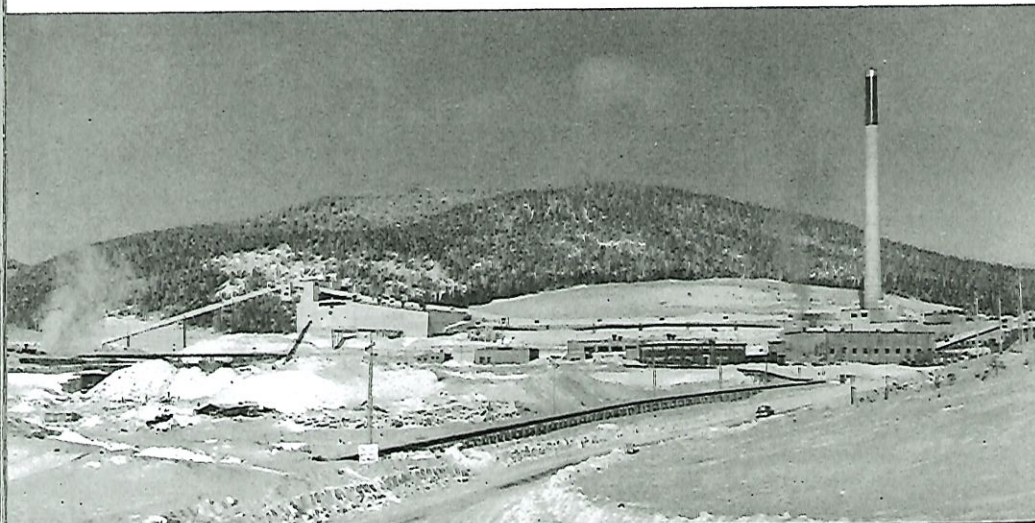






#### A TOWN AND MINE ARE BORN

Murdochville is its name, a modern town in the heart of what was wilderness country until the mine-makers came to delve into its "mountains of copper". By 1956, the empty spaces were filling in as new houses, new stores, new public buildings and new amenities were rushed to completion. In the right foreground is the spick-and-span Copper Mountain Hotel; at centre, the first business block. The large building to the left is the first recreation hall. The hospital is at the far edge of town in centre. Copper Mountain is at the right, Needle to the left, with mine-buildings just in view in rear centre. Below, Gaspé Copper's smelter stack rises against a wintry backdrop. The concentrator stands in the centre, where the conveyor-housing rises from the mine.



#### BUILDERS OF NORANDA'S NEW EMPIRE

Old faces and new were seen as Gaspé Copper moved towards production, men who had been present in the early days in Rouyn Township, and some who came later. Of them it could be said that the roles they had played in Northwestern Quebec had brought together a group of blended skills and experience which were the basic assurance of success "down east" in Gaspé. Standing outside the first guest-quarters in Murdochville are J. N. Anderson, Smelter Superintendent, C. G. McLachlan, Noranda's Superintendent of Mills, Doctor A. M. Bell, Noranda geologist who directed the diamond drilling which proved the Gaspé deposits, General Manager R. V. Porritt of Noranda and Gaspé Copper, and Wm. Baker. Seated are H. L. Roscoe, J. Y. Murdoch, J. R. Bradfield, W. B. Boggs, long-time Smelter Superintendent at the Horne, and Oliver Hall.

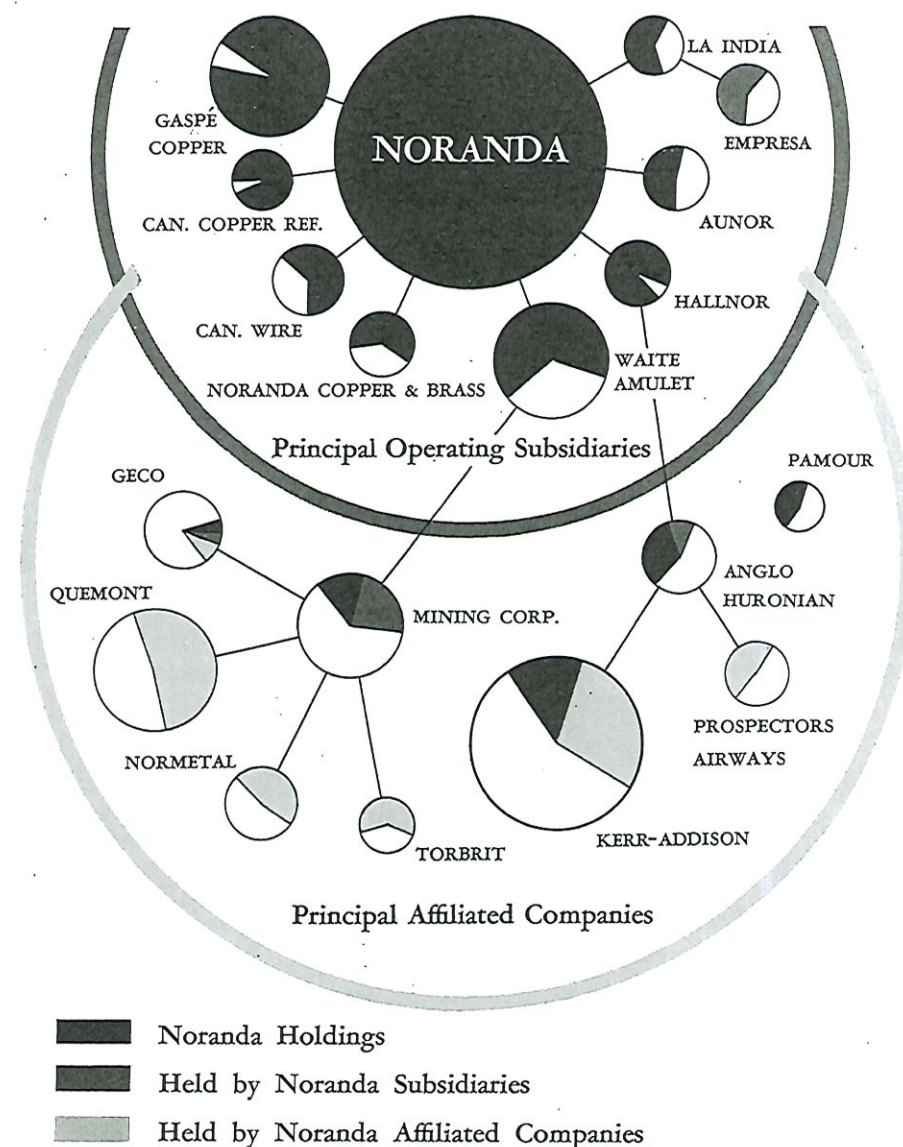




### THE YOUNG PRESIDENT

It was Sam Thomson who said to Humphrey Chadbourne at the beginning of the 1920's, "Next time you're in Toronto, Chad, look up this young fellow Murdoch. He's a live wire." That was the beginning. A young lawyer undertook the task of putting together a new mining company. When he became its first president he accepted the post with the thought in mind that he was rendering a service to a client. The client asked young Jim Murdoch to stay on. He stayed. He guided Noranda to production, developed its subsidiaries and affiliates, supervised the move into refining and on to manufacturing. When Gaspé's long-neglected copper mountains were examined by Noranda engineers and geologists, Murdoch backed their judgment as he had backed his men at the Waite, in the Porcupine, all over Canada and down in Nicaragua. In this picture James Y. Murdoch, O.B.E., Q.C., LL.D., may well have been reflecting on the glamorous history of Noranda, as he took his ease on a pile of mine-timbers in the early days at Gaspé Copper.

## DIRECT AND INDIRECT INTEREST IN SUBSIDIARY AND AFFILIATED COMPANIES





## Noranda Holdings in Canada with inset of Central American Holdings

Noranda Holdings - - - - - x  
Held by Noranda Subsidiaries - - - - - o  
Held by Noranda Affiliated Companies ▲



to shaft, but high up near surface the sulphides had not seemed to be of commercial grade.

What did this great new strike, deep underground, mean in terms of mineral assets? A look at comparative figures tells the story. At the end of 1927, after five years of energetic development and construction had resulted in production of its first metal, Noranda's ore reserves were set at 1,198,375 tons, with a total estimated value of \$27,474,475 (at 13¢ copper), the average ore grade being rated at \$5.44 gold per ton and 6.73% copper. One year later, at the close of 1928 and with Upper H partially opened, these figures had jumped to an estimated value of 3,097,000 tons with a gross value of \$79,340,000 (copper being rated at 15¢ a pound, however, as a result of strong world market conditions). Average grade was set at \$3.68 gold per ton and 7.31% copper—copper up, gold down. The Horne mine had virtually tripled in value in one year!

The Noranda-owned Waite-Ackerman-Montgomery mine was also brought into production during 1928. In 1929 it yielded a net operating profit of \$565,000, as well as revealing important new orebodies in diamond drill cores. Control of Aldermac was relinquished to Towagamac Exploration during the same period. But other events were on the move as well.

The expansion programme in processing, so marked in the Noranda story, was first launched during this period. It marks a policy that should be basic for more of our major resource industries in Canada.

During 1928, Noranda decided to build an electrolytic copper refinery in eastern Canada which, when completed, would translate the raw sulphide rock of Rouyn township into marketable shapes of refined copper. The operating company, Canadian Copper Refiners, Limited, was organized in 1929 and at the end of that year announcement of construction plans was pending.

To attempt to segregate events into neat compartments by calendar dates is impossible. Too many things were happening simultaneously. While Upper H was being developed, the great Lower H was being sought and found. While the new refinery was no more than a twinkle in a draughtsman's eye, plans were



afoot for adding new devices in smelter and mill. During 1928, the issue of 72,285 additional shares at \$45 was authorized, to retire the balance of the Hollinger bonds and make various capital expenditures in the rapidly deepening mine and in its surface plant. By the end of 1929, in retiring the Hollinger loan, Noranda had come into complete possession of Horne Copper. On January 2nd, 1930, the first dividend was paid, only seven years after Waite and Fletcher first scratched the surface of the outcrops beside Lake Osisko. A second dividend would go out at the end of the first quarter. There was nothing static around Ed Horne's outcrop on the hill.

It must be realized that at the commencement of this period the mine had just entered production by virtue of the smaller ore-bodies which lay near surface, from which smelter feed was drawn almost entirely throughout 1928 and 1929. As the period opened, the smelter had been in operation only a few days and much of its subsidiary plant was still in construction. It was also necessary to make numerous changes in layout to increase efficiency. During 1928, in fact, only one reverberatory furnace was in use in the smelter. By speeding up the roasters, the units required to feed this one furnace were reduced from six to five and at times to four, although the ores treated constantly increased in tonnage. Despite the problem of breaking in and tuning up plant, 271,926 tons of smelting ore, flux and concentrates, were put through the smelter during 1928, beginning with 12,669.2 tons in January and rising to a peak of 29,161 tons in December. From this tonnage 33,307,937 pounds of blister copper, averaging 99.27% purity, were produced. With gold and some silver added, there lay the raw material of Noranda's first dividend!

It was in 1928 that another figure whose name was to be associated with Noranda's for twenty years first took over the position of high authority he held until retirement. W. B. Boggs came to Noranda as a young man who had served with Phelps-Dodge in the United States. In 1928 he became Smelter Superintendent, a post he occupied until 1948. In his post-retirement years he became one of the world's most sought

consultants on copper smelting and saw service in Rhodesia, Japan, Scandinavia and the United States.

During the first year of production only direct smelting ore was hoisted at the Horne. But as it became apparent that lower grade orebodies would be mined and that some would contain zinc, which must be removed before smelting, work on a concentration plant began in January, 1928. Its first 500-ton unit went into operation late that year, though not at capacity, mainly to treat ore from the Waite. Ultimately the Horne concentrator would handle 3,000 tons of ore per day, passing its product along to the smelter, under the direction of C. G. McLachlan, who is now general superintendent of mills on all Noranda operations and those of its affiliates.

If underground development during this year marked the greatest potential advance in the mine's history, the same period must be regarded as the tuning-up time on surface. Although the smelter was completed fairly early in the year, the months which followed were replete with changes and additions, for the dual purpose of increasing immediate efficiency and preparing for the greater tonnage indicated by rapidly increasing ore supply. Number 4 shaft, located 785 feet north and 397 feet west of Number 3 (the original working shaft) was sunk to a depth of 267½ feet during 1928 and connected to Number 3 on the 100 foot level. Number 3, meanwhile, was sent down to 1040 feet as we have seen, large stations being cut on the 725 and 975 levels and smaller ones on the 600 and 850 levels. All ore mined was brought to surface through Number 3 during the years 1928-29. Drifting and cross-cutting in 1928 totalled 8,350 feet and diamond drilling 14,972 feet—a solid picture in figures of the forward march of events. Foundations for the permanent headframe at Number 4 shaft were poured and a temporary frame was erected that year.

It was in 1928, too, that management began to think of a smelter tonnage of 2,000 per day, though the objective was not reached until 1930. The original 1,000 tons per day target was passed before the end of 1929.

Mine enlargement plans continued on surface and under-



ground throughout 1929, the Number 4 shaft being deepened to 1,352½ feet. The two working shafts, Numbers 3 and 4, were also connected before the end of 1929 on five levels. After 1929, Number 4 shaft became the mine's main hoisting outlet.

Meanwhile, what was happening underground?

The unexpected striking of the Upper H, during shaft sinking was followed by events even more spectacular during 1929. Early that year the shaft sinking crews started down from the new mine-bottom of No. 3 shaft, heading for lower horizons. At first it was dull going. For almost 500 feet the deepening hole passed through nothing more intriguing than barren rock. Then, suddenly, it came into ore again, in what turned out to be the heart of the Lower H. From approximately 1500 feet all the way down to 3000, the shaft ran through a huge body of massive sulphides which, when developed, would average 700 feet in length and from 250 to 400 feet in width. There are not many orebodies like it. They turn up only occasionally, and the hope of finding them is the lure of mining the world over.

The bottom of Upper and the top of Lower H stand in echelon formation and are separated by a narrow band of rhyolite, no more than 100 feet in width at its widest point. This second great strike in little more than a year (though it was not developed for mining until 1931) rocked the Canadian mining world as it has seldom been rocked, before or since. What Hibbert and Roscoe knew, as they bored down to greater depths, was that they were sitting atop one of the greatest caverns of riches in North America. What everybody else wanted to find out was the nature and extent of Noranda's new wealth. "Scouts" by the score sneaked into Rouyn to pick up gossip and wire grapevine talk back to Toronto, Montreal and New York.

"The only thing you didn't see on the street about then," Roscoe said, "was false whiskers. The people trying to dig information out of us before it could be made available to shareholders were numerous and persistent. Company policy

was to release news to the press as a whole, and thus to its shareholders, as soon as it could be properly appraised, rather than to give it to individual reporters or scouts for groups whose interests might be adverse to that of the shareholders." During this exciting period, the men on the job were actually wiring head office in code. Too many people were too fond of peering over an operator's shoulder to permit telegraphing the results of the day's work in straightaway English.

It was an exciting time. While the financial world was trying to ferret out the story of Noranda's huge strike, and markets rocketed, the men at the helm were coping with a revolution in all their previous plans. Exploration underground was pressed under full steam, because on the size of the new orebodies depended the great enlargement that was bound to come in milling and smelting and, beyond that, the subsequent processing of copper in new plants to be built in southern Canada. "Hibbert and I were stepping on air," Roscoe said with a chuckle one day almost twenty-five years later. "We were also stepping on brokers' scouts every time we didn't look before we started walking. The only place you could keep out of their way was underground."

A second sudden jump in annual ore reserve figures gives a clue to what was happening. At the end of 1929 Hibbert reported 3,426,000 tons of direct smelting ore, averaging 7.3% copper and \$3.29 in gold per ton, plus approximately 3,000,000 tons of milling ore which would run to 2% copper and approximately \$3 in gold per ton. That was a grand total of almost 6,500,000 tons of ore, as against slightly less than half that amount rated as reserves at the end of 1928. But it was only the beginning of the story. The lower H had not even been tapped. These two orebodies would soon be revealed to contain at least 50,000,000 tons of copper-gold ore!

The smelter treated 428,221 tons of ore during 1929, producing 51,625,478 pounds of blister, the average analysis of which ran to 99.22% copper, 12.95 ounces silver and 2.66 ounces of gold per ton. A second reverberatory furnace was blown in



during the year, but did not operate at capacity, due to tuning up of crushing plant and preparation of the Upper H orebody for the increased production required.

At the end of 1929 the smelter had passed the 1,000 tons a day stage, averaging 1,173 over the 365 day year. Despite the fact that the first two years of production were actually a transition period, \$17,737,409.77 had been amassed in income, of which more than \$17,000,000 represented metal recoveries from the Horne.

Two changes in direction were made at this time. F. M. Connell, well-known Toronto mining man, joined the board in 1928. H. W. Chadbourne came back to his seat in 1929—a welcomed return.

The opening drive into the Lower H, although it was not actively explored until 1931, added considerably to ore reserves in 1930, with the result that at the end of the year a total of 3,433,000 tons of direct smelting ore estimated to average 7.02% copper and \$3.01 per ton in gold could be recorded. In addition to this, 4,448,000 tons of concentrating ore estimated to contain 1.83% copper and \$3.52 per ton in gold, were indicated, bringing ore reserves to a total of 7,881,000 tons, an increased tonnage of 1,455,000 over 1929, although 595,606 tons were sent from mine to smelter and concentrator during the year. Reserves were piling up!

The considerable increases in concentrating ores necessitated additions to the mill, though midway through 1930 hoisting at the Waite had been discontinued, pending an improvement in the copper market. Several hundred thousand tons were added to that mine's copper reserves between June 1930 and January 1931. Now a 500-tons-a-day basis could be maintained from the Horne to its own mill, in addition to direct smelting ore, while additions and improvements enabled tonnage to be greatly stepped up and also reduced concentration costs. By the beginning of its fourth year of production the Horne mine had reached a daily capacity of 2,500 tons.

That year the smelter passed the 2,000-tons-a-day objective. Both reverberatory furnaces were in operation throughout the year

and a marked lowering of costs was recorded. The opening of the Upper H was of considerable assistance in lowering smelting costs. Owing to the rapid increase in tonnage the original stack and Cottrell plant (for electrical precipitation of flue dust) were found insufficient to handle smelter gases. Hence it became necessary to install additional Cottrell equipment and to erect a second stack to carry away the converter gases. This was completed in 1930.

Meanwhile the refinery at Montreal East neared completion, Noranda guaranteeing its bonds to an amount of \$2,500,000. The cost of construction beyond this amount was paid by share purchases by Noranda, Nichols Copper and British Metals, who had come in on refinery construction as minority partners. Of this sum, Noranda subscribed more than \$2,000,000. On commencement of operation at the end of 1930 the neighbouring plant of Canada Wire and Cable Company, Limited, in which Noranda had a substantial interest and was later to control, was under construction, thus assuring the refinery an important and consistent market for its product. The empire was growing.

During 1930, then, despite considerable capital outlays and contribution to the erection of another adjunct to its mine, to assure complete copper-processing under its own control, Noranda paid \$5,599,430 in dividends—\$1,679,829 from 1929 earnings and \$3,919,601 from those of 1930—and still could show a balance of \$3,890,114.60 in surplus account, as it turned the corner into 1931, another year of golden expansion.

Ore reserves continued to mount during 1931, though more than 1,000,000 tons passed through smelter and mill that year. The record that December showed 3,580,000 tons of direct smelting ore of \$3.45 gold value per ton and 7.10% copper, 6,350,000 tons of concentrating ore of \$3.62 gold value and 1.54% copper and 1,030,000 tons of flux, carrying \$4.42 per ton in gold and .32% copper. The year's increase was one of 2,149,000 tons, of smelter and concentrator material, exclusive of flux, and 736,000 tons of siliceous ore.

Several highly interesting underground discoveries occurred during 1931. One was the outlining by drilling of 800,000 tons



of flux, containing no copper, but estimated to average \$4.50 per ton in gold. A second was the development of an ore-shoot, approximately 95,000 tons strong, at the west end of the Upper H between the first and fourth levels, an area not previously regarded as of commercial value. This was estimated to average \$29.00 per ton in gold and 3.1% copper. In such discoveries lies the secret of the remarkable record of the Horne mine. In the early days there were always orebodies of high copper content to mine and treat in a booming base metals market, and ore with high gold content when copper prices were depressed.

All these were items of moment, but none was the outstanding strike of the year. The year's great event was the outlining to depth of the huge body of massive sulphides called Lower H underlying the original H body, which had bottomed at about 1,300 feet. The major drilling into this great lens was begun in December, 1930, from the 1,475 level.

Before the end of 1931, 990 feet of drifting and cross-cutting and 1,200 feet of horizontal drilling had been done on the 1,975 foot level, indicating a sulphide mass averaging 260 feet in width, with a length of 550 feet. On its east side, this ore was found to be cut off by the diabase, through which, at the year's end, a drift was pushed. The western extremity had been previously determined.

Moving down to the 2,475-foot level, cross-cuts were driven 94 feet north and 96 feet south from the shaft, each in ore all the way, the north cut in concentrating ore averaging \$4.75 in gold per ton and .75% copper, the south in direct smelter ore averaging \$3.31 gold and 8.5% copper. Each cross-cut was still in ore at the end of the year.

The downward extent of this great new body was then known to reach at least 200 feet below the 2,475 foot level, although little work had been done below 1,975, other than that of sinking the shaft and the sending out of diamond drill holes 100 feet apart on the way down. Ore was estimated only to 1,975 feet, therefore, at the end of 1931.

The remarkable impact of Lower H on Noranda's fortunes

is seen in the summary of ore reserves at the end of 1932, during which year extensive drilling and drifting were done to delineate the body and assess its value. Direct smelting ore could now be estimated as 5,750,000 tons of \$3.27 gold per ton and 7.60% copper; concentrating ore as 15,800,000 tons of \$4 gold per ton and 1.16% copper, and siliceous fluxing ore as 900,000 tons, rating \$4.17 per ton in gold and .28% copper; a stepping-up of 2,170,000 tons of smelting ore and of 9,450,000 tons of concentrating ore during the space of a single year! (It is important here to think back to the end of 1927, when the total reserves of the entire mine were rated as 1,198,375 tons before the first furnace at the smelter was blown in.)

Exploration at the Chadbourne was continued during 1932 and an exploratory drift thrust out from the main Noranda workings to reach this ground. Additional drilling was also done in the Chadbourne's rhyolite area, with the result that at the end of 1932 the downward course of the body was known to persist below 750 feet.

During 1932, smelter and concentrator stepped up to an average of 3,555 tons handled per day. From this tonnage came 63,013,485 pounds of fine copper (produced in the form of anodes after the Montreal refinery went into production), 341,350 ounces of gold and 619,597 ounces of silver. Smelter output was up 20% over 1931. It had more than doubled production for 1929 and was four times as great as that for 1928.

Towards the close of 1932 improvements in concentrating plant made possible an increase of 40% in mill capacity and preparations were under way to lift output of concentrating ore to 2,000 tons a day, by installing skips for rapid hoisting in Number 4 shaft and an ore-pass system in the mine, by which smelting and concentrating ores from upper levels would travel by gravity to an underground crusher on the 1,350 foot level and thence to surface, via the skips.

A glance at operations statements for the period reveals again the rapid movement from outgo to income during the mine's first four years of production. Up to the end of 1932 the sum



of \$9,564,230.30 had been allotted to dividend payments to shareholders, \$5,868,782.65 remaining at credit in surplus account. It must be remembered that a large investment had been made by the company in the refinery at Montreal East and that other large amounts (such as repayment of the Hollinger loan) had been expended, entirely apart from the cost of producing the finished product of the mine.

The first golden years at Noranda occurred at the time of general depression in the industry in Canada, particularly with regard to the bringing in of new mines. Exploration had come almost to a halt in many fields. During this period other operators in the Rouyn area suffered major setbacks, particularly mines-in-the-making, and those in the prospect stage. Many properties were closed down, several of which have since become producers. Many companies found themselves in financial straits. Others fell by the wayside. In many cases claim rights lapsed, ultimately to be worked again under new sponsorship.

The town of Rouyn suffered greatly, too. The community had rapidly shifted from the status of a raw mining camp to that of a supply centre for outlying mining properties and a residential town for the families of those employed in the district. Unemployment problems, as in so many other communities, were critical.

Great progress had been made in communal development since the establishment of responsible civic government. Assessed values had risen from \$582,651 in 1926 to \$1,839,000 by the end of 1928 and reached much higher figures at the beginning of the 1930's. Population had grown from 602 in 1926 to more than 5,000 in less than five years. Four and one-half miles of improved streets had been laid and 20,000 feet of sidewalks. Street lights had been installed and, at the end of 1929, the homes of 163 residents were connected to the outside world by telephone. Water had been laid on and a sewage system installed. Schools, churches and modern shops lined the town's principal thoroughfares.

Nevertheless, Rouyn was broke. These were difficult days, but they were faced by responsible citizens. Civic responsibility

was the watchword of Rouyn's people and equipment was at hand with which to wage war upon depression. Rouyn soon found ways and means to recovery, through the medium of the natural resources responsible for its existence.

Across the corner of the lake, civic development moved with a tempo far different, a tempo set by the great events which had transpired in the big mine. Noranda, it must be remembered, did not spring into being haphazard, as Rouyn did. From its inception the town was carefully planned, every trend of its development laid out in advance and supervised.

Following the auction of lots and the creation of town administration, a building boom ensued in the new community. Tremoy Road, a residential avenue winding along the lake front, was laid out as the site of homes which to this day would be a credit to older and larger communities. Among these were the large houses erected by the company for the use of its general manager and his assistant. On other streets frame houses of pleasing appearance and modern construction were built, for the use of Noranda employees. Schools and churches were constructed. A company-owned hotel was built on a principal corner, at least the equal in service of any hostelry in a town of comparable size in southern Canada.

Noranda's first council, as we have seen, was named in the Act of Legislature which incorporated the town. It was composed of J. Y. Murdoch and Ernest Hibbert, with Raymond Allen, Joseph Copeman, and J. C. Burgess of Montreal, an accountant. As soon as town organization had been completed, local leaders took over the responsibility of management and in 1929 Ernest Hibbert as mayor, and J. R. Bradfield, J. A. Carter, A. J. B. Saumier and R. McDonald as councillors, were chosen by acclamation by the townsfolk to direct their municipal affairs. Hibbert retired from the First Citizen's chair in 1931, and was replaced by Carter. Bradfield remained on the council, the three other members being R. McDonald, T. J. McManus and P. Saucier.

Protestant and Catholic school boards were organized in 1928, the former under the chairmanship of J. R. Bradfield



assisted by James Linklater, Amos Lambert and H. C. Scarth; the latter under Father Albert Pelletier, Rouyn's first parish priest, to whose work reference has been made in earlier chapters. Serving with him were A. J. B. Saumier, Paul Henri Soulard, Jules Dubreuil and Harry Coll.

Catholic and Protestant schools were housed in a joint building, constructed in 1928. This common building was still in service at the end of the period reviewed in this chapter.

As 1933 was born, Noranda was taking shape as a model industrial community. Taxable realty valuations then totalled \$1,534,002.75, an additional \$3,500,000 valuation on industrial property being temporarily exempted from municipal, but not school taxation. Churches, schools, religious institutions and municipal buildings to a further value of \$381,125 were exempt from all taxation. General and special municipal taxes totalled \$3 in the \$1000. At the end of 1932, Noranda could boast 5.9 miles of paved streets and an additional 4.3 miles which had been graded and gravelled. Sports, both team and individual in character, flourished. Many social organizations had come into being and the even flow of civilized neighbourly living had been established.

One peculiar fact always struck the visitor during this period. Ask a Noranda hostess then where she and her husband planned to spend their holidays and the answer would be, "We're going home, of course." Excepting small children, Noranda was nobody's home town! How different things are in 1956, when Noranda-born engineers and geologists, and Rouyn-born young women, may be met all over Canada. A frontier town soon grows up!

At the end of its first decade, Noranda was no longer a mining development with its future to make. It had become established as a vast industrial project of assured life and future, a model town where lived the families of those who brought raw ore from the earth and extracted its base and precious metals. But this was no ending. This was the gateway to new golden days beyond, to a period of even greater and richer development on foundations well and truly laid.

## CHAPTER EIGHT

### THE FIRST GOLDEN YEARS

FROM NEW YEAR'S MORNING 1937 to New Year's Eve, 1938, 2,024,468 tons of ore were hoisted from the Horne mine for delivery to smelter and concentrator. In fifteen years the raw mining claims of 1922 had become a vast treasure house of precious and base metals, from which 5,500 tons of new wealth were hoisted each day in the year.

The story of the Noranda enterprise prior to World War II breaks into almost three equal parts. First came five years of mine-making, during which the barren wilderness was converted into the site of a great industrial operation. Next came the years of increase, during which Noranda moved forward from the ranks of the small mines into those of great mines. Last were the years of firmly established greatness, golden years which were the augury of golden decades to come.

First let us visualize the expansion of the mine itself during the five years, 1933-37.

As that period opened, the deepest shaft, Number 4, had attained a depth of 2,560 feet. During 1933 it was thrust steadily lower, in order to explore Lower H at greater depth and, at the year's end, had reached 3,048 feet.

During the early months of 1936, a new shaft, Number 5, 305 feet to the west of Number 4, was driven to a depth of 3,532 feet. Meanwhile Number 3 shaft was deepened from 2,527 feet to 2,754, Number 4 still being used as the main hoisting exit, as before.

Plans were now in hand for thorough exploration of the area immediately underlying Lower H, from 3,000 to 4,000 feet. Shaft Number 5 was pushed steadily down with 4,100 feet as its destination, while a crusher station, ore pockets and ore passes



to serve the new shaft were constructed on the higher levels. An exploration programme looking many years ahead was laid out, involving opening this new area with eight levels, spaced at intervals of 125 feet, the whole zone having been proved by diamond drilling to be highly favourable ground.

Nineteen hundred and thirty-seven saw the new shaft down to its destination, with drifting and cross-cutting proceeding on three levels below 3,000 feet. The great exploration campaign was under way.

At the beginning of 1933, ore reserves had been estimated at approximately 21,500,000 tons. At the end of 1937 they stood at more than 27,000,000, an increase of almost 6,000,000 tons, despite the huge tonnage mined, milled and smelted during the five years. This amounted to more than 9,250,000 tons.

Considerable new construction, other than the sinking of a new shaft and the deepening of existing channels into the mine, had obviously been required by the production mark set during these years. The underground ore-pass system had been completed early in 1933. Through it two classes of ore were carried from higher levels to a crusher on the 1,350 level by gravity. After crushing, the ore moved on belting to skips in the Number 4 shaft. Simultaneously, additions to the concentrator were being built to lift its capacity by 1,000 tons a day, construction being completed in 1934. A 100-ton experimental cyanide mill was also run in during June of that year to extract additional gold from the pyrite residue of the tailings. By May, 1935, it had proved its value and had reached a 500-ton capacity. During the last seven months of 1935 it treated 89,610 tons of pyrite from which 4,597 ounces of gold were recovered.

In 1937, towards the close of the pre-war period, 1,155,755 tons of ore, concentrates and refinery slag were put through the smelter and 1,106,609 tons through the concentrator. Copper production stepped sharply up to 87,060,237 pounds, while gold retreated to a figure of 280,806 ounces. Silver totalled 705,494 ounces. In terms of cash, metal recoveries produced almost \$20,000,000, the high until then.

The things discussed in preceding paragraphs are only the physical record of a great forward movement. What of the human side? What of the men who made Noranda itself?

And what of those who depended upon the great mine for their daily bread?

Each of the periods reviewed carries its own sharp contrast with the others in the physical appearance of the surface plant on the one hand and the surrounding community on the other.

The close of the pre-war period saw Noranda's twin stacks aligned against the northern skies. Fifteen thousand people then called these two towns home. These were modern towns of churches, schools, hotels, theatres, shops. And they were towns where rugged individualism died hard, even though the rough old days were almost forgotten.

The story is told of Ernest Hibbert (with what authority, or enlargement in the retelling it is hard to say) who appeared one morning at the door of the guest house, where he kept bachelor hall, to discover a cow grazing on his newly sown lawn. A lawn in Noranda in the later 1920's was something to treasure and nurture with care, and the guest house lawn, having only recently sprouted, was being watched almost from hour to hour for signs of improvement and increasing stature. The picture of a cow engaged in converting grass into milk at the expense of the general manager's plot of greenery, was a sight to make a strong man's blood run hot. Hibbert watched the cow with mounting anger. Suddenly he re-entered the house, to reappear in a moment bearing a shotgun loaded with bird shot. Two shots rang out. The cow, amazed by this sudden, and unfortunate, turn of events, promptly buckled at the knees. Hibbert, who had only been intending to frighten the cow, could hardly believe that his spray of bird shot had found a vital spot.

That afternoon a visitor, a Mr. Bergman, sent in his name to the general manager. Hibbert received him. Mr. Bergman, it appeared, had called about a cow. What cow? A cow found dead on the guest house lawn, the best cow, upon his soul, that Bergman had ever possessed. What did Mr. Hibbert intend to do? Hibbert intended to replace the cow, or rather, to pay for it.



How much would he pay, its former proprietor inquired? The general manager suggested one figure, Bergman another. Hibbert's cheque book came out. There were problems awaiting solution underground, or around the framework of the new smelter, or across the yard. Whatever the problem was, he had no time to haggle about a cow. So Bergman went his way rejoicing, stowing in his purse a handsome cheque, while a mine-maker returned to his problems reflecting, no doubt, that it had been worth it, and hoping this might be a lesson to all cattle north of Cobalt!

A week later, it is said, Bergman had not one, but three, new cows and several additional customers along his milk route!

The incident may perhaps be used as an illustration of Then and Now. If a resident of present-day Noranda were to encounter cattle at work on his lawn, or nibbling at his imported shrubs, though he would view such procedure with an alarm akin to that which any urban dweller in Toronto, Montreal or Wilmington might show, it is doubtful if he would reach for his shotgun. Today an errant cow would be a problem for the cops.

When the first school was built, Noranda's children, Catholic or Protestant, made their way to the tile-and-stucco homes of the three R's on Murdoch Avenue over foot-pounded paths through the snow. But in the late 1930's the youngsters dawdled along cleaned sidewalks and when the time came to cross the street, they ran for their lives in competition with traffic to compare with any to be found in Barrie, Oshawa or Kalamazoo.

In the beginning, the women to be found in the camp—early-arriving wives of mining executives—found such time as they could from the busy day's work of establishing homes in a new community to sit and talk of this and that. But in their homes they wrestled with domestic supply problems which often could be more than baffling. The topic of conversation at every ladies' gathering in those days had to do with plans for the next visit "outside", or reminiscences of the last. But in the later 1930's, the women of Noranda were living in comfort which rivalled that of their sisters in southern Canada. You would see them, smartly furred, making their way to meetings of the John Buchan

Chapter, Daughters of the Empire, founded on April 16th, 1935, or dressed in becoming décolletage, driving to dinner parties in smartly appointed cars. You would find them busy with church activities, or on the golf course, or at teas and bridges, pursuing the pleasant round that is the daily lot of the North American woman whose husband has prospered.

Once, their menfolk had slaved from dawn to dark, and beyond, concerned with the problems of making a mine in the heart of the bush. After a day spent underground and evening hours given to poring over mine maps and smelter plans under glaring acetylene lamps, they had made their way homeward with the aid of flashlights, to tumble into bed, dog-weary, and renew their strength for another day of constant battle. By the time World War II began, their jobs ran with the smoothness of well lubricated machinery. The hurry and the scurry were gone. The chain of responsibility ran with precision from "front office" executives' desks down to the newest mucker three-quarters of a mile underground and the youngest hand in the smelter or the mill. The hard, erratic drive of the mine-making job had given way to the steady, even tempo of a major industry in full movement.

When the day's work was done, you would find the men of Noranda in gaudy plaid tam-o'-shanters swinging stones down the glassy surface of a curling rink. Curling and skating rinks were built and opened as early as December 20th, 1931. In summer you would see mine executives slipping away from their desks a little early for a round of golf on as fine a nine-hole course as could then be found north of Muskoka. Golf came to Noranda on August 3rd, 1935, the links being laid out by a high-priced specialist, brought from afar to produce a layout designed to satisfy the meticulous taste of the golfer who takes his relaxation seriously.

Early in its life the community acquired all the group activities common to the cities and towns "outside", and all were healthily active. Noranda's Kiwanis Club, founded on October 11th, 1928, quickly became one of the strongest in Quebec province, a source of infinite charity and good works, particularly in regard to



underprivileged youth. Its running-mate, the Kiwanis Club of Rouyn, was established on June 7th, 1938, and quickly showed every sign of the vitality of its brother across the bay.

Among service clubs and fraternal orders, the Loyal Order of Moose, Rouyn-Noranda Branch, founded on January 11th, 1928, soon ranked second in Canada in numerical strength, in which it bowed only to Vancouver. A fine new home for its 500 members was erected in Noranda in 1938, equipped with facilities for concerts, dances and all manner of community social events.

The Lions Club of Rouyn-Noranda and the Rouyn-Noranda Knights of Columbus, the latter founded in 1930, the former established in the later years of the decade, rapidly made places for themselves in the life of the camp. Others were in the Kinsmen. The great North American instinct for joining was visible early in the life of the twin towns on Osisko—a mark, perhaps, of communities that had come to stay.

Mainly such societies bent their efforts to social service, for charity in the Canadian north always has been an open-handed and open-hearted enterprise. In this regard, it may be of interest to record that at the opening of the Noranda skating rink in December, 1931, the Noranda Kiwanis took advantage of the occasion to hold a turkey raffle which netted \$800 for the club's work among underprivileged children.

The athletic life flourished in this community which, because of its own youth, called to young men and women. In inter-town competition, Noranda participated in senior amateur sports, notably baseball and hockey, in the former as a member of the Temiskaming Baseball League from the summer of 1932 onward, and in the Senior Northern Ontario Hockey Association from January 4th of that year. Before that a town league had been organized and games were played on open rinks in winter. Baseball leagues flourished on the vacant lots in summer. The town hockey league consisted of teams from various departments at the mine and included others from the Powell, O'Brien and Beattie mines, producers in the district adjacent to Noranda. Even before World War II, 250 boys participated in the Junior Hockey League, a Kiwanis-sponsored organization.

Soccer enthusiasts found an outlet for their energies in the Noranda and District Football Association, which formed a town league in 1930. In 1934 this became an affiliate of the Inter-provincial Association.

Among the grown up "younger set", badminton and tennis became social sports of major rank, as is the case in most Canadian towns. Three active badminton clubs, two in Noranda (playing in the gymnasias at the Catholic and Protestant high schools) and a third in Rouyn (in St. Bede's Church auditorium) soon had a combined membership of approximately 300. Tennis players on the courts of the two towns are said to have totalled 500 by 1937. Soon the community had a fine company-built recreation centre. Between work and play, life was a busy affair in young Noranda.

Such items are set down here to scotch, by presentation of case-evidence, the belief, to which the uninitiated everywhere have always clung with romantic fervour, that new mining communities in the Canadian north are a hybrid concoction of the Trail of '98, as seen through Hollywood eyes, and, say, the isolated outposts of Hudson Strait. Towns in the bush which surround new mines quickly become modern, community-conscious places, and the amenities they offer to their residents are those which these same residents knew in the communities whence they came; but they are likely to be a little better than those "back home".

If there is a problem difficult of solution in communities such as Noranda and Rouyn were in the 1930's, it is that of pacing civic development with population increase. Obviously, when such a community is established and its design has been laid out, the aim of the founders is to provide for what they are likely to regard as a potential population limit. This was done in Rouyn and again in Noranda. In each case, however, the irrepressible human belief in the greater verdure of distant fields caused every well-laid town plan to go quickly into the discard.

Rouyn, in the first instance, was hazily designed to be a town of 5,000 possible population and its original sewage-disposal and water supply were laid on with that end in view. Almost before the mains were down, however, the town outstripped the concept of its organizers. On either side of the bay a housing short-



age became chronic almost from the day when civic charters were granted. Except for the doldrums at the beginning of the '30's, a scarcity of hotel rooms was always the rule rather than the exception. School facilities were seldom able to keep pace with the constant influx of children.

Additions to each of the Noranda schools were built, for example, in 1932, four years after the establishment of the first classes on Murdoch Avenue. In each case four rooms were added. Nevertheless, it was necessary, two years later, to increase space again and another four-classroom unit was added to each school. In 1936 the Protestant Commissioners were forced by increased enrollment to turn even the school office into class quarters and a year later, when the Catholic Commission completed a new school building in the west end of the town, the Protestant Board borrowed space under this roof as well. Long before the end of the 1930's, modern secondary schools were in operation, Catholics under Jacques Bouvrette, B.A., Protestants in charge of Roland Bartlett, B.A. In the latter school no less than seventeen classrooms were in use in 1937, yet, when opening day came in the autumn of 1938, the ground floor of the Masonic Temple was "borrowed" and two additional classes were installed there.

As with schools, so with hospitalization. The original Hospital of the Holy Angels, it will be recalled, contained twenty-five beds and equipment which could best be described as portable. Two doctors, Linklater and Rudd, administered to the sick and the maimed of the camp. Sister Marcelline and her nursing nuns worked day and night in a community improperly served as to sanitation, water supply, and all the essentials of public health. Within four years it had become obvious that action must be taken to enlarge the number of available hospital beds. All parties approached—government, church and mine authorities—agreed that the crisis might as well be laid "once and for all". It was decided to erect a brick building, midway between Noranda and Rouyn, of a size sufficient to provide for communal needs for many years to come. Church, province and company contributed to the building fund and the imposing new edifice was completed in August, 1930. It contained 107 beds, a modern operating

theatre, (the furnishings and equipment for which were donated by Edmund Horne) and every facility to be found in such institutions in cities of 50,000 population. Sister Marcelline assumed charge as Mother Superior. Doctor Linklater became the new Youville Hospital's Chief of Staff. Yet at the beginning of the war, ten doctors were practising in Rouyn and seven in Noranda, and new mines were operating at points more than one hundred miles distant and were sending their sick to Rouyn-Noranda. So the hospitalization problem again became acute and could only be resolved by building a new wing.

Noranda and Rouyn grew within the space of fifteen years from barren wilderness to twin cities of approximately seventeen thousand population. Water supply problems of the two towns were solved in 1937 by laying a wood-stave pipe line 11,500 feet in length from Dufault Lake to the Noranda powerhouse, where it was hooked up with existing lines, the former supply being disconnected for reasons of public health. Electric power was stepped up from time to time as the need arose, so that in this phase of community requirements no shortage was felt.

Because its roots were always interlocked with those of the company, the town of Noranda did not suffer the shortages of domestic amenities peculiar to its neighbour community, where civic effort always fell entirely on the shoulders of individuals. Nevertheless, the housing shortage persisted through the 1930's, even in Noranda. New streets and subdivisions were being laid out late in 1938, as builders rushed to completion new groups of homes, each rented almost before the first scoop of earth had been moved to make way for a foundation. They were still building in 1956.

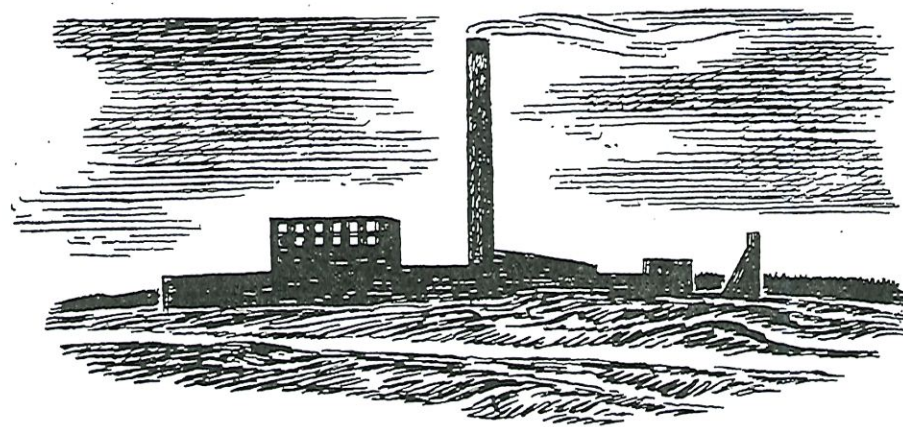
Such towns, it seems, never catch up. Life moves too quickly on Canada's natural resource frontier! They move with a great vitality, these north country towns. They live because they add to the visible wealth of the nation and the world, where other towns, more sleek, perhaps, but old, bask in the watery rays of yesterday's sun. This is the real Canada. This is the source of a young nation's strength.

During its first fifteen years, beginning with the handful of



men who went into Rouyn with Waite in 1922, and with Fletcher's first exploration party who followed them in 1923, Noranda expended \$24,000,000 in wages to its employees. These, it will be remembered, numbered no more than 100 in the days immediately prior to Hibbert's appointment as general manager and were approximately 500 during the construction days, before the arrival of the railway. By 1929 the number had increased to 1,100. In 1930 1,208 men were on the payroll. An average of 1,862 was reached in 1934. By 1938, the Noranda enterprise provided a direct means of support to more than 10,000 people, through employment of more than 2,000 men in its direct and subsidiary enterprises in the north.

Numerous important executive changes were made during the years under review. In 1931 Hibbert became the company's consulting engineer, with headquarters in Toronto, and was succeeded in the general management by Roscoe. Oliver Hall, that wonderful, quiet human being, renowned throughout the length of Canada as engineer, mine manager and man, became assistant general manager in Roscoe's place and, when Hibbert resigned as consulting engineer in 1938, took over that post, with particular reference to the company's extra-mural operations. In 1937, when the number of directors was increased from nine to ten, Hon. J. E. Perrault, K.C., longtime Minister of Mines at Quebec and devoted friend of the Noranda enterprise from the day of its inception, joined the board on his retirement from politics. In January 1936, Noah Timmins, greatest of all the Canadian mining giants, had died and the succession was perpetuated by the election of his son, Leo, to the board. Chadbourne's brother Tom, the corporation lawyer, had died some years previously. Hibbert became a director in 1933, vice Hon. F. H. Phippen, K.C. Of the "originals", then, Sam Thomson and H. W. Chadbourne, J. Y. Murdoch, and Harry G. Haskell of Wilmington, Delaware, remained at the end of the pre-war epoch.



## EXPANSION



## CHAPTER NINE

### THE TREE PUTS OUT BRANCHES

THE BUSINESS OF CONVERTING the essence of raw ore into finely spun copper wire, or into gold bullion, differs from, say, that of producing shoes from cowhide, in that the source of supply of metal ultimately must peter out. This, at first blush, may appear as the prime disadvantage of mining. The search for mines begins as a highly speculative enterprise. If a mine is found and brought to production many profitable years follow, but always the mine-maker lives with the knowledge that, sooner or later, his property will be mined out. By then, if success has attended his venture, capital will have been returned with profit. But the plans of the latter-day, large-scale mine operator reach out beyond this desideratum. Thus he seeks to perpetuate his operation by finding and developing new mines during the years in which great profits accrue from the parent property, partly to employ capital and partly to perpetuate his one potentially permanent asset, his corporate structure. For this reason it has been the policy of all great and successful mines to maintain active exploration departments with a view to creating new mines.

Noranda began life as an exploration enterprise. The original Thomson-Chadbourne syndicate was formed for that purpose and, as the reader knows, devoted its early years and its original capital to the optioning and examination of numerous mining properties from Kirkland Lake eastward towards Quebec. Noranda itself was an early branching out from the syndicate and, in the beginning, was actually an exploration company. No doubt the directors intended, as mines were found, to operate them under subsidiary companies—as witness the formation of Horne Copper—and to make Noranda itself a parent, or holding, corporation. As development proceeded, it became evident that



greater mobility of direction and management would be secured by making Noranda an operating company as well, at least insofar as its first great mine was concerned. This was never permitted to detract from the original policy, however. Development of the Horne was in itself a part of that programme. From the beginning of the company's days in Rouyn township, Noranda's eyes were turned towards the search for new ground.

As the mine beside Lake Osisko developed and Ernest Hibbert was brought in as general manager, Fletcher's activities were immediately diverted into what must always be the main channel of any intelligently directed mining company's programme, the search for new mines. From 1925 forward, as general superintendent, the first manager at the Horne bent his efforts to the search for prospects and in 1926 he made sixty-nine property examinations.

Through its earlier activities Noranda had already acquired participation in two interesting extra-mural developments, that of Plata Mines in Gowganda, where a shaft was put down 284 feet and considerable lateral work done with Noranda funds, and Keweenaw Silver Mines, in Coleman Township, southwest of Cobalt, where underground exploration was carried on for several months. Each of these efforts was abandoned in 1927, on Fletcher's recommendation, the Plata share interest being sold, that of Keweenaw remaining in the treasury until written off at a later date.

Nineteen hundred and twenty-seven was a year of important branching out in other directions. That was the year in which the claims of the nearby Waite-Ackerman-Montgomery came under Noranda control through purchase of a majority share interest in the owning company, thereby bringing into the Noranda orbit an operation, adjacent to its own smelter and mill, destined to become second only to the Horne itself among Rouyn's mines. An eighty per cent interest in the Waite was secured that year and complete mining plant installed. A two-compartment shaft was sunk into a known copper ore body and development undertaken under R. V. Porritt, in order to ship custom ore to the newly built Noranda plant.

In the same year a sixty per cent share interest was acquired in the nearby Aldermac mine where a shaft had been sunk to 550 feet and four levels opened for development of a large body of copper-zinc ore. During the following year, 1928, the Waite was brought into production, shipping to Noranda's plant, and development of the Aldermac was continued. In 1929 control of the latter's development passed into the hands of Towagmac Exploration Company, due to decision of the Noranda directors that further investment in a low-grade, partially developed ore-body was not justified. Operation of the Waite that year resulted in a net profit of \$656,000. The benefits of a policy of investment in "outside mines" already were to be seen.

A slackening in exploration occurred in 1930. At that time efforts were being bent towards completion of the refinery at Montreal East designed to streamline the Noranda operation from raw ore to finished product. Time soon proved the economic sense of refining Noranda copper in Canada. (Canadian Copper Refiners were established to refine the products of Noranda and Hudson Bay Mining and Smelting, under a management contract to Phelps Dodge Refining.) Designed originally to handle 70,000 tons a year, by 1955 it had the world's second greatest capacity, in excess of 200,000 tons of refined copper per annum. It is also an important producer of refined selenium and of copper sulphate. Perhaps the most important aspect of this branching out is that it established, early in the parent company's life, the policy of processing its resources in Canada. You do not build a great nation by exporting raw resources—a lesson many Canadians still have not learned. In 1931 the search for new properties was resumed and energetic exploration was carried on in ground situated in the Pascalis area, seventy miles east of Rouyn, at that time the focal point of prospecting and exploration effort in western Quebec's mining field.

That year was marked by an event of greater importance by far to the company than the scratching of rocks in Pascalis. It brought into Noranda's service one of Canada's outstanding mine-finders in the person of Oliver Hall, who, on promotion of Roscoe to the general manager's post, had joined the company



as his assistant. Hall, a graduate of McGill, of wide experience throughout Canada's mining fields and established reputation for an almost uncanny ability to unravel the knotty problems of ore deposition, was for many years superintendent of mines and general manager of Mond Nickel. He came to Noranda from International Nickel with which Mond had been merged. Hall deserves much of the credit for Noranda's subsequent success in the acquisition of interests in and the development of mines beyond the immediate zone of Noranda itself, culminating not long before his death in 1954 in his supervision of the development of Noranda's huge new Gaspé Copper project.

Oliver Hall was a remarkable mining engineer, and a remarkable man. Born in Ontario, near the Scottish-Canadian town of Ayr, he graduated in mining at McGill University in 1903 and, after post-graduate study, was awarded the degree of M.Sc. Though maintaining a high academic standing, he excelled as a football player (in which game his sons James and John would excel, a generation later) and long distance runner. His ability as a cross-country runner is said to have stood him in good stead in after life when he was examining prospects. If the road was slow he trotted on ahead and had his examination well under way when the horse and rig arrived with the sleeping bags and camp equipment.

After the amalgamation of Mond and International Nickel interests, Hall was placed in charge of all mines of the International Nickel Company, with the title of Superintendent of Mines. In this capacity he supervised the opening of the Frood mine, to extract the high grade ore on the Frood and Frood Extension properties.

On coming to Noranda as assistant general manager, he first aided in building up ore reserves. Then, as consulting engineer, he devoted much of his time to outside developments. Under his direction, the Pamour, Hallnor, and La India mines (this last in Nicaragua) were brought to production, and the important high grade body of Waite-Amulet was discovered and outlined by diamond drilling.

Oliver Hall was a modest and retiring, but energetic and per-

sistent man, beloved of mining folk everywhere and one of the great mine-finders of Canada. In recognition of outstanding service to the mining industry he was given the honorary degree of Doctor of Science by McGill University in 1948. He also received the INCO medal awarded by the Canadian Institute of Mining and Metallurgy in 1939 for distinguished service in the discovery of ore deposits and in the development and direction of important mining operations in Canada.

In 1932, a few months after Hall joined Noranda, operations at the Waite were halted, because of the decline in copper prices. The search for new properties continued, however, and many groups of claims, principally in Western Quebec, were examined during the year, a considerable amount of ground being acquired, either by direct staking, or by optioning from stakers.

In 1933 a step which later proved to be mutually advantageous to the Amulet mine and Waite-Ackerman-Montgomery merged these two as Waite-Amulet mines. The Amulet had been staked in 1923 and considerable work had been done over a period of years, including the installing of a concentrating plant of 300 tons daily capacity. During the copper depression, however, the original Amulet company had fallen on evil days. Serious financial difficulties resulted. In the subsequent merger with Waite-Ackerman-Montgomery, Noranda acquired control through an exchange of shares, more than fifty-one per cent interest in the new company remaining in Noranda's hands.

Neither mine, Waite nor Amulet, was worked again for some years. During the summer of 1937, the two properties were reopened, the Amulet mill turning over again early in July.

Early in 1938 drilling of the eastern section of the former Amulet ground to depth encountered a massive orebody, since designated as Lower A. Early in August that year, it was estimated to contain 1,150,000 tons of ore averaging 5.6% copper and 5.7% zinc, with small gold and silver values as well. A month later a recapitulation of this original estimate gave an upward step to 2,000,000 tons. An official statement, issued in November, 1938, moved this up again to a figure of 3,158,260 tons of 6.24% copper and 4.65% zinc. This without doubt was



the most important strike made at the time in the Rouyn vicinity since the discovery of Noranda's H orebody.

As soon as the economic importance of the strike on the Amulet became apparent, it was decided to erect a new milling unit of 1,000 tons capacity on the former mill site and to proceed at once with large-scale diamond drilling. Exploration of the Lower A showed a north-south length of 500 feet and an east-west width of 400, between the 500 foot horizon, where it was struck by the drills, and the 1,100. Many gold mines had been brought into production in Canada during the pre-war years, but few new base metal mines of major importance had been found. It is reasonable to say that Noranda's mining luck at Waite-Amulet had resulted in discovery of the most promising addition to the Canadian base metal group during the 1930's. Thus Noranda's first major "outside deal" had established itself as a source of ore second only in importance to the Horne.

Meanwhile a new phase had been entered upon in the diversification of Noranda's available capital for exploration and the development of outside properties. This was a venture beyond the borders of Quebec in one of the older gold camps in the neighbouring province of Ontario which resulted in the addition of new producing units to the Noranda-controlled mines.

In 1933 three properties lying idle approximately seven miles north-east of the Dome mine in Porcupine were brought into a common group by D'Arcy Bogue of Montreal. These were the Three Nations, Porcupine Grande and La Palme. A considerable amount of work had been done on each in earlier days, particularly on the Three Nations, where a small mill had been erected and some gold produced. At the time of its entry into the Bogue trinity, however, the mine had been shut down for a long period and actually had been purchased for arrears in taxes. Associated with Bogue in his venture in mine resuscitation were two well known Canadian prospecting veterans, D'Amour and La Palme.

That season the combined properties were examined by Consolidated Smelters, which declined an opportunity to participate. The "deal" was then taken to Quebec Gold, at that time known to be on the lookout for a good development risk to employ avail-

able treasury funds. After due investigation Quebec Gold declared its willingness to participate and a new company, Pamour Porcupine Mines, was formed to develop the united properties, the name being derived from those of the two prospectors D'Amour and La Palme. Of a capitalization of 3,500,000 shares of no par value, 1,500,000 were paid for the properties, the remaining 2,000,000 being optioned to Quebec Gold as developers.

R. M. Macaulay, a well known Canadian mine operator, was appointed managing director and began thorough examination of surface geology in May, 1934. The old workings of the Three Nations were pumped out during August and September and towards the end of the year a start was made on underground exploration on the 200 foot level. At the end of the year sufficient work had been done underground to identify three veins containing commercial values and to indicate the presence of a fourth.

Before the end of 1934, Quebec Gold had paid into the Pamour treasury \$219,750. It was realized, however, that if the property were to be carried through to the profitable production stage, further expenditures of approximately \$1,000,000 would be necessary. At least twenty-five per cent of this amount would be required to ascertain if a mine could be brought in. Capital was increased to 5,000,000 shares of no par value and Noranda entered the line-up by optioning control from Quebec Gold. The Pamour directorate was then recast to include J. Y. Murdoch as president, Jules R. Timmins, Ernest Hibbert and T. N. Hay, then secretary of Noranda. Noranda's technical department, and, in particular, Oliver Hall, became Pamour's development advisors and full power was turned on in the hope of reaching major production.

Development during 1935 was carried on through the old Three Nations Number 2 shaft while a new five compartment entry was being sent down 1,100 feet to the east, stations being cut at 200 and 300 feet prior to the end of the year. Extensive diamond drilling was carried out from surface in a closely defined area between the old and new shafts with a view to linking previously known ore intersections to form indicated ore. From the



Three Nations Number 2 shaft eastwards for 3,000 feet, 1,530,000 tons averaging .261 ounces in gold per ton was estimated at the end of the year, while underground development proved 726,000 tons averaging .246 ounces to the ton.

Construction of a 500-ton mill was undertaken in 1935 and production began in May 1936, tonnage being increased to a figure slightly in excess of 700 tons daily prior to the end of the year. By the end of December, despite the fact that much of the intervening period from May must be charged to the tuning-up process, 138,187 tons of ore had been milled and gold to a value of \$808,471.25 marketed. Ore in sight at the end of 1936 was estimated at 1,021,000 tons.

Milling was gradually stepped up during 1937 and reached an 800-ton figure during December. Gold to a value of \$2,044,048.90 was marketed during the year for a net profit of \$624,836.86. The main shaft reached the 1,100 foot horizon during the year. Ore reserves had stepped up to 1,644,000 tons of .176 ounces per ton estimated average, in addition to ore removed to the mill, and plans were under way to move the mine up to a daily operation of 1,000 tons. Thus another Noranda-sponsored mine had begun to reach out towards the high places of the mineral kingdom, this in a section of one of the older camps which, before the development of Pamour, had been regarded as a dead issue geologically.

Noranda's venture into Porcupine did not begin and end with the acquisition of its interest in Pamour. Due largely to conclusions reached by Oliver Hall from underground study of the Pamour formation and its direction of strike, an option was taken in 1936 on the adjoining Poulet-Veteran claim of 160 acres and the Porcupine-Creek ground, comprising 320 acres, adjoining the Veteran on the west. These claims were conveyed to a new company, Hallnor Mines, Limited, of which J. Y. Murdoch of Noranda became chief officer and F. M. Connell, Leo H. Timmins and Ernest Hibbert, directors. Seven hundred and twenty-five thousand shares were paid for properties and 900,005 were sold to Noranda for \$600,005 out of a total capitalization of 2,000,000 shares of \$1 par value. The remaining 374,995 shares

were optioned to Noranda at \$1, thus assuring the new company ample finances to carry it into production and giving Noranda control of the operation.

Hall's faith in the newly acquired ground was quickly justified. A three-compartment shaft reached 591 feet in 1936 and 785.5 in 1937. Exploratory drifts were sent out from stations on the 210, 360 and 560 horizons. On the 360 two parallel veins were found west of the shaft and at the end of 1937 ore shoots totalling 805 feet in length with average width of 5.8 feet and averaging .66 ounces in gold had been established. On the 560 horizon a total length of 1,080 feet of ore averaging .9 ounces in gold per ton was established over a width of 6 feet. Although raises had not been completed in 1937, the similarity of appearance and location of the ore on these two levels was of a nature to lead to a belief in their continuity, which was soon proved. East of the shaft a number of smaller ore shoots were found on the 210, 360 and 560 foot levels, varying from 70 to 185 feet in length and from 5 to 10 feet in width, with a gold average varying from .17 to .33 ounces per ton. So encouraging were these results that the directors felt justified in proceeding to mill construction. Before the end of 1937 the foundation site was being cleared and a mill had been designed to treat 250 tons of average grade, or 400 tons of lower grade, ore daily, production being reached during the summer of 1938, barely two years after acquisition of the Veteran and Creek claims.

Still another mine in the Pamour section, Aunor, was brought to production later under Oliver Hall's direction and supervision, and Noranda was soon to venture beyond the shores of Canada to operate new properties in distant Nicaragua.

Thus from its own inauguration Noranda was as active in the acquisition and development of "outside mines", as we have seen it to be in the processing of its own minerals. Fortune smiled almost from the beginning. The Powell was secured by the first working party to enter the Rouyn field under the company's aegis and, although its development was dropped because of subsequent preoccupation with the making of the Horne mine, the Powell later became a valuable provider of fluxing ore for the



Noranda smelter. The Chadbourne ground became an adjunct of the big mine and a further source of flux of erratic gold content. Waite-Amulet could reasonably be labelled the Number 2 mine of the camp prior to World War II. Pamour and Hallnor were made into profitable gold producers during this same period. Certainly few companies in mining could point to such a record in their first fifteen years of life, few indeed in a considerably longer time. Much of it must be credited to mining luck, but with mining luck had been combined mining wisdom. No record in the history of the metals in Canada compares with that of Noranda. Its choice of men has been uncanny.

World War II came, as Hall first began to punch holes into the long-neglected rocks of the Gaspé peninsula, in geology highly favourable to the deposition of commercial minerals. Hall was to open the famous "mountains of copper". A new town, Murdochville, would be born in the heart of another wilderness. Many millions would be spent to make another mine. But first a war had to be won—and Noranda was to use its utmost resources to make its contribution.

## CHAPTER TEN

### THE WAR YEARS

LATE IN 1939, a voice in Ottawa spoke to James Y. Murdoch, president of Noranda, on long distance at his Toronto office.

A few hours earlier, Britain had asked Canada to send her a number of diamond drill crews, as quickly as they could be assembled. Military authorities in Whitehall were anxious to test the geological structure of Gibraltar, to add to its network of drifts and cross-cuts and fill them with guns to step up the Rock's defences. Like many military decisions, the Gibraltar drilling had been considered at leisure before the war. But once decision had been reached under the increasing threat of attack, it must be implemented in haste.

The Canadian mining industry was clearly the handiest place to look for men and one of its high executives the obvious person to find them. "Leave it to me," Noranda's president said, "I'll round them up and call you back!"

While Murdoch searched the north by phone, Ottawa went to work on plans to move the drillers to Canada's east coast and aboard a troopship. By nightfall the men were *en route* to Toronto from the staffs of several companies in the northern mining centres. The next morning they met for breakfast and briefing. Later that day they entrained for the Atlantic coast, where departure of an eastbound liner had been delayed pending their arrival. In Halifax they became members of the Canadian Army and walked up the gangplank.

There is nothing remarkable in this anecdote. It was one of innumerable strange requests that were made of Canadian industry and industrialists during the years of World War II. As individuals who were expert in their fields were constantly called upon to perform peculiar and urgent missions, so too were the



plants they directed asked to undertake tasks never before contemplated by management. In this the mining industry was no exception.

The story of Noranda during the years of World War II in one sense was a cross-section of the whole Canadian industrial story. As in the case of every major industry, the company's men flocked to the colours. By the end of 1941, the year in which, first, the Soviet Union, then the United States, were attacked by the enemy, 386 Noranda employees had enrolled voluntarily in Canada's armed forces. The number increased, year by year. When the cease fire sounded, twenty-eight Noranda men had laid down their lives.

Canada's pay-as-we-go policy (the financing of the war effort by the combination of taxation and internal loans) was reflected in the Noranda investment portfolio. The sum of \$10,000,000 invested in the various Victory Loans represented the greater part of the company's put-away funds. The investments of employees of the parent company and its subsidiaries in Victory Bonds and War Savings Certificates ran to millions more.

Taxes rose steeply; the first round, imposed at the beginning of hostilities in 1939, subjected the corporation to direct taxation of more than \$2,000,000 a year. It represented more than 90¢ on every outstanding share of stock, or \$3 a day for every day worked by every man on the payroll. At this same period more than \$3,000,000 was being expended annually for equipment and supply, a somewhat larger amount in wages, and a further \$1,000,000 in transportation costs. Every dollar of this total was subjected to taxation elsewhere in the general cycle—income taxes levelled on employees, corporate taxes collected from suppliers, a host of indirect taxes on everybody everywhere. Yet it was only a beginning. Before the war ended the company's taxes were much more than double the 1939 figure.

This summarizes what was to be seen in every corner of the national economy. But the mining industry was singled out for special treatment. Its tasks were carried on under conditions of extreme shortage of many vital materials—explosives and steel, to name two which bedeviled mining men. Government urged

the base metal mines to produce as never before, then confronted them with a critical scarcity of experienced miners. What "shortage" meant to the mine operator was his lack of the necessities for exploration and development—and without this insurance for the future, mines and mining companies die. Taxation techniques were of a nature designed to impair the productivity of the industry, due to lack of knowledge in government circles of conditions which are peculiar to mining and unwillingness to listen to men who knew them. Equipment with which to bring new properties to production became almost impossible to obtain under a rationing-of-materials system instituted during the early months of war. Because claims could not be opened up, prospecting came virtually to a halt. The exploration departments of major mining companies, which find the mines of tomorrow, to all intents and purposes were "put away in mothballs" for the duration of hostilities.

Thus, for lack of equipment and men to develop known ore zones, the nation's established mines were consistently depleting their basic capital asset—ore in the ground—almost from the day when war was declared until the enemy surrendered in 1945. This is the way government believed it had to be—and there was little time or opportunity for either reflection or discussion. Under the conditions of unpreparedness which obtained throughout the democratic world, vital policies were created overnight, put into effect by order-in-council in the morning, with instructions to the "victims" to make their adjustments by nightfall.

But one bald fact stands out from our experience in World War II: it was a war of resources, in which the Allied supply outlasted that of the enemy. This was the great invisible factor in our victory. In gaining it, serious inroads were made into the nation's greatest single strategic raw asset, its known supply of minerals in the ground. Had the fighting continued much longer, the draining away of Canadian ore reserves might well have become critical, to the point of impairing the country's war effort and playing havoc with its future. Thus it is reasonable to ask: was Canada's wartime mining policy sound?

The answer to such a question is confused by the fact that



Canadian prospectors and geologists were able to go out, as soon as the wraps were taken off development by the release of supply at the end of hostilities, and find new sources of the minerals men need. Some of these sources were already known and earmarked. Some had been scratched—the vast iron beds of Labrador and the copper deposits of Gaspé, to name two. But they represented by no means enough in their then state of development to replace materials expended during the war, or to assure a prosperous future for the mining industry of Canada. Suppose the renewed search of the post-war years had not been as successful as it has been. Suppose Labrador, Gaspé and other areas had not come through as they have. Suppose we had spent half a century instead of a decade to find and develop the resources brought into production between 1945 and 1956. Where would Canada be today?

It has become common practice to speak of Canada's reserves in minerals as "inexhaustible". The term is dangerous nonsense. No nation's resources are inexhaustible, as witness the fact that the United States has already become a "have not" nation in many of the vital materials on which its economy depends. Nor can common sense accept the thesis that if we exhaust any vital element in Nature, science will immediately find a replacement. Prudence suggests that we find the replacement before we exhaust what we have. In short, for all our abounding faith in Canada, there is ultimately an end to our reserves of expendable resources—and the minerals are expendable. Once used, they can never be renewed. Orebodies in use must be replaced by new discoveries, and they are not easily found.

Despite our good fortune during the post-war years, it is clear that Canada erred gravely (even though it may have seemed inescapable at the time to the authorities to do as they did) in inhibiting the search for new mineral bodies to replace those we might well have exhausted during World War II, by cutting off development supplies, by permitting too many experienced miners to enlist, thereby retarding the development of existing mines, and by taxing monies into the national treasury which might better have been spent on exploration in the national interest.

Noranda's Horne Mine and the company's subsidiary operations offer clear testimony to what is being argued here. The Horne came out of World War II with reserves seriously depleted, solely because neither men nor materials could be had for development work to keep the mine in healthy condition. The annual report covering the year 1944, when victory could be said to be in sight, illustrates clearly what was happening. It showed that production of finished copper had fallen to approximately 28,000 tons—some 10,000 tons less than were produced during the first year of the war—despite the Allies' insistent clamour for more and more of this vital material.

"This decrease," said President Murdoch to the annual meeting, "is the result of the scarcity of labour, but the tonnage reduction alone does not reflect the serious effect of the shortage of manpower upon the operating position of the mine. At the outbreak of war, the Horne Mine was in excellent condition, with adequate development work ahead and with large tonnages of ore in stopes drilled and ready for blasting. During the past two years little or no development work has been possible, and even if adequate labour were immediately made available, it would take approximately three years before the mine could be restored to anything like its previous position. As a result of this forced deferment of development work, it has not been possible to add to ore reserves. After the extraction of some 1,500,000 tons of ore last year, total known ore reserves aggregated approximately 22,000,000 tons, a reduction of 1,250,000 tons from those shown at the end of 1943." With such a drain on one of the world's great copper mines, the reader can well imagine what was taking place in those less fortunately situated.

In the field of subsidiary operations the experience of Waite-Amulet stresses the drainage which occurred as a result of a faultily designed tax structure. At the outset of the war Waite-Amulet was completing construction of a milling unit to handle 1,000 tons of ore *per diem*. The mine had never paid a dividend. Reopened by Noranda in 1937, it had lost money that year, and was just beginning to show a small profit when war broke out and the government established the excess profits tax. The



amount of profit allowed was estimated on a basis of average profits for the years 1936-39 inclusive and all earnings in excess of this figure were taxable at a rate of fifty per cent. As an alternative the taxpaying corporation was allowed to pay five per cent of the par value of its total capital structure. Waite-Amulet had no four-year period of profit from which to compute an average. Its investment was all in terms of outgo. Yet the company was subjected immediately to the excess profits tax, precisely as if it were a long established concern making boots for the infantry, though to the experienced eye, the Waite was a development project which still had to find its feet. Much of the money expended on development looking to the future of the mine was not deductible as an operating cost.

To look at the other side of the picture, this subsidiary contracted before the new mill was finished to deliver at least eighty per cent of its copper production to Britain at prewar prices, in company with its corporate parent, Noranda, together with International Nickel, Hudson Bay Mining and Smelting, Aldermac and Normetal, and to accept a large part of payment in blocked sterling. Later, at the request of the Metals Controller, representing the Canadian government, Waite-Amulet increased the zinc-producing capacity of its mill by adding a 300-tons-a-day extension. That was in 1941. A similar extension was added in 1942. Clearly, then, neither parent nor subsidiary was seeking to wax fat on war profits. The drain of taxation which did not take into account the peculiar problems of mining, coupled with shortage of supply and experienced man-power could only result—and the emphasis again is on the national interest, not that of shareholders—in the exhaustion of Canada's known sources of the metals in a prolonged war. The condition is reflected in the tonnage of ore hoisted by Waite-Amulet, which showed a decline of more than ten per cent in 1944, as compared with the figure for the previous year.

In the field of early-stage development, Noranda's huge Gaspé Copper properties had to be shut down for similar reasons, with the result that Gaspé was not ready to produce until 1955, ten years after the end of hostilities. Throughout these years, Noran-

da and its subsidiaries had striven to keep prospecting and early-stage development alive, in which aspect of mine-making it must be borne in mind that by no means every property examined or tested by diamond drilling subsequently becomes a producing mine. On the contrary, only the occasional property does so. Thus the concern of the industry as a whole for the depletion of the national reserve of known ore during the war years should be readily understood. It was certainly not for lack of warning from prominent members of the mining community that this dangerous drainage was allowed to continue, and the search for new deposits cut back. One example of many warnings uttered publicly is culled from Oliver Hall's 1943 report as consulting engineer. "The rapid exhaustion of the known mines," he wrote, "is creating a crisis that necessitates geological work and prospecting on a national scale."

It was by no means the first occasion on which such a note was sounded. As early as September 16th, 1939, Noranda's president had stated the industry's case in a letter to the Honourable J. L. Ralston, Minister of Finance, in which he said in part:

It is not the considerable sum of taxes which this company will have to pay, because my directors and myself, of course, readily recognize that present circumstances force all earners to pay increased taxes.

But, if allowed to stand as at present, I am afraid all incentive for increased production of newly established mines, and for bringing in of new producers is killed.

Apparently unless a company can establish an average earning over four years mentioned in the Act, they have heavy taxes to pay on all their earnings, as presumably earnings will be judged as excess profit.

This company has been very energetic in outside exploration, which energy resulted in the bringing into production of Pamour Porcupine Mines, Limited and Hallnor Mines, Limited. We have financed Aunor Mines, Limited into production on a 300-ton daily basis, and have also financed a new mill for Waite-Amulet Mines, Limited, the Aunor mill to commence operating about January next and the Waite-Amulet mill about the middle of next month. In addition



we are at the moment engaged in an expenditure of \$8,000 to \$10,000 per month in exploring a low grade copper property in Gaspé, and are exploring several properties in north-west Quebec. If the tax is allowed to stand as at present I think you will readily see that there is no incentive for us to endeavour to bring in new mines, as the earnings of such mines will be taxed as excess profits, whereas old established mines will escape.

This fact is not only applicable to us, but to all mining exploration companies, and there is a great danger as I see it in the present taxation. Surely in a time of war and the readjustment period after a war, it is the utmost benefit to a nation to have as large a production of gold, other precious metals and base metals as is humanly possible.

Thus the condition which Hall viewed with alarm in 1943 had been clearly foreseen and brought to government attention by Murdoch four years earlier.

A more favourable method of calculating excess profits was introduced in 1940 but it was strictly confined to new gold mines and new oil wells. The base metals, so vital to the war effort, were excluded. With gold making up only about ten per cent of its total production Waite-Amulet was ineligible for this "new deal".

The nature of the manpower crisis is clearly revealed in what happened at the Horne. For the first two years of war, Roscoe was able to maintain the normal working force of 1800 men. Early in 1942 he began to lose men at a faster rate than he could replace them. During the last quarter of 1943 the average number of underground employees working each day decreased from the normal figure of 850 to 575 and the total force working each week day had dropped from 1800 to 1535. A backlog of ore drilled off and ready for blasting enabled Roscoe to continue hoisting normal tonnage up to that time. But new ore production was reduced by about ten per cent. In June, 1944, the daily average number of mine workers was 525 with a resultant further ten per cent reduction in ore production. This manpower figure was further reduced to 475 by October,

when the work force, underground and on surface, was about 1,325. The total force was about 1,515 at the year's end. This acute shortage of miners caused the drilling of exploratory drifts to be discontinued in the latter half of 1944. All this while the Allies clamoured for copper.

A continued decline occurred in 1945, with a total force in September of 1,280 and 1,420 in December. The decrease in underground workers was proportionately greater, with the result that, starting in June, 1945, the mill tonnage had to be gradually cut from a rate of 3,000 tons to approximately 2,000 tons a day. Peace brought no immediate solution. The working force had decreased to 1,147 at the end of 1946 and the average tonnage of ore hoisted, per day worked, was twenty per cent less than in 1945. The ultimate low of a force of 1,130 was reached in July 1947. It increased to 1,288 by December 31st. In 1948 the total force was increased to 1,602, but the major portion of this increase of 314 consisted of inexperienced underground employees, a fact which made necessary an all-out training programme. Nevertheless the monthly rate of ore from the Horne was increased from 57,000 tons in January to 101,700 tons in December, though the mine was still far from the excellent shape in which it had been at the commencement of hostilities.

As to the virtual termination of exploration and development, the factors of taxation, manpower and supply must also be taken into account, with another important one added — the taxing authority allowed no reserve to be set aside for deferred development. According to sound accounting principles, development is a legitimate cost and deductible as such. This is simple recognition of the fact that without development far ahead of production in an established mine, and the delineation of ore-bodies in a mine-in-the-making, the future is erased. This problem is unique to the mineral industry. Yet no cognizance of this fact was taken by the Canadian government during the war years, and no relief granted. The figures in respect to Noranda reflect what happened in the industry as a whole. In 1939, the company expended \$119,807 on prospecting and explo-



ration of new properties. In the first year of war this figure fell to \$25,370. Yet nothing the leading representatives of the industry could say would budge government from its insistence on judging mining in the same terms applied to general manufacturing. Indeed many manufacturing establishments were re-equipped for war purposes, some at government expense, and came out of the war in far better condition than they were at the beginning.

Another example of the discrimination which results from arbitrary governmental action was the serious loss of revenue resulting from Ottawa's restriction of the domestic price of copper to 29½ cents per pound during the period June, 1952 to February 1953. Noranda and associated companies were selling the bulk of their copper production for fabrication of wire and brass mill products in Canada. During this period, however, other Canadian producers were permitted to sell a much larger proportion and in some cases, all of their copper, to export at price advantages of five to ten cents per pound. Only limited restrictions were imposed on exports of domestic scrap which, of course, was derived from low-priced virgin copper. Hand-some profits accrued to speculators and others having little or no concern for the development of fabricating facilities in Canada and the employment of Canadian workmen. Despite representations, the remedy, of pooling domestic sales among all of the Canadian producers so that each would bear its fair proportion of the lower domestic price, was ignored.

At the annual meeting of Noranda shareholders on April 4th, 1941, covering operations for the first year of hostilities, President Murdoch said: "Metals do not grow like potatoes in a field. When they are extracted they are gone from production forever. Therefore it is incumbent on our various governments to encourage to the utmost limit the prospector and through him the finding of mines." The ears to which the warning was addressed were not listening.

On the outbreak of war in 1939, Noranda was the second largest producer of copper in Canada and ranked third among

the nation's gold mines. In the value of its metal production, exclusive of subsidiaries, it stood third. But it was not merely as a producer of minerals that the Noranda enterprise had asserted itself in the Canadian economy. Its policy of processing raw materials to the finished-product stage had brought into being such operations as Canadian Copper Refiners in which Phelps Dodge and British Metals participated, the latter retiring some years later, and participation in Canada Wire and Cable before the war, control of the latter being acquired in 1943. These plants assured many of the vital requirements of the war effort at home and of our allies. At the end of the war, Noranda offered to purchase from the government's War Assets Corporation a mill constructed at Montreal East in 1940 for the production of brass strip for shell cases. The company took over as custodian for the Crown on November 4th, 1946. Formal possession was acquired on January 1st, 1947, with Bridgeport Brass as a partner, and a new subsidiary, Noranda Copper and Brass, was incorporated on February 7th. The purchase price was \$1,372,000. These "processing partnerships" reflect Noranda's constant search for technical experience as activities expanded.

Another Noranda processing plant has reached production in 1956. Situated near Welland, Ontario, it converts pyrite-bearing ores into sulphur, sulphur dioxide and iron sinter. Although construction of the Welland plant has come in the postwar period, it nevertheless stems from what may be termed one of Noranda's "war babies", and reflects the change in the Canadian outlook for which the war is directly responsible. Because of the high cost of rail transportation, Noranda's pyrite was unable to compete with water-borne natural sulphur and had always been treated as waste until war changed the economic picture. Canada has no known beds of natural sulphur, and at the outset of war was importing an average of 350,000 tons annually from the United States. Under war conditions, every ton which could be replaced by a domestic product meant United States' dollars in the national till, in the sense that these



dollars need not be sent south to pay for imports. Sulphur and all its derivatives were tightly rationed. There was, in fact, a critical shortage, even in the war industries.

At the beginning of 1940, therefore, Noranda undertook to make experimental shipments of pyrites in the form of mill concentrate from the Horne to an outside customer, at the rate of 100 tons a day. Shipments increased steadily during the war years and assumed an important role in the nation's and the company's economies. With the return of peace, Noranda immediately turned to study of the permanent possibilities and to research which had not been possible during hostilities. Off this came a new process for the treatment of pyritic ores, developed by Noranda research teams in collaboration, first, with the National Research Council of Canada and, later, the Battelle Memorial Institute of Columbus, Ohio. From the process came the new plant, designed to treat 350 tons of pyrite concentrate daily, thereby providing a happy solution to the use of pyrite ore reserves which, in the Horne alone, total more than 100,000,000 tons, to which subsidiary mines can add considerably.

Welland has three principal products—a high-grade iron-oxide sinter for sale to the Canadian steel industry, the greater part of which is located nearby; elemental sulphur; and sulphur dioxide in the form of gas. The last-named is piped to the sulphuric acid plant of North American Cyanamid, a next-door neighbour. The immediate result is a cutback in Canada's imports of sulphur in the neighbourhood of 54,000 tons per annum—and Welland is regarded merely as an initial project. It is anticipated that similar, or larger, plants will be built by Noranda, once the economic possibilities have been clearly demonstrated, or that manufacturers of sulphuric acid will be licensed to use the Noranda process. In addition to this highly important contribution towards the self-support of the Canadian economy in terms of sulphur products, Welland turns out 75,000 tons of iron-oxide sinter yearly; again just a beginning.

Welland is another typical example of the Noranda policy of carrying through to the processing stage in its own plants.

Following a programme of research intended to broaden the market for the metal selenium, in which several copper refining companies participated, Noranda developed processes under the direction of C. W. Clark, director of research and development and set up a plant at its refinery in Montreal East, to produce high purity selenium and numerous other selenium compounds and Canadian Copper Refiners is now the largest producer of this material in the world. Again, during the war, a Copper Sulphate Division was inaugurated at the Montreal East refinery, mainly to supply Canadian farmers with an agricultural chemical, the outside sources which had filled the country's needs until 1939 having been cut off by the war.

Such activities reflect the growing self-sufficiency of the Canadian economy in products which are derived from natural resources, but for which Canada was formerly content to rely on foreign shippers. Prior to World War II, Canadian consumption had not reached the point in many things which stem from resources, to justify the capital investment required to create domestic plant. The low rate of national consumption would have meant a loss operation and, therefore, would not have been economic. But the remarkable expansion of the domestic market, particularly since the war, has revolutionized the Canadian approach, nowhere in greater degree than in the economic minerals and the industrial materials which are derived from them. Beyond this greatly enhanced domestic demand, the requirements of external customers have tended to increase as well. Today, when new plants are designed in Canada, the tendency is to plan in terms of anticipated future consumption, rather than to build for today and add new bits and pieces as they may be needed later, a revolution in Canadian industrial philosophy which again may be traced directly to changes wrought by the country's first experience with total war.

The end of hostilities found Canada's principal producers of the economic minerals in difficult straits, some confronted by desperate conditions. While the country's secondary industries had expanded tremendously and obsolescent enterprises had been modernized to meet the demands of war, the mining



industry as a whole had suffered depletion of its reserves while the search for new deposits had been almost halted. Years of hard work lay ahead of the operators of the major mines, if they were to bring their properties back to the healthy condition in which the outbreak of war had found them. From one end of the country to the other the experienced prospector must take to the bush again and renew his arduous search. New investors must be found. A new generation of engineers and geologists must be trained. The exploration departments of established operating companies must work hand in hand with the prospector as never before. Development must be stepped up mightily on prospect-stage properties throughout the nation. Money must be poured in in tens of millions of dollars to rehabilitate the existing industry and to expand it.

It is interesting, then, to look back to the Noranda annual meeting held on April 4th, 1941—a time when the mining community as a whole was beginning to show alarm as ore reserves were draining away while the search for new mines had been seriously impeded. At that meeting, towards the close of his address to the shareholders, and referring to the decline in prospecting and the promotion and development which are its concomitants, Noranda's president had this to say:

"Governments have apparently not yet recognized that the finding of mines is a precarious, arduous and uncertain task. The gambling or pioneering spirit which is inherent in people as a whole must be allowed its sway without undue regulation and unfair taxation if the vast undeveloped parts of this country are to be developed and made productive. I will admit there must be some restriction on promotional activities (and incidentally not only in mining), but it is not necessary to first tell the developer he is a crook and then restrict his enjoyment of the fruits of his hard labour."

The statement remains as valid in 1956 as when it was made in respect to conditions as they were in 1940. What constantly eludes those in political authority is that Canada is primarily a natural resource country and that the finding, production and

processing of our natural resources is the heart of the nation's economic structure.

There is one other aspect from which the war years must be viewed in relation to the Noranda enterprise. They constituted a bridge between the old Noranda and the new. The pre-war years had their focus on the Horne mine and its surface plant, though a considerable start had been made in the development of outside properties and in the creation of final processing plant, primarily to carry ore from the Horne mine through to the final stages of refinement. The postwar years were to be marked by a much greater enlargement of effort to develop external mining operations, based on the knowledge that even a Horne mine's life expectancy has its limits. In the years ahead, therefore, Noranda would tend more and more towards the role of a holding company, increasingly supported by its subsidiaries, with a great new mine in the Gaspé peninsula, at the south-eastern tip of the province of Quebec, possibly destined to replace the Horne as the bright star of the Noranda galaxy, and participation in others to increase the new role. This is not said to suggest that the days of the Horne were numbered. At least a quarter century remained to it as a major producer of copper and gold. Beyond that it would enjoy an indefinite and lengthy life as a great pyrites operation, pouring huge and increasing amounts of iron and sulphur into the Canadian economy to support the community founded around the headframes and smelter-stacks on the shore of Lake Osisko. Noranda would also approach the future as a Canadian operation, although the major part of the original risk-capital to explore its orebodies had come from the United States, through the members of the Thomson-Chadbourne syndicate. At the end of World War II, of approximately 18,800 shareholders more than 14,000 were residents of Canada. In percentage terms, sixty-two per cent of the voting stock was held by Canadians, the remainder mainly by people in the United States.

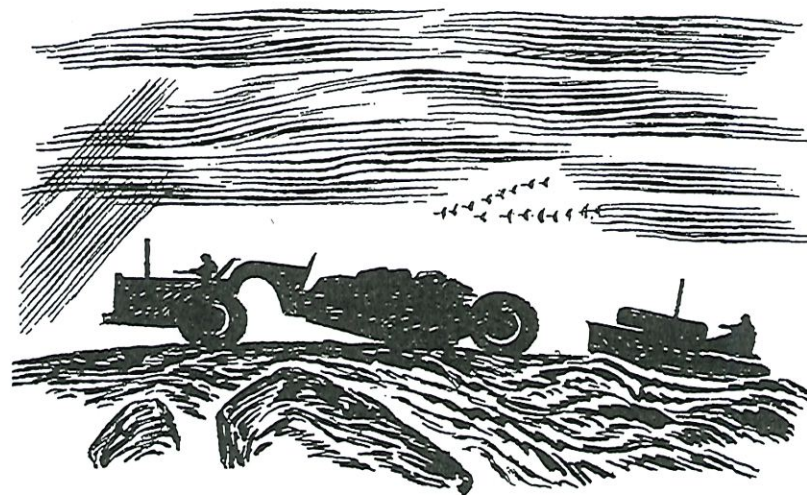
His knowledge that a new Noranda was in the making, in a country whose economic structure had been revolutionized in war, must have been in the mind of the company's president



when he addressed the last annual meeting of the war years in the spring of 1945.

"The Canadian mining industry," he said, "met the challenge of war and proved again by production of war minerals in greatly increased quantity, and in production of precious minerals to assist the Canadian economy, that those engaged in this industry can always be counted upon for at least their full share of national duty and effort. Given encouragement and assistance by the Dominion and Provincial governments in geological studies, training of personnel, and uniform and fair taxation across Canada, and the mining industry will once more demonstrate that no other Canadian industry can surpass that of mining, in creating new wealth and carrying its full share of the economic burden of our country."

It was on this keynote that Noranda stepped forward into the New Canada.



NEW HORIZONS



## CHAPTER ELEVEN

### A NEW FRONTIER IS OPENED

THE BROAD NOSE of the Gaspé Peninsula juts 200 miles into the Gulf of St Lawrence at the southeastern extremity of the province of Quebec. It is one of the longest-settled areas of Canada, though only in respect to its coastal rim along the Gulf and around into the Baie des Chaleurs, which washes its southern coast.

Considering how near it is to the main body of North America and its accessibility from the sea, Gaspé has been Canada's most neglected region. Until the last few years it was the home of a few fishermen-farmers and pulpwood cutters whose villages hugged the shores of coves and inlets. When a motor road was cut around the coastline in the late 1920's, its impressive scenery attracted droves of motor tourists during the summer months. But the interior still seemed as remote as the region once called Darkest Africa.

Before that, the Quebec Oriental, later absorbed by the Canadian National Railways, wound its way down the coast of the Baie des Chaleurs to its terminus in Gaspé town, situated on one of North America's finest harbours, and one of its least used. Each summer a few sports-fishermen cast flies for salmon in the York and Dartmouth rivers. A few hunters had gone back into the bush for bear. An occasional prospector for metals or oil had struggled through the undergrowth on the flanks of the Shickshocks, the highest mountains in eastern Canada, and brought back samples. Occasionally some staked mining claims. But none found financiers to back their projects. The reason usually heard for this neglect of the interior was that it was too isolated—a strange reasoning, considering the opening of other mineral areas where the mountains are higher



and steeper, as in British Columbia; "civilization" much farther away, as in the Northwest Territories; and the original discoveries equally tantalizing, as in the case of the first finds in Rouyn. It remained for Noranda to break Gaspé's interior open and to revolutionize life in the sparsely settled peninsula.

Yet the Gaspé is the oldest seat of minerals in Canada known to white men. Marc Lescarbot wrote in his *Histoire de la Nouvelle France*, published in Paris in 1609, that the explorer Prévert was led inland in the early days of the seventeenth century by Indian guides and came out to the Chaleurs coast at what is now Percé, to report the discovery of a glistening mountain, far back in the interior, from which he brought back samples grabbed at random. The man to whom he brought this news and his samples was Samuel de Champlain, and the date assigned to this first geological report on the interior of Gaspé is August 18th, 1603. Another and more scientifically phrased report, written 348 years later by Doctor A. M. Bell of Noranda, commenting on Prévert's journey into the interior, remarked:

"His description of a high mountain rising above the valley, with its bare slope glistening in the sun and malachite present at the bottom of the slope, fits Copper Mountain perfectly. No other site is known in these parts that would bear any resemblance to the account. . . . If this is actually Prévert's location, it would have the distinction of being the first copper showing in Canada, and perhaps the first in North America, known to Europeans."

Bell's reference, of course, is to the site of what is now the huge Noranda-sponsored operation in the heart of the Shick-shocks, where smelter, mill and the orderly clutter of a huge surface plant stand in the valley between two "mountains of copper". But 335 years elapsed between the time of Prévert's journey and the day when the first diamond drill bored into the mountains—a considerable time to pass between the making of a strike and the consummation of a deal for its development! Prévert's samples were carried home to France. They may still be seen in the museum at Versailles, where the then reigning Louis had them stored.

Two centuries elapsed before the printed word began speculation on the economic possibilities of the peninsula's interior, and when the first studies appeared, the authors' thoughts were on oil, rather than on the hardrock minerals. In 1836, the Literary and Historical Society of Quebec, in its Proceedings, took note of the prevalent oil seepages of Gaspé. Drilling for petroleum was first undertaken in 1860, and has continued sporadically ever since, though down to 1956 no wells had come into commercial production. But from 1860 onward, hopeful men repeatedly bored into the rocks of eastern Gaspé with whatever rigs were available, and with scant knowledge of the regional geology.

The scene of their activities has always been the area surrounding the York River, and there is a record of intermittent operations down to 1902, when quiet fell on the country again and the drillers rested until after World War I. In the middle 1930's, two Quebec government geologists worked up the valley of the York from the town of Gaspé and spent some time examining old well-sites and surface seepages this side of its headwaters. In their view, the early drillers had been off the geological structure, and what the Quebec geologists sought to locate was the "dome" they believed must be somewhere in the vicinity. Whether the geologists, I. W. Jones and H. W. McGerrigle, did find the dome is not the subject of this book, other than to note that their explorations took them into a region no more than two or three miles from the site of the present Gaspé Copper operation. What they had to say touched off renewed interest in the possibility of oil in the Gaspé country. Subsequently it brought into the York valley outstanding oil geologists such as Fred W. Bates of Louisiana, who commented shortly after World War II:

"Had it not been for Gaspé's isolated geographical position, the area would undoubtedly have received greater attention long ago. With the development of improved transportation, particularly aviation, geographical boundaries have lost their meaning. An important local oil supply on Gaspé could become a stepping stone both in furthering transoceanic travel and in development



of the resources of the entire eastern part of Canada, as well as profoundly affecting the present crude oil economy of the United States."

Jones and McGerrigle encountered what all their predecessors in the interior, back to Prévert, had encountered, and what others would have to overcome when they hauled the first diamond drills to the feet of the twin mountains. They found the bush country "almost impenetrable". Here and there, however, they came on breaks in the jungle where they could study rock outcrops and in low-lying areas they found occasional traces of seepages. They hunted around for some time without much luck. Then they came on a strange phenomenon—smears of a black, oily substance on the trunks of trees at some height above the ground! Their conclusions, culled from an official government report, are worthy of note.

"An interesting feature in connection with these seepages," they wrote, "is that smears of oil may be seen on nearby trees, against which bears, probably using the oil as an insecticide, have rubbed themselves after rolling in the oil pools. These bear-markings proved a useful aid in locating some of the seepages where bushy undergrowth concealed them."

The fly-bitten bears of Gaspé had led the way towards what may ultimately turn out to be a commercially feasible oil-bearing structure which has evaded the tyros and the experts since 1836. The answers were still not known in 1956, but it is intriguing to imagine what might happen should the oil-drillers ever strike a great pool in the heart of Gaspé. Such a discovery, connected by pipeline to the north coast of the peninsula, at the harbour of Mont Louis on the Gulf of St. Lawrence, could provide low-cost bunker fuel for ships *en route* to ports beyond the seas on the one hand, and be transported cheaply in tankers to the great refineries of Montreal on the other. All this clearly lies in the realm of conjecture. In 1956 the pool has not been found. Conceivably it may not exist and by no means all the oil-geologists believe it does. But the "ifs" remain intriguing for, once removed, they could, in Bates' words, profoundly affect the crude oil economy of Canada, if not of the whole continent.

This fragment of history is recorded here to emphasize the manner in which the mineral-hunters came to the interior of Gaspé, in brief and intermittent stages down the centuries. For what is true of the oil men is true of those who came in search of the metals. Not until 1921, in fact, did three members of the Miller family from the hamlet of Sunnybank, near the town of Gaspé, visit and stake what is presumed to be the site of Prévert's discovery in 1603. Even then, another sixteen years elapsed before the new discoverers could persuade a major mining company to subject their ground to thorough testing. When it came, the money was Noranda's and it has changed the life of Gaspé as no economic factor, from fish and pulpwood to the search for oil, ever touched it before.

Time has moved slowly in Gaspé, and so have its people. In 1909 the senior Miller, Alfred, first noticed signs of mineralization in rocks picked up along the lower reaches of the York, and obviously carried down by the current. But not until 1921 did he and two other members of the family set out upriver to prospect seriously. That summer the three brothers worked upstream from the outskirts of Gaspé town virtually to the York's source, some sixty crow-flight miles northwest and 2,000 feet up into the Shickshocks. From the river's headwaters they struck back into the bush and came to the bald flank and crest of what is now called Copper Mountain. There they encountered widely dispersed surface showings of copper and staked to the legal limit, working their way back to Gaspé and Sunnybank in the late summer to begin the equally difficult search for exploration dollars. Another long gap occurred, during which they found little encouragement, and little money even to keep assessment work on their claims up to date. No matter where the Millers looked for backers, they always collided with the question, "How do you get at it?" and with the negative answer which the problem of communications invariably brought.

In all this lay a parallel with the problems which Edmund Horne and his Tremoy syndicate partners had encountered in seeking backing for the opening of Noranda. The two regions, one in northwestern and the other in southeastern Quebec, were



approximately equidistant from the steel. The Gaspé interior was much more difficult to reach than Rouyn had been, however. There are no navigable rivers in the area comparable to the Ottawa-Kinojévis route. There are no handy lakes on which aircraft can land. To build a winter road to Rouyn in the beginning, arduous though it had been, was primarily a matter of cutting back timber and waiting for snow to cover the stumps—a problem much easier to resolve than to drive a track through the thick and mountainous Gaspesian bush. Moreover Miller's ore was low in grade, a factor indubitably responsible for some of the negative answers he heard repeatedly.

Low-grade deposits held no fears for the people in the Noranda head office for the Horne had been no more than a teaser when the Tremoy partners first knew Humphrey Chadbourne and Sam Thomson. From the outset, as we know, the two pioneering partners had been determined to touch nothing "marginal" and their stated policy was to look for large orebodies which could be mined on a big tonnage scale. Thus it was with the thought in mind that the Miller ground in Gaspé might reveal huge bodies of low-grade copper, that Oliver Hall recommended thorough investigation of the claims early in 1937.

Official reports on the immediate region were few and general in nature. In 1922 B. T. Dennis of the Quebec Department of Mines had visited the Miller claims and sampled the showings. Another geologist, F. J. Alcock, had been on the property for the Geological Survey of Canada in 1928 and had written another report. I. W. Jones, mentioned in respect to the search for oil, had mapped Copper Mountain in 1931, an achievement which was to prove useful in subsequent development work. With this scant knowledge of the country in his briefcase, J. Y. Murdoch visited Quebec in 1937, where he secured an undertaking from the provincial mining authorities to construct an access road in the event that thorough surface examination should justify testing the area with diamond drills. The surface investigation was made that summer. As soon as the snows melted in 1938, Continental Drilling Company moved its rigs inland

from the railroad at Gaspé town under contract to Noranda, and went to work under the direction of Doctor A. M. Bell, Noranda geologist, who has been directly responsible for the detailed exploration of the Gaspé mine from the beginning.

From the outset the going was difficult, as it would be for years to come. It was rough country into which to pack heavy drills, rough country in which to supply them. The vagaries of the weather run from sub-zero temperatures and some of the world's deepest snows to clammy, pea-soup fogs which fall in over the mountains and settle in the bowls among the hills as if they had come to stay. When the fog moves out, gales take over, pelting the country with sudden driving rains in summer and blocking it with wind-driven blizzards in winter. In the 1930's the fire hazard in the virtually uncut Shickshocks ran high, and the escape-hatches were few. Even so, the drillers' task was easy by comparison with that faced by the first movers of heavy mining equipment after World War II, before today's permanent highways were finished and made passable in almost any weather.

The drilling of Copper Mountain, which began in 1938, was successful. But not much time elapsed before company prospecting parties began to talk of Needle Mountain, no more than a mile across the valley. Geological examination bore out the view that it might well be an area of exploration more favourable than the original site. So Needle became the focal point of the first exploration period and is the site of today's mining operation, while Copper Mountain is held as a reserve for the future.

When the war forced shutdown in July, 1940, 35,000,000 tons of ore had been delineated by drilling into the two mountains and the valley between. It was not enough to warrant the type of operation contemplated in the grade of ore prevalent in the region, a milling job handling at least 5,000 tons a day. Nevertheless, there were clear indications that enough additional ore could be found to justify the expenditure of the millions of dollars required to establish a huge milling and smelting operation in the Gaspé wilderness.



At the end of 1939, J. Y. Murdoch reported that "results to date have been rather disappointing as regards grade, but encouraging as regards tonnage, and the property warrants further investigation." Of work completed down to July, 1940, Doctor A. M. Bell of Noranda's geological staff wrote later that "this (early) drilling roughly outlined the Copper Mountain zone, the upper Needle Mountain body, and some middle zone ore. The property had had considerable drilling and could only be rated as containing a low-grade deposit that had an inadequate tonnage for supporting an appropriate operation." In short, the situation was at the finding-out stage which comes in every mine development, when every factor points to the need for further intensive exploration. Then came the wartime shut-down.

Work began again as soon as men and supply became available after the war. But momentum lost takes time to regain, and it was not until activities for 1947 were reported to the shareholders that Gaspé began to reappear in Noranda's official statements. All that was said then was that "some extensions of the low grade orebody in our Gaspé property were found, and further testing will be done in 1948."

The next year brought a larger budget of news. Drilling had indicated an additional 6,000,000 tons of ore and its copper content was up to an average of 1.8%—twice the estimated grade of the 35,000,000 tons reported before the suspension of operations.

The balance sheet for 1949 began to reflect what was afoot, for that year more than \$280,000 was expended on exploration and advances to subsidiaries—a mere dribble, it is true, by comparison to the millions which soon would begin to pour into Gaspé. But ore in sight was piling up. Seven million new tons were indicated that year, raising the total to 48,000,000 tons. The figure rose sharply again in 1950 when Hall estimated ore in sight at 57,000,000 tons. The reserves in the Copper Mountain bodies and the upper reaches of Needle Mountain averaged slightly less than one per cent in copper, but 20,000,000 tons in lower Needle ran to two per cent.

The first serious attempt to estimate the cost of putting an operation of this magnitude into production was made in 1949. The enterprise would involve roads, hydro power, harbour improvements at the coast, preparation of the mine, the construction of mill, smelter and other surface plant, the laying out and equipping of a townsite with modern amenities, and the construction of housing. It was thought that the cost might be held down to about fifteen million dollars, provided the province would bring in roads and power lines, with assistance from the federal government in the provision of added harbour facilities, at Mont Louis on the St. Lawrence. This basic figure was to more than double before production began, partly because of steeply rising construction costs, and partly due to the enlargement of original plans.

The mine makers beat Hall's estimated record for reaching production. Though hydro-electric power did not become available for considerably more than three years, and a short-cut highway to reach the St. Lawrence at Anse Pleureuse, near the Mont Louis harbour, was not finished until late in 1953, the Gaspé Copper operation was swinging into the run-in period several months before Hall's predicted five years expired. It would have been in operation even earlier, but for a failure in the cables carrying power under the St. Lawrence.

Nineteen hundred and fifty was the year in which Gaspé Copper's principals first began to talk as operators, rather than as developers of a prospect. Oliver Hall's report to Noranda's president visualized the two mountains as "a valuable long-life property". By "long-life", he meant a potential lifetime of thirty-three years on a daily tonnage of 5,000. Such an orebody, he recommended, should be mined at full tilt in good copper markets, cut back to half-size during periods of low copper prices and halted in times of depression, during which work could be provided by extending development and exploration. Hall suggested that the lower and middle zones on Needle Mountain should be mined first. As these approached exhaustion, the miners could take out 8,700,000 tons of ore from an open pit on the mountain top. Copper Mountain, where



ore grade is somewhat lower than in Needle, could be readied for mining by the caving process.

Ore reserves continued to pile up in 1951, and Hall reported that a tally of 65,000,000 tons had been reached. By the end of that year the parent company had advanced \$300,000 for the development of Gaspé. There was no longer doubt about the size and value of the mine. But serious problems of transportation and power remained to be solved and until they were settled, the directors could see little point in setting up the final financing.

In 1952, however, action was stepped up a hundredfold. The main adit leading into Needle Mountain was completed and the sinking of an internal shaft to reach the low orebodies began. Ore reserves had reached 67,000,000 tons, and numerous surface buildings had been erected at the minesite. The future town of Murdochville had been surveyed and its site partially cleared. J. Y. Murdoch announced that mill and smelter construction would begin as soon as the snows were off in the spring of '53, and informed Noranda shareholders that ample funds had been provided for the production drive, by the issue of \$20,000,000 in debentures and the setting-up of a revolving bank credit of a further \$10,000,000. By this time it had been decided to move beyond the original figure proposed by Hall for the milling of 5,000 tons of ore, and to build surface plant to handle 6,500 tons a day, from which 100 tons of copper in the form of anodes could be extracted for shipment to the refinery at Montreal East.

The problems to be solved had been many and varied. At the end of 1949, with almost 50,000,000 tons of ore in sight and when the time had clearly come to think of major construction and underground work involving thousands of tons of material, the only connection between minesite and the outside world was the first access road, sixty-two miles in length, leading from the end of steel at the town of Gaspé. It was narrow and winding. In places grades ran to twenty per cent. As a heavy trucking route it was often impassable. The total rise and fall between the mine and railhead was 8,175 feet. Much of it

would have to be re-routed and all of it re-made before the operators could begin to think of moving the heavy equipment and supply which would be required after a start had been made underground and before a beginning could be made on smelter and mill construction.

There was then no solution to the power problem. Doctor A. M. Bell, as the field engineer in charge, was thinking of tapping the waters of the Madeleine River in the nearby Gaspé park reserve, from which it was believed that, by building a dam 100 feet in height at the power-site, 12,000 horse power could be obtained during nine months of the year and 10,000 in the winter. If this were done, it might meet the power requirements of the mine, but leave none for other uses. The power problem was not resolved until later. The question of an all-year road was solved by re-routing the original access road and making it a broad, gravel highway from Gaspé into Murdochville. Later, a similar road was driven north to the St. Lawrence. But as matters stood at the beginning of 1950 these things remained in the realm of speculation.

These were not the only problems. Where, for example, should the smelter be built? Should it be at the railway terminus in Gaspé town? Should it be built at tidewater on the St. Lawrence, at Mont Louis? Or should it be at the minesite? What would be the cost of trucking copper concentrates to Mont Louis, given a good road, by comparison with the cost of hauling them to Gaspé? How much would it cost to haul coal back?

Cost and convenience combined to bring the balance down in favour of a smelter at the minesite. The same factors favoured Mont Louis on the St. Lawrence for the shipping in of supply and the shipping out of copper, if water-shipment was to be used. Given improved wharf facilities, Mont-Louis could handle sea-going freighters, excepting during strong winds from the north-east, which would force ships to anchor offshore. Mont Louis is an open port only eight months in the twelve, however, which clearly involved use of the railhead in the town of Gaspé as a supply point, at least during the winter. If Mont Louis were to be the main entry and exit port, then the company must acquire



land and erect buildings for the storage of copper, coal and general supplies. Experts would have to be called in to advise on the mechanical installations required to ensure an efficient operation at the junction point of highway and sea. On the other hand the railway at the town of Gaspé, once it could be connected to the minesite by an all-weather road, offered year-round facilities provided costs could be brought into line.

As early as 1949, these and other plans were deep into the discussion stage. In addition to selection of a smelter site, the provision of harbour facilities, roads and power, there remained that of laying out the Murdochville townsite and clearing a minimum of 650 acres. A supply of timber had to be arranged to ensure lumber for building. Sites for dumps of waste rock from the mine, for mill tailings and smelter slag must be selected and reserved. The overall plan must envisage underground development of the mine in step with the construction of mill and smelter, so that all the projects—power, roads, housing, harbour facilities, as well as the development of ore and the provision of installations for treating it—would be completed simultaneously at a point in time which might well be called Production Day. Only by planning of this kind could pre-production costs be held down. The founders of such an enterprise in an uninhabited wilderness are in a dozen businesses at once, of which the creation of a civilized community with all the amenities of family living is by no means the least important.

Opening up the way to Gaspé, preparing the ground for the building of Murdochville, housing the first surface and mining crews, getting in supplies and equipment, was in many respects a reprise of the story of the push into Lake Osisko in the early 1920's. During the summer of 1951 the main plant site was cleared but had not been stumped. Towards the end of the year a permanent cookery was almost completed and two bunkhouses to hold sixty-four men were ready for occupation. A temporary office, a warehouse, garage and pump-house and two small dwellings had been built. Sanitary facilities had been laid on, as had water supply. Progress had been made in surveying the townsite, which lies in a bowl among the mountains, somewhat less than

a mile from the mine surface plant. The main problem was supply and how to get it in over the access road from Gaspé. Nevertheless, during the summer 400,000 feet of lumber were brought into the clearing. There was considerable advance in improving the road, fifteen miles of which were finished before the frosts came. A drive was on late in the summer to clear the townsite and burn it off before snow fell. "This has been neglected lately," was the terse comment of a report to head office at the end of August. Too many jobs to be done. Too few men to do them. Most of the clearing task had to be postponed until the snows melted in 1952.

It was a rugged winter, the worst in the memory of old inhabitants of the coast. Some said more snow fell on the peninsula than at any time in half a century. Before the blizzards struck, Superintendent W. G. Brissenden had his crew under solid cover in the new bunkhouses, however, and makeshift surface plant had been completed at the minesite. Often work was held back for as much as a week by the elements. A typical period was the one which ran from February 16th to 24th, when the site was so blanketed in snow that outdoor work was almost completely out of the question. The road to Gaspé was alternately blocked and opened again. Yet somehow the occasional load of material fought through to the camp, including a load of blasting powder. At times that winter foodstuffs ran perilously low. Even the streets in the town of Gaspé were often blocked with drifts. Urgently required freight was delayed when storms filled the cuttings on the railroad down the Baie des Chaleurs coast. But somehow the work went ahead, though nobody remembers quite how.

When the February blizzards lifted, Bill Brissenden's mining crew were getting ahead with the adit they were opening into Needle Mountain at the valley level. By the end of March they had driven ninety-five feet into the hill from the portal, timbering as they went through sharply shattered ground. Sufficient mine timbers were delivered to sustain operations as they moved slowly forward underground. A new diesel and two large oil storage tanks were hauled through from Gaspé in March. Considerable



lumber came in during the month, and two carload lots of British Columbia fir twelve-by-twelves arrived at the end of steel. More temporary buildings were erected and a start was made on a smithy and repair shop at the mine portal. Attention was turned again to the townsite clearing during March. But the good news of the month was the arrival in camp of a cookery staff sent in by Crawley and McCracken, mining and construction camp caterers. "The results," said an official summary of the month's activity, "are commendable." Henceforth there would be pie aplenty.

Communication with the outside world was a major problem throughout the early operations period. An overland telephone line to connect the camp with the exchange at Gaspé was seldom in working order. In March, 1952, radio-telephone contact was established with the Gulf of St. Lawrence company's lines at Mont Louis on the peninsula's north coast. Technical difficulties kept the equipment out of action for several weeks, however, and the first voice contact with the outside world was not made until April 12th.

April brought the problem of break-up, when the road out of camp became a quagmire, almost closed to travel until the frosts were gone. To prepare for it, supplies of necessities must be on hand to cover a period which might run to three weeks. Failure to receive even one small item might halt the work on a major portion of the over-all task. But by the end of the month the entrance into the mountain had been driven ahead a total distance of 223 feet. The townsite clearing job was moving ahead and new buildings were going up around the mine portal.

Early in May the adit was 331 feet in from the portal. It had been driven 108 feet in a week, despite the fact that four shifts had been lost when halts were called while timber crews shored up the fractured rock in the face of the drift. In May a second adit was opened, higher up the steep hillside. By mid-month the main adit was 576 feet into the mountain, or a total of 646 feet from the starting point, where the hill had been cut back to give an entrance thirty feet in height. The higher-level entrance into

Needle was also making progress. All this with knee-deep slush in the valley as the melting snows came off the mountain-tops.

Through spring and well into summer scarcely a day passed in which some major problem did not arise and demand immediate solution. In May the road to Gaspé was alternately impassable, as the result of oozing frost and drenching rains, and barely passable when the weather briefly turned fine. Freights piled up in the town at the end of steel, where a hangar had been leased from the Department of National Defence for use as a warehouse. It filled rapidly with equipment as trucks failed to get through the road to the mine. Hired transport was paid on an hourly basis, which led one exasperated engineer to write that "it pays a truck driver to head for the nearest hole and get himself mired in." When that happened—and the lorries were stranded daily in the mudholes—road gangs hastened to the new frost-and-rain quagmires and rock-filled them, then waited for the next call to salvage another mud-imbedded truck.

The road was reported to be drying out at the end of May. Then two days of rain closed it again. As soon as weather began to improve, a cargo ship rammed the Gaspé harbour lift bridge and closed off the main artery between the hangar warehouse and the road to the mine. For two months thereafter vehicle traffic followed a lengthy detour which led to an old covered bridge over the York. The bridge was so weak, however, that heavy equipment had to be forded across the river. On Sunday, June 1st, a quick-kindling forest fire occurred midway between the townsite and the camps near the surface plant. For several hours there was grave risk that it might reach the bunkhouses and be blown on from there to the huddle of buildings around the Needle Mountain portal.

All these events were taken in stride as run-of-the-mill happenings, bound to occur in the task of founding a new community in the heart of the wilderness. They could be taken, because there was another, and much more cheering, side to the story. At the end of July the adit running west into Needle Mountain from the valley-level was 1,163.5 feet into the hill. A branch drift



had been started that month and had advanced twenty-one feet. Two hundred feet higher up the mountain, an upper adit had gone in more than 300 feet. Equipment to speed the work underground had begun to arrive, and at the end of July it included locomotives driven by storage batteries, mechanical ore-loaders, fifteen tons of mine rails and the beginnings of sinking plant to start an internal shaft. Orders were then in the works for hoisting equipment and a mine cage. Plans for crushing equipment to be installed underground, and for the "rooms" inside the mountain which would house it, as well as for an inclined conveyor belt installation to hoist the ore from the mine on its way to the mill, were beyond the blueprint stage. The town of Murdochville had been officially born by provincial order-in-council. The crew of 13 men who had come in with Brissenden in February had become 442 by the end of July. Of these, 277 were members of the advance party of Foundation Company of Canada, who had been retained to erect mill, smelter and all major surface plant. The rest were mine crew, diamond drillers, drivers of rented trucks, cookery staff, an electrical engineer and two townsite engineers.

On September 25th, 1952, R. V. Porritt, Noranda's general manager, who had walked the winter road from Cheminis to join the Horne staff as Roscoe's assistant in 1925, was named general manager of Gaspé Copper as well. In a sense it was a belated appointment, for Porritt had taken on this arduous duty months earlier and directed development of the mine through Oliver Hall's long and ultimately fatal illness. To Porritt, then, fell the task of opening Needle Mountain, of finding and bringing in machinery and equipment for the underground drive, of planning for mill, smelter and other surface plant, and of creating a new town in the wilderness. It was a task for which he was well fitted, from his early experience at Noranda itself. It was he, too, who had opened the Waite-Amulet and brought it to production. That Gaspé was opened in the day of the bulldozer, while the Horne's surface had been levelled with horse-drawn scrapers, made his task no less formidable, as this chapter has made clear.

It was Porritt's mining experience, coupled to his powerful drive, that made the success of the Noranda team in Gaspé possible.

At the end of 1952, ore in sight was reckoned as being in excess of 66,000,000 tons, of which almost 50,000,000 were in the Needle Mountain zones, estimated to average 1.44% in copper content. Most of the drilling was now proceeding from selected places underground, to determine more accurately the boundaries of known orebodies. That year Doctor A. M. Bell, as Noranda's exploration engineer, recommended that drilling from surface should cease during the period of plant construction, but should resume again as soon as production was reached, in order to continue to add to ore reserves. This plan has been followed.

Nineteen hundred and fifty-two, as the first year of actual mine-making, had seen much accomplished, particularly when the difficulties of supply, communications and getting-settled are taken into account. The main drift from the adit valley level had been completed. The hoist room had been opened at its inner end, as had a control room to house the shaft's electrical equipment. A start had been made on the raise for the inclined conveyor. Mining levels at higher elevations had been started or were in the preparatory stages. Diesel-driven generators and air compressors had been housed and put to work. Temporary machine shops had been built. A change-house for underground crews had been finished. Two nearby brooks had been re-routed. A crushing, grinding and mixing plant to supply ready-mixed concrete, as well as a plant to make cement blocks had been built for the construction job.

On the townsite, at the end of 1952, sewer and water-supply lines had been laid as soon as clearing had been completed. Street lines had been delineated. A large two-story building had been finished to serve as a second cafeteria to feed the people on the job, who now totalled 838. Three duplex family houses had been finished and six others, to be used temporarily as bunkhouses, were in construction. A storage dam had been built on nearby Porphyry Creek and a reservoir to hold 250,000 gallons of water for townsite requirements had been completed.



Several temporary buildings had been erected on the townsite to serve the crews who were building Murdochville. A lumber yard had been opened. A recreation hall was under construction at the end of the year.

Rebuilding of the road to Gaspé was finally finished on November 1st, ending the worst of the struggle to bring in supply. In spite of all the odds, 11,535 tons of material reached the camp during the year. A new road leading north to the St. Lawrence had been started and was passable by October, and deliveries of lumber were made over it before the year was out. The hangar in Gaspé, now served by a railway spur, had solved storage and warehousing problems at the end of steel. All in all, it had been a good year.

As 1953 opened events moved more rapidly. With an all-weather road in operation to Gaspé, mining equipment began to arrive in greater quantity. In the budding town a temporary school building was completed in February, looking after the needs of the children of eighteen families who had moved in. The Bank of Nova Scotia was in business, in temporary quarters in one of the bunkhouses. There were 1,050 men in camp. Dependents raised the population figure to more than 1,200.

The number of employed persons passed the 1,200 mark in March. It rose consistently month by month throughout the year. On April 1st, John Metz, an engineer of note and a mine operator of long experience in many fields, arrived as manager and Brissenden was promoted from the rank of superintendent to that of assistant manager. At the end of the half-year, 475 feet of shaft work had been completed. Raises in ore totalled 908 feet and drifts 8,344 feet. Development footage underground had reached a figure of 9,809 feet.

The permanent change-house for underground crews was then complete and a permanent machine shop was well under way. Excavation for the mill was almost finished and the foundations were going in. The smelter excavation had just been started. A dozen permanent buildings were going up around the plant-yard. The townsite was rapidly being made ready for incoming residents who would total more than 1,500

before the end of the year, in addition to the construction men who would move on as soon as their task was completed and the big plant began to swing into operation. Water and sewer lines had been finished. Even sidewalks were being levelled "downtown" and forty-eight houses were in various stages of construction.

By the end of the year even sharper changes were to be seen in plant construction and in the shaping of the new town. A business block in which the Bank of Nova Scotia and several merchants had leased space was almost finished on the principal commercial street, Fifth, and bank manager Emile Duhamel, who became Murdochville's first mayor, was making ready to keep bachelor hall in an apartment upstairs. By 1954 his bank was clearing cheques to an amount of more than \$1,000,000 a month. The Hudson's Bay Company had completed a fine general store and groceteria across the street from the bank, which opened for business on December 5th, 1953. The fine Copper Mountain Hotel was being rushed to completion and the tavern was already in business. As happens in all hurry-up frontier towns, the new hotel was open to guests almost as soon as the roof was on, and while the outer walls, waiting for their final veneer of brick, were still covered by tar-paper.

Less than a mile from the town, around the bend of a hillside, events moved on apace during the early days of 1954, though outdoor working schedules had slowed when winter hit the country. Erection of the mill building had been completed, excepting the area adjacent to the entry for the conveyer belt from the mine. Roofing the mill was completed during January. Year-end totals for actual mine development showed a further great advance. Shaft-sinking totalled 830 feet. The conveyor incline to reach the crusher room at the mine-bottom had been pushed 720 feet from surface down its slope. Drifts underground totalled 14,255 feet, or almost three miles. Total development footage underground had reached a figure of 19,301 feet.

The visitor to Murdochville early in 1954, who had seen the new town in its beginnings, saw great changes from the



wilderness into which Brissenden and his thirteen men had made their way only two years earlier. At the edge of town closest to the mine a small hospital had been equipped, where Doctor Stanley Knox tended the sick and the maimed. Doctor Knox had also opened a pharmacy in the new business block on Fifth Street. In tune with modern drug store operation throughout North America, it became a merchandizing centre for all the small luxuries men and women ask of their community merchants — cosmetics and perfumes, shaving soap and toothpaste, cigarettes and tobaccos, paper-back books and a long range of magazines which included even *Harper's* and the *Atlantic Monthly*. A Mrs. Georges Patry was setting up as a hairdresser. There were soon two barbershops, a soda bar and an all-night restaurant on Fifth Street. A cold storage plant was built early in 1954 by the Matane Dairy, which began to bring in fresh milk every day over the new road from the north coast. Contract-feeding was still being handled by Crawley and McCracken, and Murdochville's newly-arrived housewives visited the cafeteria building daily to buy meats to be cooked at home for their husbands and children. Such were the signs of a new community, destined to sprout to a population figure of 4,000 or more with fine highways leading out to Gaspé in one direction and to Anse Pleureuse near Mont Louis in the other. By the end of summer 1953, where two years earlier the drill crews had made camp, whence they man-handled their equipment to sites on the flank of Copper Mountain, a new town had sprung up, a town as well-ordered as Noranda had been in the early years of its growth. It is a good-looking town, orderly and well kept. Its frame houses, company-built but available for rental by employees, are modern in design and as completely serviced as any to be found in newly opened housing developments in the suburbs of Canadian cities. There is electric lighting, coal, wood or oil for heating, propane gas, wood or oil for cooking. There are shiny new cars in front of the houses. Gaspé town is less than two hours away.

A survey of expenditures to the end of 1953 reflects the progress of two quickly passing seasons, almost seventy per

cent of the outlay being made in that year. The bill to the end of December touched a figure of \$20,583,000, of which \$13,790,000 was spent in 1953. Of this more than \$2,000,000 had gone into the townsite. Underground development had cost one and three-quarter millions. The bill for the almost completed mill building was \$1,237,000 and the start on the smelter had involved another \$615,000. The balance had gone into the construction of other surface plant and buildings and in miscellaneous items.

The final drive was on to bring all the ends together in October, 1954, when it was hoped that power from the north shore of the St. Lawrence would be available. The steel skeleton of the smelter was well along and its equipment would be ready when needed. At Mont Louis the federal government had undertaken construction of a new wharf to accommodate ocean-going freighters and large oil tankers.

Nineteen hundred and fifty-four was the year of preparation for production, though ore did not begin to pour out of the mine, except for stockpiling purposes, until well into 1955. At the end of '54, several miles of tunnels burrowed into Needle Mountain, where the opening of the ore zones had fully confirmed diamond drill estimates as to tonnage and grade. At Mont Louis oil-storage installations had been erected to handle 225,000 barrels of bunker fuel. The gravel road from Anse Pleureuse to Murdochville had been finished, reducing the distance from the St. Lawrence to the mine to twenty-five miles, and that from the harbour at Mont Louis to twenty-nine. The new wharf was not completed, however, as a hurricane struck eastern Gaspé in September and did considerable damage to the partially finished structure.

By the end of the year the total cost of development and plant construction at the mine, plus laying out and building Murdochville, had risen to more than \$35,000,000. The highest charge was for the mill which, finished and almost fully equipped, was joined to the underground workings by a giant conveyor belt forty-two inches wide running for a total length of 2,300 feet from the crusher rooms 700 feet underground up to



the top of the mill building. The price tag on the mill and its equipment had reached more than \$6,000,000 and the big plant was almost ready to consume 6,500 tons of crushed ore a day. Here the ore is first ground to a fine consistency in a battery of ball and rod mills. The ground ore is treated in flotation cells where the relatively small proportion of sulphide minerals containing the copper and a minute amount of gold are separated from the rock and thus reduced to a much smaller bulk, called "concentrate". This material, containing about twenty-five per cent copper, is conveyed to the smelter for further treatment and the rocky portion of the ore, called mill-tailing, is discarded and conveyed through a pipeline to a dumping area some three miles down the valley from the mine.

The next highest charge in 1954 was for the smelter, which was rapidly approaching completion at the end of the year. The cost had already reached a figure of more than \$5,000,000 and would be considerably more before the first copper anode came out of its maw. The smelter receives its mixture from the mill and batching plant on a conveyor leading into a bin above a huge reverberatory furnace. On its main aisle are also two copper converters and an anode furnace. The charge to the reverberatory furnace is melted by oil firing and separates into matte, containing about thirty per cent copper, and slag from which practically all copper has been removed. The slag is discarded and the matte is charged, molten, to the converters where the copper is brought up to a purity of over ninety-nine per cent. The "blister" copper from the converters is further refined in the anode furnace and cast into anodes, ready for shipment to the refinery at Montreal East.

In the surface plant area stands a group of permanent modern buildings, comprising the mine, changing-house, power house, a concrete and steel warehouse, an oil storage building, pump-house, fire hall, assay laboratory, machine and electrical shops and a large new office building. The cost of plant, excluding underground work prior to production and the building of the town, was in the neighbourhood of \$20,000,000 before the mill turned over on April 7th, 1955.

The visitor to Murdochville early in 1955 could drive over almost three miles of graded streets. Along the streets were one hundred and fifteen dwellings, most of them semi-detached and housing two families. In addition, three apartment houses had been completed, to accommodate eighteen families. The recreation building had two fine badminton courts, a temporary theatre and snack bar. In addition to the bank, hotel, two restaurants, drug store, hairdresser's salon, two barber-shops and the Hudson's Bay Company store, a telephone building, more shops and a modern service station had appeared. Several other projects were in various stages of completion downtown. They included two blocks of stores, with apartments above, and a theatre to seat 600 people. Pasteurized milk became available early in 1955. Throughout the development of the new town its parent, Noranda, encouraged private enterprise to come in, as it encouraged employees to become home-owners. Even before the big mine reached production, the people of Murdochville were self-governing; had their own newspaper, *The Murdochville Miner*—founded by Engineer Gerry Pankhurst and Geologist Fenton Scott as a lark, but quickly converted into a paying business—and their busy social and family life had fitted itself into what may be called the normal Canadian tempo.

Only teamwork had made all this possible in so brief a period. It could be said, in fact, that in its drive for production in Gaspé, Noranda had partners not just contractors. The partners were Foundation Company of Canada, which built the plant, Canadian Comstock, which handled the many and varied electrical installations, and other sub-contractors, and the government at Quebec, which co-operated fully to build roads, to bring in electric power, and to solve townsite problems. To this partnership outlook belongs much of the credit for getting the job done on time.

The bringing in of electric power was a bold concept and an outstanding engineering feat. Far across the St. Lawrence, approximately at the time when Bell's drillers and Brissenden's skeleton mine-crew were first fighting the elements in the interior of Gaspé, the provincial government had started huge power



developments. As major production became assured for Gaspé Copper, the government agreed to carry power from Baie Comeau on the north shore of the St. Lawrence, under the river which is 1,200 feet deep in this area, by cables, a distance of thirty-one miles.

The longest underwater cable transmission of electric power in the world was mapped to come ashore near the summer resort of Métis, on the south bank of the St. Lawrence and the north coast of Gaspé. Thence it would be carried on towers 135 miles into Murdochville.

Canada Wire and Cable Co. Ltd., a Noranda subsidiary, undertook making the cables, establishing a temporary plant for this purpose on the wharf at Rimouski, the nearest available site. The cables were completed in this plant and coiled in separate lengths onto the wharf. In due course the separate lengths of cable were loaded into the cable ship two at a time. Early in the summer of 1954 the ship was ready to move into the stream, cross to the north shore and begin laying the cables on the river-bottom. It was a difficult task. Ship and men were beset by rough weather and repeated fogs which added risk to their work in the heavy traffic of one of the world's busiest waterways. When weather permitted, the cable ship began the laying operations, paying out cable as it cruised across the river on a pre-determined course. By the end of September the cables were ashore on the Gaspé Peninsula side, where they emerged from the water and lay on the beach like sea reptiles sleeping in the sun, as they waited to be connected to a transformer station on a nearby hilltop. Meanwhile the overhead transmission line had been strung across country into Murdochville.

The connection was completed early in December. Power was switched on, and for seventy-odd hours it poured into the plant and town in the heart of the interior. Then suddenly the lights went out. The machines stopped. The men in Gaspé waited for power to pour on again. Nothing happened. Hours later the word came through that one of the underwater lines had failed, somewhere deep in the waters of the St.

Lawrence. Repair would not be possible until the river was clear of ice in 1955, when a cable ship could again be chartered. It was a bitter blow, the last of many grave difficulties and the first which could not be resolved by the immediate application of engineering ingenuity.

But the Noranda and Gaspé staffs were not to be frustrated in their determination to get ahead. The mine was ready for production. Surface equipment was in place. The manpower was available. Therefore new diesel-driven generators were added to the battery which had brought the operation to the production point. Power from waste-heat boiler equipment in the smelter was added. Under drastically reduced power, in terms of what had been anticipated at this stage, the project drove on, through the months of waiting for the cables to be repaired. During this time-gap no effort was made to operate the smelter. The mill was run in, starting in April 1955. The stockpiling of ore, and later of concentrates, went on in preparation for the day when the power lines would hum again, and a considerable tonnage of copper concentrate was shipped by rail to the smelter at Noranda. On November 13th, 1955 power came through the under-river cables again—and all was well.

Gaspé Copper, drawing a huge daily tonnage from massive low-grade orebodies, is one of the world's most technically advanced mining operations, not merely in terms of processing but in time-, labour- and, therefore, cost-saving equipment. The giant conveyor-belt, rising on an incline from a crusher-room 700 feet underground to carry pulverized ore to storage bins at the top of the mill, is one example. Another is the replacement of conventional underground transportation equipment—rails, mine-cars and locomotives—by power shovels which load diesel transit-cars in the great caverns, or "rooms", where the mining of ore goes on. The transit-cars travel on outsize rubber tires from the point of loading and dump their loads into ore-passes which feed the underground crushers by gravity. At Gaspé Copper the only rail-haul underground runs from the main adit to the internal shaft, to carry working materials



into the mine. The rest of the operation inside Needle Mountain rolls on rubber.

Such an operation as that at Murdochville has a much greater impact than its own visible and measurable effect on the Canadian economy as a whole, and on the fortunes of its parent, Noranda. It brings the Gaspé peninsula alive at last and may well lead to the coming of other major industries, not necessarily restricted to the realm of minerals. Until the cables were strung under the St. Lawrence, this was a power-starved region. Here and there, in small communities along the coast, diesel-driven generators supplied the towns with a trickle of electricity. In many thinly settled areas there was none. Industries were few. Such as they were, they related mainly to fishing and pulpwood. For two months each year a number of residents flourished on the tourist trade, but it was strictly a seasonal business. By Labour Day hotels, cabins, motels and boarding houses which had opened only in the late days of June were closing again for another ten months. Agriculture flourished in few areas. In most the soil is too thin and rocky to support crops beyond immediate local need. Thus Gaspé Copper has brought its first major industry to the peninsula and, by the fact of being there, has made cheap hydro-electric power available for other industries which will follow it. It is reasonable to believe that more mines will be found. Needle and Copper Mountains do not seem to stand alone as isolated occurrences. There are small mining operations in other parts of the interior. There is the possibility of new plants along the coast, for modern fish-processing among other things. Employment has been provided for many men at pay rates they never knew before. As the writing of this book is finished, the peninsula is taking on a new lease on life. As J. Y. Murdoch has said, "the bringing into production of Gaspé Copper might well mean to the Gaspé Peninsula what the development of Noranda has meant to northwestern Quebec."

It is strange that it did not happen sooner. The vast basin which spreads before the town of Gaspé has been mentioned as one of North America's great harbours and one of its least

used. It was considered as a "spare bedroom" which the Royal Navy might use in the event of successful invasion of Britain by Hitler in the early days of World War II. Gaspé was a base for anti-submarine vessels and coastal patrol aircraft during the months when German marauders visited the Gulf of St. Lawrence and penetrated the river as far as Rimouski. (Hence the disused hangar which Noranda occupied as a warehouse in 1952). What seemed strange to many familiar with the peninsula coast was that its rail connection with the interior was not improved by the laying of heavier steel, and the port at Gaspé "activated" by the enlargement of its shipping facilities. Had that been done much of the burden might have been taken off Halifax, a considerably longer haul from the industrial complex of central Canada, through which the great bulk of war-time freights moved after the long journey over a single-line railway. Gaspé would have provided a much shorter route to the sea and on the sea to Europe, and therefore a shorter and safer merchant-convoy haul over the Atlantic to Britain. But it was never used. The coming of major industry and the power to impel it conceivably could revolutionize this aspect of the region's life as well as others.

The developers brought immediate prosperity to the coast, perhaps the most visible manifestation of which was the appearance of bright new coats of paint on the homes of a score of coastal hamlets, and mended fences around the fields. Despite his lack of experience as a miner, the native son proved to be a willing worker and a man who could be trained as easily as his inexperienced brother in other parts of Canada. One fault he had from the point of view of the employer, born of the life the Gaspésian has led in the past. Before the mountains of copper were flung open, these men fished the sea in season. When the catch was brought home and accounts settled with the fish-buyer, the fisherman-farmer repaired to his modest dwelling ashore to tend his acres. At other seasons he might venture afield as a pulpwood-cutter. But again he came home with the proceeds of his labour in his pocket to attend to the needs of his family and his plot of ground.



Old habits die hard, and their slow death was recorded repeatedly in the reports of Metz and Brissenden through the days of development, when labour turnover ran at high levels among those who had never worked in mines before, while men brought from other mining fields, or who had come to Gaspé in search of work, took life as it came. For months it seemed as though as soon as a Gaspé man had two or three hundred dollars in his pouch he must head for his village to invest it in needed work around the home place. But this condition changed as time went on and was levelling off as production was reached.

The recommendation to take on what is now Gaspé Copper was Oliver Hall's greatest contribution of the many he made to Noranda. Porritt's experience and drive capped the decision. It was fitting that Hall should be named as the new company's first president, but his days in office were numbered. On February 15th, 1954, this great Noranda figure died after a lingering illness. Before then his son John had come to Murdochville as mine superintendent, a role in which he has been a leading figure in bringing his father's mine to production. So the family tradition lives on, as the Noranda tradition lives in breaking through another Canadian frontier.

## CHAPTER TWELVE

### THE COURSE OF EMPIRE

THE DECADE WHICH OPENED with the end of World War II and closed with the beginning of production at Gaspé Copper was of great importance in the life of Noranda. The panorama of the future was changing sharply. In increasing degrees the company became a processor and manufacturer of products derived from its own raw materials, without losing sight of the policy laid down in the beginning by Thomson and Chadbourne. Activity in exploration and the development of new mines, and an ever-widening search for new mineral bodies in all parts of Canada, constantly increased throughout the period. Simultaneously the company became an important participant in other established ventures, which in turn either controlled or owned large fractions of important producing mines.

A mining company has only one enduring asset, its charter, and this only when the men in office are knowledgeable and alert, and over the years enjoy mining luck to keep their wisdom company. As has been emphasized many times in this book, from the moment when the first ton of ore is hoisted and sent to the mill, a mine is a wasting asset. No matter how great its reserves may be, ultimately it will be mined out. The two-fold aim of the wise operator, therefore, is to extract the last possible penny of earnings from his raw material, by processing it to the economic limit in his own plants and, while he is doing so, find and develop new mines to replace the ore he is expending.

The end of the war found Canada's mining industry in serious straits. The condition of many mines was desperate. Even those with great reserves were in serious trouble, for



although possession of great reserves is comforting, ore which cannot be mined for lack of manpower to develop it is of no immediate use. Ore cannot be hoisted until drifts and cross-cuts have been driven into it, stopes opened, weak places timbered and rails laid to bring in the mine cars and locomotives. The central problem of Canada's mines at the end of war was this development lag, and it could not be reversed overnight. In fact, production was bound to slip backwards before it could begin to go ahead again.

Ore hoisted from the Horne fell sharply in 1945 and receded by a further twenty per cent in 1946. It hit bottom in 1947, the year in which the company celebrated its twenty-fifth birthday, when only 516,705 tons were brought to surface. That was little more than a quarter of the tonnage mined each year at the peak of the war effort, before the manpower crisis struck the mines. Anyone studying the figures for 1947, who lacked a context in which to view them, might have been forgiven for thinking the prospects dark. It was, for example, a year of serious labour unrest and strife, accompanied by a lengthy strike and shutdown at Noranda.

But things were happening which were not visible in the tabulations. When labour troubles were settled the working force soon reached a new post-war high. The health of subsidiary operations was improving. Earnings were rising. The development problem was being resolved.

A spectacular rise occurred in 1948, but it was spectacular mainly by comparison with the dim days which had gone before. That year tonnage hoisted from the Horne increased by almost ninety per cent to 977,403 tons, a reflection of problems resolved. Noranda's net profit rose by almost fifty per cent that year. A reverberatory furnace in the smelter which had been idle since 1944 for lack of ore to feed it, was about to be brought in again. Urgently needed plant repairs and replacements were being made, as materials and equipment became available.

In 1949 tonnage rose above the million mark again. For the first time since mid-war the labour force could be described

as adequate. The Horne was back on an even keel. Henceforth it could be expected to move steadily along, hoisting and treating approximately one and a quarter million tons of copper-gold ore every year, so long as reserves of the minerals in which it had its great beginnings held out. At the end of 1954, reserves in the copper-gold orebodies were estimated at approximately 14,000,000 tons, suggesting a further twelve years of mine life in its original production field. Great credit accrues to C. E. Anderson, manager of the Horne and his assistant, J. V. Stovel, Jr., for their postwar success in bringing the mine back to par.

When the copper-gold orebodies are exhausted, the Horne will be far from the end of its life-span, however, and the community which it supports will continue to flourish. Standing in echelon beside the Lower H, where it rises to the vicinity of the 1,500 foot level, and with great bulges broadening out below 3,000 feet, is another vast body known as Zone 5. It is at least half-a-mile in length and averages 250 feet in width. To explore it an interior shaft, Number 6, has been sunk from the 3,000 foot level to the 6,000. Levels were opened at 250-foot intervals from which the zone was explored by diamond drill holes. The bottom had not been reached at a depth of 7,000 feet. It is a zone containing bodies of massive sulphides, the whole averaging more than fifty per cent in pyrite content, the bulk of it running to sixty-five per cent with low values in copper, zinc and gold. Known tonnage is at least 100,000,000. Thus the character of the Horne will change. Fifteen years hence, it will have become a major producer of material from which elemental sulphur, sulphuric acid and iron sinter will be produced. The mine and its community can look ahead to many years of prosperous living.

But prosperous living for the Noranda community will not stem from the mine alone. The big smelter on the hill-top will still do its share. When the decision was taken in 1926 to raise smelter capacity from the original 500-tons concept to a tonnage twice that size, and Murdoch said to Chadbourne, "This will either stand as a monument to our damned foolishness or as one to our sagacity and foresight", the planners



of Noranda were thinking in terms of smelter material drawn from customer-mines in the district, as well as from the Horne. Then the H orebodies were found and developed and smelter capacity was doubled and redoubled, solely on the ability of the Horne itself to feed the reverberatory furnaces and converters.

At the beginning of 1956, as the big mine approached its change of life, a similar condition was in store for the smelter. The original concept of handling custom ore and concentrates had become the key to the future, for the great development of northern Canada, in which Noranda had played a pioneer role, had placed its huge surface plant in a strategic position between Canada's copper mines and the world market. Copper concentrates from as far away as Lynn Lake in northern Manitoba move over the Canadian National's northernmost line to the shore of Lake Osisko, to be smelted, then on to the refinery at Montreal East and from there to the markets of the world—a steady forward movement with no uneconomic back-tracking *en route*. Geco copper travels the same route from north of Lake Superior, east to the smelter and on to Montreal. At the beginning of February 1956 a new railroad was being thrust post-haste north from the C.N.R.'s northern transcontinental line to bring out the rich resources of Chibougamau. A new field in the production sense (it is one of the oldest known mineralized areas in Canada but was held back for decades by lack of communications and power), Chibougamau lies approximately 150 miles north of the main east-west line. Assured deliveries from two established mines, Opemiska Copper and Campbell Chibougamau, to the smelter at Noranda, plus the great potential of the field for the future and a major outward haul of pulpwood to paper mills in southern Canada, were the economic justification for the new Canadian National line which crosses considerably more than 100 miles of wilderness to reach its customers. The Noranda smelter, less than thirty years after its construction, stood in a highly strategic relationship to Canadian copper development on what is almost a continent-wide basis.

At the end of January, 1956, as the railroad was being driven north towards Chibougamau, the track-layers were approximately ninety miles north of the transcontinental line, where the steel crosses the O'Sullivan River, and were pushing north at the rate of almost a mile a day, a pace bound to slacken in rougher country and which would slow down considerably at the winter's break-up time. The drive in January and February was to thrust as far and fast as possible while winter blessed the north, laying bare steel on the frozen right-of-way. Later, as the frost came out, they would pour in ballast. Thirty-five miles beyond the end of steel, crews were pouring cement for the abutments and piers of bridges where the line would cross an island in Lake Opawica. Over tote-road and the frozen right-of-way trucks were hauling explosives, fuel, staple foodstuffs and all manner of supplies. Everything possible was being pushed into the country ahead, against the day when the frost would ooze out of the ground and men would be forced to work and move in that remarkable northern quagmire of gumbo known to northern Canadians as muskeg. Contrary to what many people, including residents of the cities of southern Canada, believe, the Canadian winter is the country's greatest boon in the drive to thrust back the frontier. Winter is the time when a man can get around on the ground and haul in supplies and equipment. Snow is the country's white gold, and the bush flying airplane is its magic carpet. The two combined have been the great contributor to the tremendous thrust which is carrying the northern half of North America towards great nationhood.

Zone 5, in the depths of the Horne, is the reason for the new plant at Welland and for the construction of a mill at Noranda for pelletizing pyrites prior to shipment. In mid-1955 a second sulphur-iron plant, larger than that at Welland, was on the drawing boards. It is to be built in the heart of the Algoma district of northwestern Ontario and will provide large quantities of sulphuric acid for leaching the uranium-bearing ores of the region. Because it will be located close to deep-water shipping on Lake Huron, it will enjoy low freight-



ing charges for the movement of its iron sinter, possibly to the steel mills at nearby Sault Ste. Marie, or to Hamilton and southern Great Lakes ports, and for getting its elemental sulphur to market.

In the early stages the bulk of the pyrite for these new operations was not to come from Zone 5, however. For some years to come, the Horne would remain a copper-gold producer with a substantial quantity of by-product pyrite from mill production as at present. Its new depths would be readied for mining, but the big swing-over would not be made for at least several years. Meanwhile pyrite required by customers other than Noranda would come from other operations in which Noranda holds controlling, or large, interests, including the West Macdonald mine.

In 1950 Noranda acquired a lease on fifty acres of ground belonging to Macdonald Mines Limited, approximately seven miles north of the Horne on Lac Dufault, which was then estimated to contain approximately 9,000,000 tons of ore averaging seventy-eight per cent pyrite and three per cent zinc. Some time later a new company, West Macdonald Mines, was formed to mine this sulphide body as a partnership operation, with Noranda and Macdonald as the partners. The Waite-Amulet mill was enlarged to receive the new production and an aerial tramway, more than five miles in length, was constructed across country to carry West Macdonald ore to the Waite-Amulet mill.

These activities are typical of the postwar "new look" of the Noranda operation. It is visible in many other fields. In October, 1948, for example, Noranda purchased 149,000 shares of Mining Corporation of Canada, lifting its direct holdings in that long-established and successful enterprise to 224,000 shares. At the same time Waite-Amulet acquired a sizable block in the same company, which raised Noranda's and Noranda-controlled participation in Mining Corporation to approximately thirty-one per cent of its issued capital which has subsequently been increased to thirty-six and a half per cent. This move gave Noranda what is tantamount to a partnership interest in the Horne's neighbour, Quemont, and in

Normetal, an important copper-gold producer in the Western Quebec field.

A few months later, in January, 1949, a similar move was made in the acquisition of 375,000 shares of Anglo-Huronian, owner of the controlling interest in the Kerr-Addison, Canada's biggest gold mine, which lies between Kirkland Lake and Noranda. This purchase and subsequent acquisitions have given Noranda 545,008 shares of Anglo-Huronian, while an additional 164,186 shares were acquired by Hallnor Mines, raising the Noranda participation in this company to approximately forty-seven per cent of its outstanding shares.

At the end of 1954, then, Noranda's position in addition to the Horne in the field of production was as follows. It owned almost all of Gaspé Copper. It controlled Waite-Amulet. Its portfolio contained almost the whole of Hallnor and control of Aunor. In Nicaragua it controlled the India and Empresa mines. In the field of processing were Canadian Copper Refiners, Canada Wire and Cable, Noranda Copper and Brass, and the new sulphur-iron plant at Welland, Ontario. Through Mining Corporation it had the largest single participations in Quemont and Normetal, and a third operation, Torbrit. Participation in Anglo-Huronian had brought in the Kerr-Addison along with a large slice of Prospectors' Airways, an important exploration concern. In addition to these Noranda was the major participant in Pamour and a partner with Macdonald in the pyrite operation to which reference has been made, which is now sending 1,000 tons of ore every day to the mill at the Waite. All this great empire had been founded on the strike made by Edmund Horne on the shore of Lake Osisko. It was an amazing record of achievement.

At the base of that achievement lies something that goes much deeper than mining luck and the dollars to place on the line behind it. Perhaps the most important factor of all is the constant search for new properties and the wise expenditure of money to explore and develop them as they are found. With this must be coupled the sense of geological smell which suggests when to abandon a property which at the outset has



seemed promising. There could be no better way to assess this aspect of the Noranda story than to look into the exploration record of a typical year for which purpose 1954 is selected as a case example.

Starting in eastern Canada and travelling west, the summer saw tremendous activity in the whole Gaspé area, far afield from the copper workings in the valley between the twin mountains. Several seasons' work had been mapped out in which to examine the known region of mineralization. In heavily overburdened areas ordinary prospecting would not be enough and geophysical survey teams would be called in. Once favorable geological situations had been discovered, soil-testing and other techniques would be brought into play. All this in addition to Gaspé Copper itself, which had become a mining operation, and as such no longer in the hands of Noranda's exploration department.

In northern Quebec, working out from Noranda, Doctor Peter Price had full charge of the search for new properties in the original home bailiwick. Elsewhere Doctor A. M. Bell, with headquarters in Toronto, directed a nation-wide search. That year four prospecting parties were in the field in Ontario, mainly in the region north of Lake Superior. As intriguing areas were discovered, geophysical parties moved in to assist with investigation of heavily overburdened country. One exploration party was in the Kenora district, working on claims staked by Noranda prospectors in an earlier season. A considerable amount of diamond drilling had been done which had brought tantalizing results. The job in 1954 was to try to find out if this ground would add up to an attractive mining proposition.

In Manitoba Noranda was active in the Northern Mystery Lake field, where a large group of nickel-bearing claims was under investigation. Work here had started in the winter of 1953-54 and a geophysical team had tramped the heavily overburdened country with its instruments. In the Flin Flon country during 1954 there was continued prospecting for base metals.

A western exploration office, under B. O. Brynelsen, had

been opened in Vancouver some time earlier, to direct a continual scouting and property examination operation. It maintains prospecting parties in the field in the summer and keeps an ear to the ground, listening for news of intriguing new strikes. Over on Vancouver Island Noranda was then developing an interesting deposit of copper situated approximately two hundred miles north of the city of Victoria, an operation still proceeding as this is written. The final answer was still not known.

In the Yukon, Noranda participated in general prospecting including detailed investigation of a lead-zinc deposit.

In various parts of the country Noranda also held numerous properties which were then lying dormant, awaiting improved gold mining conditions, or depth development by producing neighbours.

Such is the record of what may be called a normal exploration season. But again, it does not tell the whole story of the constant search for new mines. In addition to the company's direct prospecting activities, it investigates at least one hundred properties brought to its attention every year, though a property brought in to head office by an outsider seldom proves sufficiently attractive to option. When an important mineral discovery is made, its owner has no need to look far for a buyer. Nevertheless, in order to keep abreast of what is happening in the field, at points as far apart as the Yukon and Gaspé, company scouts and engineers maintain a wide circle of acquaintance in the prospecting world, so that they may hear of new discoveries almost as soon as the first claims are staked. Moreover, any mining company which seeks to get along in the world must build a reputation for fair dealing, so that prospectors will not hesitate to seek it out when they have something to offer.

Perhaps the property called Geco in northwestern Ontario will serve as an illustration of what has just been said. This remarkable property was discovered in the early 1950's by independent prospectors. The General Engineering Company was first in the picture as provider of exploration capital. Then came Noranda's partner, Mining Corporation, and in lesser degree Noranda itself, to put up the main development money,



a management contract being signed with Mining Corporation at the time when the major financing programme was laid out and completed. Late in 1955 the Canadian National and Canadian Pacific railways had built branch lines to reach the property, a race comparable to that of the C.N.R. and the T. and N.O. to be the first into Noranda. Hydro-electric power was on the way in. A concentration plant to handle 3,300 tons of ore per day was on the draughting table. Ore reserves at the end of 1954 were calculated at a figure of almost 15,000,000 tons, averaging 1.72% copper, 3.55% zinc and carrying 1.73 ounces of silver to the ton. A new and great mine had been born. This is what is meant by an ear-to-the-ground policy. Such a policy is necessary to the success of any mining company which hopes to survive in the highly competitive search for new mineral deposits.

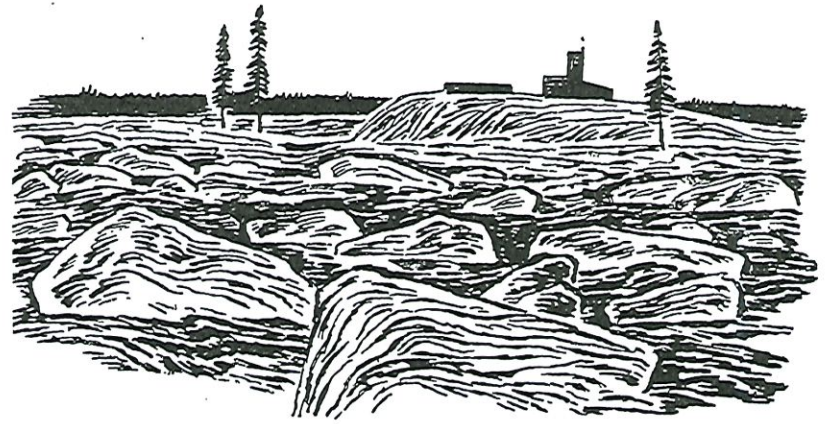
Mine-finding is an arduous, difficult and often discouraging business. Not more than one property in a thousand which has sufficient mineral showings at surface to warrant at least early stage exploration ever becomes a producing mine, a fact which the public consistently refuses to understand. It explains the "penny prices" at which the shares of new companies are sold to the public, as it also explains the tremendous number of investigations carried out every year by the big operators. It was Professor L. C. Graton, of the Department of Geology at Harvard, who summed up the constant search, and all its attendant discouragements, in a single sentence: "An orebody is a geological freak of Nature." Discovering the freaks is the never-ending task of the mine-finder. What this means in a country like Canada is that if the makings of two or three good new mines are found every year, things are going fine. In the case of Noranda, as in that of every established company, the aim is to acquire its fair share of new discoveries, by maintaining a consistent exploration and prospecting programme.

More than thirty years have passed since the birth of this great company, almost forty since Edmund Horne first ventured into Rouyn Township. From humble but determined beginnings an empire has grown. From one great mine have

grown many others, for which, in the ultimate analysis, the dollars for development have come from the rich ores of the Horne. It is a remarkable record of achievement in a country which depends on the development of its natural resources for the greatness it seeks to achieve. This is where Canada's future lies.

Of those who founded this Noranda empire, few remain. Horne and his Tremoy partners, Humphrey Chadbourne and Sam Thomson, Noah Timmins, J. E. Perrault, and many members of the first directorates, Waite and Fletcher of the first field staff, Ernest Hibbert and many others have left the scene of their great success. Of the "originals" who "arrived with the charter", or soon thereafter, J. Y. Murdoch remains in the presidency and board chairmanship. Roscoe, Bradfield and Porritt occupy the senior portfolios of the Noranda cabinet. Men go. New men come. The empire goes on.





## GLOSSARY



## GLOSSARY OF MINING, GEOLOGICAL AND METALLURGICAL TERMS APPEARING IN THIS WORK

*Adit*: A horizontal tunnel from surface, leading into an orebody, on a hillside.

*Assessment work*: The necessary annual prospecting and trenching, etc., required by law to retain title to a mining property.

*Anticline*: The arching of a rock formation.

*Ball mill*: A rotating steel container in which rock is ground between steel balls, which cascade in the rotating of the mill.

*Batching plant*: A plant in which batches of material are prepared for onward movement to the smelter.

*Blister copper*: The end product of a copper-smelting operation.

*Chalcopyrite*: Copper-bearing pyrite—rock containing copper, iron and sulphur.

*Concentrating ore*: Basic ore in which the percentage of mineral product must be raised (by concentration and removal of waste) for smelting.

*Concentrate*: Ground ore from which waste material has been removed to increase the percentage of mineral content.

*Converter*: Iron retort in which impurities are removed from copper matte by means of a blast of air, to produce blister copper.

*"Cousin Jack"*: A Cornish miner. Many migrated to Canada in the earlier days of mining.

*"Country rock"*: Rock which carries no commercial ore.

*Cross-cut*: An opening, or tunnel, in the country rock, not driven into the ore.

*Cyanide (in milling)*: Potassium cyanide introduced into milling as a weak solution to dissolve gold in the ore.



- Deckman*: The first man who handles ore, or rock, as it reaches surface.
- Diabase*: An intrusive barren rock often occurring as a dyke between ore-bearing bodies.
- Drift*: An opening, or tunnel, driven into an ore zone.
- Drill casing*: The pipe driven through overburden to bedrock before diamond drilling begins.
- Drill collar*: The surface of a diamond drill hole.
- Drill core*: The material recovered, as a core of rock, in diamond drilling.
- Float*: A piece of mineralized rock which has broken away from an outcrop.
- Flux or fluxing ore*: Material used to lower the melting point of an ore in smelting.
- "Fractured" or "Fracturing"*: Large cracks in an orebody, or in country rock which must be traversed to reach ore.
- Gossan (Iron hat)*: An oxidized outcrop. Its rusted appearance is responsible for likening it to an "iron hat".
- Headframe*: The hoisting tower erected over a mine-shaft.
- Leaching*: The extraction of minerals from ore by using chemical solutions.
- Lens*: An orebody of limited length and depth, the outer limits of which are materially less in size than the centre.
- Malachite*: A form of copper sulphide.
- Moils*: Short, pointed lengths of steel, used in hand-drilling, or in chipping rock.
- Outcrop*: An exposed rock protruding through the overburden.
- Overburden*: Sand, boulders, etc. lying above the bedrock.
- Oxidized ore, or rock*: Rock affected by exposure to oxygen in such manner that it appears "rusted".
- Pelletizing*: Forming a mineral product into small balls, or pellets, for convenient handling.
- Pyrites*: A combination of various minerals with sulphur (Copper pyrites, iron pyrites, etc.)
- Reverberatory furnace*: A furnace for driving sulphur out of ore in smelting.

- Rhyolite*: A greenish, fine-grained rock which often occurs as the host-rock of gold veins.
- Roaster*: A furnace in which finely ground ore and concentrates are roasted to eliminate sulphur.
- Siliceous ore*: Ore with a high content of silica.
- Sinter*: Clinker-like matter formed by the fusion of small particles of ore.
- Skips*: Buckets (of varying size) for hoisting ore.
- Stamps (battery of)*: Steel stems used to crush rock by impact (now obsolete)
- Stope*: A large opening in a vein or orebody, situated above the drift, or haulage way, to remove ore.
- Stripping (as in stripping a vein)*: Removing overburden and waste material from an ore-bearing section.
- Sulphides*: Ore containing sulphur (copper-bearing sulphides, etc.).
- Syncline*: A trough in a mineral formation (the reverse of anticline).
- Tailing*: Waste material, discarded after mineral values have been extracted from ore.
- Two-compartment shaft*: A shaft usually sunk for exploration purposes, one compartment of which contains the hoist, or cage, the other a manway ladder and pipes to carry compressed air underground.





## APPENDICES AND INDEX



*DIRECTORS OF  
NORANDA MINES, LIMITED*

| NAME                      | TERM OF OFFICE                                      |
|---------------------------|-----------------------------------------------------|
| James Y. Murdoch, Q.C.    | Dec. 18/22 -                                        |
| H. W. Chadbourne          | * { Jan. 3/23 - Jan. 9/28<br>Nov. 8/29 - Oct. 26/50 |
| S. C. Thomson             | Jan. 3/23 - July 13/40                              |
| T. L. Chadbourne          | Dec. 18/23 - Jan. 9/28                              |
| H. G. Haskell             | Dec. 18/23 - Jan. 4/51                              |
| W. A. Baldwin             | Sept. 8/25 - Jan. 9/28                              |
| Irving W. Bonbright       | Sept. 8/25 - Aug. 1/41                              |
| Percy A. Rockefeller      | Sept. 8/25 - Jan. 9/28                              |
| N. A. Timmins             | Nov. 11/25 - Jan. 23/36                             |
| Hon. F. H. Phippen, K.C.  | Jan. 9/28 - Nov. 8/32                               |
| A. L. Ellsworth           | Feb. 10/28 - Nov. 29/50                             |
| F. M. Connell             | Mar. 26/28 -                                        |
| Ernest Hibbert            | Oct. 4/33 - Feb. 8/38                               |
| L. H. Timmins             | Mar. 30/36 -                                        |
| Hon. J. E. Perrault, K.C. | Mar. 31/37 - June 13/48                             |
| Hon. Alphonse Raymond     | Apr. 14/38 -                                        |
| H. L. Roscoe              | July 31/40 -                                        |
| N. C. Urquhart            | Jan. 30/42 -                                        |
| J. R. Timmins             | Nov. 18/48 -                                        |
| Oliver Hall               | Nov. 8/50 - Feb. 15/54                              |
| J. R. Bradfield           | Feb. 8/51 -                                         |
| J. I. Rankin              | Feb. 8/51 -                                         |
| Hon. G. B. Foster         | Apr. 30/54 -                                        |

\* Resigned

*NORANDA MINES, LIMITED  
(Incorporated under the laws of Ontario)*

Head Office, 44 King Street West,  
Toronto 1, Ontario

CAPITAL STOCK

Authorized: 6,000,000 shares of no par value

Issued: 4,479,554

DIRECTORS

|                                        |                  |
|----------------------------------------|------------------|
| James Y. Murdoch, O.B.E., Q.C., LL.D.  | Toronto, Ontario |
| F. M. Connell, O.B.E., B.Sc., M.E.     | Toronto, Ontario |
| Leo H. Timmins, B.Sc., M.E.            | Montreal, Quebec |
| Hon. Alphonse Raymond, LL.D., M.L.C.   | Montreal, Quebec |
| H. L. Roscoe, B.Sc., E.M., D.Eng.      | Toronto, Ontario |
| N. C. Urquhart, C.B.E.                 | Toronto, Ontario |
| Jules R. Timmins, O.B.E., LL.D., D.Sc. | Montreal, Quebec |
| J. I. Rankin                           | Montreal, Quebec |
| John R. Bradfield, B.Sc.               | Toronto, Ontario |
| Hon. George B. Foster, Q.C.            | Montreal, Quebec |

OFFICERS

|                                       |                        |
|---------------------------------------|------------------------|
| James Y. Murdoch, O.B.E., Q.C., LL.D. | Chairman and President |
| H. L. Roscoe, B.Sc., E.M., D.Eng.     | Vice-President         |
| John R. Bradfield, B.Sc.              | Vice-President         |
| C. H. Windeler, C.A.                  | Secretary              |
| R. G. Rudolf, C.A.                    | Treasurer              |
| Russell Horsfall                      | Assistant Secretary    |
| Harold Pinnock, C.A.                  | Assistant Treasurer    |



*Noranda Mines, Limited*

PARTIAL LIST OF FORMER OFFICERS AND DEPARTMENT HEADS

|                   |                                       |           |
|-------------------|---------------------------------------|-----------|
| S. C. Thomson     | Vice-President                        | 1929-1940 |
|                   | Managing Director                     | 1923-1928 |
| H. W. Chadbourne  | Managing Director                     | 1923-1928 |
| L. K. Fletcher    | Superintendent                        | 1923-1928 |
| Ernest Hibbert    | General Manager                       | 1925-1931 |
|                   | Consulting Engineer                   | 1931-1938 |
| H. L. Roscoe      | Assistant General Manager             | 1926-1931 |
|                   | General Manager                       | 1931-1950 |
| Oliver Hall       | Assistant General Manager             | 1931-1938 |
|                   | Consulting Engineer                   | 1938-1954 |
| K. Williams       | Smelter Superintendent                | 1926-1927 |
| W. B. Boggs       | Smelter Superintendent                | 1927-1948 |
| John R. Bradfield | Assistant Construction Superintendent | 1926-1927 |
|                   | Construction Superintendent           | 1927-1931 |
|                   | Plant Engineer                        | 1931-1938 |
|                   | Secretary                             | 1938-1948 |
| C. G. McLachlan   | Concentrator Superintendent           | 1928-1946 |
| E. Henderson      | Mine Superintendent                   | 1928-1940 |
| J. A. Costa       | Mine Superintendent                   | 1940-1955 |
| T. N. Hay         | Secretary-Treasurer                   | 1928-1938 |

*Noranda Mines, Limited*

OTHER OPERATING PERSONNEL—HEAD OFFICE

|                 |                                      |
|-----------------|--------------------------------------|
| R. V. Porritt   | General Manager                      |
| C. G. McLachlan | Superintendent of Mills              |
| C. W. Clark     | Director of Research and Development |
| A. M. Bell      | Exploration Superintendent           |
| C. C. Muir      | Manager of Sales                     |
| W. H. Reade     | Supervisor of Purchasing             |

OPERATING PERSONNEL—NORANDA, QUEBEC

|                 |                                                                 |
|-----------------|-----------------------------------------------------------------|
| C. E. Anderson  | Manager                                                         |
| J. H. Stovel    | Assistant Manager                                               |
| J. N. Anderson  | Smelter Superintendent                                          |
| H. L. Ames      | Concentrator Superintendent                                     |
| R. J. Schnarr   | Mine Superintendent                                             |
| L. O. Cooper    | Plant Engineer                                                  |
| Dr. Peter Price | Chief Geologist                                                 |
| S. D. Cooke     | Chief Mine Accountant                                           |
| C. W. Justice   | Electrical Engineer                                             |
| B. H. Morrison  | Plant Manager—Sulphur-Iron Division<br>(Port Robinson, Ontario) |

OPERATING PERSONNEL—SUBSIDIARY COMPANIES

|                  |                                                            |
|------------------|------------------------------------------------------------|
| T. E. Little     | Manager, Waite Amulet Mines, Limited                       |
| R. E. Findlay    | Manager, Aunor Gold Mines Limited                          |
| W. J. Marshall   | Manager, Hallnor Mines, Limited                            |
| D. E. G. Schmitt | Manager, Pamour Porcupine Mines, Limited                   |
| John Metz        | Manager, Gaspé Copper Mines, Limited                       |
| J. H. Schloen    | Manager, Canadian Copper Refiners Limited                  |
| R. W. Summey     | Manager, Noranda Copper and Brass Limited                  |
| O. W. Titus      | General Manager, Canada Wire and Cable Company Limited     |
| D. N. Spencer    | Vice-President & General Manager, Compania Minera La India |



## INDEX

- Alcock, F. J., 172  
 Aldermac Mine, 66, 109, 110, 115,  
     141  
 Alderson, 66  
 Algoma plant, 199  
 Allen, Raymond, 125  
 Amos, 71  
 Amulet Mine, 143-4  
 Anderson, C. J., 197  
 Angliers, 66  
 Anglo-Huronian, 201  
 Anse Pleureuse, 175, 186, 187  
 Apatite, 9  
 Archibald, James A., 38  
 Armstrong, Bert, 19-20  
 Asbestos, 9  
 Aunor Mine, 147, 201  
  
 Baldwin, W. D., 87, 110  
 Barrier Lake, 19  
 Bartholomew, G. P., 38  
 Bartlett, Roland, 134  
 Bates, Fred W., 169-70  
 Battelle Memorial Institute, 160  
 Beatty, W. H., 110  
 Bell, A. M., 168, 173, 174, 177,  
     183, 202  
 Bergman, 129-30  
 Blister copper, 107, 116, 119, 188  
 Board of directors,  
     Thomson-Chadbourne syndicate,  
     38  
     Noranda Mines, Limited, 87, 110,  
     120, 136, 208  
 Boggs, W. B., 116-17  
 Bogue, D'Arcy, 144  
 Bonbright, Irving W., 39, 87, 110  
 Boston Creek, 43  
  
 Bouvrette, Jacques, 134  
 Bradfield, J. R., 88, 97-8, 106-7,  
     125  
 Brett, J., 24, 25-7  
 Bridgeport Brass, 159  
 Brissenden, W. G., 179, 182, 184,  
     194  
 British America Nickel, 96  
 British Metals, 121, 159  
 Broché, Bill, 91  
 Brooks, John H., 38  
 Brosseau, Alfred J., 38  
 Bryden, Bob, 18  
 Brynelsen, B. O., 202  
 Bucher, John L., 23, 24  
 Burgess, J. C., 125  
  
 Campbell Chibougamau, 198  
 Canada Wire and Cable Company,  
     Limited, 121, 159, 190, 201  
 Canadian Comstock, 189  
 Canadian Copper Refiners Limited,  
     115, 141, 159, 201  
 Canadian National Railways, 83-6  
 Canadian Pacific Railway, 83  
 Carter, J. A., 125  
 Chadbourne, H. W., 30, 35, 37-8,  
     40-1, 50, 51, 65, 73, 87, 89, 99-  
     100, 110, 120, 136  
 Chadbourne, Thomas L., 38, 51-2,  
     87, 110, 136  
 Chadbourne claim, 45, 47, 56, 57-8,  
     62, 123, 148  
 Chalcopryite, 9, 62  
 Chambers, McQuigge and McCaffrey  
     Company, Limited, 86  
 Champlain, Samuel de, 168  
 Charlebois, Edward, 73



- Cheminis, 66  
 Chibougamau, 198  
 Churches, 94-5, 108  
 Clark, C. W., 161  
 Cobalt, 17-19, 26  
 Cockeram, Arthur, 44, 45, 47  
 Cockeram, Bob, 45, 47  
 Coleraine Mine, 9  
 Coll, Harry, 126  
 Concentration plant, 117  
 Connell, F. M., 120, 146  
 Coniagas Mines, 26  
 Consolidated Smelters, 144  
 Continental Drilling Company, 173  
 Continental Mines, Limited, 39  
 Copeman, Joseph, 125  
 Copper, 8-9, 59-60, 60-1, 62, 63,  
 64-5, 80, 99, 106, 109, 113, 114,  
 115, 119, 121, 122, 123, 128,  
 141, 158, 174, 183, 188, 204  
 Copper Mountain, 168, 171, 172,  
 174-94  
 Copper sulphate, 141, 161  
 Corey, William E., 39  
 Cottrell plant, 121  
 Craig, Ernest, 109  
 Crawley and McCracken, 180, 186  
 Cyanide mill, 128  
  
 D'Amour, 144, 145  
 De Martigny and Bruneau, 108  
 Dennis, B. T., 172  
 Dubreuil, Jules, 126  
 Ducharme, D. O., 72, 73  
 Duhamel, Emile, 185  
 Dumoulin, Postmaster, 70  
 Dupuis, 95  
  
 Electric power, 98-9, 177, 189-91,  
 204  
 Ellsworth, A. L., 110  
 Empresa Mine, 201  
 Eustis Mine, 8  
 Fleming, D., 24  
 Fletcher, L. K., 42-3, 46, 56, 57,  
 58, 73, 80, 89, 90, 140  
  
 Flin Flon Mine, 202  
 Foley Brothers, Incorporated, 86  
 Fortin, Joachim, 72  
 Fortune, Lake, 60  
 Foster, C. A. (Clem), 18  
 Foundation Company of Canada,  
 182, 189  
  
 Gagné, R., 72  
 Gambles, the, 70  
 Gaspé, 7, 148, 167-94  
 Gaspé, town of, 177-8, 186  
 Gaspé Copper, 154, 172-94, 201  
 Geco, 198, 203-4  
 General Engineering Company, 203  
 Gillis, J. H., 97-8  
 Gold, 8, 9, 25, 29, 59, 60-1, 62, 63,  
 64-5, 80, 99, 106, 114, 115, 116,  
 119, 121, 122, 123, 128, 146,  
 147, 158, 188  
 Graham, Peter, 30, 40  
 Graton, L. C., 204  
 Green, Jimmie, 70  
  
 Haileybury, 18, 20, 22, 26, 27, 56,  
 82  
 Hall, John, 194  
 Hall, Oliver, 136, 141-3, 145, 146,  
 147, 155, 175, 176, 182, 194  
 Hallnor Mines, Limited, 142, 146-7,  
 148, 201  
 Hammond, John Hayes, 36  
 Haskell, Harry G., 13, 38, 87, 110  
 Hay, T. N., 145  
 Hébert, Frédéric, 109  
 Hellman, 39  
 Hibbert, Ernest, 88-90, 91-2, 93,  
 96, 106, 107-8, 113-14, 119, 125,  
 129-30, 136, 145, 146  
 Hill, Len, 24, 40  
 Hogg, A., 92  
 Holden, John B., 39, 50  
 Hollinger Mines, 17, 50, 51, 87-8,  
 110, 116, 124  
 Horne, Edmund, 6, 15-32, 40, 135  
 Horne claim, 26

- Horne Copper Corporation, 81-2,  
 87-8, 116  
 Hudson Bay Mining and Smelting,  
 141  
  
 I.O.D.E., 131  
 Iron sinter, 159, 160, 200  
  
 Jones, I. W., 169, 170, 172  
  
 Keweenaw Silver Mines, 140  
 Kekikoo Lake, 28  
 Kerr-Addison, 201  
 Kinsmen, 132  
 Kirkland Lake, 17, 20, 22, 39, 67  
 Kirkwood, J., 24  
 Kiwanis Club, 131  
 Knights of Columbus, 132  
 Knox, Stanley, 186  
  
 Labour force, 36, 106, 156-7, 182,  
 184  
 La Ferté, A. A., 73  
 La India Mine, 142, 201  
 Lake Fortune, 9  
 Lambert, Amos, 126  
 La Palme, 144, 145  
 La Palme Mine, 144  
 Larivière, N. E., 72  
 Lead, 10  
 Leggatt, Thomas H., 36  
 Lescarbot, Marc, 168  
 Linklater, Ernest, 90-2, 95, 96, 134,  
 135  
 Linklater, Mrs. Ernest, 91  
 Linklater, James, 26  
 Lions Club, 132  
 Little, Walter, 90  
 Long Lake, 28  
 Loyal Order of Moose, 132  
 Lynn Lake, 198  
  
 Macaulay, R. M., 145  
 McDonald, R., 125  
 Macdonald Mines Limited, 200, 201  
 McDonnell, Bert, 19-20  
  
 McGerrigle, H. W., 169, 170  
 Mackay, 66  
 McLachlan, C. G., 117  
 McManus, T. J., 73, 125  
 Makamic, 66  
 Marcelline, Sister, 95, 134, 135  
 Medical facilities, 91-2, 95-6,  
 134-5, 186  
 Megantic Mining Company, 8  
 Menard, A., 73  
 Metz, John, 184, 194  
 Mica, 9  
 Mildred, Sister, 95  
 Miller, Alfred & family, 171  
 Miller, Ed, 23, 24-9  
 Miller claim, 26  
 Mining Corporation of Canada, 200,  
 201, 203  
 Mont Louis, 177-8, 187  
 Montigny, Lac de, 9  
 Morin, Oscar, 72  
 Morrison, J. W., 29-30, 40  
 Murdoch, James Y., 39, 49-52, 73,  
 82, 85, 87, 99-100, 108, 110,  
 125, 136, 145, 146, 149, 153,  
 155, 158, 162, 164, 172, 174,  
 176, 192  
 Murdochville, 176, 182, 183-4,  
 185, 188-9  
  
 National Research Council, 160  
 National Transcontinental Branch  
 Lines Railway Company, 86  
 Needle Mountain, 173, 174-94  
 Neelands, E. W., 92  
 New Liskeard, 21, 22-3, 24, 26, 27,  
 28  
 Newspaper, 78-9, 189  
 Nicaragua, 147, 201  
 Nichols Copper, 121  
 Nipissing Central, 86  
 Nipissing Mining Company Limited,  
 56  
 "Noranda", 52  
 Noranda, town of, 7, 73, 78, 92-3,  
 108-9, 125-6, 135



- Noranda Copper and Brass, 159, 201  
 Noranda Mines, Limited—formation, 51-2  
 Normetal, 201  
 North American Cyanamid, 160  
 Northern Canada Power Company, 98-9  
 Northern Mystery Lake, 202-3
- Oakes, Harry, 17, 22  
 O'Brien, M. J., Limited, 29, 44  
 O'Brien, 85, 86  
 O'Grady, H., 23  
 Oil, 169-70  
 Olier, 9  
 Opasatika, Lake, 66  
 Opemiska Copper, 198  
 Orebody A, 61, 62  
   B, 61, 62, 63  
   C, 61, 63  
   D, 60, 62, 63  
   E, 63  
   F, 63  
   G, 64  
   H, 64, 80, 114-15, 118, 120, 122, 127  
 Orick, Nick, 62  
 Osisko, Lake, 7, 18, 19, 21, 24, *et seq.*  
 Ottawa-Kinojevis River route, 18, 20, 25, 49, 66, 77, 91
- Paine, F. Ward, 38  
 Pamour Mine, 142, 148, 201  
 Pamour Porcupine Mines, 145-6  
 Pankhurst, Gerry, 189  
 Pascalis, 141  
 Patry, Mrs. Georges, 186  
 Pelletier, Father Albert, 93-5, 96, 126  
 Pelletier Lake, 19, 28  
 Perrault, Hon. J. E., 65-7, 85, 136  
 Phelps Dodge Refining, 141, 159  
 Phippen, Hon. F. H., 110, 136  
 Pinder, Nelson, 70, 71, 72, 83  
 Plata Mines, 140
- Pomeroy, Robert W., 38  
 Porcupine, 17  
 Porcupine-Creek claim, 146  
 Porcupine Grande Mine, 144  
 Porritt, R. V., 88, 97, 109, 140, 182-3, 194  
 Poulet-Veteran claim, 146  
 Powell, 44-5  
 Powell claim, 46, 47, 56-7, 147-8  
 Powell-Rouyn Gold Mines, 57  
 Prévert, 168  
 Price, Peter, 201  
 Prichard and Lively, 80  
 Prospectors' Airways, 201  
 Pyrite, 9, 128, 159-60, 199, 200, 201
- Quebec, Government of, 84-6, 109  
   mining history of, 7-10  
 Quebec Gold, 144-5  
 Quemont, 201
- Railroads, 77, 82-6, 198, 204  
 Ralston, Hon. J. L., 155  
 Recreation, 131-3  
 Reddington, 26  
 Redpath, J. C., 24  
 Refinery, 121, 124, 141  
 Renault, 9  
 Rheume, Mgr., 93-4  
 Rhyolite, 19, 21, 24, 25, 118, 123  
 Richmond, 18, 22  
 Rimouski, 190  
 Roads, 66-7, 70-1, 104, 176-7, 179, 180-1, 184  
 Rockefeller, Percy A., 38, 87, 110  
 Roscoe, H. L., 88, 96-7, 105, 108, 113-14, 118-19, 136  
 Rosebury Lake, 45  
 Routhier Lake, 18, 20  
 Rouyn, town of, 7, 68-73, 78-9, 93-6, 124-5, 133-4  
 Rouyn Lake, 18, 20, 28  
 Rouyn Mines Railway Company, 85-6  
 Rudd, M. S. K., 72, 95, 134

- Saucier, P., 125  
 Saumier, A. J. B., 125, 126  
 Scarth, H. C., 126  
 Schools, 93, 95, 96, 125-6, 134, 184  
 Scott, Fenton, 189  
 Selenium, 141, 161  
 Shickshock Mountains, 167, 168, 171, 173  
 Silver, 116, 119, 123, 128, 204  
 Siscoe Mine, 10  
 Slaght, H. L., 40-1  
 Smelter, 89-90, 103, 116, 123, 177, 198  
 Smith and Travers drills, 56, 58, 59  
 Solomon, Dave, 21-2  
 Soulard, Paul Henri, 126  
 Stafford-Carey, Mrs., 91  
 Staking, 25, 25-6, 28, 45, 48, 55  
 Stanley, Robert, 89  
 Stovel, J. V., Jr., 197  
 Sullivan, Charles, 72, 73  
 Sullivan, J. J., 9  
 Sulphur, 159, 160, 200  
 Sulphur dioxide, 159, 160  
 Sulphuric acid, 199
- Taschereau, 77, 85  
 Taylor, James, 23  
 Temiskaming, Lake, 27  
 T. & N. O. Railway, 67, 83  
 Tetreault Mine, 10  
 Thetford mine, 9  
 Thomson, S. C., 30, 35, 36-7, 42, 43, 50, 58, 73, 87, 89, 110, 136  
 Thomson-Chadbourne syndicate, 38-52  
 Thompson, William Boyce, 38-9  
 Thornton, Sir Henry, 83  
 Three Nations Mine, 144, 145-6  
 Timmins, Jules R., 145  
 Timmins, Leo, 136, 146
- Timmins, Noah, 39, 83, 87, 110, 136  
 Timmins, N. A. and N. A., Inc., 110  
 Torbrit, 201  
 Tough-Oakes (Toburn) Mine, 39  
 Towagmac Exploration Company, 115, 141  
 Tremoy syndicate, 23-32, 40-2, 81-2  
 Turnback Lake, 18, 22
- United Kirkland, 39, 43
- Varette, John, 23-4  
 Varette, O. E., 24  
 Ville Marie, 24, 25, 28, 45, 49
- Waite, J. H. C., 43-4, 46, 47, 48, 56  
 Waite Mine, 110, 117  
 Waite-Ackerman-Montgomery, 109, 115, 140, 141, 143  
 Waite-Amulet Mine, 142, 143-4, 148, 153-4, 182, 200, 201  
 Wallace, Hugh C., 38  
 Walton, W. S., 110  
 Welland processing plant, 159-60, 199, 201  
 Wentworth, Henry A., 29  
 West Macdonald Mines, 200  
 Wheeler, A. E., 97-8  
 Woodward, Presscott, 27-8  
 World War I, 20-2  
 World War II, 148, 149-64  
 Wright, 17  
 Wright-Hargreaves Mine, 17, 51  
 Wurts, Pierre Jay, 39
- York River, 169  
 Youville Hospital, 135  
 Yukon, 203
- Zinc, 10, 99, 109, 117, 154, 200, 204  
 Zone 5, 197, 199



*Noranda*

WAS SET IN LINOTYPE GRANJON 12 ON 13, PRINTED AND BOUND  
BY J. W. DEYELL PRINTERS LIMITED, LINDSAY, ONTARIO.

ILLUSTRATIONS BY COURTESY OF DIRECTORS AND OFFICERS OF  
NORANDA MINES, LIMITED

FRONTISPIECE BY ASHLEY & CRIPPEN

JACKET FROM AN OIL PAINTING BY A. J. CASSON

SKETCHES BY THOREAU MACDONALD

TITLE PAGE BY NANCY CAUDLE

|                        |                |
|------------------------|----------------|
| Aux. Good Samaritan    | Hardisty       |
| Dr. Angus McGugan      | Jubilee        |
| Central Park           | Ottewell       |
| Good Samaritan Mt. Pl. | Parkland North |
| Good Samaritan South   | Parkland South |
| Grandview              | St. Joseph's   |
| Veterans               |                |

NOT-IN SERVICE