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Beauty Is Not "Only Skin Deep"

(STORY ON PAGE 11)



"A major force behind the growth of nickel as a product and of Inco as a company during this century has been International Nickel's marketing staff." — President A. P. Gagnebin.

Marketing Nickel — Today and Tomorrow

WITH current supply and demand for nickel in balance, and competition among the free world nickel producers and competitive material manufacturers increasing, Inco's marketing organization throughout the world is stepping up its activities to broaden the applications for the use of Inco nickel.

To learn more about the Company's marketing efforts, the Triangle interviewed John O. Hitchcock, vice-president — international marketing.

TRIANGLE: Since primary nickel by itself has little utility, how does the marketing group go about building markets for nickel?

HITCHCOCK: When you speak of the marketing group, you are actually referring to three major activities undertaken by Inco on a world wide basis: Product Research and Development, Market Development, and Nickel Sales, all of which work closely together to expand the overall market for nickel.

The Product Research and Development Department's major responsibility is to develop nickel-containing products that will provide an improvement of an existing alloy, meet an engineering need that cannot be met with presently existing materials, or enable a fabricator to build a better product at the same cost, or the same product at a lower cost. This department, which has a staff of some 700 persons in laboratories and offices in Canada, the United Kingdom and the United States, also develops, compiles and communicates technical data on all major nickel-containing alloys to enable potential customers to select the ones suitable to their needs.



John Hitchcock

Now the Market Development Department works directly with end-users of nickel to expand existing applications and to develop new applications for established nickel-containing alloys, and to determine the need for the development of entirely new nickel-containing materials. We have a staff of nearly 300 persons located in most of the free world's major industrial centres. About half of these people are engineers or scientists.

The Sales Department's activities throughout the free world involve a most important function — translating all our primary nickel activities into revenue. This department is continually assessing trends in new products, marketing objectives, changes in processes, economic factors, competitive influences and, in short, all the factors that may have a bearing on the market for nickel.

TRIANGLE: From the coordinated efforts of these departments, then, you formulate your advertising and publicity strategy?

HITCHCOCK: All our marketing activities are supported by a carefully integrated advertising and promotional program using television, newspapers, magazines, radio, trade and industrial exhibits, special company publications and motion pictures. Besides English, some of this material is produced in French, Italian, Dutch, German, Swedish, Spanish, Portuguese and Japanese. In this way, industries at home and in foreign countries are kept informed about Inco products and developments.

TRIANGLE: What is the largest market for nickel-containing products?

HITCHCOCK: Stainless steel is by far the leader throughout the world. Almost 40% of the world's nickel is now used to make stainless steel.

TRIANGLE: Is this a trend you see continuing in the 1970's?

HITCHCOCK: Definitely. For the existing grades of stainless

steel, our market studies show a growing demand from industries, particularly the chemical, petroleum and process industries, that have special needs for the ability of stainless steel to resist corrosion and retain its strength at high temperatures.

We also see potential new uses for stainless in the transportation and building markets for which higher-strength stainless is needed, and which our Product Research and Development Department is working to develop. At the same time, new design concepts are being developed to enable the use of existing stainless steel in those applications.

TRIANGLE: What about other nickel-containing alloys, particularly those with significant amounts of nickel?

HITCHCOCK: High-nickel alloys represent a fast-growing market for our product. In fact, last year high-nickel alloys rose to second place among uses of nickel. Much of the credit is due again to our Product Research and Development group's intensive efforts in inventing a host of high-nickel alloys designed for high-temperature and corrosion resistance services. One of the most recent inventions of the group has been mechanical alloying. This is a method by which nickel powders are used to produce superalloys with a markedly superior combination of high and intermediate temperature properties so important in jet engine use.

TRIANGLE: Would you say then because of the emphasis Inco places on product research and development that this has given us a competitive advantage in the world marketplace?

HITCHCOCK: Yes, although there are more competitive producers of nickel than ever before, another important factor is the number of products we produce. Most of our competitors produce only one or two nickel products. Inco, as you know, produces a wide range of primary nickel products to satisfy the needs of our customers. In addition to all three forms of primary nickel — electrolytic, pellets and powder — we produce nickel oxide sinters, nickel anodes and S nickel for plating and various foundry alloys.

TRIANGLE: What about the competition from other metals?

HITCHCOCK: Nickel has unique properties not found in other metals, and economic substitutes are not easy to come by. However, there are areas of competition — in certain applications.



"Gives us a competitive advantage."

Aluminum, for example, competes with nickel stainless steel in the transportation field and in other important market areas such as architecture and consumer products. We also face increasing competition from glass, plastics, concrete and titanium, and competition from other alloying elements such as chromium, manganese and molybdenum.

During the nickel shortage some industrial groups made attempts to downgrade alloys by reducing nickel content. However, with nickel available we expect to regain many of the markets we may have lost in this area.

TRIANGLE: What about the other products we produce besides nickel?

HITCHCOCK: Nickel, of course, is our most important product, and most interesting from a marketing viewpoint. Although there are 14 by-products arising out of our nickel operations, I don't think we have time to get into these in any detail. However, I will touch briefly on the copper situation, which is experiencing an over-supply at the moment and has declined in price. We are not too happy about that, but since we produce only a relatively small percentage of the free world's refined copper, we have an assured market of long standing.

TRIANGLE: The importance of nickel uses in a wide variety of applications would appear to indicate it has a strong growth position. How do you view the future?

HITCHCOCK: I see a strong and continued growth, particularly in applications controlled by advancing technologies where performance is the overriding consideration. But you must also remember there are other markets, chiefly those more easily upset by price dislocations and styling changes, that may experience a slower growth rate. In addition there are also other factors such as the growth of the economy in North America and throughout the world; competitive nickel producers; substitute materials; new nickel finds; labor problems; taxation laws and regulations applicable to mining.

So you can see there are a number of unknown variables affecting the future of nickel and of Inco. But even considering all negative aspects, I'm optimistic that a metal with such value in today's technological world will have a bright future if we work hard to capitalize on the new opportunities in the '70s.



"I see a strong and continued growth."



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INCO FAMILY ALBUM



RON LEBEL started with the Company in 1966 at Creighton No. 3 mine, but is now a shift boss at Clarabelle open pit. His wife, Brenda, is originally from Schumacher, near Timmins, and Ron from Mattawa, east of North Bay. Their "two little terrors" are Maurice, 4, and Ron Jr., 2. Dad enjoys anything mechanical, and prior to coming with Inco was an operator of heavy construction machinery. The Lebels live in Lively.



HENRY NAN was 16 when his family left the north of Holland for Canada. Another family left the south of Holland at the same time; they had a 12-year-old daughter named Mary. The two families crossed the Atlantic from Rotterdam on the Volendam. Ten years later, a mutual friend introduced Mary and Henry, and they were married the following year. Henry joined Inco at Port Colborne in 1951; he was promoted to foreman, shearing, in 1966. Their four children Jerry, 9, Shirley, 8, Richard, 7, and Kenneth, 5, are an active lot. Both Henry and his wife enjoy bowling.



GILLES NADON works as a feeder helper on the Coniston smelter charge floor and is in his fifth year with the Company. His wife Madeleine came from Warren, and Gilles from Noelville. Their two little daughters, Lynn and Lise, are 14 months and 4 months, respectively. Gilles still finds plenty of fish and fowl in some of his old French River hunting haunts. The Nadons live in Coniston.



COLIN WHYATT, a driller on 2800 level at Creighton No. 3, started with the Company in July last year and was joined by his wife Winnie and family from Newfoundland just in time for Christmas. Little Oliver is just six months old while his sisters, Denise and Drema, are 2½ and 3½, respectively. The Whyatts are living in Nairn, where Colin is close to good hunting and fishing.



MIKE MCGUIRE and his wife Theresa were half expecting Santa to drop into their Long Lake home with a very special bundle. But it was a real surprise when old St. Nick brought along a set of twins, Jennifer and James, right on Christmas Day. Little 2-year-old Marian thinks they're just fine. Mike started with the Company in 1964 and is a 2nd class electrician at Stobie. His recreations include hunting, fishing and snowmobiling. Mike's father, the late Jimmy McGuire, worked on tailings line at Copper Cliff and was an Inco Quarter Century Club member.

CHARLIE O'REILLY is a second-generation Copper Cliff resident and Inco employee; his father, the late Charles O'Reilly, was a baseball star of the Bert Flynn era. Charlie Jr. is a first class electrician, and will join the Quarter Century Club this year. His wife was Colleen Reilly of Creighton. Their charming children are Cathy, 11, Karen, 9, and Janice, 7. They have a cottage at Birch Island for summer relaxation.





INCO IS A PLACE

*Broad Range of Opportunities
Available to Hourly Employees*

Upgraded Himself for University Course

A stope leader at Creighton mine, Ray Rammul took advantage of Inco's secondary school upgrading program, successfully completed grades 9 to 12 in just over a year, and is now studying grade 13 math and chemistry. This assistance qualified him to enrol at Laurentian University, aiming at a bachelor of science degree in geology. He works a steady graveyard shift to keep up with his self-improvement program. An Inco employee since 1951, Ray is 42. He's seen here on campus at Laurentian.

Inco is a place to grow, if a man wants to upgrade himself to higher levels of responsibility and pay. A program of training for hourly rated employees, formalized and greatly broadened in scope, has been steadily gathering momentum since it was inaugurated last May. It offers opportunities for everyone.

Incorporated in the "training articles" of the current collective bargaining agreement between the Company and the Union, the program is administered by the industrial relations and personnel department's hourly employee training branch.

How to get in on the action? Any employee wishing to take trade training or a home-study course should apply at his local personnel office. For operating department employees, training opportunities are publicized through the regular job postings on the mine or plant bulletin boards.

Supervisor Graham Byers puts the program's objectives briefly: "To provide employees with opportunities and incentives to improve their qualifications, and to develop the trained manpower



Qualifying for 4th Class Certificate

John Bond is a stationary engineer trainee. When he completes the one-year course of on-the-job training and night school study he will be qualified to write the provincial government exam for his 4th class certificate. Shown on the job in the iron ore plant powerhouse, John is getting instruction in turbine start-up procedures from utilities superintendent Alf Kaelas.



Night School for Garage Mechanics

Gathered around a diesel engine supplied by the Company in the automotive shop at Lockerby Composite School in Sudbury are instructor Bill St. Pierre and Inco garage mechanic apprentices Wally Moore, Creighton; Bob Huzij, Copper Cliff North; Doug Korpseil, Levack; Bruno Rivet, Creighton, and Keith MacLean, Levack. They are part of a class of 18 Inco apprentices who attend evening sessions twice weekly at the school for a two-year course.

TO GROW

for the current and future needs of the Company."

Financially Assisted

These objectives are met by short-term "on-the-job" training in the case of production workers, and long-term "on-the-job" programs combined with supplementary study courses for tradesmen and stationary and powerhouse engineers.

Additionally, personal-enrichment type courses may be taken by anyone, which if work-related, and with prior approval, may qualify for financial assistance from the Company.

Where apprentices, tradesmen, and stationary and powerhouse engineers are concerned, each participant in an approved training program is eligible for subsidies amounting to half the cost of tuition, plus half the standard hours for the prescribed course at the employee's applicable rate of pay.

Home-study correspondence courses, and night school or regular curriculum instruction at local Secondary Schools, Cambrian College, and Laurentian University are among the approved sources of work-related supplementary studies qualifying for financial assistance from the Company under the broad range of the program.

"Extremely Important"

For personnel in the operating and auxiliary departments, formal "on-the-job" training is provided for certain higher-rated occupational classifications. Examples of the types of jobs included in this category are crane-men, skimmers, double-drum hoistmen, diesel loadermen, kiln operators, arc furnacemen, special inspectors, to name a few. "The importance of this training cannot be overstressed," says Graham Byers. "The increasing sophistication of plant and mine machinery, the trend to mobility in some areas, and the number of young employees in the work force are reasons why formal training programs are so essential. Each of our training programs is carefully designed to properly qualify the trainee for the particular new job he is seeking."

Following is a list of training programs now available to all maintenance department employees, including electrical:

Apprenticeships: instrument man, maintenance electrician, lead welder, winder, machinist, patternmaker, plateworker, garage mechanic;

Upgrading training: maintenance electrician, from 2nd to 1st class; maintenance mechanic, from helper through to 1st class; rigger, blacksmith, carpenter, and welder, helper to 2nd class;

(Continued on Page 6)



Burning the Midnight Oil

Following one year of on-the-job training, and completion of a home-study course covering structural steel blueprint reading, belt power transmission, air compressors and workshop practices, Rudy Saal of Copper Cliff will have up-graded himself from 2nd to 1st class maintenance mechanic. Born in 1929, Rudy is seen at his basement study drawing board.



Learning Double-Drum Hoist

Previously a driller, and now taking part in the Company's general training program, John Mayhew (seated) is a double-drum hoistman trainee at Froid mine. Part way through the three-week training period, he's shown with his instructor, long-time hoistman Bill Doherty. John will be 33 in May.



In Final Apprenticeship Year

In his fourth year as a motor winder apprentice, 23-year-old Brian Vellow started his training in 1966. He has completed a home-study electrical course. He is shown with Copper Cliff winding shop foreman Howard Thomson during instruction on armature re-conditioning.



Becoming a Diesel Loaderman

A diesel loaderman trainee, 25-year-old Roger Jean is seen at the controls of a load-haul-dump machine while taking the two-week course at Froid mine. Previously a driller at Stobie, Roger is receiving instruction from diesel equipment shift boss Ray Desloges.

Leaders Confer on Program's Progress

Reviewing the progress of the Company's hourly employee training program in this picture are maintenance training co-ordinator Sid Stone, copper refinery training co-ordinator John Moland, hourly employee training supervisor Graham Byers, apprentice training administrator Alex Skelly, and mines department training co-ordinator Bill Cushing.





Instal 42-Ton Prefab Gallery

In a feat of unusual manipulation and balance, a 42-ton prefabricated conveyor gallery, 190 feet long by 9 feet in diameter, was installed 160 feet above ground between two buildings at the Inco nickel refinery under construction at Copper Cliff.

The assembly was shipped to the refinery site in three sections which were then welded together. It was "walked" to the hoisting area by the 50- and 140-ton capacity crawler cranes seen on the right in the picture, which was taken as a third crane was being brought into the action to hoist the

unit into position. A windless day was necessary.

The gallery will contain a walkway and two 18-inch belt conveyors that will carry granular metallic feed from the refinery's reactor building (left) to the converter building.

Fabricated from 5/16-inch thick Corten, a rust-inhibiting nickel and copper bearing steel alloy, the gallery can withstand the rigors of the elements without the protection of paint, thereby eliminating a regular costly and hazardous maintenance operation.

New \$3.6-Million Plant Announced At Port Colborne

Construction of a \$3.6 million plant at Inco's nickel refining complex at Port Colborne, to produce nickel additives for the foundry industry, was announced February 4 by Henry S. Wingate, chairman and chief officer of the Company.

Work on the facility will begin later this year, with start-up of production scheduled for mid-1972.

The initial annual production rate is programmed at 14 million pounds of "F" Nickel shot, and of Inco's two regular grades of nickel-magnesium—NMA No. 1 with 80% nickel and NMSA No. 2 with 50% nickel. The plant will eventually have an annual planned capacity of 25 million pounds. The nickel-magnesium additives will be new products for the Port Colborne refinery.

At the present time International Nickel is producing additives for the foundry industry in the United States and in England, and at Port Colborne's existing "F" Nickel production facilities.

Latest Techniques

The new alloy plant will utilize the latest advances in electric induction furnaces, casting techniques and materials handling equipment. Of the facility's \$3.6 million estimated cost, \$500,000 has been allocated for dust and fume collecting equipment.

The steady growth in production and the worldwide acceptance of ductile iron since its introduction in 1949 have necessitated a compensating expansion of facilities by suppliers of the vital nickel-magnesium additives. Today, such products as engine castings, waterworks equipment and large machine parts benefit from the advantages peculiar to ductile iron.

An egoist is one who thinks that, if he hadn't been born, people would wonder why.



Gerry Wallace recently conducted a clinic at the Sudbury Arena on behalf of the Sudbury Parks and Recreation commission, for whom he acts as supervisor of officials' training. Here he demonstrates the advantages of the blue line kneeling vantage point for calling down offside passes. Other such NOHA-sanctioned clinics were held in Espanola, Chelmsford and Capreol. A total of about 150 trainees participated in the clinics.

GERRY'S HOCKEY CLINICS FOR BUDDING OFFICIALS BIG BOON

As the population booms in the Sudbury district, more and more kids are playing hockey and a proportionate need for competent officials results.

Faced with this situation, recreation organizers make it a habit of inviting Gerry Wallace to their areas to hold clinics at which prospective hockey officials soak up some of the savvy that Gerry has acquired in his 28 years as a local sports arbiter.

Although a large proportion of any clinic's curriculum is devoted to learning effective execution of the rule book, using NHL refereeing techniques, emphasis is also placed on the trainees' deportment on and off the ice and their importance in determining hockey's overall public image. This latter

perspective brings back to hockey people who might not be suited to the rigors of player involvement, but who do have the ability to ensure that a game goes according to the rule book.

Hockey officiating can now be a highly remunerative professional career: local boys Ron Wicks, Dave Newell and Dale Jones, who have all absorbed large doses of Gerry's advice, are career officials in the "big leagues" and are earning the respect of players and public alike. But the clinics don't function just to prepare a handful of local officials for careers; rather, their aim is to improve the calibre of local officiating.

Gerry is a well-known member of the metals section in the Copper Cliff accounting department.

A PLACE TO GROW

(Continued from Page 5)

Stationary and powerhouse engineers: from 4th class through to 1st class certification.

School Upgrading

In addition, Mr. Byers said, a course in Secondary School upgrading, grades 9 to 12 inclusive, is available locally for anyone, including trade helpers, who at the present time is unable to meet the admission requirements for the apprenticeship training program.

Apprenticeships, with one exception, are of four years' duration; the exception is garage mechanic, which is three years.

Upgrading training programs are one-year courses, except for maintenance electrician 1st class, which covers two years. Stationary engineer training time is consistent with current requirements of the Operating Engineers Act.

Induction training of new employees, already a well-established and smoothly operating plan, is especially safety-oriented. This training, which takes place at mines and surface plants under specially assigned supervision, is designed to familiarize the new employee with his work environment and the methods and equipment involved, to make him knowledgeable in the fundamentals of accident prevention.

"Exciting Challenges"

"The years ahead will offer exciting challenges to our Company in which we will all be involved," Graham stated. "Today's increasingly complex world not only presents challenges—it greatly broadens the range of opportunities, and our aim is to make it possible for hourly rated employees to realize their full personal potential in the great developments now taking place or planned for the future."



NOCA Victors

In the blue-ribbon event of the curling season, the 128-rink annual Northern Ontario Curling Association bonspiel, the lion's share of the foot went to clubs from outside the Sudbury area. Dallas King of Sault Ste. Marie won the Inco trophy and went on to capture the grand aggregate after a close battle with Coniston's Dumontelle, Doran trophy winner shown above (1), Don Dumontelle, Ed Trill, Leo Boyer, Wayne Rodney. Two other victorious local rinks were from the Copper Cliff club: (2) Bob Miller, George Burns, Doug Gathercole, Chick McDonald (Algoma trophy) and (3) John Woznow, Dick Bruser, Ed Gatien, Larry Souliere (George Tate trophy). Inco pensioner Gordon Harry was right in his element as expeditor of the big 'spiel, which was hosted by the Sudbury Curling Club.

Wayne Beemler



With palette knife Creighton miner-artist-author Arnold Sinkis puts the realistic finishing touches to one of his popular landscapes.

Creighton Miner Doubles As Artist and Author too

It doesn't take a visitor long to become aware of the artistic talent of Arnold Sinkis. Much of the interior of his Walford Road home in Sudbury reflects his skill with the brush. As well as the many oil landscapes and still-life studies that can be admired, most of the walls in the house have been painstakingly hand-painted in a very pleasing pattern by the jack-leg driller from Creighton No. 5 mine, where he started with Inco in 1952.

His studio is located downstairs in his home and here one sees paintings in various stages of completion. Arnold works with oils, and favors landscapes and floral displays. He often chooses his subjects from his own lovely garden.

Became Author Too

Born at Bauska, in southern Latvia, Arnold started sketching and painting as a hobby when he was 18, and also became a budding writer. It was during nine months of postwar internment in Belgium that he began to write in earnest and in 1952, the year he came to Canada, he had a

two-volume 500-page collection of war memoirs published. Concentrating on the Latvian involvement in World War 2, and especially that country's attempts to retain its western areas in the postwar shakeup, the book was published in Germany for free-world distribution to Latvians. A second book, still in the writing and to be published in a year, describes attempts to control and annihilate the Latvian army at the end of the war. Excerpts of Arnold's first book have appeared in Latvian Canadian and American magazines and newspapers.

To achieve additional realism in his landscapes, Arnold applies oils with a knife to build up depth in the painting. Sales of his work have not been restricted to the local market — Toronto and New York people own Sinkis paintings. Two of his landscapes depicting snow scenes were recently sent to relatives in India by art-lovers, perhaps as proof of all that snow.

Arnold is married and has a son Art, who is 12. His wife, Olga, also originally from Latvia, works on the pediatrics floor at the Sudbury General hospital.

Romeo Houle Top Skip In Frood-Stobie 'Spiel

Romeo Houle skipped his rink of Gord Kutschke, Don Gauthier and Larry Courville to the top prize in the annual bonspiel of the Frood-Stobie Athletic Association, held at the Copper Cliff curling rink. In presenting them with the association trophy and electric fry pans, Sid Sheehan praised the committee in charge and the fine spirit of fellowship that prevailed throughout the popular meet.

Winners of the second event

were skip Con Jarrett with Rod McDonald, Garry Prior and Jack Guest, while the third event honors went to skip Harry Edwards with Sam Samaniuk, Ron Chapados, and Aurilio Petracchi. They received their prizes, classy pen and pencil sets, from Bill Collis and Ted Flanagan.

Five rinks, skipped by P. Morrison, M. Mulloy, F. Birchall, G. Milne and D. Horne, picked off a glittering array of hidden prizes.

Dick Williams handled the 32-rink draw, and Eldred Dickie headed up the committee of Bill Collis, Bill Prince, Nick Haggerty, Matt Heindl and Fred O'Hagen.

HAIL AND FAREWELL!



The warm esteem in which Jack and Irene Pigott are held in the Sudbury district was evidenced by the capacity gathering at the Holiday Inn to bid them farewell on their departure for Toronto. They are shown here with Don Fraser, Gar Green and Gordon Machum, who presented them with a pair of table lamps and a Charles Paxy carving depicting Mr. Pigott in his days as a Creighton miner, standing in front of the old No. 3 shaft headframe. After over 30 years in the Inco Sudbury operations, Mr. Pigott transfers to Toronto as vice-president for operations.



The occasion also provided the opportunity to welcome John McCreedy and his wife Ila on their return after three years' residence in Thompson, where he was general manager of the Manitoba division. Mr. McCreedy, also an Inco vice-president since February 1970, succeeds Mr. Pigott as general manager of Ontario division.

Pipe Development Biggest Of Inco Expansion Mines

By Michael Hartley

Initially scheduled for 10,500 tons per day, to increase to 15,000 by 1972, the Pipe development 20 miles south-west of Thompson, Manitoba, is the largest single mining project in International Nickel's current expansion program.

The vast Pipe open pit, which the Company took over last month from the contractors who stripped off almost 13 million tons of rock in preparing the site for mining, is 2,200 feet long by 1,600 feet wide. When completed it will have eighteen 40-foot benches forming an overall pit slope of 45 degrees, and will bottom out at a depth of 720 feet.

Phase-in Underground

As the pit nears completion the Pipe 2 underground mine will be gradually phased into production, and by 1976 will be shouldering full responsibility for the 15,000-ton daily schedule.

A smaller underground mine, Pipe 1, in a separate orebody across the pit from Pipe 2, has been developing since 1967 from the original exploratory shaft sunk in 1961 to a depth of 1,590 feet. It went into operation in January and will reach full production capacity of 1,000 tons per day next month.

Ore from the Pipe operations is brought to the milling, smelting and refining complex at Thompson by Inco's 47-mile railroad,

which will also transport production from the two shafts of the new Soab mining development. The latter is scheduled to reach full operation next midsummer with a combined output of 4,000 tons per day.

\$3 Million in Equipment

The Company has to date purchased over \$3 million worth of the latest open pit mining equipment. Forming part of the fleet are two electric rotary drills, one front-end loader with a 12-yard bucket, two electric shovels, each equipped with 8-cubic yard dipper and each capable of loading 800 tons of material per hour, and eight 65-ton haulage trucks for moving 30,000 tons of ore and rock per day in about equal quantities.

Blast holes, 9 3/4 inches in diameter, are drilled at a rate of 25 to 30 feet per hour to a depth of 47 feet. These holes spaced approximately 25 feet apart, are then loaded with explosives.

Blasted rock or ore is scooped up by the electric shovels and the front-end loader, and loaded into the haulage trucks which travel up the spiral ramp around



Fred Sheppard

One of the electric rotary drills in action at the Pipe open pit. In background towers the 275-foot concrete headframe of Pipe 2 underground mine, where sinking of the 3087-foot shaft commenced in November.

the sides of the pit on an 8% grade. The rock is dumped on a waste pile outside the pit limits. Ore is dumped into a 54-inch primary gyratory crusher, capable

of crushing 2,500 tons an hour. The crushed ore travels through conveyor galleries to the 10,000-ton terminal bin from which it is pulled through chutes to load five rail cars at a time. A spur line connects the Pipe terminal with the Thompson-Soab railway for the 22-mile trip to the Thompson plant.

Dredged Out Muskeg

Preliminary operations for open pit mining at Pipe commenced in 1967 with the removal of muskeg to depths of 160 feet. To complete this mammoth task, the Company utilized an 1,100-ton floating dredge which in two years pumped out 12.6 million cubic yards of muskeg.

In preparation for dredging, water was pumped into the area to create a dredge pond. The dredge, equipped with a cutting head, mixed the muskeg and the water into a slurry. This slurry was pumped out at a rate of 33,000 gallons a minute through a 32-inch diameter pipeline to a discharge area two miles north of the pit. Recharge water was pumped back into the dredge pond. As the elevation of the dredge pond was lowered, high pressure water sluiced stubborn clay from the rock. Rock re-



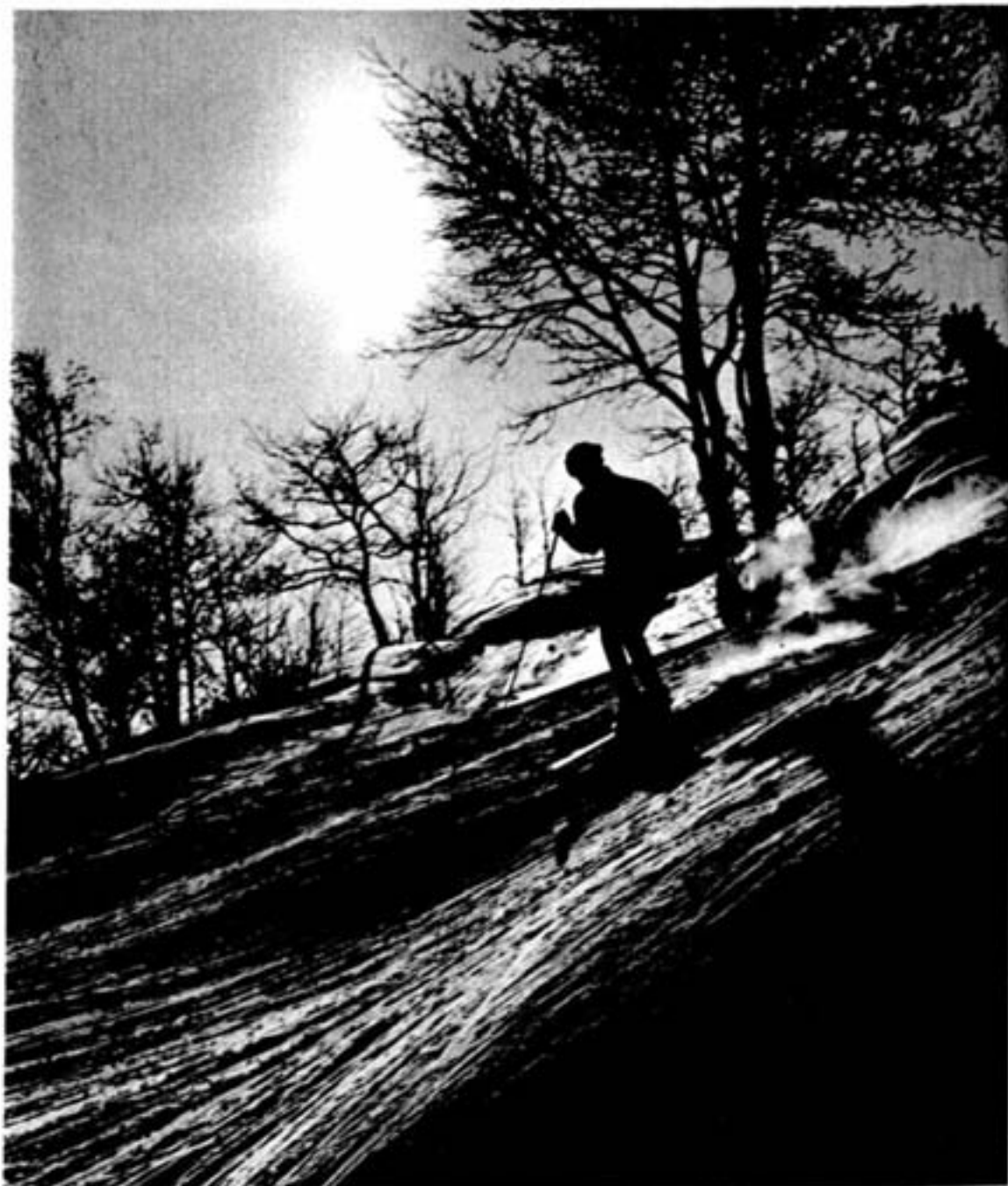
Fred Sheppard

Electric shovels with dipper capacity of 8 cubic yards, and a fleet of 65-ton haulage trucks, will move 30,000 tons of ore and rock per day from the Pipe pit.

(Continued on Page 13)

This dramatic portrait of a thrilling sport was made at Nordic Hills by Karl Sommerer, expert Sudbury camera artist.

Skiing is the Booming Winter Sport



Frances and Bert Meredith are among the many couples who regularly enjoy an outing on their cross-country skis, often touring the snow-covered rolling fairways of the Idylwyde Golf Club.

ALTHOUGH there are 10 skiing facilities—large and small—in the Sudbury district, the slopes are hard pressed to cope with the steadily increasing popularity of this exhilarating sport. It is estimated that the number of skiers in the area has doubled during the past three years.

Onaping Ski Hills near Levaack, Nordic Hills just south of Sudbury, Espanola Ski Club, and the new Flomount development just beginning operation 20 miles north of the city, can be counted as the major facilities. Sundridge, south of North Bay, is also a favorite family skiing resort.

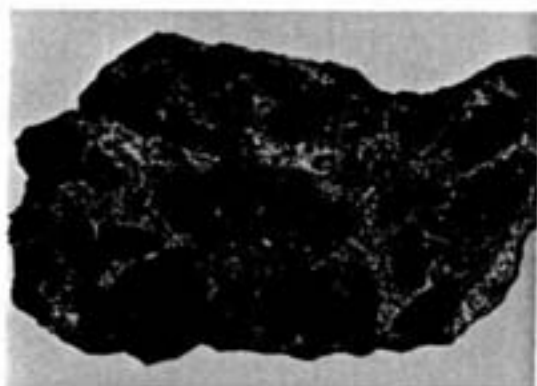
Cross-country skiing is sharing in the boom, for those who prefer the quiet, unhurried enjoyment of an afternoon out in the open, far from the tow lineups and the demands of the downhill runs.



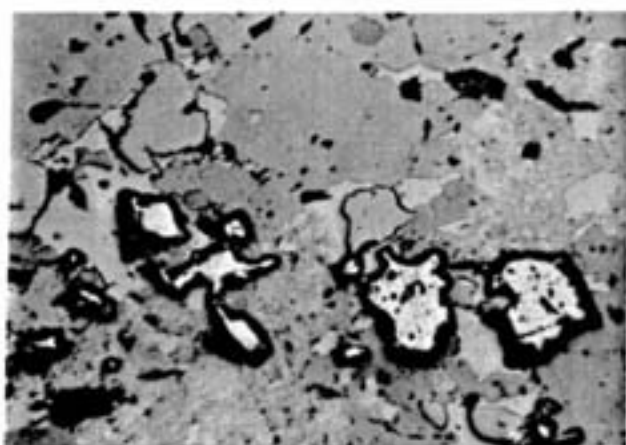
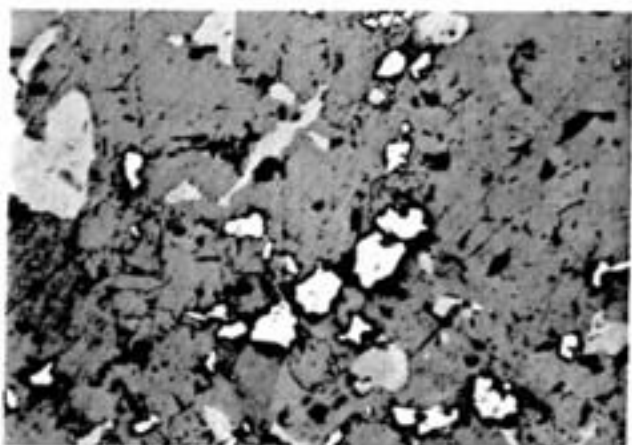
Typical Sudbury micropegmatite, the granite-like rock that forms the rugged hills of the Le-vack area, is pink in this hand-specimen (left). As seen by the geologist under the microscope, however, it consists of a delicate tracery of black-and-white crystals. (Magnified 6 times).



Sudbury norite, the dark grey rock seen along Highway 144 north of Murray mine, or on Highway 69 between Sudbury and McCrea Heights, looks pretty dull to the naked eye (left). In polarized light the microscope transforms it into a bright mosaic of colored mineral grains. (Magnified 6 times).



Beneath the micropegmatite and norite of the Sudbury Nickel Irruptive lie the ores. The Inco miner sees the brassy sulphides studded with pieces of rock (left). Under the microscope those dark rock fragments display jewel-like silicate crystals formed deep within the earth two billion years ago. (Magnified 8 times).



The sulphides in the ores, cooling from a matte-like liquid, also formed crystals, seen above as specially prepared for microscopic identification: the blue and purple areas are pentlandite (nickel sulphide), the brown and white are pyrrhotite and pyrite (iron sulphides), and the tan is chalcopyrite (copper sulphide). (Magnified 140 times).

From the Magic World of the Mineralogist —

THE "INSIDE STORY" of THE SUDBURY ROCKS

By Don Phipps

Beneath the rugged weathered outcrops which typify the Sudbury landscape are many diverse rock types which have made Sudbury a mecca for geologists from all over the world.

It all started back in 1883 with the finding of copper-nickel ores in the district. Geologists were soon involved in determining the reasons for the presence of ore at Murray, Creighton, Frood, Levack, and elsewhere.

Over the decades an accumulation of knowledge from many detailed investigations has enabled the geologists of today to establish a theory describing the sequence of events leading to the formation of the Sudbury ores. Abundant evidence indicates that the Sudbury district was the site of a meteorite impact some two billion years ago which produced a huge crater similar to those observed on the moon (Triangle, February, 1970). Research geologists at Copper Cliff believe that this was the trigger for a sequence of events which led to emplacement of the ores and rocks we see today.

Blasted Huge Crater

The explosion of the meteorite produced a crater which may have been 50 miles across and as much as 10 or even 15 miles deep. A huge volume of smashed rock which was blasted into the air immediately fell back and partially filled the crater. A body of water formed in the depression, and sedimentary rocks were gradually deposited above the fall-back from the explosion. At some time during these events molten rock (magma) welled up from great depth along the deep fracture zones formed in the earth's crust beneath the crater. The magma was intruded between the crater wall and the explosion debris, where it slowly cooled and crystallized to form two igneous rock types: a lower, dark-colored, heavier rock called norite, and an upper, light-colored and less dense rock called micropegmatite. At the base of the norite is a discontinuous and relatively thin layer of rock named the sub-layer, and this is the host rock for all the sulphide ores. The sub-layer, norite, and micropegmatite are collectively known as the Sudbury Nickel Irruptive.

Map Shows Distribution

The accompanying map illustrates the distribution of these rock types as we see them today after millions of years of natural erosion. The norite and micropegmatite occur as an oval ring

approximately 37 miles long by 17 miles wide. The sub-layer is too thin to be shown on the map but is indicated by the red dots marking copper-nickel occurrences. Originally the shape of the Irruptive was more circular, conforming to that of a typical crater, but enormous compressional forces in the earth's crust squeezed the structure into an oval.

Inside the ring of the Irruptive is the so-called Whitewater Group consisting of the fall-back debris of the explosion and the sedimentary rocks which formed in the water-filled crater. Outside the Irruptive are found some of the oldest rocks in Canada, which existed in the target area at the time of the meteorite impact.

Of greatest importance to the exploration geologist are the Irruptive rocks — sub-layer, norite, and micropegmatite. To the casual observer these may appear uninterestingly similar, especially on the exposed weathered surface. However, breaking a piece of rock from an outcrop reveals a fresh surface in which individual crystals of minerals can be identified. The use of a magnifying hand lens makes it easier.

The most precise and interesting method of rock identification, however, involves use of the petrographic microscope. A small slice of rock is mounted on a glass slide and then ground down to a thickness of approximately

1/1000th of an inch. At this thickness the rock is transparent, except for the sulphide and some oxide minerals, which are opaque.

"Optical Fingerprints"

The petrographic microscope utilizes light which is made to vibrate in one direction only; this is known as polarized light. The interaction of this light with the various minerals as it passes through the rock slice produces dramatic optical effects, many of stunning beauty and intricate design, an almost unbelievable contrast with the drab appearance of the rock to the unaided eye. For the geologist this is a means of mineral and rock identification, since each mineral produces its own unique optical "fingerprint". A camera built into the microscope enables photomicrographs to be made.

The four upper illustrations on the opposite page show micropegmatite and norite as they appear in hand specimens and under the microscope. The micropegmatite consists mainly of plagioclase feldspar crystals (rectangular and striped) surrounded by an intricate fine-grained intergrowth of quartz and feldspar known as granophyre. Norite differs greatly from micropegmatite in mineral composition. Plagioclase and the brightly colored pyroxene are the major mineral components. Quartz, a minor component, occurs in spaces between the plagioclase and pyroxene crystals.

The sub-layer, at the base of the norite, consists of yellow and brassy-colored sulphides, norite, and rock inclusions. The photo second from the bottom on the left shows a typical ore specimen with sulphides and rock fragments, and opposite is a photo-

THE FRONT COVER

The psychedelic-looking creation on our front cover is a photomicrograph of a section of sub-layer norite from Levack mine containing sulphide minerals. The dark areas are the sulphides — copper, nickel and iron — and the remainder consists of rock minerals. The grey rectangles are crystals of feldspar, and the colored patches are crystals of pyroxene, amphibole and mica. This is the exotic view an Inco research geologist gets, using the polarizing petrographic microscope and proving beyond doubt that "Beauty Is Not Only Skin Deep". (Magnified approximately 20 times.)

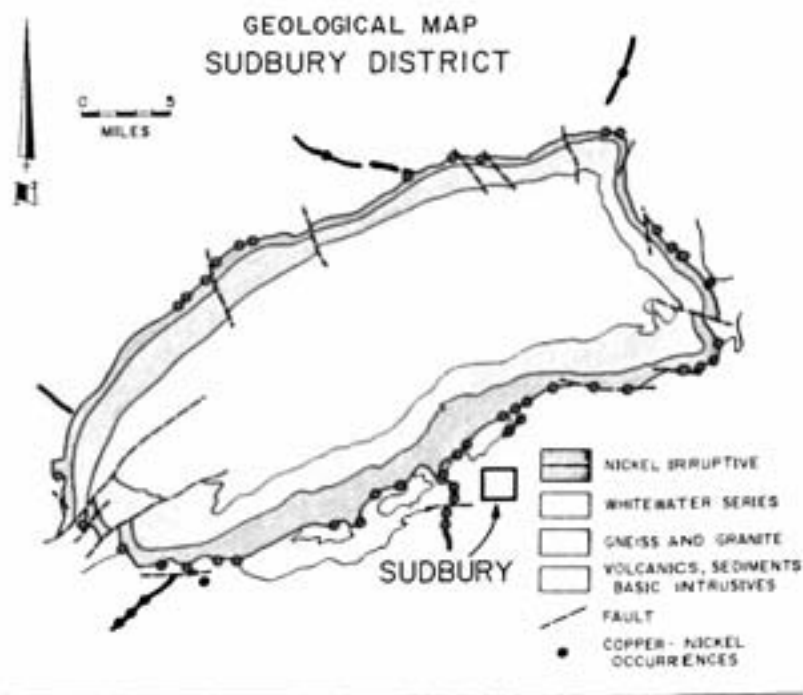
micrograph of a thin section showing the brilliant crystals in the rock.

Different Technique

Because the sulphides in an ore specimen are completely opaque, a different technique must be used to examine them microscopically. The surface of the specimen is given a high polish, and when it is placed under the microscope reflected light is used instead of transmitted light, under which the sulphides would appear black. With reflected light they assume their natural brassy colors.

But the differences in color of many sulphide ore minerals are very subtle and not readily discernible. To overcome this difficulty the polished surface is chemically stained. The stain affects the various sulphide minerals in different ways, imparting characteristic colors to some of them. The two bottom pictures on the opposite page illustrate the effectiveness of this method in distinguishing between the nickel, copper, and iron sulphides.

The unique geological formation known as the Sudbury Nickel Irruptive contains probably the greatest concentration of nickel and copper and precious metals of any place in the world. Within the dour ruggedness of the rock outcrops the research geologist finds crystallized patterns of delicate design and startling color, as shown in the photographs accompanying this article. The Nickel Irruptive surrounds the pleasant farming and residential area known as the Sudbury Basin, two billion years ago a crater blasted out of the earth by an enormous meteorite.



Six Bridges Eliminated

Taking the Kinks Out Of the Welland Canal

Mariners and landlubbers alike are keenly interested in the massive \$110 million development project underway on the Welland Canal from Ramey's Bend on the northern outskirts of Port Colborne to Port Robinson, north of Welland.

More than 65 million cubic yards of earth will be moved in constructing a new 8½-mile channel of the canal to by-pass Welland and eliminate the marine traffic jams caused by the narrow and winding course of the present channel.

Six Bridges Replaced

Six movable bridges, which have long impeded water and road traffic along the old channel cutting through the City of Welland, will be replaced by two tunnels. A four-tube syphon culvert will carry the Welland River under the new channel; a new dock will be built on the relocated channel to replace existing dockage facilities.

Launched in 1967 as a co-operative undertaking by the St. Lawrence Seaway Authority and the Ontario Department of Highways, the by-pass is scheduled for completion in the spring of 1973. A master plan has been developed to ensure that vehicular traffic in the area will be provided with adequate highway

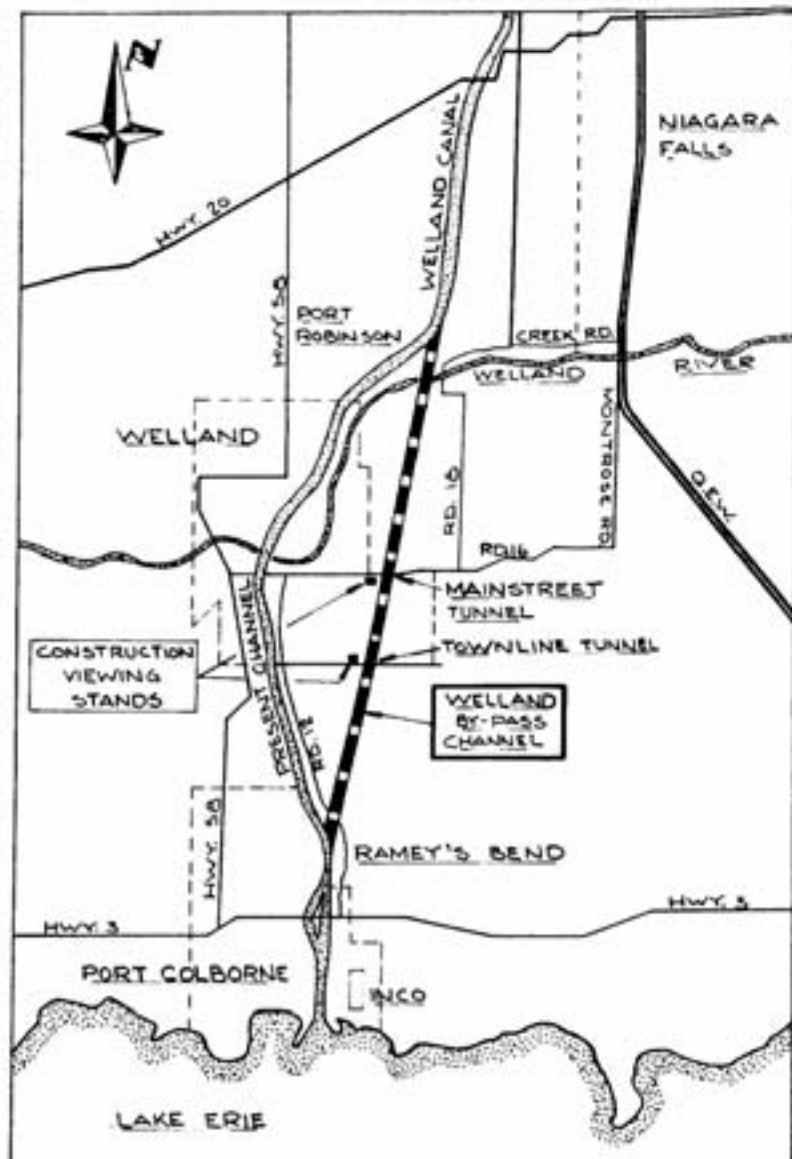
crossings, without further obstruction to navigation.

Five other crossings will be built under this master plan if and when required, a press release has stated. It is presumed that one of these would be installed to alleviate vehicular traffic delays in the immediate Port Colborne area, such as at the Clarence Street bridge. The City of Port Colborne has engaged consultants to undertake studies of an uninterrupted crossing of the canal, and these recommendations will receive full consideration by the Ontario Department of Highways in carrying out the master plan.

Spectacular Exhibition

Five big contracting firms have been involved in the excavation of the by-pass and tunnels, sending a huge fleet of heavy earth-moving equipment into action along the 8½-mile route. Thousands of people have watched the busy scene from viewing stands constructed for the convenience of the public.

Some of the Inco employees at the Port Colborne refinery who have stopped to watch this engrossing spectacle may have been struck by the thought that they had a hand in making its speed and strength possible. Without the nickel they produce the



This map by Larry Fraser of the Port Colborne refinery engineering department clearly shows the direct route of the new Welland by-pass as compared with the present winding channel which seriously impedes navigation in the canal. Two tunnels will replace six of the 17 bridges over the canal.

powerful big earth-moving equipment would be heavier, less efficient, and much harder to maintain against abrasion, corrosion, and just plain wear and tear. Even in the sealed beam headlights of the roaring and snorting machines a high nickel alloy is used for the electrical connections because of its special properties.

The by-pass, 350 feet wide at the bottom as compared with the 192-foot width of the old channel, and with the old curves taken out, will allow plenty of room for the huge "canalers", up to 730 feet long and 75 feet in the beam, to pass one another in safety. It had become the practice of skippers on many of the big boats to hold back rather than chance a tricky passing on the sharper curves, thus slowing the pace of traffic in the canal.

Enhancing the Landscape

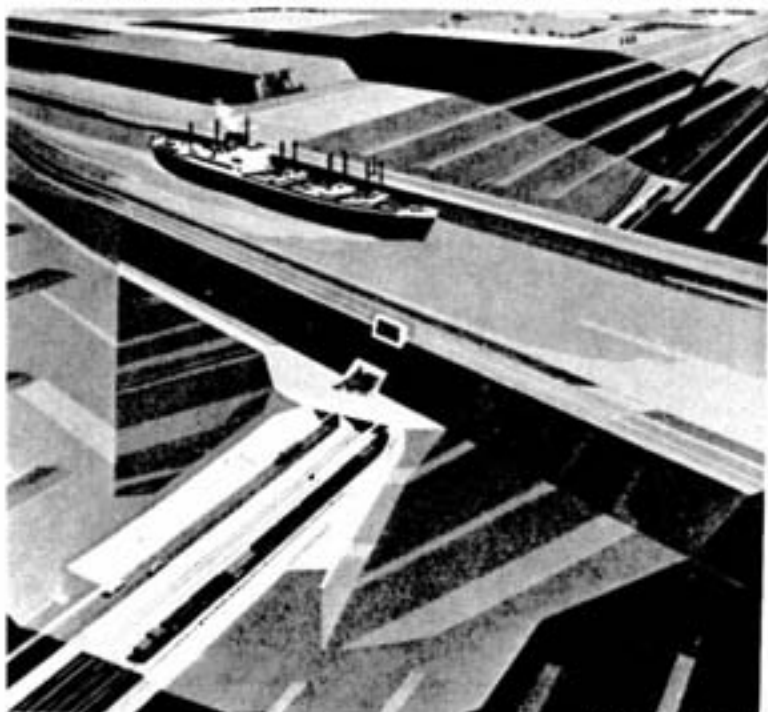
The disposal material is being carefully graded in land-form patterns along the entire length of

the channel to provide wind-breaks for passing vessels and enhance the general appearance of the area. The soil of these land forms is being treated, fertilized, and seeded.

In addition there is an extensive relocation program involving roads, railways, hydro-electric lines, gas mains, telephone cables and water and sewer facilities. The amount of new tracks to be constructed for railroad relocation totals nearly 100 miles in terms of single track distance. Substantial changes are also required by municipal jurisdictions and the provincial highways department with respect to the road and railway network in the area. All things considered, the by-pass project seriously affects some 50 square miles of the Niagara peninsula.

1,100-Foot Townline Tunnel

Of prime interest to ground traffic is the construction of the Townline road-rail tunnel, about



H. G. Acres, Limited

At an estimated cost of \$30 million, the Townline road-rail tunnel beneath the canal will be almost 1,100 feet from portal to portal, 106 feet wide, and 33 feet high. It will contain 90,000 cubic yards of concrete. Another four-lane highway tunnel will be provided on East Main Street at Welland. Excavation for the two tunnels and the Welland River diversion totals over 25 million cubic yards.

six miles from downtown Port Colborne, which will provide a crossing beneath the canal for the CNR and PCR main lines on a three-track combination, a two-lane highway, and a pedestrian sidewalk. Built of pre-stressed concrete, the tube will be almost 1,100 feet long from portal to portal, 106 feet wide, and 33 feet high. It will be some 80 feet below the existing ground surface, including a 5-foot rockfill cover between the top of the tunnel and the bottom of the channel. At a .75% grade the railroad tracks will reach a total of five miles in negotiating the tunnel; the highway approaches will be on a 5% grade and will be much shorter.

Thus another chapter is being written in the history of what is regarded as one of the engineering marvels of the 20th century.

A difference of 327 feet between the levels of Lake Ontario and Lake Erie is overcome by the Welland Canal with eight locks and 26 miles of channel. Each of seven lift locks has an average lift of 46½ feet, while Lock 8 at Port Colborne, the Lake Erie terminus, is a guard lock with a shallow lift varying from one to four feet although it is the longest lock in the world, 1,380 feet from gate to gate.

Built in Four Stages

The first canal was opened in 1829, with sailing vessels initially being towed through the locks by oxen or horses plodding a tow path alongside the big ditch, and later being moved by tugs. There were 34 wooden locks, with a minimum size of 110 by 22 feet. A second and then a third Welland canal were built, providing larger and fewer locks of cut stone construction, and varying somewhat in route. Work on the present canal, 27 feet deep and on an almost direct north-south route, began in 1913 and was completed in 1932, with a three-year lapse during World War I.

Before it became part of the St. Lawrence Seaway in 1959, the canal was deepened in some sections, where it had silted in, to conform to the great inland waterway's depth of 27 feet.

Pipe Development

(Continued from Page 8)

moval began in the spring of 1969 to expose the orebody.

In the transfer of operations from the contractors to Inco, the skeleton staff of Company employees was increased to 150 people.

To train Inco employees in the operation of the big pit mining equipment, a task force from leading manufacturers spent 10 days familiarizing our people with the machines. Men learned how to handle power shovels, haulage trucks, and electric blast hole drills, all designed with heated cabs. New machines to be



Our Maccelito

On Friday, January 29th, the "paint gang" at Port Colborne reached a new plateau for safety at the nickel refinery. Their achievement—25 years without a lost-time accident having occurred in 1945! Two members of the gang, Bill MacSweeney and Ed Carver, have been present for the entire period, and 11 others have been in the gang for 15 years or more.

With other members of management and supervision present, the men were congratulated by assistant manager J. H. Waller, who remarked that their achievement was particularly impressive, as much of their work is performed on building roofs, steelwork, or from ladders. A safety award was presented to each man to mark the outstanding occasion.

Shown in the photograph are:

front row from the left: Loula Nigh, John Macdonald, Bill MacSweeney and Lovern Benner. Centre row from the left: Jack Grace (foreman), George Liddon, John Rohaly, Andy Vasko, Wilf Shaubel, Elven Castle, John Williston, Bill Pruder. Top row from left: Julius Kanyo, Leo Bazinet, Les Parry, Bob Caldwell, Maurice Beaulieu, Harry Moore, Dan Ryan, Charlie Gatt, Jack Belanger and Gerald Morfin.

added include a mobile crane with a telescopic loading boom.

Pipe 2 Plant Ready

Paralleling the progress of the open pit development has been the construction of the Pipe 2 surface plant to handle eventual production from underground. The surface plant consists of maintenance and warehousing facilities, conveyor systems, ore bins, changehouse, and office building.

Towering over these facilities is the 275-foot headframe, completed in mid-1970. It rises above the concrete collar of a 22-foot diameter shaft.

More than 5,800 cubic yards of concrete went into the construction of the headframe—enough material to pave a sidewalk four feet wide and three inches deep for 35 miles. The structure holds the largest and most technically advanced hoist equipment of its type in North America. Its skip hoist, powered by a 7,000-h.p. motor, will lift a 30-ton pay load. Both the skip and cage hoists have electronic systems with compact, easy-to-maintain solid-state circuitry.

Sinking Starts This Month

Using the permanent hoists and headframe, sinking of the Pipe 2 shaft will begin this month; it will take two years to reach the planned depth of 3,087 feet. After the shaft is completed, lateral development will be undertaken to prepare the underground mining operation for production.

Pipe 2 ore will be mined by a bulk caving method to a depth of

approximately 1,500 feet, and below that level by blasthole and shrinkage methods. A highly mechanized operation, the mine will have a ventilation system designed to supply 750,000 cubic feet of fresh air a minute.

Appointments

TORONTO OFFICE

By Shane MacKay, assistant vice-president:

T. R. Dodgson, manager of public relations;

D. Reid, manager of promotion and advertising.

ONTARIO DIVISION

By G. O. Machum, assistant general manager (processing):

K. R. Kay, superintendent, Clarabelle mill. Mr. Kay's appointment as technical assistant to the superintendent of mills was announced in April, 1970.

T. R. DODGSON

After nine years' experience in various capacities at the Toronto Stock Exchange, Tom Dodgson joined International Nickel in 1941 at the Toronto office, where he was in charge of the direct mail department until 1952 with the exception of over three years of army service.



T. R. Dodgson

He was administrative assistant of the Company's Canadian sales and market development organization

for four years, then transferred to the public relations section, of which he was appointed supervisor in 1967.

Born in Toronto, he was married there in 1942 to Geraldine Simpson. He has one son and one grandson.

D. REID

Donald Reid, who was born in Yorkshire, England, started his career in Fleet Street, London, as a journalist. He served four years in the RAF, leading to his appointment as promotion manager of the Avro Arrow development with A. V. Roe, Canada, Limited. He later became manager of public relations for Hawker Siddeley of Canada, Limited.



D. Reid

He came to Inco at the Toronto office in 1964 to modernize printed communications in the marketing and corporate areas. In 1968 he was appointed supervisor of publications and periodicals relating to the Company's corporate, marketing, industrial relations and personnel activities.

His marriage to Jean Lazenby took place in England in 1949. He has one daughter and one son. His recreational interests include swimming, skiing, fishing, and vegetable gardening.

The woman who puts the right number of candles on her birthday cake is playing with fire.

**KEN SMITH**

A newcomer to Inco, Ken Smith joined the Copper Cliff accounting department last year.

A westerner hailing from Brandon, he was internal auditor for an investors group in Winnipeg. An accountant, his prime duty at Inco is the continuing audit of major capital expenditures.

Ken's wife — Linda Brown before they were married in Winnipeg — came from Souris, Manitoba. They have two daughters.

A resident of Copper Cliff Gardens, the recently completed housing development, Ken enjoys being able to walk to work. "I figure the 10-minute walk four times a day is good exercise and just what I need to keep in shape," he said. "On below-zero days I make it a little faster."

An outdoors family, the Smiths appreciate the beauty and convenience of the many beaches and lakes that are close at hand in their newly adopted locale in northern Ontario. "Sure beats travelling 60 miles to swim in a man-made water hole," enthused Ken.

**BILL RORISON**

In the pay office, the Triangle camera zeroed in on senior clerk Bill Rorison. He handles hourly rate payroll deductions and control accounts.

Bill came to Inco in 1964 following eight years' experience in a Sudbury bank.

Born in Sudbury, he is a second generation Incoite. His father joined the Company at

TAKING A WALKABOUT IN THE **ACCOUNTING DEPARTMENT**

AT COPPER CLIFF, AND MEETING A FEW
OF THE PLEASANT PEOPLE THERE

Creighton in 1933, and has been a motorman at Froid since 1934.

Bill married Carmen Floreani in 1961. They settled in Garson and have a family of two sons and a daughter.

Camping and golf fill most of Bill's free-time and vacations, but he recently proved his ability as a handyman by finishing a two-room extension on his home.

**RON HEALE**

The average man's annual joust with the tax collector is usually confined to a short period of frustration in the springtime. Chief accountant Ron Heale, on the other hand, has the subject on his mind for the full 12 months of the year.

Ron is responsible for determining the very complex federal and provincial sales tax status for all material and equipment purchased for Inco's Sudbury district operations.

Born within sight of the Copper Cliff plant, Ron started his career with Inco in 1927 with summer vacation employment as a messenger. He joined the Company as smelter bin man in 1933, then in 1934 moved over to the copper refinery where he spent six years in the warehouse and 19 in the pay office. He was transferred to the general office accounting department in 1959.

The daughter of Sellwood and Levack pioneers, Aili Norrena was Ron's bride of 1936. They are the parents of five and grandparents of seven. Son Terry is a maintenance co-ordinator at Copper Cliff.

Ron's father, Charlie Heale, retired in 1944 following 35 years with the Company at Copper Cliff. He will be 92 this year.

**JUNE STELMACK**

Supervisor of the accounting department's steno office since 1966, attractive June Stelmack has been a member of that busy group since she began her association with Inco in 1959.

Born in Sturgeon Falls, June is the youngest of a family of eleven. She started her career as a stenographer with a Sudbury finance company.

Residents of Pine Street in Sudbury, June and husband George were married in 1966. He is music director at Garson-Falconbridge Secondary School.

Last year's vacation trip to Canada's west coast opened June's eyes to the majestic beauty of her native land. "The drive through the Rockies was just breath-taking," she said. This year, she and George plan to explore the east coast.

June's brother, Archie Dagg, is a general foreman at Froid.

**WAYNE BAKER**

Things were a little hectic when the Triangle camera visited monthly payroll senior clerk Wayne Baker. Earlier that day he had moved his desk to the newly established accounting department annex. Seen shortly after settling in, he is checking cancelled checks against returned bank listings.

A Sudburian by birth and an

Incoite since 1965, Wayne was married to Rejanne Rochon of Timmins in 1958. Their family consists of a son and a daughter.

Of a quiet disposition, Wayne puts historical reading at the top of his list of free-time interests. He has studied industrial psychology for the last three years at Cambrian College night classes. He is co-master of the 6th Sudbury Pack, and Rejanne is his able assistant.

BOB PASCOE

Responsible for scheduling all shipments of nickel-bearing products from Copper Cliff, accountant Bob Pascoe maintains liaison between Inco's production and marketing facilities.

A native of Creighton, Bob was employed as an auditor in Toronto for five years prior to starting his Inco career in the time office at Creighton in 1953. His move to Copper Cliff came in 1955.

A Bancroft girl, Edith Joynt, became Bob's bride in Port Hope in 1946. Their family



consists of two daughters and a granddaughter.

Bob and Edith are enthusiastic members of the Copper Cliff Curling Club. During summer weekends and vacations they can be found enjoying their camp amid the peace and scenic beauty of La Cloche Lake, in "Rainbow Country", just a few miles west of Whitefish Falls.

EDNA WALBERG

An always cheerful and popular member of the accounts payable group, Edna Walberg was photographed while checking received invoices against a daily register compiled by the data processing department's computers.

Edna started with the Inco accounting department in 1962. A native of Copper Cliff, she is the daughter of pensioner Alf Mash, who retired in 1967 after 47 years with the Company.

Edna and her husband Dave



— they were married in 1960 — are ardent snowmobile fans who use Ramsey and Minnow Lakes for their weekend outings during the winter.

Summer vacations are spent travelling in their truck camper, they usually manage to soak up a lot of sun on the shore of Georgian Bay at Wasaga Beach.

LORNE GARBER

Newly appointed as chief accountant—monthly payroll and pensions. Lorne Garber was photographed on his first day in his new quarters in the accounting department annex. His move followed 12 years as cashier.

A native of Bridgewater, Nova Scotia, Lorne's Inco service started in 1948. He worked in the converter and casting buildings, moved to the No. 1 time office, and spent eight years in the pay office before he became cashier in 1958.

His bride of 1946, Kathleen



Joudrey, also came from Bridgewater. Their family of two are teenagers.

A very industrious community worker, Lorne's list of extra-curricular activities is as long as his arm. He was president of the Copper Cliff Canadian Legion in 1963, president of the Copper Cliff Community Credit Union for four years, was a church warden for many years, now sits on the church board, and finds time to be treasurer of the 1st Copper Cliff Boy Scout troop. He is also active as a curler, a Copper Cliff Athletic Association committee member, and treasurer of the Copper Cliff Youth Club.

JIM FOWLER

Concerned with executive management information systems, assistant division controller Jim Fowler is currently heading the group that is making a cost control, reporting and planning study.

Jim, who was born in Peterborough, graduated in commerce from the University of Toronto in 1954, and became a chartered accountant with Price Waterhouse and Company in Toronto in 1957. He joined International Nickel in the accounting department in 1964.

His marriage to Margaret Martyn took place in Peterborough in 1956. They are parents of three sons and a daughter.

For relaxation, Jim turns to golf, curling and duplicate bridge, and spends weekends and vacations with his family at their summer camp on Black Lake.



RON ORASI

Ron Orasi was cashing in a Canada Savings Bond for an Inco employee when this picture was taken. Assistant cashier since 1968, he came to the Company in 1964, and was employed in the three smelter time offices before his switch to the general office at Copper Cliff.

There's a lot of Inco in Ron's blood. His grandfather, Amedeo, who turned 90 last fall, came from Italy in 1902 and was involved in the pioneering mining at Levack, Victoria and Crean Hill mines. Ron's father, Aurelio



(Jack) Orasi, joined the Company in 1933 and is a 1st-class maintenance electrician at the Frood-Stobie mill.

Ron and his wife — Rita Henry before they were married in 1964 — live in New Surbury and are the parents of two daughters.

As assistant cashier Ron meets a lot of people, and enjoys it. Among other duties, the cashier's office handles the billings for Inco's more than 1,500 telephones in the Sudbury area, and the distribution of non-payroll cheques and expense accounts.

JACK MOSKALYK

An accountant with the insurance and retirement section, Jack Moskalik is seen while making entries in the bulging register that contains details of monthly payments to approximately 3,000 Inco pensioners whose checks are processed at Copper Cliff.

Jack's service with Inco dates back to 1956 when he joined the time office staff at Frood mine. He has worked at his present job since 1964.

A Copper Cliff boy, Jack married Marlene Desanti of



Sudbury in 1959. They have three sons and two daughters.

Off the job, Jack slips into a very different role from the orderly cleanliness of bookkeeping. "I like to get my hands in

the earth, so I spend a lot of time in my greenhouse." Supplying not only himself, but also many relatives and friends, Jack raises between 4,000 and 5,000 flower seedlings every spring. "Flowers are my main interest," he said, "but if somebody wants a few cabbages I've usually got room."



JOHNNIE VANDERBURG

Assistant chief accountant — costs, Johnnie Vanderburg's concern is the distribution of operating costs and the preparation of charts of accounts.

His Inco career started in 1941 when he joined the personnel department at the Sudbury employment office. After three war years with the Army Service Corps he was demobbed as a sergeant, returned to the Company in 1946, and worked in the Copper Cliff pay office until his move to the accounting department in 1955.

Marion Stedman and John were married in 1947. Their family of four includes twin daughters.

During the heyday of the square dance Johnnie was in steady demand as the lively caller for the Belles and Beaux club. He reeled off those foot-tapping numbers at countless do-si-do gatherings for some 12 years.

1970 Inco Earnings About \$2.80 a Share

Preliminary, unaudited net earnings of The International Nickel Company of Canada, Limited in 1970 are estimated at \$208,000,000 (U.S.), or \$2.80 per share, Henry S. Wingate, chairman, announced February 1. This compares with net earnings of \$116,500,000, or \$1.56 per share in 1969, when earnings were affected by a 128-day strike at the Company's Ontario Division. In 1968 earnings were \$143,700,000, or \$1.93 per share.

In announcing the results, Mr. Wingate said, "Earnings in 1970 have reached the levels of return on invested capital that the Com-

pany experienced in the first half of the 1960s." The 1970 earnings reflect increased production and deliveries made possible by the Company's capital expansion program and higher prices received for its two major products, nickel and copper.

The fourth quarter earnings are estimated at \$48,000,000, or 64 cents per share, compared with \$58,200,000, or 79 cents per share, for the third quarter. Nickel sales were lower and employment and other costs were higher than in the third quarter. Improved realizations derived from an increase in nickel price at the beginning of the quarter were more than offset by lower prices received for the sale of the Company's copper.

Retired on Inco Pension

WITH 20 OR MORE YEARS OF SERVICE

TONY GREEN

Before coming to Inco at Frood in 1939 from the Parry Sound area, Tony Green drove a truck for seven years so it isn't so surprising that he drove a haulage



Mr. and Mrs. Green

truck at the Frood and Clarabelle open pits for 23 years. He averaged about 100 miles a shift. He was a shift boss for his final seven years.

Hazel Wye who was also born near Parry Sound, married Tony in 1946. Their only son Donald will finish his apprenticeship in the instrument shop at Copper Cliff in May.

Taking an early service pension Tony is doing a little part-time work as a security guard. The Greens are considering moving back to Parry Sound from Sudbury, where Tony would be close to some of his old bass haunts.

LUCAS SHAW

When Lucas Shaw started working for the Company in 1935 as a locomotive engineer, the sight of railroad ties endlessly



Mr. and Mrs. Shaw

coming at him was nothing new — he had gone west from his Collingwood birthplace to Saskatchewan and fired the CNR's iron horses out of Saskatoon until the depression.

He came to Inco at Copper Cliff after five years on construction work in Toronto. In 1940, he married a Magnetawan girl, Verna Mumford, in her home town. Of their two children, Eleanor is married to Copper Cliff 1st class instrument man Walter Stevenson; two grandsons complete their family picture.

Lucas has no intention of moving from the house he built by himself in Waters Township in 1962 — he has too much fun gardening and raising flowers on the property. Both enjoying good health, Lucas and his wife plan to

repeat their recent trip to Vancouver.

PAUL LAUZON

If there's ever a dull blade at the Paul Lauzon residence in Chelmsford, the master of the house will have to do some fancy skating in explaining why. All but three of Paul's 33 Inco years were spent as a steel sharpener, 10 years at Levack, 13 at Mur-



Mr. and Mrs. Lauzon

ray, and five years at each of Frood and Stobie mines.

Paul's marriage to Therese Gratton in 1938 in Chelmsford, near his own Rayside Township birthplace, was blessed with six children, and the current count on their third generation is four grandchildren.

With his new-found spare time on special early service pension, Paul will do more reading and enjoy the cottage he has had at Vermilion Lake since 1962. He also intends visiting a son who lives in Vancouver. Both he and his wife are in excellent health.

JOHN HATALA

John Hatala came to Canada from Czechoslovakia in 1930, and started with Inco in 1937 after working for seven years as a CPR section man in Saskatchewan. Most of his Inco years were spent underground at Creighton No. 3 shaft, where for the last four years he was a blaster boss on 1600 level. He also worked brief stints at Levack and Garson Mines.

Mary Ferenc became John's wife in the old country in 1929, and joined him in Canada in 1938. They have a family of four children and eight grandchildren. The Hatalas live in Sudbury and have a summer home at Vermilion Lake. Retiring on an early service pension, John feels in very good health.

ELIE MARTIN

Elie Martin started to work as a boy of 12 in a grocery store in Sudbury; and it was no get-rich-quick proposition, at the 1924

wages of \$6.00 for a 60-hour week.

He started with Inco in 1933, broke his service in 1948 for a brief fling in the butchering business, but returned the same year at Garson where he remained until retirement.

Ida Obonsawin from Levack became Elie's wife in Sudbury in



Mr. and Mrs. Martin

1936. They have a family of six children and 11 grandchildren. Son Ed works as a sheet flopper in the copper refinery tankhouse. The disability resulting in his going on pension fortunately won't keep him from enjoying the cottage that he built at the French River 12 years ago. He and his wife are planning trips to California and Europe.

A highlight of Elie's mining memories was being part of the special crew on duty when King George VI and Queen Elizabeth toured underground at Frood mine in 1939.

A. H. "MILLY" OLIVIER

Milly Olivier and the Montreal Canadiens' immortal Toe Blake grew up together at Victoria Mines and later Coniston. They'll never have another man like Toe," he says.

Milly's father, the late Elie Olivier, was a storekeeper in Victoria Mines from the turn of the century through 1913; when the Mond Nickel Company relocated its smelter in Coniston, Elie and his store went, too. Milly started with Inco in 1936 after

eight years in Homepayne as a CNR fireman. After three years in the Coniston smelter he transferred to the Copper Cliff police force and was stationed at Coniston throughout his service. He was married to Jenny Sorenson in 1929, and they have four sons and a daughter, and three grandchildren. Retiring in good health on a full service pension, Milly still enjoys skiing and skating, and will continue to summer on Georgian Bay near Parry Sound. Coniston will remain the Oliviers' permanent home.

JOHN "LEFTY" CLEAVER

Lefty Cleaver grew up on the family farm at Strathclair, north of Brandon, having moved there as a boy of six from Newark, Nottinghamshire, England. He picked up his nickname during his days as a southpaw hurler in Manitoba and Saskatchewan. He played tournament baseball and hockey in the west from 1925 until 1938, when he came east to work for Inco at the Coniston smelter. He transferred to the Copper Cliff police force, and except for a five-year stint starting in 1946 at Frood mine, his 31 years on the force were spent at Coniston.

A year before he left the West, Lefty married Nellie Deans at Strathclair. Of their five children, two are Inco employees: Jerry is a blast furnace loader at the Coniston smelter and Gordon (Joe) is a driller at Creighton No. 5 mine. Six grandchildren are the count to date of third generation Cleavers. Feeling fine on his full service pension, Lefty enjoys woodwork, curling and puttering around his Coniston home. Next summer he and his wife will once again trail their mobile home to the provincial parks of their choice.

ERNEST SIGOUIN

"I'm working for my wife now so the wages aren't too good," quipped Ernie Sigouin, referring to his new "employer" now that he's on full service pension with the Company.

Ernie came from Gatineau Point, Quebec, in 1937, and started with the Company at Levack,



Coniston's Club Allegri was filled to capacity at the dinner-dance held in honor of retiring Lefty Cleaver and Milly Olivier. Chief Bert Hague thanked the men for their long service in the Copper Cliff police department. Left to right are Lefty and Nellie Cleaver, Chief Hague, and Jenny and Milly Olivier.

moved five years later to Froot for 16 years, and then worked the last 12 years of his service



Mr. and Mrs. Sigouin

at Stobie. He was a veteran skip tender, spending 17 years on that job.

Eva St. Amour, an Ottawa girl, became Ernie's wife in Ottawa in 1941. Among their five children, Jo-Anne is married to Ernie Zeitz, a process assistant in the control lab at Copper Cliff. They have three grandchildren. They have a trip to Florida planned for next summer. They will continue to make their home on Albinson Street in Sudbury.

EUGENE LAPALME

Early service pensioner Eugene Lapalme will now have plenty of time to spend on his favorite pastime — watching sports, particularly softball and hockey. Eugene was born at St. Charles but moved to Sudbury as a child. He started with the Company in 1944 at Creighton No. 5 mine, and transferred to Murray in 1964 for the remainder of his service.

Before coming to Inco, Eugene worked for about 20 years on construction in the Sudbury area. This summer he's going to travel to Montreal to see his favorite baseball team, the Expos, in action. Eugene is a bachelor and intends making Sudbury his permanent home.

GEORGE RULLER

Inco has the British Crown to thank for the 33-year service of George Ruller. George was on his way to the coronation of King George VI when, during the train



Mr. and Mrs. Ruller

stop at Sudbury, he met a friend from his home town of Brandon. The friend, an Inco miner at Froot, convinced George to cancel his coronation trip and work for the Company.

He spent all his Inco years at Levack, was a shift boss since 1945, and for the last three years of his service was the chief

instructor at the Levack "campus" of Inco's mine training program for new employees.

In 1937 at Sudbury George married Chrissie MacDonald, who had come to Canada from Stormoway, Scotland, at the age of 16. Their daughter Janet is the wife of Cameron Campbell, a 1st-class winder at Copper Cliff. The Rullers have moved from Levack to Sudbury. Taking a special early service pension, George plans to curl and golf, and improve his scores in Levack's Woodland Pistol Club.

ALBERT SHIGWADJA

Albert Shigwadja is one man who is not going fishing in his retirement — he had enough of it during 14 years of commercial fishing before coming to Inco at



Mr. and Mrs. Shigwadja

the copper refinery in 1945. He was a liner in the tankhouse throughout his Company service.

Albert was born at Wikwemikong on Manitoulin Island, but moved to Spanish at the age of 14. In 1944 he married Alice Williams, who was born at Beaverstone, near Killarney. They have four children and six grandchildren. Daughter Jacqueline is married to Creighton driller Cyril Stryde.

Albert is feeling fine going in to his full service retirement and plans to do a lot of walking and enjoying televised sports. The Shigwadjas will continue living in Sudbury.

WALLY CALVERT

When Wally Calvert joined the Company in 1936 in the Copper Cliff smelter's converter building, the surroundings were quite familiar — he had worked for



Mr. and Mrs. Calvert

two years on the building's construction. He was born at Nouvelle, on the Gaspé.

Wally became a shift boss in 1964 and finished up his service as a general foreman. Married in Sudbury in 1930 to Dorothy Carson, a Sudbury girl, he is the father of three children and a grandfather an even dozen times over. His wife grew up in Sudbury. Daughter Frances is married to Ron Herman, an elec-



IN TRADITIONAL Scottish style Alex Killah was piped in to the largely attended retirement dinner in his honor at the International Hotel, with Lieut. Sam Laderoute doing the musical honors and Nick Haggerty proudly bearing aloft the haggis. Behind Alex in the picture are his sons John, Bruce, and Alex Jr., all Inco men. The haggis looked more like a balloon and sure enough, when Alex plunged the dirk into it there was a loud bang.

ALEX KILLAH

Careers in industrial maintenance run in the Alex Killah family. Although Alex has wound up a 40-year service with the Company, his three sons are on the Inco payroll — all in the planned maintenance department like their father: John is a mechanical area foreman at Stobie, and Alex, Jr., and Bruce are in the Copper Cliff smelter, the former as an electrical area foreman, the latter as an electrical apprentice. The four Killah men have a combined Company service of 86 years.

Alex was born and married in Aberdeen, Scotland, and came to Sudbury in 1930 after working for nine years on mill maintenance. He started and finished with Inco at the Froot, with temporary transfers to Murray and Levack in between. He was a maintenance general foreman in his last three years with the Company.

Isabella McLagan, also of Aberdeen, became Alex' wife in 1926. Their two grandchildren get high priority at their home in Sudbury. Although Alex had a heart attack back in 1957, he's feeling fine now. He and his wife visited Aberdeen three years ago, and plan to see Alex' brother in California in the near future.

tronics technician at the Froot hangar.

Enjoying good health on his early service pension, Wally likes card playing, watching hockey and fishing for pickerel on Manitoulin Island. This summer, in between fishing jaunts, he and his wife will travel to Thompson and Vancouver. The Calverts will continue to reside in the Sudbury district.

FRED KNIGHT

"I was in accounting all my working life," summed up dapper Fred Knight on the occasion of his early service retirement from the Company.

Fred was born in London, England, and came as a child to Copper Cliff where his father was employed in the Canadian Copper Company smelter. In 1924, at age 15, he started working in a bank in Sudbury for \$32 a week; then in 1940, after seven



Mr. and Mrs. Knight

years on the books with the City of Sudbury, he joined Inco, from which he has retired as chief accountant — data control.

Velma Fensom, a Sudbury girl, became Fred's wife in Sudbury in 1930. They have three children and 14 grandchildren. Although they will take trips to visit their children in southern and eastern Ontario, the Knights plan to continue residing in the Sudbury area.

JOHNNY JONES

"I think I'll move back to Creemore — that's the Garden of Eden you know," Johnny Jones was talking of his plans to relocate in his birthplace near Collingwood, Ontario.

Johnny came north to work for Inco at Copper Cliff in 1934, after seven years experience in a bank. He started with the electrical department line gang and finished up as a planner, the job he held since the planned maintenance department's formation.

(Continued on Page 18)

Retired on Inco Pension

WITH 20 OR MORE YEARS OF SERVICE

(Continued from Page 17)

In 1935 he married a hometown girl, Delma Rowe, in Creemore. They have three children



Mr. and Mrs. Jones

and eight grandchildren; daughter Susan is married to Levack stope leader Ben St. Amand. For his leisure hours, Johnny likes reading, fishing for speckleds, and sunning at the cottage he has had on McFarlane Lake since 1953. He and his wife are planning a trip to Florida. Johnny took an early service pension and is enjoying fine health.

ROSS PLASHANSKI

"I liked working for Inco, and if you worked at some of my pre-Inco jobs, you would know why I say that."



This was one of the remarks of Ross Plashanski as he eased into a disability pension after 23 years' service. He worked as a trammer, usually on 1000 level at Garson mine. He had been a miner before coming to Inco.

Although now living in Garson, this bachelor plans to return to his home area near Dauphin, Manitoba. Slowed down considerably by his heart condition, Ross plans to spend much of his time reading and travelling.

DOMINA SEGUIN

Domina Seguin, better known as "Don", was in hot spots most of his working life. Before join-



Mr. and Mrs. Seguin

ing the Company in 1947, he was a sailor in the South Seas, and later a fire ranger in Quebec. At Inco he worked as a tapper helper on the reverberatory furnaces at Copper Cliff smelter.

The year he started with the Company was also the year he was married at Coniston to

Cecilia Tallefer of Cache Bay. They have three children.

Although Don used to do a lot of cabinet work, he's going to take it easy now on disability pension with a heart condition. Living in Sudbury at the present time, Don and his wife are thinking of moving to southern Ontario this summer.

CEC AUSTIN

Cec Austin started with the Company in 1936, the year he came east from Port Arthur, his birthplace. Schooled in Chi-



Mr. and Mrs. Austin

cago as an electrician, he worked in the Copper Cliff smelter at his trade and was an area foreman in the planned maintenance department on termination of his service.

Catherine Colquhoun, who married Cec in 1935, was born in Scotland but also grew up at the Lakehead. Cec plans to take it easy this winter putting around the workshop at his Sudbury home but he and his wife have a European tour laid on for the coming summer. The Austins will continue living in Sudbury. Taking a full service pension, Cec says he is "in better shape than ever."

ARNIE LEPPINEN

Arnie Leppinen is a good man to have on a moose hunt; he was successful for six straight seasons prior to last year, and his experi-



Mr. and Mrs. Leppinen

ence from seven years working in a Creighton butcher shop is mighty handy in getting Mr. Moose out of his hide and into the freezer.

Born in Finland, Arnie came to Creighton as a boy of five. He started with Inco in 1934 in "shops alley" at the Copper Cliff smelter, transferred from the car shop in 1943 to the machine shop and eventually qualified as a 1st-class machinist.

Copper Cliff was the birthplace

of Sanelma Orrenmaa, who married Arnie in 1931. Of their two children, Richard is a senior geologist in the mines exploration department at Copper Cliff. They have six grandchildren. Although Arnie and his wife have their permanent home in Sudbury, they're just as likely to be found at their Lake Penage cottage. Arnie has taken a special early service pension and is enjoying excellent health.

ARTHUR TURBITT

"I've never lost my love for the Annapolis Valley," remarked Arthur Turbitt as he talked of his plans to return to Nova Scotia



Mr. and Mrs. Turbitt

now that he's on pension from the Company. Art was born at New Ross in Lunenburg County. He started to work for Inco at Creighton No. 5 mine in 1948.

Art's bride of 1960 is also a native Nova Scotian — Nellie Ringer came from Little Harbour in southwestern part of the province.

Before coming to Inco, Art farmed, lumbered and trucked with his father. He used to fish, hunt and trap but he'll have to curtail these activities because of the heart condition that resulted in his retirement. But he'll be happy just settling down in his old haunts, and renewing old acquaintances.

JOHN MATSON

The fish in the Lake Penage area might well take note of John Matson's retirement — unless



Mr. and Mrs. Matson

they want to get permanently retired themselves.

John was born in Copper Cliff and farmed with his parents near Garson before starting with the Company at the Garson sand pit in 1935. Five years later he moved to the Frood, where he worked in the open pit and later in the machine shop. In 1939, Signe Peltonen, who had come from Finland to the Sudbury area seven years earlier, married John in Sudbury. They have one daughter and one grandson, living in California, whom they will visit next summer.

Although a 1970 heart attack has slowed his pace, John is look-

ing forward to fuller use of the cottage he built on Little Penage Lake in 1955.

VERN HANHAM

Vern Hanham's roots in Port Colborne go deep. His father was a life-long resident, as was his grandfather, who was a mer-



Mr. and Mrs. Hanham

chant in the village at the turn of the century.

Shortly after completing Port Colborne High School, Vern started in the general laboratory with Inco at the nickel refinery in 1928. He transferred to the precious metals laboratory in 1942, remaining in that department until his recent service retirement. He was a senior analyst with 43 years of Company service.

Vern married Helen Keenan in Welland in 1932. They have two children and four grandchildren.

The making and refinishing of furniture to craft specifications will keep Vern's power tools busier than ever now. He also enjoys golf and had the distinction of getting a hole-in-one in the local Inco tournament in 1959.

The Hanhams love to travel. They plan to revisit Mexico, and also see Europe, particularly Spain. They will continue to headquarter at their lovely home on Lake Erie's shoreline, but will make their annual (since 1953) winter trip to Florida.

ANTANAS ZILENAS

When Antanas Zilenas, better known as Tony, came to Canada in 1947 from Utena in southern Lithuania, he settled in Timmins,



A. Zilenas

but soon came to Sudbury and joined the Company at Coniston, where he remained until retirement. He worked on the slag chutes and later as a machine man in the sinter plant all his Inco years at Coniston.

An old back injury has finally forced him on disability pension. He likes to travel and is planning a trip to visit with relatives in the United States. He will move next year to southern Ontario.

Better than Camels

The vented rechargeable nickel-cadmium batteries used for emergency lighting have been designed to require addition of water only once every 10 years.



Torch-bearing skiers painted this pattern of light in the night.

Big Snow and 20 Below No Bother to Lively's Carnival

Following closely on the heels of the spectacular and long-to-be remembered snow storm of late January, Lively's 3rd annual winter carnival certainly didn't suffer from any lack of the white stuff.

Like most other folks in the district, the town's population was ready to relax and enjoy the blue skies after digging out from under the big blow.

Sponsored by the Lively Athletic Association, the show got under way on the evening of the 29th with a skilful and spectacular display of torchlight skiing by 20 members of the Lively-Creighton Ski Club led by coach Gary Foy. Spectators were able to warm up at a giant Christmas tree

bonfire that followed the exhibition.

Brenda Was Queen

Chosen by ballot from a field of 10 pretty aspirants, carnival queen Brenda Hildebrand was formally crowned during the evening at a teen dance held at the Lively High School.

Bright and 20 below, Carnival Day started with the judging of 13 ice sculptures by Margo Oliver, Grace Murray, Mayor Len Turner, John Dunn and Dennis Pidgeon. Vigorous and sometimes hilarious hockey and broomball games took place on the town's boarded outdoor rink, while on a nearby ice surface young fry competed in skating races, puck shooting, and a "jam

pot" curling 'spiel. Prizes were liberally distributed by games organizers Jack Cooper, John Taylor, Bud Meaden, John Taggart and Bob Sandberg. In steady demand, hot chocolate and 'dogs' could be had at the steaming booth manned by cooks Alan Este, Mason Logan and Hank Derks.

Snowmobile rides were laid on for the kiddies, as well as slippery-pole pillow fights. Jack Filchie manned the high school projector during a continuous showing of color cartoons.

With hearty appetites generated by their fresh-air activities, about 300 trooped into Trinity United Church for a delicious baked beans and chili supper prepared by Mary Dunn and her hard-working group of cheery volunteers.

100 Couples at Dance

An adult dance at the Italian Club in Copper Cliff rounded off the carnival. Leo Niemi provided the music for the more than 100 couples who attended.

Association president John Paterson, together with carnival chairman Phil Lindsay and his

committee, including publicity man Leo Pevato, are to be commended for their fine community spirit, and receive a tip of the hat for a job well done.

Senior Citizens Now Can "Fish for Free"

The summary of the Ontario fishing regulations for 1971 is now available, listing such items as size and possession limits, bait fish and sport fishing license fees.

Resident senior citizens get a break this year with the introduction of a special free licence to those 65 years of age and over. All resident males over 18 must have a license.

One section of the new summary warns anglers of the mercury pollution problem in some 50 of the province's more than 250,000 lakes and as many rivers. It is recommended that fish taken from affected waters be returned unharmed.

For a copy of the summary, contact Press Officer, Ontario Tourism, Parliament Buildings, Toronto, Ontario.



With five of the other nine Lively High School lasses who entered the carnival queen contest, newly crowned winner Brenda Hildebrand is seen with the roses that went with the title. On either side of her are Debbie Tincombe and Janyce Jordan. Standing are Veronica Nicholls, Carman Seguin, Lively mayor Len Turner, Dawne Beaudoin, student council treasurer and contest organizer Jane Scott, and winter carnival chairman Phil Lindsay.



The Carnival ice sculpture competition was divided into three categories: organizations, families and groups. Lively's two Wolf Cub packs got together and won top spot for organizations with this frigid saluting Cub and emblematic wolf. At the left are assistant Cubmistress Rita Flora, secretary Mildred Warren, and Cubmaster Fred Hill. On the right, receiving the \$12 prize money from judges Margo Oliver and John Dunn, is Mark Desjardins. Winners in the "family" class were Linda and Judy Bolger, and in the "group" class were Lynn, Diane, and Guy Meilleur, and Clarence Patterson.



Embryo curlers concentrated hard in the jam-pot bonspiel.

CONGRATULATIONS ON A GREAT EFFORT 1,000,000 SAFE MAN HOURS OCT. 16, 1970 — JAN. 10, 1971

THROUGH
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Creighton Again In the Spotlight

The boys at Creighton have done it again!

During the period between October 16, 1970, and January 10, 1971, the 1,900 employees at Creighton's No. 3 and No. 5 mines worked one million safe man hours.

Noting with pride and pleasure that this was the 25th time since 1946 that Creighton has reached this high plateau of achievement, Ontario division general manager J. McCreedy extended his congratulations to all who contributed: "This certainly attests to a fine co-operative effort on the part of the entire work force in safety in conjunction with a high level of production."

Adding his plaudits and thanks to the mine and safety department personnel involved, Inco's safety superintendent M. C. Kossatz ob-

served, "Statistics show that lost-time accident frequency is usually higher during the winter months. An attainment such as this, made during that period, deserves the highest praise."

On deck in the warm room at Creighton No. 5 mine, the "millionaires" in the above picture, representing all areas of the mines, are: back row, Leo Pretz, Dick Werner, Karl Witrak, Norm Randall, George Velcich, Carson Burton, Stan Durbracz, John Kos,

and Winnie Hurd; middle row, underground superintendent Frank Kelly, area safety supervisor Ed Sirkka, Ross Dawson, Herman Zanatta, Pete Dobbs, John Swintack, Frank Fox, Frank Alkunas, Larry Kruschenskie, Otto Dreika, No. 3 mine superintendent Doug Reynolds, and Creighton mines area superintendent Bruce King; front row: Russell Hall, Lucien Seguin, Harold Hass, John Wilkie, Harry Buchy, Bill Kuczera, George

Kasic, Leo Seguin, Stan Morbin and Lochie Rhiness.

THE LOVE GAME

"Darling," he whispered ardently, "I love, I adore you. I need you. I can't live without you!"

"Please," she gasped pushing him away gently.

"Why, what's wrong?"

"It's just that I don't want to get serious," she said quietly.

"Who's serious?"

DOWN MEMORY LANE...



Under the heading "Down Memory Lane," a new feature starts with this issue of the Triangle — an occasional glance back through the years to personalities or events that will still be of interest to many of our readers.

Toast of the Nickel Belt in late 1953 were the Garson Gunners, who staged a great driving finish from fourth place to wind up the season by winning the soccer championship of Sudbury District, and then went on to become champs of northern Ontario. At a

reception at the Sudbury Caruso Club the players were presented with jackets by Dave Lennie, then assistant mine superintendent, on behalf of the mine athletic association.

From the Triangle files comes this picture of that happy occasion. Twelve of those shown are still with Inco.

Kneeling are Gordie Young (Garson), Ollie Matson (Kirkwood), Bobby Elliott (Frood), Ronnie Matson (mascot), Bill Rowarth (Frood),

Jerry Schuran (Garson), Alan Steele (Creighton), Scotty Muir (Garson).

Standing: Dave Lennie (Levack), Tauno Perala (Garson), Bobby Weston (Sudbury police dept.), Hughie Rorison (Garson), Mrs. Marie Young, a most acceptable substitute in the absence of her husband, Mel Young (Copper Cliff), Joe McCauley (Garson), Morris Chayka (Toronto), Geoff Wilkinson (Stratford), Pete Kolundzic (present location unknown), and Taffy Davis, a sales representative still making his home in Garson.

GROWING DEMAND

Demand for high temperature alloys has grown to the point that production of such metals now consumes about 10% of the primary nickel used in the United States, a report says.

Such alloys, found in applications involving temperature extremes and high stress, usually have a nickel base.

Between 85 million and 90 million lbs. of high temperature alloys now are shipped annually by 18 U.S. producers, the report states. While the major market will continue to be aircraft engines, the greatest future growth will come in automotive, marine, and power generating turbines.