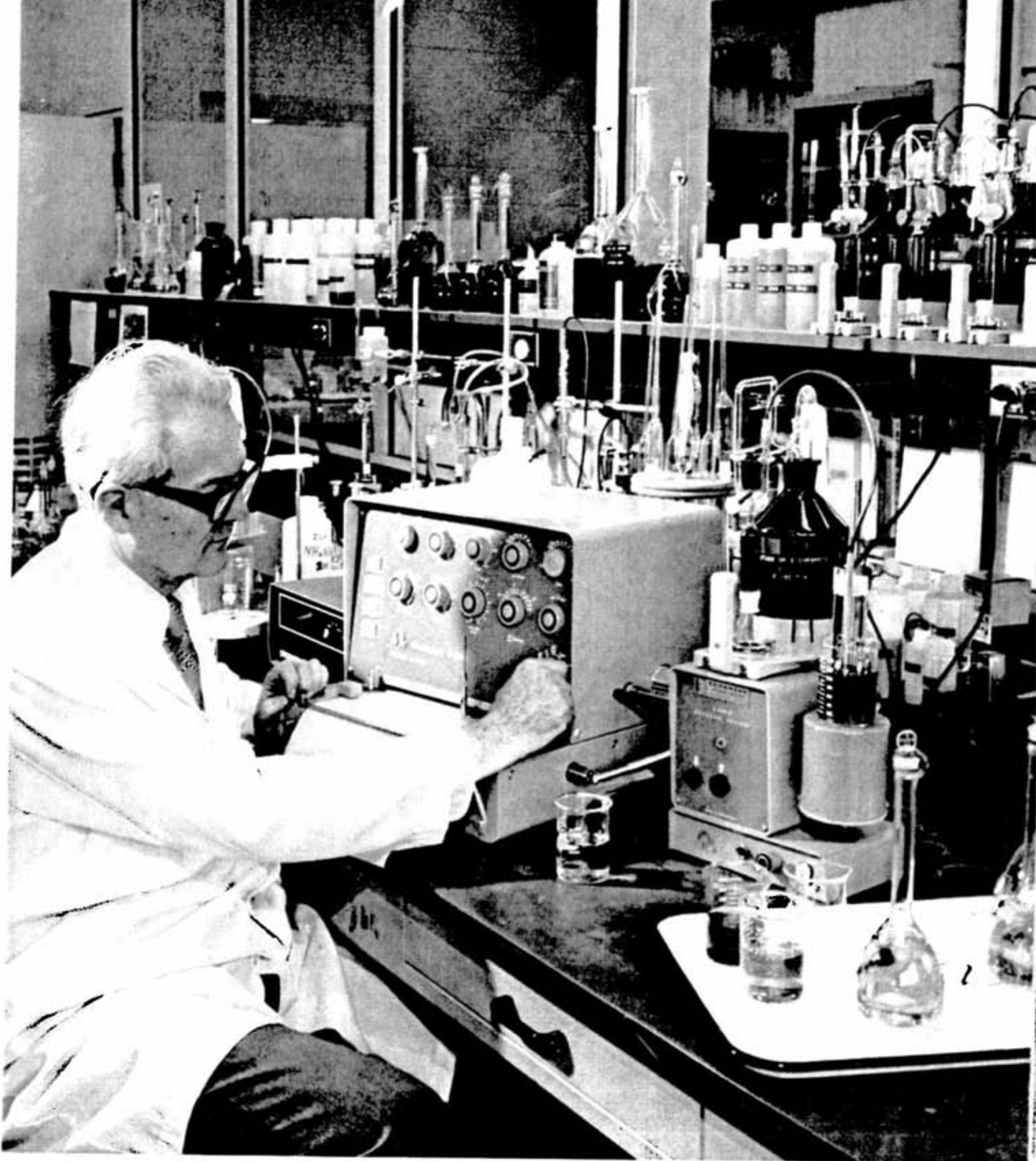


# *The Triangle*

JUNE 1976



Editor,  
Rudolph Kneer, Copper Cliff  
Associate Editor,  
Les Lewis, Port Colborne



#### ON THE COVER . . .

Research at Inco's J. Roy Gordon Research Laboratory deals with many elements other than nickel. Here Research Associate, Dr. Vladimir Zarka, is working on the development of a new method of chemical analysis, using modern instrumental techniques.

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Prints of most photographs appearing in "The Triangle" may be ordered from D. Dionne, 170 Boland Ave., Sudbury, or call 674-0474. Cost: \$3.00 each.



L. Edward Grubb, chairman and chief officer of Inco Limited, left, was the recipient of an honorary doctor of laws degree from Marshall University, at Huntington, West Virginia, at the university's commencement, May 15. Marshall president, Robert B. Hayes, said Mr. Grubb was selected to receive the degree because " . . . His diligence and his perspicacity have helped him to reach the pinnacle of industrial success as chairman and chief officer of Inco Limited." He went on to say that " . . . Mr. Grubb has been of service in many ways to the nations and the communities in which he has lived. He has seen the need for cooperation between the worlds of business and education and has acted to meet that need." With Mr. Grubb is James G. Harlowe, president of West Virginia University, who also was the recipient of an honorary Marshall University degree.

## Appointments

#### Divisional:

**Dick Adlington**, area geologist, Frood-Stobie area.

**Norm Anderson**, chief mines geologist, Copper Cliff.

**Dave Browne**, area geologist, exploration, Copper Cliff.

**Roy Carlyle**, area supervisor, industrial relations, Creighton, Copper Cliff south, Copper Cliff north, Crean Hill and Garson area.

**Gord Chisholm**, maintenance foreman, Copper Cliff copper refinery.

**Alan Church**, section leader, process technology, Copper Cliff.

**Gary Foy**, area supervisor, industrial relations, Frood-Stobie area.

**Art Hayden**, process supervisor, Copper Cliff nickel refinery.

**Terry Lineker**, superintendent, employee relations, Port Colborne nickel refinery.

**Bob Martindale**, area geologist, Creighton mine.

**Alf McDougall**, shift foreman, pellet department, Iron Ore Recovery Plant.

**Mike Mitchell**, salary administrator, Copper Cliff.

**Mike Suess**, industrial relations representative, Frood-Stobie area.

**Brian Thompson**, mine geologist, Creighton mine.

**Pat Thompson**, operations assistant, pellet department, Iron Ore Recovery Plant.

#### Inco Limited:

**Carl Gourley**, director, mines exploration, Toronto.

# Family Album



Meet the Martin Kupris family from Sudbury. Martin is a maintenance mechanic at Copper Cliff North mine, and he and his wife Isabel have two girls, Pamela, 7, and Alisa, 11. Their favourite camping spot is Manitoulin Island which they try to visit as often as possible.



This is the Jack Cleland family from Sudbury. Jack, a storeman at the Crean Hill mine warehouse, and his wife, Fran, have instilled the outdoor spirit in their children, from left, Lois, 14, Mark, 13, and Vicki, 12. The family's dog, Rex, was disgruntled about having his picture snapped and refused to smile.



Hugh and Marilyn Judges have raised two fine children and one fine dog. The children are, Stephen, 14, and Shelley, 13, while the dog goes by the name of Brandy. Hugh is Ontario Division planner, and counts among his spare time activities fishing, wine making and gardening.



From the Port Colborne nickel refinery we have Don and Irene Martin and their three children, David, 9, Dana, 10, and Suzanne, 12. Don is a plant protection officer and an avid hockey fan. He's involved with the Welland Minor Hockey league and plays with the Welland Fire Brigade team.

## National Amateur Boxing Championships:

# Sudbury Boxing Fans



*Cole Rattery, of Elliot Lake, scores with a solid left to the head of Alan Desjarlais, of Saskatchewan, during this lightweight fight. Rattery went on to win by unanimous decision over Desjarlais in the three-round bout.*



*Mel Young, Inco's assistant to the president, Ontario Division, does the honors and presents Chris Ius with a polished nickel ore trophy for his fine performance during the tournament.*

# Treated To Exciting, Action-Packed Bouts

A total of 44 of the top fighters in Canada were on hand for the National Boxing Championships, held May 5 and 6 at the Sudbury Arena. At stake for boxers in the senior division was a possible berth in the 1976 Olympics, while fighters in the intermediate division were aiming for the 1980 Olympics.

Gold and silver medals for the prestigious event were donated by Inco. Some of these were presented by Inco pensioners, many still active in the field of boxing.

A small but enthusiastic crowd enjoyed every minute of the eleven three-round matches. The fight card for the first night pitted the best from the east against the class of the west, with Easterners

taking the majority of the matches.

According to Johnny Teale, one of the organizers of the fights, things went very smoothly for most part of the program, which was run off with a minimum of delay.

The first night saw the intermediate division with 10 championship fights and two match decision bouts. Fighters from Northern Ontario stood out considerably, with Billy Ranelli, of the Sudbury Regional Boxing Club, taking the measure of Eldon Moosimin in the flyweight division to get the ball rolling for the Northerners.

Cole Raftery and brother John, of Elliot Lake, were victorious over the Saskatchewan fighters, as was Steve Nolan, of Sault Ste. Marie.

On the second night, the senior division swung into action, again with the east taking most of the matches. The only local fighter was Floyd Jeanveau, from Estaire.

Jeanveau brawled his way to a technical knockout decision over Neil Melrose, of Calgary, at 2:35 of the first round. Despite his win, he was not recommended as an Olympic entry by the Canadian Amateur Boxing Association.

Most of the fans leaving the Sudbury Arena were in a boisterous, happy mood, with many of the ring buffs voicing their praise about Johnny Teale and Omer Gagnon, two of the many men who worked countless hours to make the show a success.



*Inco pensioner Clark Phillips presents gold medal to Cole Raftery, of Elliot Lake. Clark is a former boxer and wrestler and made quite a name for himself during the years 1935 to 1939. He was installed in the Boxing Hall of Fame in 1974.*



*Gerry Cullain, Inco's manager of central utilities, and Angie Gagnon, prior to the medal presentations.*

Many of you have seen those cigar-shaped railway cars around the Copper Cliff smelter. Ever wondered what they are used for, or where they go?

The unofficial name for them is hot metal cars, but officially they're known as "molten copper torpedo cars". They are used to transfer molten blister copper from the Copper Cliff smelter to the Copper Cliff copper refinery, and they are much like a "thermos bottle on wheels". At least they do exactly the same thing as a thermos bottle, but instead of keeping your coffee warm, they keep molten copper warm.

Inco has five such railway cars — three with a capacity of 30 to 40 tons each, and two capable of holding about 150 tons each. The small cars were first introduced in 1937 and were the brain-child of Fred Benard, who was then superintendent of the Copper Cliff copper

refinery. They had been used in the steel industry prior to that time, but it was Fred's idea to adapt them to the copper industry. The two large capacity cars were introduced at a later date.

Bernie O'Neill, a supervisor in the transportation department, was a brakeman on the first hot metal car when it made its first trip. "Bill Boyle was the conductor, and Jim Henry was the engineer," said Bernie. "We loaded up at number 12 converter and took it to the copper refinery. At that time, the track went right through the town of Copper Cliff, and we crossed the highway on a wooden trestle."

"I remember everyone being worried about the copper freezing up, so we kept oil burners going on the car all the time," Bernie stated. Each time the engine came to a diamond junction the

fuses on the oil burner would blow and cut off the power to fire the oil burner. The power was trolley power taken from the locomotive. "That first run was full of problems", said Bernie. "I think we only made one trip that day."

In subsequent months, they realized it wasn't necessary to keep oil burners on the car. The car was so well insulated that the molten copper lost only a small amount of heat in transit.

The large-capacity hot metal cars made their first run in October of 1968. When fully loaded with molten copper, they weigh approximately 345 tons and are easily the heaviest cars on our railroad. You can get some idea of their weight when you consider that an average ore car weighs 23 tons when empty, while the big hot metal cars weigh 195 tons empty!

# Thermos On Wheels



*This is one of two 150-ton capacity hot metal cars on its way to the Copper Cliff copper refinery with a load of hot metal.*

The molten copper torpedo cars are built in Canada at Sorel, Quebec, and when they arrive in Copper Cliff, they are nothing more than metal shells which have to be lined with refractory bricks by Inco masons.

A typical loading and unloading procedure goes like this: molten copper from the east end of the converter building is poured from the copper converters into a ladle and in turn is poured into a hot metal car. The average caste, or amount of copper, is about 125 tons per converter. After a hot metal car is filled, it is transported to the copper refinery and poured into one of three anode reverberatory furnaces, each with a capacity of 400 tons.

These furnaces are charged or loaded with a combination of cold copper and molten copper. The molten copper is poured from the hot metal car when the

body of the car is rotated on its axis. This is accomplished by an electric motor and gear train which can control the degree of tilt, and thus the flow of copper into the furnace.

Once empty, the car is returned to the smelter where it is either filled or placed on standby. Even when on standby, it must always be kept warm with auxiliary burners. The only time that the inside of the car is allowed to cool down is when it needs to be rebricked, a task carried out about once a year.

Before the advent of hot metal cars, copper was shipped to the copper refinery in the solid state. It then had to be reheated and melted when it reached the copper refinery. By using molten copper torpedo cars, this is no longer necessary, realizing a saving in energy, money and time — items that mean a great deal in this inflationary period.



*Conductor Battista DeMarchi, left, and transportation supervisor Bernie O'Neill.*



*Lucio Fabris — a study in concentration during badminton tourney.*

# LUCIO FABRIS

## BADMINTON

## CHAMP

An international badminton tournament was recently held at Laurentian University between Sweden and Canada. One member of the Canadian team was Lucio Fabris, son of Creighton mine switchman Guiseppe Fabris.

According to Canada's technical director for badminton, Roy Roberts, Lucio is Canada's outstanding junior and has been so for the last three years. Lucio, at 18, is still dominant in junior badminton but hasn't had the exposure to international matches. He hopes that matches of this type will allow him to gain the fine edge that is necessary for international competition.

The tournament at Laurentian was the first of seven such encounters that will take place across the country on a national tour. Other stopovers will be in Toronto, Vancouver, Calgary, Edmonton, Jonquiere, P.Q. and Quebec City.

At Laurentian, a total of five games were played, with Sweden having the edge on play, beating Canada 3 games to 2. The Canadians are expected to improve as the tournament progresses.

*Reaching for the elusive "bird", Lucio Fabris executes a return to his Swedish opponent, Bruno Wackfelt.*



# The Reading Room

... or ...

## a little bit about a little library

Housed in the upper realms of Inco's Copper Cliff process technology building is a much-used, yet little-known library that dates back to the war years — and before. Functioning as part of that department, the library is in fact equipped to handle almost any request for published material that pertains to the mining industry.

And the requests do flow in, to the tune of over 600 a month, from our people in Shebandowan, Thompson, and Copper Cliff!

Originally set up by Ken Robb, now research associate at Sheridan Park in Mississauga, the library is currently handled by the one-man team of John Bernier, who came to Inco in 1961 as a technician with smelter technology. John's been librarian since 1966, and

tells us that "if it pertains to any aspect of mining, chances are you'll find it in Extramet".

"Extramet"?

Inco's unique literature awareness system is based on a digest that originates, twice monthly, in Sheridan Park. The Extramet Digest is a comprehensive listing of subject matter, complete with brief description, that's distributed to key points throughout Inco's various facilities.

When John first came to the library, requests for information averaged about 165 a month; he now fills nearly 4 times that many monthly, satisfying about 75 per cent of that total from his own sources. Information not available from his shelves is requested from other sources, including the Sheridan Park library, one of two libraries in the Toronto offices, or the exploration library in Copper Cliff, which is looked after by Connie Reid.

To further accommodate requests, Sheridan Park has a computer line hooked up to the National Science Library in Ottawa; information on published works can be obtained as far back as 18 months.

Approximately 1,500 technical volumes line the walls of the process "tech" library, in addition to non-categorized material; for example, file collections of papers given on various processes; descriptions of Canadian and American patents; government reports, and more.

John and process technology section leader, administration, Jack Donahue, determine the acquisition of new books and subscriptions for the library, which has become a hub of activity for active, inquisitive minds.

*John Bernier, librarian, and Julie Eddy, stenographer, process technology department.*



When members of the Walden "Mush-in-Do" Karate Club get together, it's strictly for physical exercise and to build up their self-confidence, according to Dennis Adams, a second Dan Black Belt and the club's chief instructor.

Teaching karate for self-defence is only a minor reason for the club's popularity", says Dennis, a teacher at the Naughton Public School.

Dennis readily agrees that the most devastating and lethal method of unarmed combat is indeed karate, a Japanese word meaning literally "empty-handed" and claims that a karate expert is proficient at striking an opponent with his hands, legs and elbows, and even

his head. He can produce combinations of blows with amazing dexterity and speed, or demonstrate his power by breaking boards, tiles, rocks, or blocks of ice. And a karateka — a karate opponent — is better equipped for a real fight than a boxer, a wrestler, or even a judoka.

Such values, Dennis feels, have brought karate tremendous popularity — in North America it has overhauled judo in the number of participants. But, he feels, the sport suffers from a lack of organization, while the contests, though exciting, are somewhat unsatisfactory, because real blows cannot be landed.

Nevertheless, says Dennis, classes

are well attended on Monday and Wednesday nights at the Walden Community Centre, with some 35 participants coming out for regular practise sessions.

"Karate is a great harmonizer; it unifies the mind, body and spirit," he says, pointing out that it takes some two to three years of hard and conscientious training to become an expert at the sport.

New members are instructed in basic stances, such as Zen-Kutsu; they are taught how to walk and fall and how to block long before they learn to strike.

"Actually, there are three main training methods", says Dennis. "Firstly, there are the basic techniques, kata, and

**It Unifies Mind, Body And  
Spirit And Builds Up  
Self-Confidence...**

# Karate —

*Dennis, centre, supervising a defensive downward block by Paul Laplante, left, and Marlon Adams. Both Paul and Marlon are wearing the coveted brown belt.*



kumite, and sessions usually last a minimum of one hour. Some styles, notably shotokan, restrict free sparring until the third Kyu is reached, usually after two or three years of hard training. This is because the less experienced karateka lacks control, and can also ruin his style by sparring too early."

"Basic techniques, including combinations of kicks and punches, are repeated time and again in a bid to reach perfection, while kata helps to brush up on the basic movements".

"The breaking of boards," states Dennis, "is done in training only to give the pupil some idea of the power he has acquired."



*Instructor and students warming up before the karate session. From left, Dennis Adams, chief instructor, Doug Terry, Jim Flynn, Bill Andrews and Bob Dupuis. Classes are held Monday and Wednesday evenings at the Walden Community Arena.*

# A Great Harmonizer

*Gordon Gourley, right, lands a "round house" kick to the head of his opponent, Jim Flynn, left, while Allan Knaut, centre, explains vital striking points.*





**Kurt Ernst \$975**

Over a hundred employees collected \$5,640 in this month's edition of the suggestion plan. If you could use some cold cash to cool you down during the hot months of summer, why not send in your money saving ideas? It could mean money in your pocket!

Collecting the top award was **Kurt Ernst**, from the Copper Cliff copper refinery. He received \$975 for his idea to install carbofrax tubes inside burner blocks.

At the Copper Cliff mill, **Luka Dukal** was awarded \$490 for reconditioning the gland side case sleeve-seat on the SRL pumps.

The team of **William Pilon** and **Arthur Chevrier**, of Creighton mine, split \$415 for proposing that the inspection plate be enlarged on mobile gesters.

**William Perreault**, of the Copper Cliff copper refinery, received \$240 for suggesting that cable guides be installed on the number three vertical Kuli hoist.

**William Dryland** picked up \$200 at Copper Cliff South mine for his idea to purchase portable spray painting machines.

**David Wiltshire**, formerly of Kirkwood mine, now on pension, was awarded \$195 for suggesting that guard-rails be installed around fuel truck pumps and filters.

At Creighton mine, **Blair Purvis** received a \$190 bonus for his idea to replace five-



**Luka Dukal \$490**

inch threaded couplings on Moyno pumps with two five-inch threaded pipe flanges.

**Phil Landry**, of the Copper Cliff copper refinery, went home \$150 richer for his simple idea to install a door at the west end of the cut-off saws for easier access to the carpenter shop.

Receiving \$80 was **Leo Bertrand**, Copper Cliff copper refinery. Leo proposed that a screen be installed on the overflow opening of the Bosh tanks.

At the Copper Cliff copper refinery, **Bruce Brydges** and **Jean Paul Gauthier** received \$75 each for two separate awards. Bruce suggested modifications to the soda ash unloading pan, while Jean Paul came up with the idea to install a chain block at door number 30. **Gilbert Prevost**, Garson mine, received \$75 when he came up with the idea to tap the sand plant water line to wash the mixing tank and floor. At Levack mine, **Ellsworth Stevens** was awarded \$75 for his suggestion to replace the foot-valve on the Gardner-Denver up-hole machine with a slusher foot valve.

The team of **Jacques Genereux** and **Don Carlyle**, of Levack mine, split \$60 for suggesting that the shut-off cables on Jarco scooptrams be replaced with mechanical linkage. **George Solomon**, Copper Cliff South mine, pocketed \$60 for proposing the

use of sturdier packages for shipping rags underground.

**Ovide Brunet**, Frood-Stobie mill, picked up a \$55 bonus for suggesting modifications to Denver cell agitator blow pipes.

The following employees received \$50 awards: **Toni Papaleo** and **Camillo Parisotto**, Copper Cliff copper refinery; **William Baxter** Copper Cliff smelter; **Thomas Boyd**, Stobie mine; **Keith Ferris**, Creighton mine; **Alan Gillies**, Copper Cliff South mine; **Rene Ledu**, Little Stobie mine; **Gerard Levack** Copper Cliff South mine; **Joseph Murphy**, Copper Cliff copper refinery; **Barry Van Horne**, Creighton mine; **Paul Vukobrat**, Copper Cliff South mine.

**Romeo Paquette**, Stobie mine, was our lone \$40 winner.

Collecting \$37.50 each were **Roland Albert** and **George Kennedy**, both from the utilities section.

At the \$35 mark we have **William Bates**, Stobie mine, and **Don Leblanc**, Copper Cliff copper refinery.

The following employees received \$30 awards: **Eugene Donnelly**, Copper Cliff copper refinery; **Daniel Gagne**, Copper Cliff South mine; **Bruce Killah**, Little Stobie mine; **Maurice Lahaie**, Copper Cliff copper refinery; **Edwin Lang**, Copper Cliff copper refinery; **Gordon McCandless**, Copper Cliff

# Over \$5,600 Awarded To More Than 100 Employees



**William Pilon \$415**

copper refinery; **Reginald Park**, Iron Ore Recovery Plant; **Leo Vincent**, Copper Cliff copper refinery.

At the \$25 mark we have **William Chapman**, **Richard Croteau** and **Wayne Lamore**, Copper Cliff South mine; **Wilford Bebee**, Copper Cliff South mine; **Louis Bedard**, Copper Cliff smelter; **Normand Coutu**, Frood-Stobie mill; **John Duggan**, Frood-Stobie mill; **Gerald Forest**, Frood-Stobie mill; **Fred Frey**, Copper Cliff copper refinery; **Jean Paul Gauthier**, Copper Cliff copper refinery; **Don Gibson**, Frood-Stobie mill; **Joseph Goedhard**, Iron Ore Recovery Plant; **Bryan Grace**, Copper Cliff copper refinery; **Ken Hall**, Shebandowan mine; **Albin Haynes**, Copper Cliff South mine; **Michael Hurley**, matte processing; **James Ilnitski**, Frood-Stobie mill; **Glen Johnston**, Frood mine; **Brian Latondress**, Frood-Stobie mill; **Raymond Leclair**, transportation; **Andy Lemay**, Copper Cliff South mine; **Constantine Maragapoulos**, Copper Cliff smelter; **Robert McLaughlin**, Creighton mine; **Glen Smith**, Frood-Stobie mill; **Antti Suasalo**, Creighton mine; **Antonio Venier**, Copper Cliff copper refinery.

Receiving \$20 awards were **William Baxter**, Copper Cliff smelter; **Alban Gallien**, Iron Ore Recovery Plant; **Francis Godin**, Little Stobie mine; **Bryan Grace**, Copper Cliff copper refinery; **Al Kehoe**,



**William Perreault  
\$240**

**William Dryland  
\$200**





**Blair Purvis \$190**



**Phil Landry \$150**

Shebandowan mine; **Daniel Langlois**, Copper Cliff copper refinery; **John Miron**, Iron Ore Recovery Plant; **Wellington Mowry**, Crean Hill mine; **Welkko Pajunen**, Garson mine; **Camillo Parisotto**, Copper Cliff copper refinery; **Reginald Park**, Iron Ore Recovery Plant; **Lavern Pitzel**, Copper Cliff smelter; **Donald Poirier**, Creighton mine; **Arthur Schmitt**, Iron Ore Recovery Plant; **Leo Vincent**, Copper Cliff copper refinery.

At the \$15 mark were **Luigi Ongaro** and **Harold Dewar**, Copper Cliff copper refinery; **Andre Aubin**, Copper Cliff copper refinery; **Harold Dewar**, Copper Cliff copper refinery; **Daniel Gagne**, Copper Cliff South mine; **Joseph Goedhard**, Iron Ore Recovery Plant; **Del Gultard**, Stobie mine; **Bruce Killah**, Little Stobie mine; **Roger McCormick**, matte processing; **Denis McLay**, Copper Cliff South mine;

**Joseph Murphy**, Copper Cliff copper refinery; **Dana Northcott**, Shebandowan mine; **Gerard Rivet**, Copper Cliff smelter; **Camillo Parisotto**, Copper Cliff copper refinery; **Tom Robertson**, Copper Cliff copper refinery; **Jack Ruddy**, Iron Ore Recovery Plant; **Gozewinus Van Bakkum**, Copper Cliff copper refinery.

Receiving \$10 awards were **Antonio Farese** and **Robert McCormick**, matte processing; **Lionel Bourcier**, Crean Hill mine; **Thomas Boyd**, Stobie mine; **Don Cretzman**, Creighton mill; **Stephen Dalley**, Shebandowan mine; **Dale Graham**, Stobie mine; **Rudy Grette**, Copper Cliff smelter; **Doug Koroscil**, Levack mine; **Dwight Middleton**, Crean Hill mine; **Larry Pilon**, Stobie mine; **William Scott**, Frood mine; **Mark Tinkis**, Copper Cliff South mine; **Mark Tugby**, transportation.

# New Member In Wise Owl Club

Another Inco employee has joined the elite ranks of the "Wise Owl Club" because of proper use of his safety glasses.

Ron Budgell, a furnace helper at the Copper Cliff copper refinery recently reported for work just like any other day. But little did he realize his day would end in a very different way!

One of the jobs that Ron performs during his shift is blowing the furnace at the anode department in the copper refinery. It consists of inserting a hollow pipe, attached to a compressed air line, into the furnace and allowing the air to blow up through the molten material in the furnace. This is required to push the slag to one end from where it is removed by skimming.

After a few minutes, the hollow pipe becomes heated and starts to bend. At this point it has to be removed, and the tip is broken off by striking it against the ground. And it was at exactly this point that Rod Budgell was glad he was wearing his safety glasses!

As Ron puts it, "I removed the red hot pipe from the furnace and hit it on the ground. But instead of breaking off, a small piece of molten material flew off the end and hit me in the left lens of my safety goggles. For a moment I was stunned, I thought I was blind. But then I realized that my safety glasses had protected me."

Ron finished his job and then showed his goggles to Vic Daveikis, his supervisor and foreman of the anode department. Vic in turn reported the incident to anode department supervisor Bob Sandberg, who notified the safety department, and Ron became a member of the "Wise Owl Club".

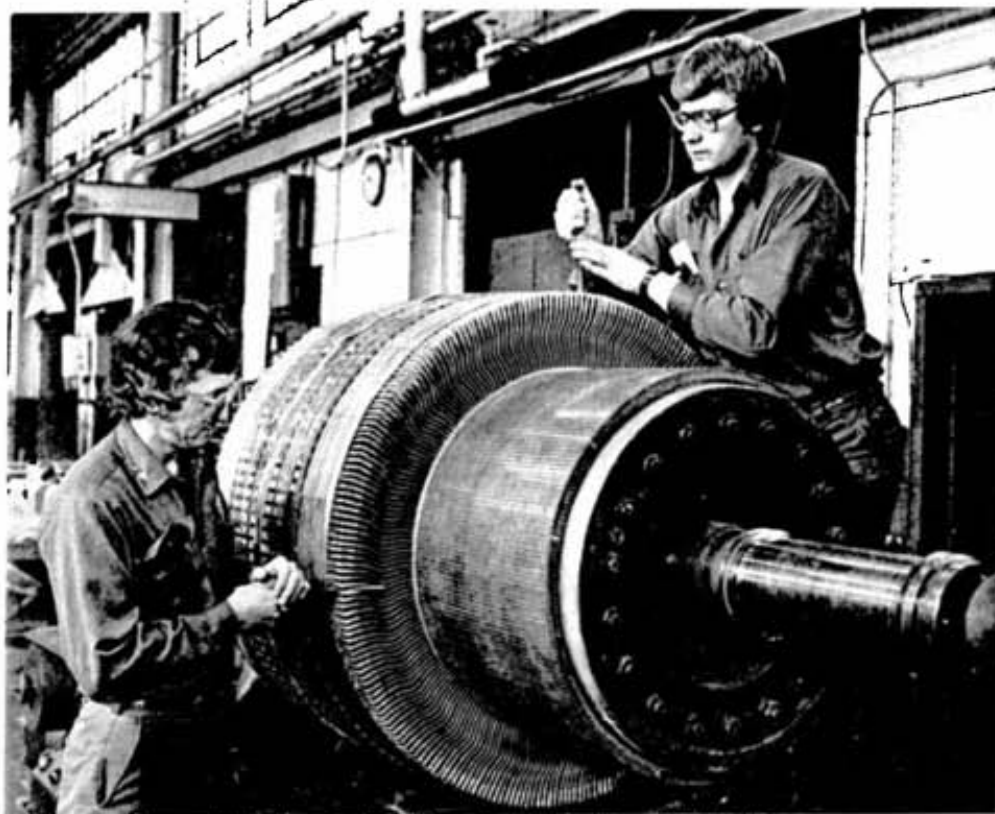
"If anyone needs proof that safety glasses are necessary, just send them to me," said Ron. "I'll convince them in very short order."



*Ron Budgell, a furnace helper at the Copper Cliff copper refinery, takes a close look at the goggles that saved the sight of his left eye.*



*Ron and foreman Vic Daveikis at the site of the accident. The blowing rod is inserted in the opening which has now been plugged with clay.*



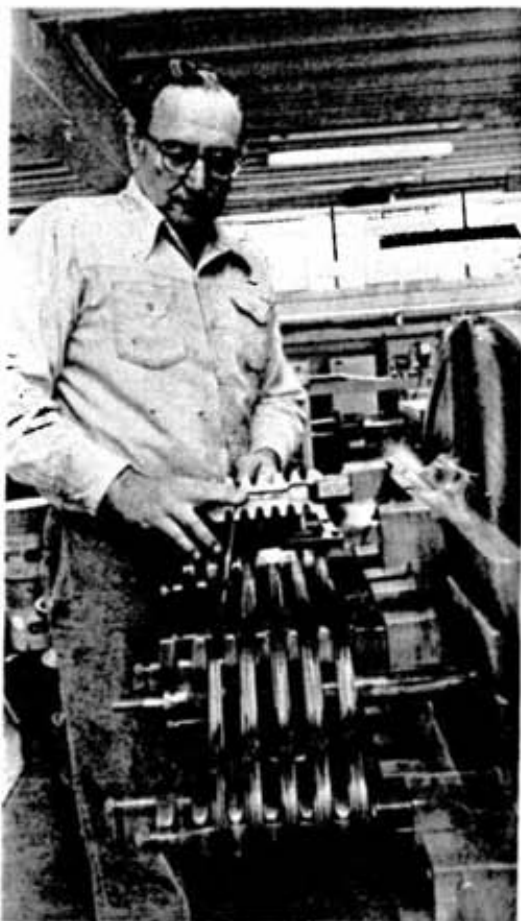
*Spencer Rooney, first-class winder, left, and apprentice Larry Soliski in the final stages of completing a major overhaul. They are tiling the risers on a 1,000-kilowatt generator armature, used on the skip hoist at Creighton mine.*

## Copper Cliff Boasts Expert

Located in the heart of the Copper Cliff smelter complex is an unobtrusive building on "shops row". Its qualified workmen are capable of repairing any electric motor, generator and transformer of Inco's mines and plants in the Sudbury district.

It's known as the winding shop, since most of the work involves winding copper wire or coils used in electrical equipment. The shop works on an exchange principle for a percentage of the electric motors sent in for maintenance. A similar motor is shipped out to replace the one in for repair.

The importance of the winding shop lies in the fact that costly delays can be avoided because major repair jobs can be handled in Inco's own shops instead of having to be shipped to an outside source. In fact, some of the items manufactured in the winding shop are unique to Inco and can only be made by hand, utilizing the skill of Inco winders. For example, Inco still uses considerable 25-cycle electrical equipment, for which replacement parts are unavailable. Consequently, required parts are made in our own winding shop.



*Albert Langlade, first-class winder, in the process of making coils for a 40-h.p. T-frame motor on an automatic winding head.*

# Winding Shop Craftsmanship

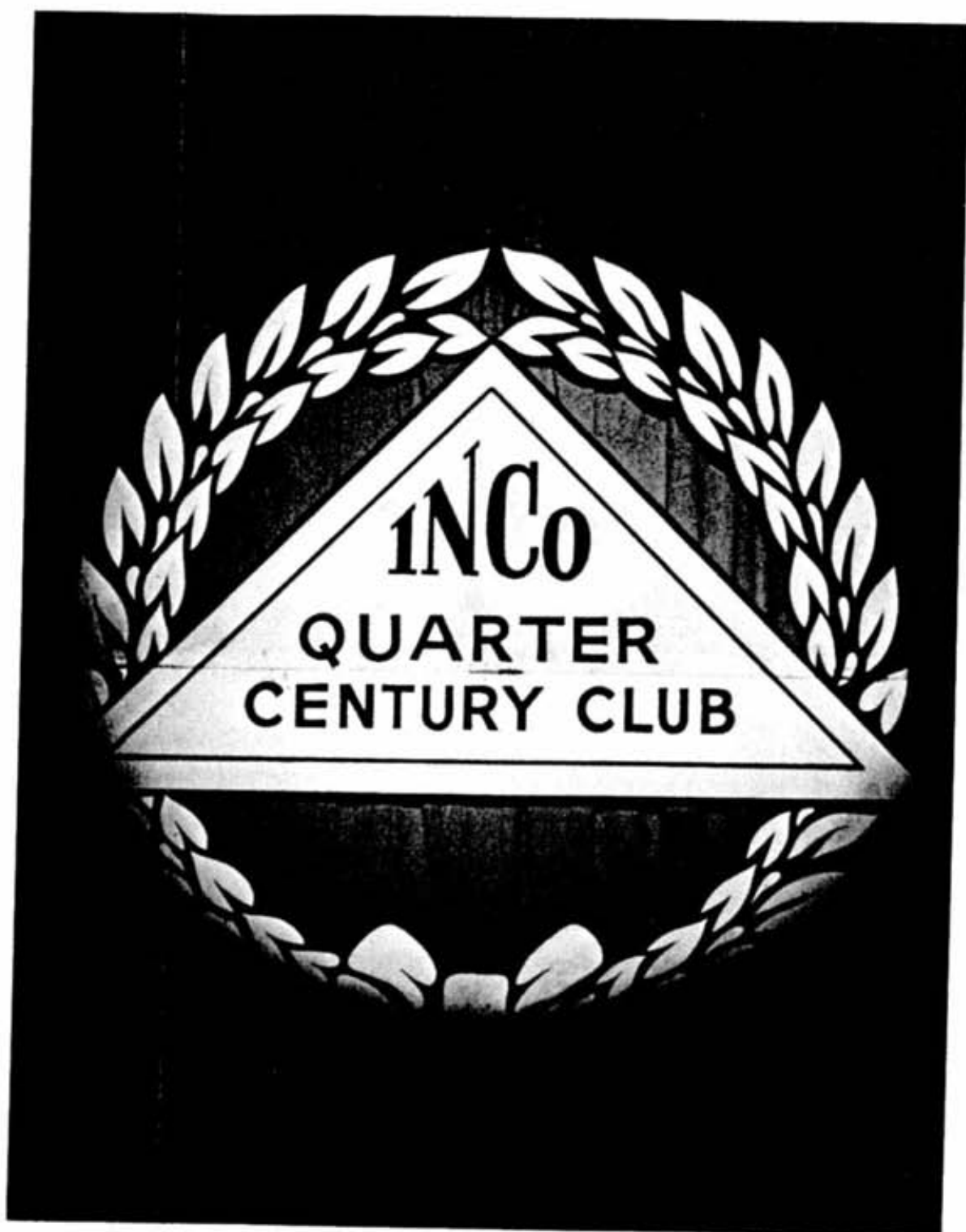
To become a winder, a four-year apprenticeship is required to learn the trade. This involves practical work, which is learned on the job. Also, courses are offered through Inco's training and development program. There are presently 25 first-class winders in the winding shop, which is co-ordinated by Buck Basso.

One of the jobs of a winder is to be able to estimate the damage on a motor which is to be repaired. On large units, over 900-h.p., the situation is assessed on site. That is a winder will go to where the motor is located to determine whether minor repairs can be done on site or whether the motor requires a major overhaul. If a major repair is necessary, the motor is transported to the winding shop.

In routine service and maintenance as well as on special assignments, the men in the Copper Cliff winding shop maintain a high standard of craftsmanship. Along with other support services of the central shops, they form an important link in the chain necessary to keep everything on stream at Inco.



*Joe Urban, a first-class winder, applies the finishing touches to a 900-h.p. compressor motor stator from the number one substation in Copper Cliff. The motor was in the shop to have two of its coils replaced.*





*This is the only acrobatic troupe that can perform the four-man high somersault.*



*This is the "Oriental Princess Dance Revue" in members at the Sudbury arena. The versatile the night ended.*



*Part of the crowd in attendance during the We All 7,021 members of the Copper Cliff chapter to attend.*



*Jerry Murad's Harmonicats highlighted the event practically every major night club in the county TV shows.*



performance for Quarter Century Club group had people dancing in the aisles before



1,082



Wednesday evening "night of entertainment". of the Quarter Century Club were invited



ing's entertainment. They have appeared at and on many of the top network variety





Gar Green, vice-president of mining and milling, 25-year member from Creighton mine. Tom Par, was also on hand to congratulate Red.



Charlie Hews, vice-president of administration and Norma Darrach, the only lady to be inducted. Looking on are Dr. John Jones and Biddie Hews.



Gord Machum, vice-president of smelting and refining from the Copper Cliff smelter. In the background vice-president, and his wife, Margaret.

# in '76



illing, presents gold pin to Red Conrad, a new  
Parris, executive assistant to the vice-president.



ion and engineering services, presents a 25-year pin  
cted into the Quarter Century Club this year.  
Hews.



nd refining, congratulates Ernest Castrechino,  
round are Bud Feick, executive assistant to the



Roly Hammond and his duck as multitalented master of  
wit and ceremonies.



*Jean Cormier on the job as cementationman at the Port Colborne nickel refinery.*



*The musical Cormier family has an impromptu jazz session at their home. They are, from left, Paul, Lillian, Jean, Doris and Francine.*

Music is important in the home of Lillian and Jean Cormier in Welland. Lillian, besides looking after the household chores, still finds time to enjoy her favourite pastime of playing the piano. She and Jean have been members of the special concert choir at Sacred Heart Church for the past two years and at the time picture was taken, were busy practising for a forthcoming presentation in the Church.

Their older daughter, Doris, is presently living in Ottawa where she is on the staff of Pierre La Porte Senior Public School as a music teacher while also teaching piano in her spare time. The entire family is busy making final arrangements and looking forward to her forthcoming marriage on July 2nd.

Francine, age 16, a grade 11 student at Confederation High School in Welland, plays trumpet in the school concert band and is presently studying for her grade ten piano exams and still finds time to teach piano.

Paul, age 19, a grade 13 student at Confederation, plays guitar and has 12 pupils presently taking guitar lessons from him.

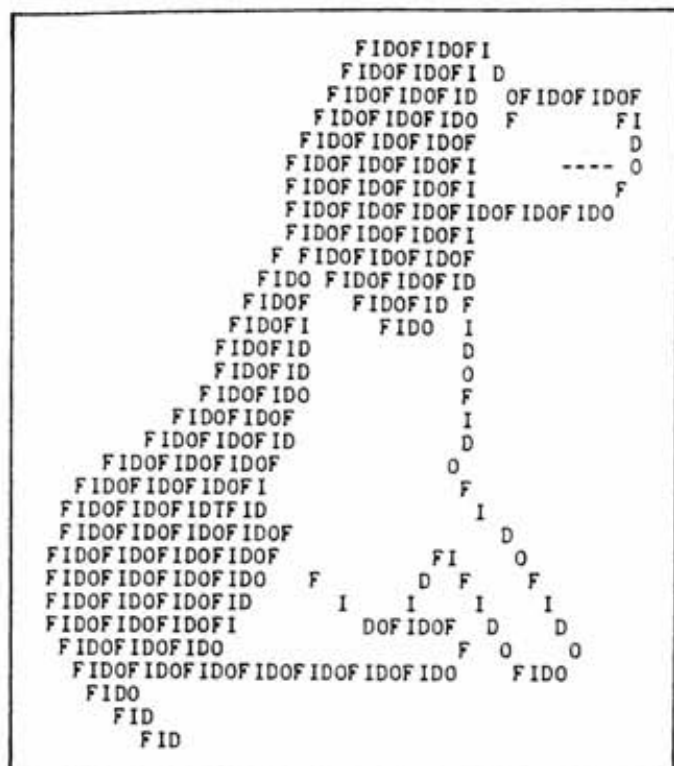
A musical family? You better believe it! Jean was born in Three Rivers, Quebec, but moved to Welland in 1948 and started with Inco at the Port Colborne nickel refinery the same year.

## Jean Cormier's Musical Family



*Jean Cormier and his wife, Lillian, at choir practice at Sacred Heart Church.*

# Electronic Pioneers



*This is one example of the type of variation that the teleprinter is capable of receiving.*

Richard Forget is a ham. So is Vince Vienneau and Harley Urquhart. But they don't mind being called hams; in fact, they're quite proud of the title!

You see, they're not actors who get boo'd off the stage. Far from it! They're amateur radio operators, at least that's what they're called, but as you'll see, they're no amateurs in their knowledge of electronics.

Not just anyone can be a ham operator, because it takes a great deal of time and effort. To receive your ham operator's licence, you have to pass a very stringent set of exams which are set forth by the Department of Communications. The exam consists of three parts. Firstly, you have to be able to send and receive Morse code at a minimum of ten words per minute; secondly, you have to know the theory behind electronic communications; and, finally, you have to be familiar with all operating procedures as set out by the department.

Even when you pass the exam, you are still not a full-fledged ham operator. You

have to operate using Morse code for the first year, after which time you can try for your full licence.

Richard Forget, Vince Vienneau and Harley Urquhart are all Inco employees. Richard is foreman of the instrument shop, Vince is an electrician at Creighton mine, and Harley is a skip tender, also at Creighton mine. All three have ham outfits in their basements and all three communicate with other ham operators all over the world.

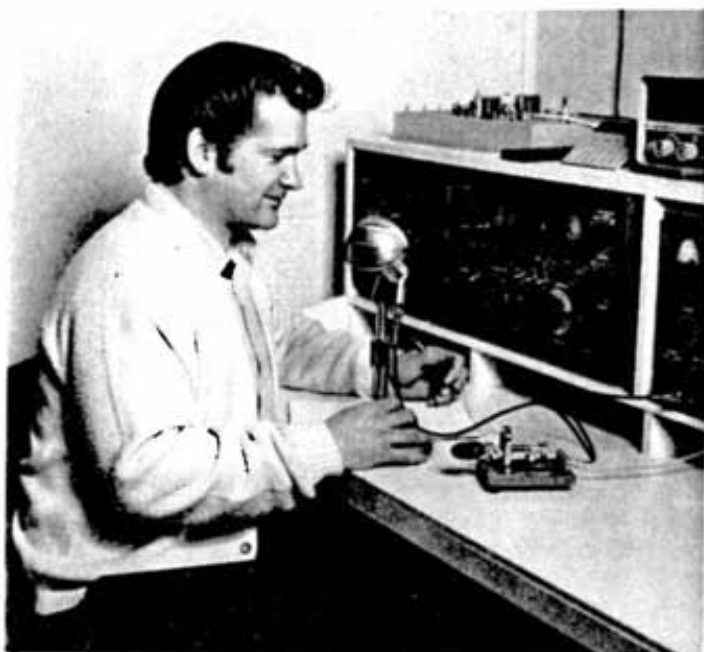
But hams are much more than just long-winded talkers utilizing radio waves. They're more in the league with electronic pioneers. Did you know that "hams" were using short-wave communication before commercial radio was around? It's true! They are constantly on the forefront of technical progress. For example, the world's most advanced high-frequency radio telegraph receiver was designed by a ham operator.

Amateur radio is a very diversified hobby and evolved because of necessity. Years ago you couldn't buy equipment,

you had to build it yourself. As you built it, you learned what each component stood for and took pride in building your own custom set. You can still do that today, but there are many more commercially produced units on the market than before.

It is indeed surprising what ham operators can do. For instance, they use teleprinter terminals to send and receive messages from other hams with similar sets. Instead of talking to another operator, they sit down at a typewriter keyboard and type the message. Or they can send pictures using the printing as shading instead of a pencil.

One of the more exotic ways of communicating is using slow scan television. That's right, television! This consists of a TV camera and a television set. Since the nature of the signal causes the image to appear on the screen one line at a time, the subject has to be pretty well stationary. This method is more commonly used to send still-life scenes or photographs which are fastened to the front of the camera.



*Richard Forget at the controls of his ham outfit in the basement of his home.*



*Harley Urquhart in the process of tuning his antenna. This enables the signal to come in strong.*

Another item that ham operators are noted for is the public service they perform to aid people. Vince Vienneau recalls a time in 1967 when an urgent request for four units of blood came over the air waves. "Apparently a fireman in Toronto was badly injured and required four pints of B negative blood," said Vince. "I heard the call and immediately checked with the Sudbury General Hospital and the Red Cross. They were able to supply the blood, so I called Toronto back and told them that the blood was on the way."

Both Vince and Harley have public service awards from the American Radio Relay League. They were presented with certificates for "meritorious work with communications, provided after a gale with hurricane winds struck the Lively-Copper Cliff area on August 20, 1970." They were on the go for almost 20 hours, relaying messages to relatives all over the world.

That's ham radio — and even though they're classed as amateurs, they're professional in every sense of the word.

*Checking a printout coming off his teleprinter is Vince Vienneau, an electrician at Creighton mine.*





*John Kramer*

# Port Colborne HOTLINE 835-2454

The response to the Port Colborne edition of HOTLINE, introduced April 1, has exceeded all expectations. With a total of five code-a-phones in operation, calls have risen to a high of 542 in one day!



*Mary Grace*



*George Brown*

To provide a diversified coverage, new commentators have been added to the growing list of contributors: listen to Les Lewis for camera tips, local interest items, some humor — Joe Rossi with safety tips relevant to home as well as at work — Bill Kantymir for plant and local items — John Kramer will cover employee benefits plus C.B.A. items — Mary Grace will include some good health habits — George Brown will speak on staff and employee benefits, income tax tips, etc. while Alex Zahavich will provide some useful information on conservation of energy.



*Bill Kantymir*



*Alex Zahavich*



*Les Lewis*



*Joe Rossi*

# Sudbury Senior Choir Charms Audience In Columbus, Ohio

Some 61 members of the Sudbury Board of Education senior choir recently spent a number of days in Columbus, Ohio. The ambitious project involved a 12-hour bus trip, a public performance on Sunday, May 23, and a total of five mini-concerts at different high schools on May 24.

The choir is composed of grades 7 to 13 students and ten teachers from within the Sudbury Board of Education system. It is conducted by Donald Weir, with assistance from Eileen Burr and Ron Zinkie. Eileen's husband, Ken, works at Frood mine and her son, James, also works at Frood as a summer student. Ron's father, Elmer, works as a fitter in the Copper Cliff converter building. The choir is ably accompanied by June Brown. She is the wife of Ron Brown,

assistant to the vice-president, mining and milling, Copper Cliff.

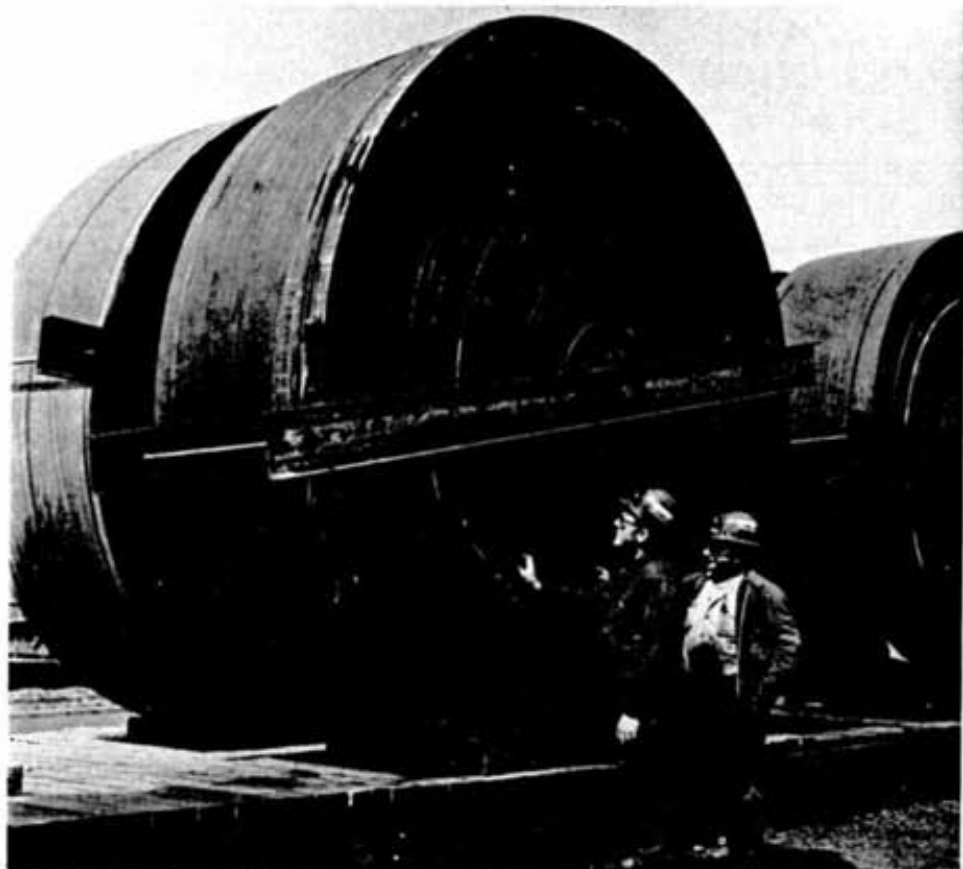
The choir recently presented its 26th annual concert at Sudbury's St. Andrew's Place. An instrumental ensemble, made up of students from Copper Cliff elementary and secondary schools, conducted by Emil First, accompanied the choir in some selections and also performed on the program. Prior to the annual concert, four mini-concerts were held in district schools.

Also, this year a junior choir was formed, comprised of grades 5 to 7 students. It is hoped that their training program will augment the senior choir as present members graduate from high school.



*Members of the Sudbury Board of Education senior choir in rehearsal at Princess Anne School in Sudbury. Ron Zinkie, assistant conductor, centre, points to score sheet in front of Eileen Burr, also an assistant conductor, and June Brown, accompanist. The choir is composed of 61 students chosen from grades 7 to 13 and 10 teachers.*

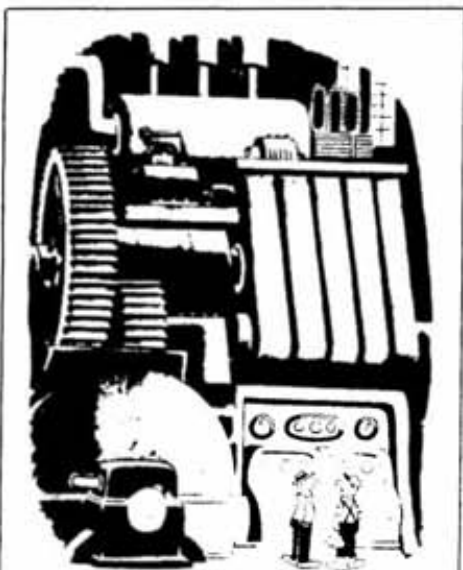
# NEWSMAKERS . . . NEWSMAKERS . . . NEWSMAKERS . .



Like **Camille Cote**, yard laborer, left, and **Joe Laforest**, yard boss at Froid-Stobie mine, you're looking at \$268,000 worth of steel-cord belting. Some 42 inches in width and a little over one inch in thickness, the belting weighs 28 pounds per foot and comes in 1,300-foot rolls, weighing 18 tons each! The four rolls, 5,200 feet in total length, will be used to convey ore from Stobie mine to the Froid-Stobie mill, once the present conveyor belt is retired.



**Bob Canapini**, a first-class winder in the Copper Cliff winding shop, specializes in producing contactor coils used in small electrical equipment. Many of the coils simply cannot be purchased from equipment manufacturers so he has to custom-design most of the coils and then catalog them for future reference. "When I get a damaged coil from the field," Bob says, "I'll have to measure it, figure out the number of turns of wire and make the whole thing by hand. But once it is cataloged, I assign a number to it. If it comes in for repairs again, I have the information at my fingertips." In the foreground are some of the coils which he has already made. It is interesting to note that, for some jobs, he uses wire thinner than a human hair and has to put as many as 16,000 turns on each coil.

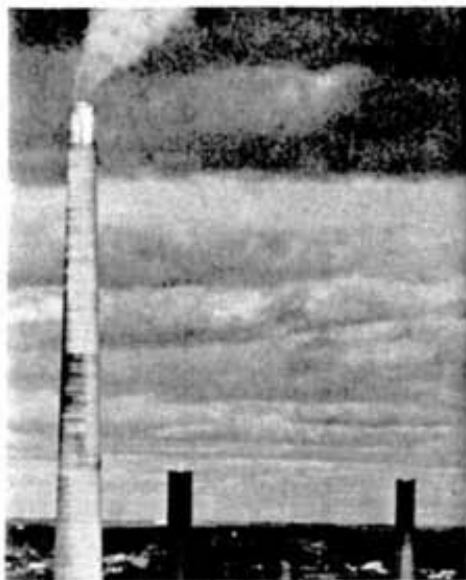


"Of course, the hexical jack shaft limiter relay might possibly stick, preventing the coaxial copulator from actuating . . . in which case, give it a kick!"



Coach **Roger Tessier**, a driller at Froid mine, is justly proud of his Madison Heights hockey team which recently took first prize honors in the Sudbury parks and recreation hockey tournament after winning each one of its 33 games. Team members are, front row, from left, **Pierre Brunet**, **Kevin Jinks**, **Ronnie Hoover**, **Robbie MacGregor**, **Stewart Anderson** and **Rory Adams**. Back row, from left, coach **Roger Tessier**, **Marc Tessier**, **Craig Dougan**, **Alain Cormier**, **Danny Scott**, **Michael Stevenson**, **Dean Beyea**, and **Jack Simoneau**, assistant coach.

# NEWSMAKERS . . . NEWSMAKERS . . . NEWSMAKERS . . .



Did you know that the superstack is listed in the Guinness Book of World Records? It's true. In the category of "Tallest Chimney", the superstack, at 1,245 feet 8 inches, is the world's tallest chimney. It has a diameter of 116.4 feet at the base and tapers to 51.8 feet at the top. And just in case you ever wanted to weigh it, the chimney would tip the scales at 38,390 tons!



Achievement certificates were recently presented to 22 Shebandowan mine staff members for their efforts in completing the 40-hour course on "Fundamentals in Supervision". The course was offered this year over a period of nine weeks in Shebandowan's new training facility. Special recognition was accorded those who obtained results in excess of 90%. Here **Eric Kossatz**, manager, Shebandowan mine, right, presents achievement awards to, from left, **Peter Chicoline**, safety supervisor; **Frank Reynolds**, planner; **Jim Elliott**, supervisor of purchasing and warehousing, and **Hal Wood**, geologist.



**John Rubocki**, accepting a desk pen set from **Gill Landry**, is the latest research station employee to leave for Indonesia, where he will be working for **Brian Ewing** as a foreman in the reduction-smelting plant of P.T. Inco Indonesia. John, along with wife **Gail** and two-month-old daughter **Lori**, left Canada April 25. Like the majority of expatriates in Indonesia, they are expected to return to Canada in a few years once Indonesian nationals have been trained to assume supervisory duties in the new mine and plant. John joined the research stations in 1966 as a pilot plant operator, and after experience in No. 1 and No. 2 research stations at increasing levels, became a shift foreman in 1974.



With over one mile of "In-The-Hole" drill pipe at Inco mines in the Sudbury district, it is important that drill rods are carefully checked on a continuing basis to avoid costly and time-consuming delays at the drill sites. Here **Bob Jach** and **Ed O'Callaghan**, of the mines drilling department, inspect a number of drill rods which have recently completed a number of 6-inch blastholes. Once it has been decided that a drill rod is to be re-worked, box and pin connections are cut off, machined to the original specification and placed in new tubing. Usually rods can be re-worked a number of times before they are scrapped. A total of 600,000 feet of "In-The-Hole" drilling is scheduled for 1976.

# NEWSMAKERS . . . NEWSMAKERS . . . NEWSMAKERS . . .



When you spend over \$5,000 for a motorbike, you have all the reasons in the world to be proud of your new acquisition. Water-cooled and shaft driven, this 1,000 cc Honda "Gold Wing" belongs to **Jim Robinson**, a member of the Copper Cliff accounting department. According to Jim, the four-cylinder bike weighs some 700 pounds and boasts five gears. "It'll do 50 miles in first gear," he says, adding that the top speed for second gear is 80 miles and 100 miles per hour for third gear. "Naturally, with our new speed limit on Ontario highways, I cruise in third gear most of the time," says Jim. He claims the bike gets 48 miles per gallon and points out that there is no comparison between his new bike and his previous, smaller motorbikes. "This machine is the Rolls Royce of motorbikes. It's quiet, powerful and most comfortable to ride," he adds. Jim's vacation plans for 1976? "I'll be on my way to the East coast come June 12," he says, "it'll be great fun touring Eastern Canada for a glorious two weeks!" Here Jim, centre, explains the mechanics of his new bike to **Sandy Dumontelle** and **Mike Anderson**, both members of the Copper Cliff accounting department.



**Frank Haner**, electrician 1st class, left, and **Stan Tomasik**, longhole driller, are getting set to trigger the 517,000-ton blast at the Copper Cliff North mine that removed remnant pillars in one section of the 138 ore body between 300 and 600 levels. Successfully blasted on Saturday, May 1, a total of 158 tons of explosives were required to load the 2,948 holes of 2 1/2" diameter and the 131 holes of 6 1/2" diameter. Total footage drilled for the blast amounted to over 153,000 feet.

For up-to-the-minute information,  
dial

**Inco Hotline**

Sudbury	682-0626
Port Colborne	835-2454



**Garnet Milks**, left, employee relations assistant, and **Walter Chornenky**, employee relations representative, Frood-Stobie mine, check off names of retiring employees who will be receiving these beautifully hand-crafted cribbage boards, complete with a deck of cards, on their last day of work prior to retirement. Manufactured at the Frood mine carpenter shop, some 19 boards have been presented so far this year.



The Inco greenhouse in Copper Cliff, which has many visitors during the year, was recently honored by a visit from the president of the Ontario Horticultural Association, **Alastair Crawford**. Alastair dropped in on his way back from a meeting in Sault Ste. Marie to meet with Inco agricultural technician **Alex Gray**, left, and Inco horticulturist **Ellen Heale**. The three are looking over a bed of Petunias in planting boxes.

# NEWSMAKERS . . . NEWSMAKERS . . . NEWSMAKERS . . .



**Ronald House**, of Port Colborne, became interested in science projects as a youngster and has graduated from his first endeavors such as a rain alarm etc. to his latest, a homemade Newtonian reflecting telescope, which won him first prize at the recent St. Catharines Jaycee Regional Science Fair. In addition to the all-expense trip to The International Science Fair in Denver, Ron won \$100 cash plus an additional \$100 for his school. Last year, Ron placed second in the same division, with his entry of a diffusion cloud chamber, designed to detect alpha and beta particles from a radio-active substance, Thorium Oxide, which he obtained from Brock University. Ron is presently attending Grade 12 at Port Colborne High School but is looking forward to enrolling at the University of Waterloo and the prospect of becoming an electronic engineer. **Roy House**, Ron's dad, has been in the accounting department of the Port Colborne nickel refinery since 1952.

## Calling All Gardeners

This year Inco, in cooperation with the Sudbury Horticultural Society, is again sponsoring a number of valuable prizes for best home surroundings, with consideration being given to the site, attractiveness and layout, neatness and quality of lawns, shrubs, flowers and garden. The competition is open to all residents living within a 15-mile radius of Sudbury. Residents of Levack are also included. First prize is an engraved rose bowl, along with a \$20 award. Nine additional cash prizes are also offered. Readers are reminded that membership in any Horticultural Society is not required to enter this competition.



**Don McLeod**, superintendent of Stobie mine, pointing, explains mine workings to newly hired Laurentian University summer students, from left, **Renato Pesset**, **George Burke**, **Claude Giroux** and **Dave Downie**, while **Fern Albrechtas**, Stobie mine training supervisor, lends an attentive ear.



Eleven flatbed trailers carrying corrugated steel and nails, recently wound their way towards Guatemala from Hamilton. The material, manufactured by The Steel Company of Canada, Limited, represents some 500 tons of building material donated to Guatemala's National Committee for Reconstruction by Inco Limited. The material will be used to build houses for those whose homes were destroyed in February's earthquake. To hasten their arrival, the shipments went by land to Miami and then by sea to Santa Tomas, Guatemala. These shipments are in addition to emergency supplies, medical goods, food and other material previously flown to Guatemala by Inco. Here **Bob Yarnell**, traffic manager of Inco Limited discusses shipping documents with driver **Del Henderson**.

# NEWSMAKERS . . . NEWSMAKERS . . . NEWSMAKERS . .



Landscaping is presently carried out in front of the new water treatment plant in Copper Cliff, and thousands of cubic feet of earth are moved to make the area more attractive. Members of Inco's agricultural department were on hand to inspect the work recently. Checking a diagram of the new site are, from left, **Fred Burnham**, **Tom Peters** and **Garry Simmons**. Tom, Inco's agriculturalist, says that the work will be completed in short order.



There are a few lucky people such as **Thelma Rivers**, of Port Colborne, who have a natural talent, not only to create beautiful things but to instruct others to do it equally as well. It's some ten years ago that Thelma first began creating helpful items from odds and ends around the house. In addition to making useful items for her own satisfaction and enjoyment, Thelma also has been conducting classes in her home for the past five years. "I like to keep my classes small," she says, "not more than ten to a class, and their ages run all the way from 8 to 82." Included on the curriculum are decoupage, shadow boxes, ceramics, macrame, knitting, crocheting, hand painted dishes, Christmas ornaments, pottery, decoupaged pet rocks and the latest technique in the world of crafts, "A Ming Thing Tree." A typical class in her home is grouped around the work table with Thelma keeping a critical eye on proceedings. From left, **Dorothy Goss**, **Connie Pitochia**, **Mary Lampmann** and **Marj Kenney**. Thelma's husband, **Fred**, heads the electrical gang in the ENR. Mary's better half, **Doug**, is machinist foreman in the mechanical department.



Inco agricultural technician **Alex Gray** bends plants! But he does it for a purpose and claims it doesn't hurt them one bit! Here Alex checks the growth of a "Draceana Marginetta", a typical houseplant, by using shelf brackets to sculpture the trunk in interesting shapes. This process has to be carried out while the plant is young and its trunk supple. Below, Alex clips the leaves off a "Korean Boxwood", applying the Bonsai technique, developed by the Japanese. This plant is shaped in the style of the "Seven Ages of Man", and the branches are wired into position so that when rain falls, the water doesn't drop from one cluster of leaves to the others. The plant is stunted in growth by clipping its roots and pruning its branches. This particular tree is about eight years old.



# NEWSMAKERS . . . NEWSMAKERS . . . NEWSMAKERS . . .



## INTERNATIONAL ASSOCIATION OF BUSINESS COMMUNICATORS

An organizational meeting was held in Sudbury recently to form a Northeastern Ontario chapter of the International Association of Business Communicators. Attending the luncheon meeting were members from Sudbury, Elliot Lake, North Bay, and Sault Ste. Marie. Formal application for a chapter charter was made at the IABC annual conference and general meeting, held May 23-26 in Denver, Colorado. Inco's **Rudolph Kneer** was elected chairman. Other members of his executive include Sudburians **Frank Twardy**, publicity chairman; **Chris Culiford**, membership chairman; **Elaine Brown**, treasurer, and **Bill Bird**, secretary. Also on the executive are **Don Stone**, North Bay, program chairman, and **Clare Dimock**, IABC liaison chairman. The organizational meeting was chaired by **Kay Stalb**, of Toronto, and **Bill Bird**, of Falconbridge, both past presidents of IABC Canada, district one, the national body. National districts of IABC operate in Canada, United States, Puerto Rico, the Philippines, Great Britain, Norway, Sweden, South Africa, Mexico, Denmark and Japan.



**Peter Fabricus**, environmental control analyst, left, and **Bob Butler**, supervisor of water management, are reviewing a "hazardous material" control questionnaire which has been completed by a manufacturer and submitted to purchasing for evaluation by the environmental control department in Copper Cliff. From this questionnaire, a data sheet is prepared and sent to the safety department for distribution to the product user department at Inco. To date, more than 200 data sheets have been prepared.



Congratulations to the Levack first aid team who recently travelled to Toronto and captured the coveted McCrea trophy for winning top honors in the first aid competitions, sponsored by the Ontario mining industry. Team members are, from left, **Andy Lalonde**, **Merv McLaughlin**, coach, **Stan Allan**, **Al Weiman**, captain, **Gerry Gravelle** and **Marcel Larable**. Below, judges for the competition pose with **Ted Crayston**, secretary-treasurer of the Mines Accident Prevention Association of Ontario, who presented the trophy on behalf of the Ontario mining industry. Judges for the provincial open competition were, from left, **Jack Corrigan**, safety assistant, Copper Cliff; **Hank Derks**, chief first aid co-ordinator; **Ted Crayston**; **Rick Cholette**, plant protection officer, Garson mine, and **Myles Zettler**, protection supervisor, Froot-Stobie mine.



# NEWSMAKERS . . . NEWSMAKERS . . . NEWSMAKERS . .



Some eleven of these sturdy and powerful D-4 dozers are presently in underground service at Inco mines in the Sudbury district. According to **Len Kitchener**, mines equipment engineer, they are used for roadway and ditch construction and maintenance. The units also doze sandfill in stopes and are ideal for recovering high-grade ore from sandfill floors. The D-4's come equipped with a 75 h.p. four-cylinder diesel engine, complete with catalytic scrubber. Two of the units are fitted with "rippers" for reconditioning roadbeds. The unit for grading and conditioning long haulage ramps is the MBU grader, below. The low-profile unit boasts a 4-wheel drive, a 67 h.p. diesel engine and two dozer blades.



A large turnout was recorded at the 5th annual exhibition of the Lively Art Club, held recently at the Walden arena. **Margo Oliver**, left, and **Lotti Pulka** admire a painting by **Eileen Tuttle**, right, which was presented to the George Vanier Public School. Below, **John Perry**, of Inco's exploration group, admires an oil painting with wife **Allison**, son **Ian** and daughter **Elaine**. The show saw paintings exhibited by **Louna Russell**, **Annalisa Hamilton**, **Lotti Pulka**, **Margo Oliver**, **Dennis Pidgeon**, **Eileen Tuttle**, **Audrey Hickey**, **Maria McGinn** and **Gwen Doyle**.



# NEWSMAKERS . . . NEWSMAKERS . . . NEWSMAKERS . . .

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information

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Dial Hotline

Sudbury 682-0626

Port Colborne 835-2454



A modern biological testing laboratory has been established in the Copper Cliff Process Technology building where effluents and district waters are tested to determine their effect on fish. At left, **John Toby**, environmental control analyst, is feeding Rainbow Trout fingerlings contained in a stock tank filled with high-purity well water from Garson. At right, **Kevin Kelly**, a 4th-year biology student from York University, samples a solution for analytical purposes from a breeding tank containing Florida Flagfish. The test procedure involves exposing the fingerlings to raw or treated waste-waters and checking for any adverse reaction. According to **Dr. John Bozic**, supervisor of analytical services, test studies indicate that the water quality has significantly improved since Inco's water treatment plants have been placed into operation.



After only their second year of competition, this Walden team was successful in capturing the coveted Nickel District Hockey League "Atom" championship. Happy team members are, front row, from left, **Mike Nadjlwon**, **Don DeWulf**, **Brent Wisniewski**, **Shayne Wisniewski**, **Sean Evoy** and **Joey Santl**. Middle row, from left, **Robbie Matheson**, **Andy Morbin**, **Steven Narasnek**, **Craig Duncanson**, **Billy Fordy**, **Daran Moxam** and **Glen Fordy**. Back row, from left, manager **Billi McLaughlin**, coach **John MacDonald**, coach **Doug McLaughlin**, and trainer **Les Taylor**.



**Joe Rossi**, chairman of Port Colborne Red Cross Blood Donor Clinic, cashing a cheque, which was presented to the Red Cross by **Lorne Thompson** on behalf of Kinsmen Club. Some 25 Kinsmen also donated blood at the recent clinic held at the Inco Recreation Hall. The next clinic will be held on June 15.

Consult The Inco Hotline! For up-to-the-minute information, call Sudbury, 682-0626; Port Colborne, 835-2454.

## J. Roy Gordon Research Laboratory:

# Focal Point For Inco's Worldwide Process Metallurgy Research

Located in the Sheridan Park Research Community, between Toronto and Hamilton, INCO's J. Roy Gordon Research Laboratory serves as the focal point for the Company's worldwide process metallurgy research at various laboratories and pilot plants, notably the Port Colborne Research Stations, and the Process Technology facilities at Copper Cliff, Port Colborne, Thompson, Clydach and Acton.

The staff of some 120 scientists, technical and administrative personnel

are grouped into four research sections, specializing in Mineral Processing, Pyrometallurgy, Hydrometallurgy and Electrochemistry and three supporting service sections. A Geological Research group from the Exploration Department is also located at JRGL.

While metallurgical research is primarily aimed at the development of new metallurgical processes, achieving greater efficiency in, and better products from, the treatment of INCO's varied ores, there is considerable diversification

within this overall objective. Currently, a little over a third of the research effort at JRGL is devoted to improvement of existing processes at the mills, smelters and refineries; roughly an equivalent amount of research is directed toward the development of new processes and procedures, while about 20 percent relates to the process aspects of new INCO ventures, and the remaining 10 percent to more fundamental research in extractive metallurgy.

Typical of the experimental work carried out in support of new INCO ventures is the evaluation and testing of new ores from the Company's worldwide exploration programs. Numerous lateritic nickel ores from sources such as Indonesia, Guatemala, New Caledonia and Brazil have been tested by both existing and new methods for metals extraction. The more promising techniques undergo economic evaluation before further testing on a larger scale in continuous operations at the Port Colborne Research Stations. Such processes include the reduction/smeltering route which will soon be used in the new Indonesian and Guatemalan plants to produce nickel matte.

INCO has been active for well over a decade in the study of nickel-bearing sea nodules found on the ocean floors, notably in the Pacific, which may become an important future source of the world's nickel supply. With the Indonesian and Guatemalan plants nearing production, part of the research efforts on ventures is now directed toward evaluating various methods for extracting nickel, copper and cobalt from sea nodules.

The development of a process for a new ore often requires the integration of metallurgical disciplines. Hydrometallurgy is primarily concerned with the wet chemical extraction of nickel and other metals from ores, concentrates or mattes. Such processes are seldom highly selective for the metals that INCO wishes to recover, and various separation, solution purification and metal recovery procedures must be developed. Unlike nickel smelting operations, which have been practised successfully for ages,



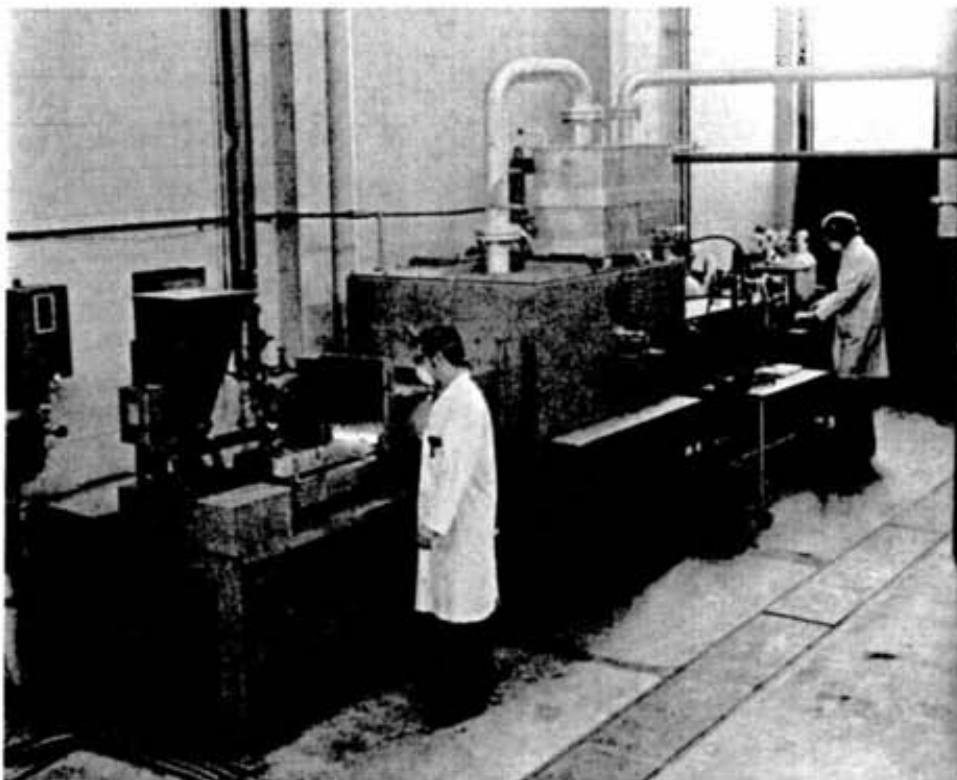
The electron microprobe, not to be confused with the electron microscope, is used to determine the elemental constituents of individual particles as small as forty millionths of an inch in diameter. Instrumental Analyst, Jiri Jirasek, prepares to insert a specimen into the instrument.

leaching procedures are a comparatively new development which require much research and study. Experimental procedures at the laboratory therefore are designed to carry out testing on a continuous basis to simulate the real life situation on a very small scale. For example the Mineral Processing section may produce a concentrate for smelting to a matte. This matte may then be leached to give a solution from which copper or nickel is recovered by electrowinning.

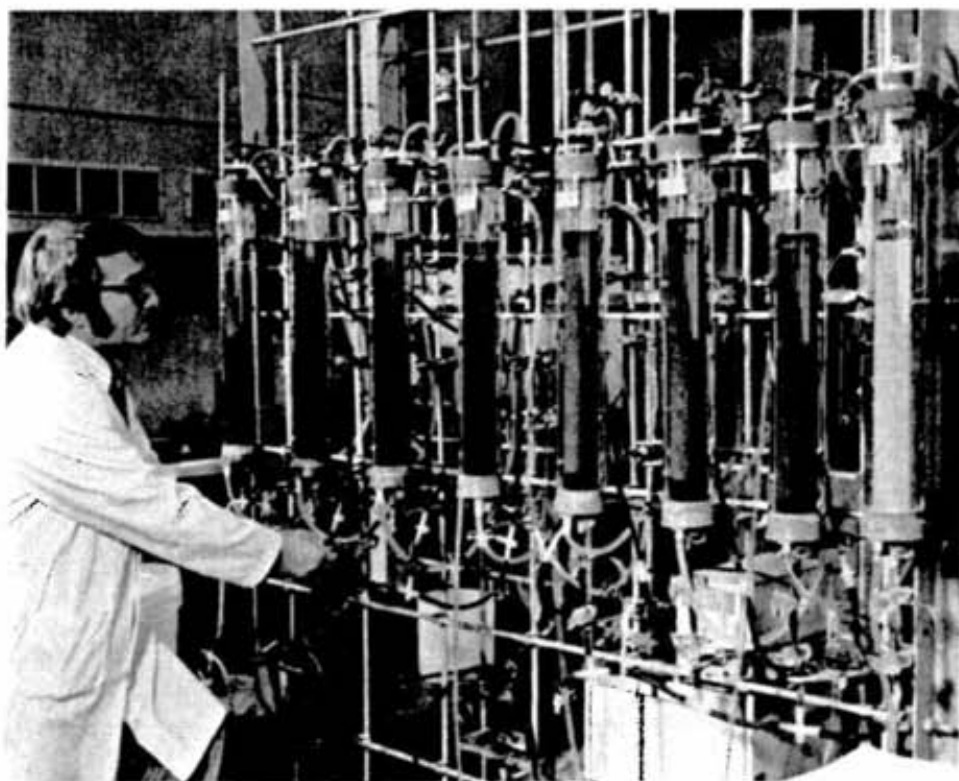
Research scientists at the J. Roy Gordon Laboratory work in close co-operation with Process Technology groups in the operating divisions and also with Process Development in Toronto, to assist in making improvements in existing plants and their metallurgical processes. JRGRL research has also made contributions to the development of new primary nickel products to meet current and future market requirements.

Despite the many improvements in metallurgical processes in recent years, there are still many gaps in the world's metallurgical knowledge. The JRGRL has a group from the Pyrometallurgy section busy determining much-needed fundamental properties of systems that are of interest in INCO's operations. These have included the accurate measurement of certain thermodynamic properties of the primary copper and nickel minerals, chalcopryite and pentlandite respectively, and of nickel sulfides. Such information is required to calculate energy requirements for processing sulfide concentrates, and is of particular interest in this era of energy scarcity and high costs.

The research effort is supported by the Technical, Information and Administrative Services sections. These sections include analytical and computer services, a well equipped machine shop for making special pieces of equipment, graphic arts, including color photography, and other essential functions for the smooth operation of the laboratory and its scientific equipment. The technical library, with its extensive collection of metallurgical literature, serves as an information centre for the Company in extractive metallurgy. The staff services literature requests arising from the popular Extramet Digest published by JRGRL. Currently effort is being devoted to preparing computerized indexes for internal technical reports and Extramet Digest.



*The pyrometallurgy mini-plant houses a belt furnace in addition to other equipment. Research technicians, Brad Smith and John Davies, are seen preparing a test batch of nickel powder for direct rolling into strip for coinage.*



*Solution purification prior to metal recovery is a very important part of hydrometallurgical processes. Research Technologist, Doug Hope, is purifying a nickel electrolyte by ion exchange.*

With Father's Day falling on June 20 this year, we thought it would be appropriate to have a father pen the logo for our June edition. And who could be more qualified than our own Mike Yawney — the father of 15 children!

Mike's been with Inco for 34 years and is presently a pyro operator at the Copper Cliff mill. He's originally from Rama, Saskatchewan, and lived there for 27 years before moving to Thunder Bay for a job in the construction industry. While in Thunder Bay, he heard Inco was hiring and headed for Sudbury and a job at the Froid mine in the spring of 1942. He transferred to Copper Cliff in

the fall of 1942, and he has been at the Copper Cliff mill ever since.

Mike met his wife, Pauline, out west. They were married in Sudbury at the old St. Mary's Church, and for the last 20 years have resided at their Walford Road home.

When we took a picture of Mike and his family, six of his children were unavailable because they were working or attending school out of town. They are Steve, in Thunder Bay; Marie, in Toronto; David, in Windsor; Christine, in Ottawa; Kathy, in Toronto, and Margaret, in Toronto.

So, to fathers everywhere — Happy Father's Day!

*Our logo writer, Mike Yawney, his wife, Pauline, and nine of their 15 children. They are, from left, Rachel, Tim, Helen and Ruth. In the back we have Sam, Mike junior, John, Pauline junior, and Sharon.*



Logo  
Writer... **MIKE YAWNEY**