
INCO
Triangle
NOVEMBER 1981
Challengers of the ancient rock,
In the mines and mills,
The smelters and refineries.
Innovators.
Leaders in Technology.
Producers of metals for the world
The people of Inco in Sudbury

Triangle November 1981, Vol. 41 No. 10

In this issue

Hard rock miners certified

Sudbury was the site of a historic occasion for Ontario. It was here that official recognition was given to mining as a profession. Sixty-one hard rock miners, including 24 from Inco received their "Underground Hard Rock Miners" certificate.

The greening of Sudbury

A change has been taking place in Sudbury. Anyone driving into the city will have noticed the soft layer of green that is gradually replacing the black rocks along the roadside. The greening project has completed its fourth year with dramatic changes to the landscape.

From Port Colborne with love

The Marquis family of Port Colborne have given of themselves and received much in return. Three Canadian Indian sisters have found new parents and a home with the Marquis.

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Our Cover

This month's cover photo features carvings by Inco pensioner Charles Paxy. His carvings are featured in one of seven new TV commercials seen in Sudbury. A complete story begins on page four.

co in the mmunity

Inco, on behalf of all employees, supports a variety of community clubs, groups, organizations, institutions and projects by means of financial contributions and donations of goods and services. These worthy causes range from medical to recreational, and from educational to cultural, and are examples of Inco's commitment to the communities in which our employees and their families live and work. Listed here are a few of the many institutions and other establishments who were assisted in numerous ways over the past few months.

Manitoulin Student Aid Fund
Telecare
Sudbury Arts Festival Association
Canadian Hearing Society
New Sudbury Community Service Centre
St. Charles Agriculture Society
Ontario Registered Music Teachers' Association
Huntington Conservatory of Music
Rayside-Balfour Arts Guild
Manitoulin Health Centre
Sudbury Theatre Centre
Valley East Parks and Recreation Department
Canadian Red Cross, Sudbury Branch
Royal Canadian Army Cadets, Capreol Branch
Onaping Falls Curling Club
Victorian Order of Nurses
1981 Regional Science Fair
La Fête à Baptiste
Salvation Army Red Shield Appeal
Rotary Club Easter Seal Campaign
Warren Agricultural Society
Bel Canto Chorus

Professor Wally Pasika, of Laurentian University, helped by a donation from Inco, began research five years ago into making polymers that contain sulphur dioxide in some form or another.

If his work proves successful, polymeric substances such as polystyrene, (from which styrofoam cups and insulating sheets for houses are made), polyethylene, (from which plastic food savers are made) and the polyesters of the textile industry will be made with SO_2 and contain much less petroleum based chemicals.

Dave Huggins, manager of process technology, presented Professor Pasika with a second donation of $25,000 on behalf of Inco Metals Company so that the research may continue.

Dave Huggins, left, listens to Professor Pasika's explanation of an experiment.

The Ontario division of Inco Metals Company was awarded a plaque in recognition of the Company's sponsorship of "Science Screen Reports".

This monthly science documentary series is distributed, courtesy of Inco, to schools in Sudbury, Port Colborne and Thunder Bay. The award was given by the Sudbury Board of Education in appreciation to Inco for sponsoring the series.

"Science Screen Reports" is available to the over 100 schools served by the film library of the Sudbury Board of Education.

Karen Curry, left, accepts award on behalf of Inco from Lucille Collins, centre, and Doreen Bertrand.

Karen Curry, public affairs co-ordinator for Inco, accepted the award on behalf of the Company from Doreen Bertrand, educational media co-ordinator for the board and Lucille Collins, senior film library clerk.

". . . by the people of Inco in Sudbury."

You may have already seen on Sudbury TV a little green electric car, ocean divers, a solar house, a windmill, carvings by Inco pensioner Charles Paxy, and possibly even the Columbia space shuttle.

They are all part of this year's Ontario division communications program which takes a look at the future uses of nickel and copper.

These metals, mined, milled, smelted and refined by Inco employees in the Sudbury basin, depict some of the technology, now and in the future that will play an important role in our lives — from helping us be less dependent on conventional fossil fuels — to reaching below and above the surface of the earth.

One of the programs features a selection of wood carvings by Sudbury's Charles Paxy, an Inco pensioner. The short story

Toronto's Gardner Expressway was the scene for the electric car shoot.

accompanying the programs proudly recognizes the efforts and achievements of the people at Inco.

Film production for television is always interesting and this year's series was no different.

The electric car, for instance, is a prototype vehicle borrowed for the filming. The opening scene shows the little green vehicle on Toronto's busy Gardner Expressway. The idea, of course, is to show audiences that the solution to expensive gasoline-powered transportation, especially in busy centres like Toronto, might be the electric car. The technology required to make the electric vehicle efficient depends in part on the rechargeable nickel-containing power sources, and copper to help make it an efficient reality.

The script called for the electric car to appear on an empty expressway . . . which, if you've ever driven in Toronto, you'll know is a near impossibility.

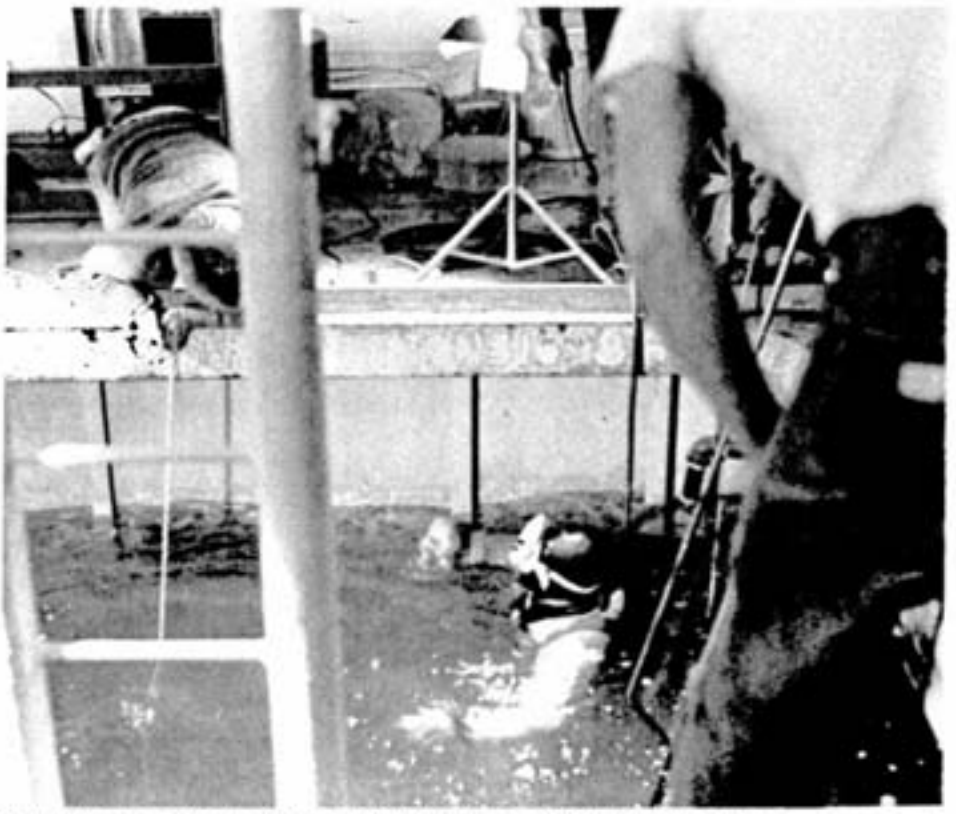
The solution?

Through the assistance of the Toronto Film Board, traffic was stopped for a few minutes while the electric car appeared and the film cameras rolled.

The diver welding underwater actually was an underwater construction student . . . the welding is part of his school program and was filmed in the practice tank of the school which is in an old freighter.

From all the comments, the response to this year's programs indicate that Inco employees, their families and Sudburians, from school children to senior citizens, are saying that they find the presentations on television, radio and in newspapers informative and interesting. "They make me feel proud to be a part of the company and the city when we learn about the benefits of the metals we produce for the world," is a comment often received.

A technician sets up the windmill for the wind power commercial.



Preparations are in progress for the underwater filming of nickel and copper uses.

History made in Sudbury — first Underground Hardrock Miners' certificates awarded

Sixty-one hard rock miners from throughout the province, 24 of them from Inco Metals Company, were awarded the first underground hard rock miners' certificates of qualification in September. They received certificates for their successful completion of the new modular training program. The ceremony held in Sudbury was declared a historic occasion for Ontario as it marked the official recognition of mining as a profession.

The new system of training and subsequent recognition of skills of those completing it, came as a result of six years of work by the Mining Tripartite Committee on Training in the Mining Industry and its technical sub-committee. Chaired by Mr. J.A. Crouch of the Ministry of Colleges and Universities, the committee is composed of six representatives from the combined United Steelworkers of America and the Mine, Mill and Smelter Workers' Unions, six from the Ontario Mining Association and three from the Ontario government. Milt Jowsey, assistant vice-president of mining and milling, has been a member of the Tripartite Committee since 1977. Bob Moss, a functional training coordinator in training and development, sat on the technical sub-committee. Initially Local 6500 was represented on both the Tripartite and technical sub-committees by Tom Burrows. He was eventually replaced by Dick Kerr on the Tripartite Committee and Vic Baumruk on the technical committee.

The sub-committee was formed in April, 1976, to develop a set of modules covering basic mining skills applicable across Ontario.

The Tripartite Committee provided terms of reference and defined the modular profile or outline, used for mining.

These profiles are not training programs in themselves but only a

Barny Burant, a stope leader at Stobie mine, makes an initial check on a jumbo drill during training that led to a mining certificate.

means of organizing training by identifying the various skills required to do a job. Each job was broken down into its major skills or elements which were then arranged to produce a module. These modules were developed to provide the profile for the Basic Underground Mining Skills.

To meet the requirements of the certification program a miner must first demonstrate his proficiency in seven common core skills named by the committee. They include general inspection, scaling, staging, drilling, rock bolting, blasting and mucking. The committee also identified 36 specialized skills that were put into seven groups; production, development, haulage, specialty drilling, shaft services, construction services and general services. A miner, on completion of the core courses and eight specialties from at least five of the groups and one specialty from the production and development groups, will be entitled to an "Underground Hard Rock Miners' " certificate.

Gus Gauthier, a motorman at Frood mine, receives his underground hard rock miners certificate from Dr. Anne Robinson, the assistant deputy minister in the Ministry of Labour.

"The committee developed a program of the minimum skills that a new miner must have to work underground," explains Mr. Jowsey. "They felt quite strongly that to produce a creditable, high quality program, skills would have to actually be proved by demonstration. This of course would automatically preclude 'grandfathering'. The Tripartite Committee respects the desire of the individual employee to attain his career aspirations commensurate with the companies' production requirements."

The responsibility of training new miners in common core and specialty skill levels lies with each particular mining company and its instructors. The Ministry of Colleges and Universities has published performance demonstration guidelines for use by instructors to assess the progress and achievements of the individual being trained. The program will be monitored by both the Ministry of Colleges and Universities and the Ministry of Labour.

Once a trainee has graduated from the modular training program his

This gathering of happy individuals includes the first 24 Inco miners to receive certificates as well as Wint Newman, president of Inco Metals Company, Ontario division, Milt Jowsey, assistant vice-president of mining and milling, Lynn Williams, international secretary of the United Steelworkers of America and Ron McDonald, president of Local 6500.

skills are recognized throughout the industry in Ontario. Each time a skill is mastered, it is recorded in a "qualification record book", something an individual will be able to carry with him. Along with the prestige of certification comes the knowledge that job mobility will be substantially increased so that a graduate can take advantage of job opportunities in mining wherever they may be. The company also benefits by having a safer, more efficient workplace because of the proven skill levels of each certified miner.

Representatives of government, labor, the mining industry and the media toured the Stobie mine training area where some Inco miners were being trained. Jim Byrne, general foreman of all mines safety at Frood-Stobie, right, explains the training course to, from left, Eric Kossatz, manager of the Frood-Stobie area, Lynn Williams, international secretary of the United Steelworkers of America and Milt Jowsey, assistant vice-president of mining and milling.

A school instructor at Stobie mine, Tom Bell, uses an acetylene torch to burn a piece of plate steel while on course.

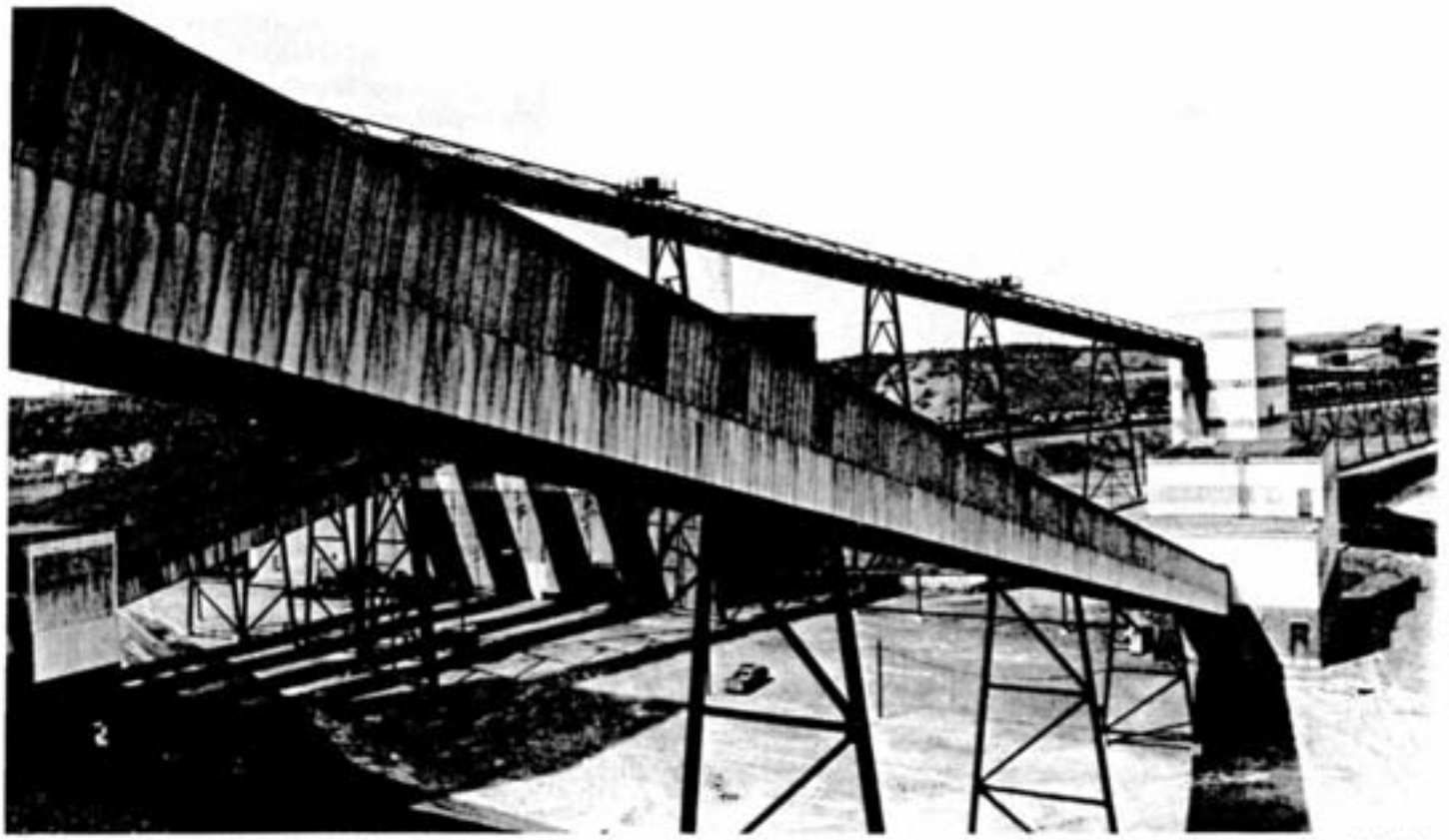
Energy losses tracked down and arrested

The investigations are continuing at all plants and mines in the Ontario division. The detectives at each location are in eager pursuit of culprits known as energy losses.

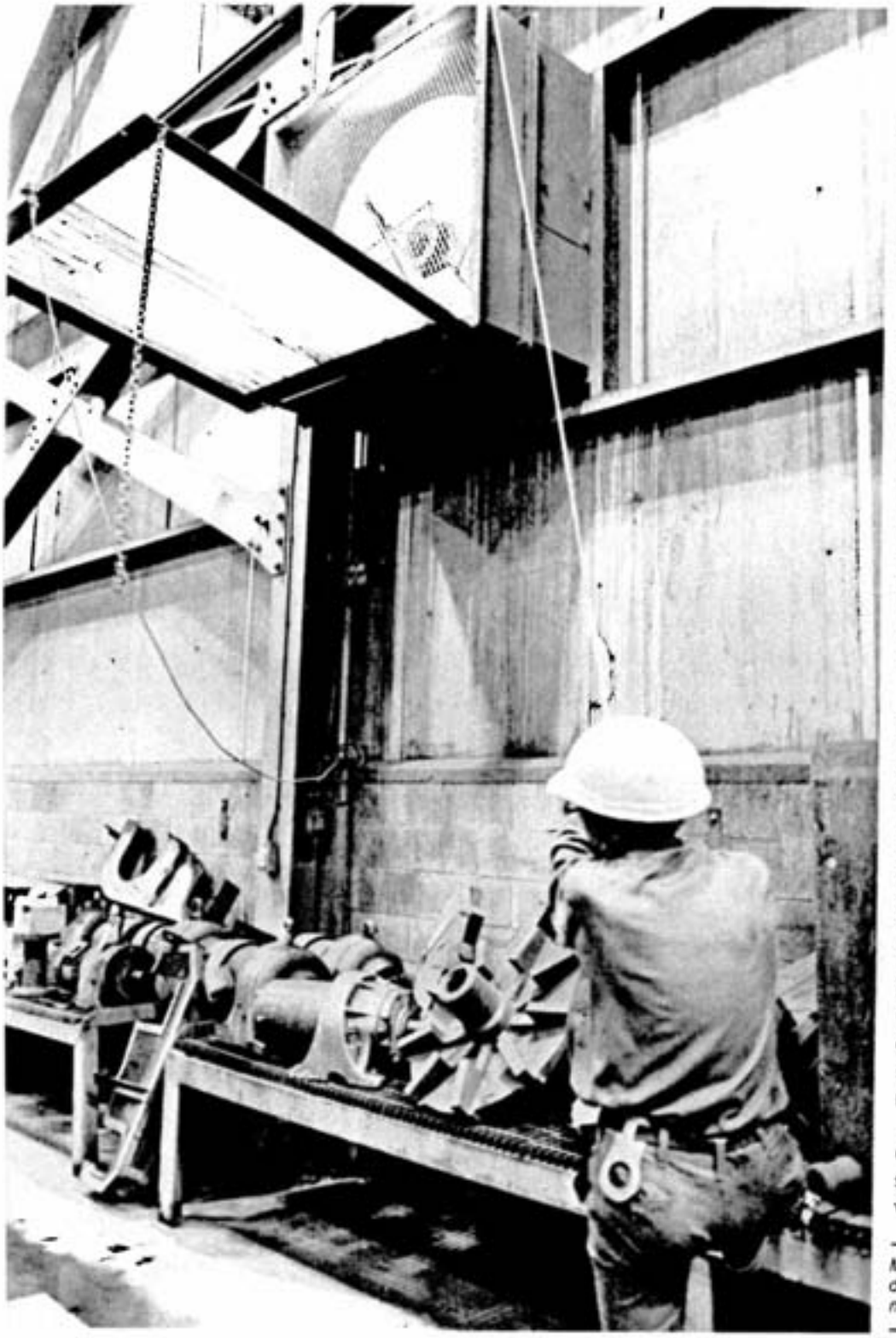
At Frood-Stobie mill, detectives are finalizing an investigation with smiles on their faces — the culprits have been identified and are under arrest.

It's all part of Inco Metals' Energy Management Program (established in 1975) in which employees at all company locations are looking closely at their own area of production to identify major areas of energy consumption, to isolate areas with large potential losses and determine what action be taken to improve energy efficiency.

And that's just what they've done at Frood-Stobie mill. After months of investigating and testing, mill personnel have come up with revisions to the heating and ventilating system in the mill complex that have resulted in an improvement in air quality and an annual decrease



With the ventilation and heating revisions, ventilation air flows through the conveyor gallery from the mill tripper floor to the transfer house (right). From there, the air travels through the galleries to the crushing plant (left background), where it is directed to number nine hoistwell.



Mill employee Ernie Workman adjusts the air deflector on the fresh air fan located on the mill building wall.

of natural gas consumption by approximately 25 per cent, or savings of some $110,000.

"We're making use of heat that we would normally lose," explained Maurice Taylor, utilities supervisor at the Frood-Stobie complex and a member of Inco Metals' Internal Energy Management Committee. "In the past, we exhausted air through roof ventilators, now we exhaust air on the lower levels through the doors, windows and wall openings. We've basically reversed the ventilation pattern."

The original heating and ventilating system was based on drawing in fresh air through wall fans in the summer and through the wall heaters in the winter. This air is directed to the working levels and exhausted through large roof ventilators.

In the past, fresh air fans and heaters in the mill's east wall directed the air flow across the various floors of the building. A row of fans in the centre aisle of the flotation floor were used to boost air over the remaining flotation rows to the roof ventilators.

Results from a mill heating system survey indicated that the roof ventilators were one of the culprits. Process heat was lost through the roof ventilators in a high bay area; there was no means of pressurizing the building to prevent air infiltration when the roof ventilators were in use; the starting of more direct-fired heaters to improve the comfort level only increased the chimney effect which caused an influx of cold air through all direct-fired heaters that were not operating.

The revised heating and ventilating system provided significant improvements by pressurizing the mill by closing off the roof ventilators and closing doors over unused direct-fired heaters. The roof ventilators were closed to eliminate the chimney effect within the mill building and create a slight positive pressure on the top and ground floors. This positive pressure was well within the maximum efficiency of direct-fired units. The unused sample conveyor gallery was sealed off to prevent a short circuit of ventilating air from the mill to number nine shaft hoistwell.

To further increase the chimney effect created by the number nine shaft hoistwell, the summer ventilating fan in the lower roof was tagged to run all year round. As well, a 50 square foot opening was constructed at the hoistwell roof line to reduce the differential pressure (the difference between inside and outside pressure) across the exterior walls.

Direct-fired units in the mill buildings were provided with guillotine gates with limit switches connected to the combustion unit. The limit

switch prevents the unit from running when the gate is closed. The gate prevents the exhausting of warm air when the units are shut down.

With a pressurized mill building and the elimination of the roof exhausts, the waste heat from the process equipment is now part of the heating system for the mill complex.

Existing direct-fired units are used, along with fresh air fans which are controlled by the outside temperature, to achieve the building's required air volume of 150,000 cubic feet per minute.

The flow of heated air from the mill through the galleries to number nine shaft lower roof, permitted the shutting down of several direct-fired heaters in the conveyor galleries and another direct-fired heater in the transfer house. The mill now has a positive pressure on the ground floor providing a slight outflow of air at all doors and wall openings. The direct-fired heaters at the doors now operate only when the truck doors are opened.

The previous wide variation in temperature (up to 20 degrees Fahrenheit) that occurred at different levels in the mill building has now been reduced to approximately five degrees Fahrenheit. There is now an improved comfort level in all areas of the mill complex.

Testing of air distribution indicated that there were approximately nine air changes per hour with no obvious stagnant areas. Carbon monoxide levels within the mill ranged from zero to three parts per million which were well below the 35 parts per million guideline established by the Ontario government.

Based on the results of this project to date, and the current cost of natural gas, it is expected that the revised system will represent a savings of some $110,000 annually.

"We haven't had to purchase much equipment for this project," said Ralph Shore, superintendent of Frood-Stobie mill. "We've been able to use most of the available equipment in the mill complex. We've spent some $5,000 for fans and related modifications."

"The concept is finalized," he continued. "There's no doubt the concept works, it just needs some refining."

In the foreseeable future, it is expected that the concept of pressurizing a building will be expanded to include other areas within the Ontario division.

Mill superintendent Ralph Shore inspects the workings of a ventilation supply fan which is used to blend raw air at the roof line with stratified heat from process equipment in the mill.

Maurice Taylor, utilities supervisor at Stobie mill and a member of the Internal Energy Management Committee, checks out an indirect-fired heater in the mill building used to raise the air temperature as the air travels through the conveyor gallery to the transfer house in the mill complex.

BEEKEEPING

Walter Hughes has more to contend with than just the bees

The summer months may be a time of sweetness and sunshine for most people. But for Walter Hughes, a plant protection officer at Creighton mine, it is more often a time of dedicated work and diplomacy with bears. Walter is an apiarist, or beekeeper.

The son of an Irish beekeeper, Walter grew up with fresh honey in the pantry but it wasn't until the early 1970's that he decided to tend hives of his own.

His first hives, or colonies, each containing between 60 — 80,000 bees, were kept on the old Gagnon farm across from the golf course in Lively. Later, thinking he would get a better honey return, he moved them to the golf course on the Penage Road. Says Walter, "The return was good . . . until the bears came along

Left
Using a centrifuge, Walter is able to extract honey from the comb. After screening the liquid to remove bits of wax, the honey can be packaged and sold.
Centre
Until recent years, beekeepers did not bother to winter their bees. Most often they were gassed in the fall and new stock purchased in the spring.
Right
Although beekeeping is more of a hobby for Walter, it can be very rewarding financially. Honey yield depends mainly on the number of hives, the area and the number of other hives in the same area.

and destroyed some of the hives. The cost of replacing them was too much." He decided to quit.

"Moving what was left of the bear-ravaged hives was a job in itself," says Walter. A friend, and Walter clad only in work clothes and a bee veil, attempted to load the remaining hives and their angry occupants onto a pick-up truck. During the process, Walter's veil became snagged on a tree limb, leaving his neck easily accessible to the thousands of bees clinging to his shirt. Without hesitation they marched inside the shirt, not ending their journey until they had reached his ankles inside his rubber boots.

"Well" says Walter, "you can only take so much. I said to my friend, 'I've got to strip' and I ran down the golf course tearing off my clothes. By the time I got to about the second tee, I was standing there in just my shorts. My clothes were scattered from the hives right down to the little lake. I knew I couldn't stay there so I went back and slowly retrieved everything in the order it came off, shook the bees out and put it back on. I took between 200 and 300 stings that time."

Without his hives however, Walter soon became bored. And once again he sent away for starter bees, again to be kept on the Gagnon farm. As before, the bear population didn't seem to wander into the area and for a while Walter was able to tend his bees in peace.

Three years ago, the colonies made their final move, this time to just inside the Inco gates of the tailings line, on the Creighton Road. By this summer they had grown to 11 hives, producing nearly 1,200 pounds of honey.

The peace for Walter and his bees didn't last long. It was inevitable that his secret couldn't be kept. Once again this summer the sweet smell of honey lured the bears to the hives and the number was reduced from 11 to eight.

With the cold weather approaching, pollen and nectar have diminished and the bees are preparing their hives for winter. But with the beekeeper removing most of the honey (the bee's winter store of food), it becomes necessary to supplement the bees with a sugar and water syrup to see them through the winter ahead.

"About the end of September I put two, eight pound cans of syrup into the hive, every second day. Each can lasts about a day. They'll take about 10 cans of it. After that they're on their own until March when I'll give them another one to see them through until spring."

To protect the hives from the elements, Walter wraps each hive in cardboard, tar paper and insulation about mid-October. The bees are capable of regulating the inside temperature of the hive, maintaining a constant temperature of about 90 degrees Fahrenheit in the centre where the queen bee and her brood cluster are placed for safety. Nature, says Walter, has developed bees so that they can raise or lower the hive temperature at will, regardless of the outside temperature. The protection added by the beekeeper simply makes their job easier.

One drawback to keeping bees is the occasional sting, but says Walter, it's something "you must put up with." Learning how to deal with stings is a must.

"If you get a sting, don't pull out the stinger in a squeezing action with your fingers. Each stinger has a venom sac on the upper end which through a nervous reaction pulsates venom into the body. If you squeeze this sac, trying to remove the stinger, you are actually forcing the venom into your system. Instead, take something flat, your thumb, and 'scrape' the stinger out."

There are many reasons why bees sting. It's not always a case of self-defense. Bees have a definite dislike for cologne, deodorant soap, animal fibre and dark clothing, bad or 'beery' breath and foot odor. "In addition," says Walter, "when a beekeeper is removing their honey, they consider him no more of a friend than the honey-loving bear seeking to satisfy his sweet tooth."

Although each hive contains a queen and several drones, it is the worker bees who maintain the hive. The life expectancy of a worker is only a few weeks during the summer months. They literally work themselves to death hauling pollen, nectar, water and protecting the hive.

YMCA HAS NEW TEMPORARY GYMN

"S-t-r-e-t-c-h, take a deep breath, tighten those stomach muscles and hold." That's a familiar call these days in the auditorium at the Inco Club on Frood Road. The auditorium is being used temporarily as a gymnasium for members of the Y.M.C.A.

The Y has been using the gym since mid-September. At that time, Inco confirmed that arrangements had been made on a temporary basis for the Y to use the Inco Club auditorium due to a fire in August that damaged the Y's gym, pool area, ladies' and boys' locker facilities as well as the ladies' exercise room.

"We are pleased to assist the Y in this manner to help overcome the many problems the Y and its members have experienced as a result of the fire," said Wint Newman, president of the Ontario division.

Mr. Newman added that the Y is aware that the use of the main auditorium at the Inco Club is on a temporary basis because the Regional Municipality of Sudbury is

At the Inco Club, Winton Newman, left, president of the Ontario division, and Russ Buckland, president of the board of directors for the Y.M.C.A., unveil a sign to signify the opening of the auditorium for use by the Y.M.C.A.

currently assessing potential use of the Club facility. Inco announced last year that it would donate the building and property to the Region when it relocated offices from the Frood Road building to the Scotia Tower.

"We were in urgent need of a physical education facility," explained Kerry Pinkerton, executive director of the Y.M.C.A. "Some of our members suggested that we approach Inco to see if the auditorium at the Inco Club was available."

The auditorium accommodates a variety of Y activities including gymnastics, judo, karate, physical fitness classes, adult education courses such as dancercise plus boys' and girls' sports classes.

The auditorium is open to Y members from Monday to Friday, 9:30 a.m. - 8:30 p.m. and Saturday, 9:00 a.m. - 4:30 p.m. An instructor is available during those hours.

"We are pleased with the gym facility," Kerry continued. "We are very appreciative of Inco and its employees for allowing the Y to work in co-operation with a large corporation. This will indeed prove once again the continued support that Inco has displayed to various organizations throughout the Sudbury community."

Kerry added that renovations at the Y on Elm Street have begun and should be completed by the end of December. "We're hoping for a re-opening date of January 1, 1982. That's a good way to begin the new year."

Members of the ladies' exercise class Adrienne Banbury, left, wife of safety superintendent (smelting and refining) Larry Banbury, and Hazel Smith, right, go through a routine as Y assistant physical director Sue McCrea, back left, and Y executive director Kerry Pinkerton look on.

The ladies' exercise class is a popular Y activity at the Inco Club auditorium.

THE GREENING OF SUDBURY

Few undertakings have captured the interest and support of the public, politicians and private enterprise as has Sudbury's land reclamation project. Acres of once barren, denuded landscape have, through a unique, locally developed process, been changed into green belts of grass and trees. The beauty of this program lies not only in the vegetation it is re-establishing in the region but also in the various benefits associated with it that go rippling through the community.

Acting on a study by Laurentian University and the Science Council of Canada that determined that land reclamation could be done on a large scale in Sudbury, regional government set into motion the greening of Sudbury project in 1978. A method of liming, fertilizing and seeding soil in rocky areas pioneered by Professor Keith Winterhalder of Laurentian University was adopted as the means of reclaiming land.

Mike Hickmott, coordinator of the land reclamation project, says that the most visible areas, particularly on the approach ways to the city, were designated as the first targets for revegetation. Since work began four summers ago, land along Highway 17 East and West, Highway 144, Highway 69, Martindale Road, Paris Street and Notre Dame has been reclaimed. It is on these arteries that motorists driving through Sudbury will get their first impressions of the place, he adds.

The reclamation process begins with maps being drawn of the target area. Tests are performed on the soil to determine nutrient content and acidity. Once the ph level of each place is found, crushed agricultural limestone is applied to neutralize the soil. According to Mike, about five tons of lime are used on each acre of land, something in the order of 2,000 tons every year.

The lime is allowed to sit for at least a month before fertilizer is spread. Almost immediately after the fertilizer is applied, grass seed is planted. Mike notes that land reclamation people have experimented with native grass seed as well as commercial varieties. "We found that commercial varieties have done just as well as native seed," he comments. "They have survived quite nicely. It works out much better for us cost-wise."

Students hired for the summer do most of the reclamation work. An average of 200 students a year are employed by the greening project. The nature of the local terrain rules out the use of machinery in liming, fertilizing and seeding. It all must be done manually.

The final step in reclaiming an area of land is planting trees. "Trees do not survive in land which doesn't have a grass cover," Mike stipulates. Once grasses have established themselves after a year or two, trees are planted. Some 3,000 trees, such as red, white and jack pine, poplar and mountain ash, have been planted by land reclamation workers each spring and autumn.

So far the results of land reclamation have been nothing short of dramatic. About 3,100 acres of stark, unsightly rocky soil has been transformed into an eye appealing cover of green grass and trees. People, particularly those who have seen land before reclamation took place, are amazed by the change. "We're physically changing the

negative attitude (about Sudbury) that people feel on the outside," states Mike. The land reclamation program has attracted the interest of people across Canada and the United States who are considering similar projects for their own communities.

Mike estimates that there is at least another five to ten years more reclamation work to be done. The program has enjoyed the support of all three levels of government and private industry, something he says must continue if land reclamation is to carry on with its successes. Since the inception of the program, Inco has contributed financial support for the purchase of materials annually to the project. This year for example, part of the company's contribution has been 17,000 woven, polypropylene bags for the application of lime as well as limestone and some seed. A pair of Inco employees, Tom Peters, agriculturist, and Jim Savage, grounds supervisor, sit on the Vegetation Enhancement Technical Advisory Committee, a group of individuals that addresses itself to the technical aspects of the program.

Proponents of land reclamation have little to fear in a time of economic restraint because the program sits high on the priority list of local government. Not only is it a major employer of students each summer but it also produces highly visible, very desirable changes to the region's landscape. These changes, it is evident, will go a long way to softening the harsh view sometimes taken of Sudbury by visitors.

Before . . .

. . . and after.

ANOTHER FIRST FOR DIVISIONAL SHOPS

Recently the tradesmen at divisional shops distinguished themselves by making a huge mild steel trunnion that now supports a roaster kiln at the Iron Ore Recovery Plant. It marked the first time a trunnion had been manufactured by Ontario division employees. Not content to rest on their laurels, they are chasing another first, the construction of four rotate drive housings for a top blown rotary converter (TBRC).

Rotate drive housings cover the gears that are responsible for spinning the huge TBRC's at the Copper Cliff nickel refinery. Originally cast in England, these housings were found to be prone to warping. The cast construction could not withstand the heat of the molten metal being processed in the TBRC.

With an eye to alleviating this problem, Inco engineers and designers came up with the idea that new rotate drive housings be fabricated out of mild steel locally, rather than returning to the cast construction. The housings were fabricated at the divisional shops' plate shop, and sent to the machine shop for machining.

The housings, notes Bruce Warren, machine shop coordinator, were machined according to specifications drawn up by Inco designers. "We also manufactured the guts that go into them, like cover plates and shafts," he continues. "These housings had never been machined here before."

A completely machined rotate drive housing is measured by Tim Morse, left, and Roger Chevrier.

Tim Morse, left, and Roger Chevrier go over the plans for rotate drive housings.

An assembled rotate drive gear box complete with shaft and other components looks like this.

Top cover for a rotate drive housing has the attentions of Tim Morse, left, and Roger Chevrier.

The novelty of the task called upon the machinists to innovate. "It requires a certain amount of ingenuity on the part of the tradesman to look ahead and foresee any problems," remarks Bruce. Because of the different size and shape of the rotate drive housings, new jig fixtures had to be made to hold them in place on the huge horizontal boring mill.

Tim Morse, a first class machinist, was closely involved with the machining of the new housings on the horizontal boring mill. He says that, in anticipation of the project, he and fellow tradesmen at divisional shops got together and planned and replanned an appropriate procedure. Following the completion of one housing they assessed their procedure and made it more efficient by deleting some steps and adding others.

The machinists are now taking on the remaining housings with a system and a confidence born out of experience. Bruce anticipates that the project will be completed by the end of the year. This length of time is necessary because the machinists' first responsibility is to prioritize maintenance jobs. The rotate drive housings assume a "special" status and are worked on only when there are no emergency jobs waiting to be completed on the horizontal boring mill.

According to Bruce, the divisional shops machinists welcome the challenge of a completely new project that has never been done before and calls on the old creative juices to flow. "There is a lot of interest in tackling a job like that," Bruce mentions, hinting that machinists are a breed apart from the rest. "Shop tradesmen always look at repairing or machining, as something we can do better than anyone else. There is no such word as impossible."

Computer link Established between Thompson and Copper Cliff

Computer services personnel Mel Chomiak, seated, and Ray Hyde test the benefits system on the computer terminal. Mel moved to Copper Cliff from Thompson.

Ray Hyde, supervisor of technical support, and Linda Webber, technical support analyst, helped set up the PIX units to establish communication with Thompson. PIX units are the link between the Copper Cliff computer and the communication lines to Thompson.

Word: integrate. Definition: to unite with something else; to form or blend into a whole. Include two years of detailed planning, close consultation, teamwork and extensive testing, and the word integrate takes on greater meaning.

Two years of collaboration involving Thompson, Manitoba and Copper Cliff computer services personnel culminated in the successful integration of the Thompson computer services and the Copper Cliff computer services — the first of its kind in the Inco family — in the spring of this year.

The decision to integrate the two computer services departments into a single organization was agreed upon jointly in June, 1979 by then president of the Manitoba division Charlie Hews and Ontario division president Winton Newman.

The single organization, located in Copper Cliff, handles the computer services of what is called the Canadian Operating Services Divisions of Inco Metals Company. The organization was established to provide optimum computer-based services to support management of both divisions from one central location.

Economics was a key factor in having the two computer systems integrated. It was simply more economical to use the services of one large computer than the services

of smaller ones. In the past, Thompson data and Copper Cliff data, although similar, were handled separately. Data can now be processed at a single location, thereby eliminating the duplication of effort and information. Mine planning systems, for example, are now processed by computer in a more consistent manner since these systems are programmed at one central location.

"With the computer integration, we have a greater ability to use people with specialized technical skills," said Ray Hyde, supervisor of technical support in the computer services department and one of those involved in the integration operation. "In a unified computing environment, we are able to work more productively."

The physical integration of the two computer systems required the installation of high speed communication lines based on microwave facilities covering some 1,000 miles by Manitoba Tel and Bell

Computer services personnel Jim Giles, left, and Stewart Tait, operate diagnostic equipment used to test and monitor telephone lines between Copper Cliff and Thompson.

Kal Biro, technical support analyst, left, keys in operator commands for the new operating system, while computer operations supervisor John Milcik looks on

Canada. Paradyne Canada Limited provided Inco with communication controllers known as PIX units linking the computer terminals in Thompson to the main Amdahl computer in Copper Cliff.

Inco computer personnel, rather than telephone company personnel, assumed much of the responsibility of conducting in-depth tests on the communication lines and acquiring any additional equipment needed to achieve the transmission of data at maximum speed.

Although unexpected problems arose, they made the operation more interesting, Ray added. "We were able to solve the problems mainly because of the well-organized, hard-working team of Thompson and Copper Cliff computer personnel."

Before the hookup could take place, all Thompson's programs and data were put on magnetic tapes, some 700 of them weighing a total of 2,000 pounds, and sent by Inco aircraft to Copper Cliff where they were loaded on to the main Amdahl computer.

A trial computer test was conducted prior to the actual integration. Thompson data processed on a normal day was duplicated on the Amdahl computer. The duplication was accurate. The trial test proved successful.

Procedural changes rather than major program changes were made in the two computer systems. "The daily processing time of Thompson's major systems is now considerably less," stated Stewart Tait, superintendent of computer operations and technical services in the Canadian operating divisions. "The computerized systems can now be processed at a faster speed than ever before, over four million instructions per second, which makes them more effective and efficient in meeting the requirements of management in both divisions."

As a result of the integration, the need for Thompson's leased main computer was eliminated. It was dismantled and returned to IBM. The computer services personnel in Thompson continue to carry out their same day-to-day activities but now utilize the computer 1,000 miles away and are in much closer contact with their associates in Copper Cliff.

Perhaps the most important aspect of the entire operation, Stewart noted, was the fact that there was a minimal disruption of service. "It wasn't apparent to the users that the changeover had occurred, it went that smoothly. And we wouldn't have succeeded without the teamwork."

The integration has proved so successful, Stewart added, that plans are in the making to study the feasibility of sharing the computer information services on a more corporate wide basis.

Bob Reeves, superintendent of computer services in Thompson, witnessed the safe loading of boxes containing tapes of programs and data from the Thompson computer on to the Inco aircraft.

Family Album

Family Album Photos

If you are an Inco employee and would like your family to appear in the Family Album section of the Triangle please let us know by calling 682-5425, or send in your name to the address on the masthead.

From the Port Colborne nickel refinery this month we have the happy family of Andre Rollin. A tubefilterman and relieving foreman, Andre has 21 years of service. Spare time activities include bowling, camping and coaching the childrens' baseball teams. The children are, back row from right; Andre Junior, 13 JoAnne, 17. Carole, 15, Diane, Mrs. Andre Bourassa and Monique, seated, who is Mrs. Leo Caron.

Enjoying the outdoors is a popular pastime of the Harvey Secord family of Chelmsford. Harvey, a scooptram operator at Coleman mine, his wife Rolla and daughter Kim, 17, spend their summers fishing, boating and swimming at their cottage on Georgian Bay. Kim likes to sew, crochet and embroider in her leisure hours while mom and dad take time out to snowmobile and attend hockey games, especially when the Coleman mine hockey team is playing · Harvey has had a hand in coaching the team for quite some time.

The members of the Zeitz family are avid cross-country skiers. Lynda, a maintenance clerk-stenographer at Levack mine, and Ken, an industrial evaluator in the industrial engineering department in Copper Cliff, say sons Brent, 8, seated, and Ryan, 5, have been cross-country skiing since they were three years old. The boys are also keen swimmers and enjoy the sport all year round. Ken is the golfer and hunter in the family, while Lynda spends creative hours with needlework, macrame and ceramics.

From Port Colborne with Love

None of the Marquis are home for lunch during the school week. The children all take turns helping to pack the lunch boxes and with seven of them to fill it becomes almost like a production line. It was Lori's and Julie's turn to help their mother this time.

If generosity can be measured by how much one is willing to give up for the sake of others, then Gaetan Marquis, a foreman in the shearing department at the Port Colborne nickel refinery, and his family must be considered very generous. They have willingly given up some of the luxuries that we all take for granted, in order to raise three adopted Canadian Indian sisters.

Gaetan, his wife Madone, and sons Marc, 10 and Ryan, 6, talked about the possibility of adopted children for some time. When the "boat people" crisis occurred, they thought that it would be the perfect opportunity for them.

They read about an organization that was formed in the Niagara Peninsula to find homes for some of these orphaned children. Because of the many restrictive government policies and administrative problems encountered by them, the Marquis gave up on this angle.

They then approached Family Children Services, an Ontario government agency that looks after the welfare of children. After much investigation they were finally approved as prospective parents.

They went to Toronto where they looked at many orphans' photos and case histories. "We showed an interest in about 20 of them and then started to narrow down our search.

The three girls were well taken care of in their foster homes. New clothes and different hair cuts made a big difference in their appearance. They are adjusting very well to their new life.

We fell in love with three little Canadian Indian girls but found out they had already been adopted," stated Gaetan.

Although disappointed, the Marquis didn't give up. They kept in close contact with Family Children Services. Their diligence paid off because during a visit to the F.C.S. office, Madone was told that the three Indian girls were still in need of a home.

The Marquis made arrangements to fly out to Saskatchewan to meet the girls and bring them to Port Colborne. It wasn't long before their family had three new members; ten year old Lori, eight year old Julie and five year old Natalie.

"The girls have adjusted to their new life very quickly and I think it is mainly because their foster parents had treated them well," said Gaetan. "Before we adopted them, Natalie, the youngest, was living in a foster home about 40 miles from her two sisters and didn't get the chance to see them much. They are very happy to be reunited now. The boys have accepted their new sisters without question," Gaetan stated.

One does not have to be with Gaetan and Madone very long to realize that they take the responsibility of raising all their children seriously. But it's difficult to say who gains the most from this relationship — judging by the smiles on everyone's faces it looks like they are all winners.

Gaetan is a foreman in the shearing department at the Port Colborne nickel refinery and a very understanding parent. Here he listens to young Natalie read from her French grammar textbook.

Monopoly is a favorite of everyone. Here, Marc, Lori, Julie and Ryan are involved in a close game, while Natalie looks on.

PEOPLE

RECENT STAFF APPOINTMENTS

Colleen Miranda, secretary mines research, Copper Cliff
Norma Morin, timekeeper, Garson mine
Charles Mossey, construction co-ordinator, engineering, Copper Cliff
Brian Murray, ventilation assistant, mines engineering, Frood mine
Eric Proudfoot, surveyor, mines engineering, Levack mine
Juokko Rantala, engineer, central maintenance
Denis St. Jean, shift foreman, matte processing
Bill Vickman, employment representative, employee relations, personnel and office services
Leanne White, receptionist, employee relations, personnel and office services
Donald Wighton, ventilation assistant, mines engineering, Coleman mine
Rena Armstrong, timekeeper, Levack mine
Richard Bourget, senior drill technician, mines exploration, Copper Cliff
Richard Cowx, production assistant, copper refinery
Mario Da Ponte, mines research engineer, mines research, Creighton nine shaft
Douglas Goodale, senior geologist, mines exploration, Levack mine
Leonard Leclair, security guard, plant protection, Copper Cliff
Atanas Marinow, mine superintendent, Little Stobie mine
Kim McDonagh, maintenance clerk-stenographer, Copper Cliff South mine

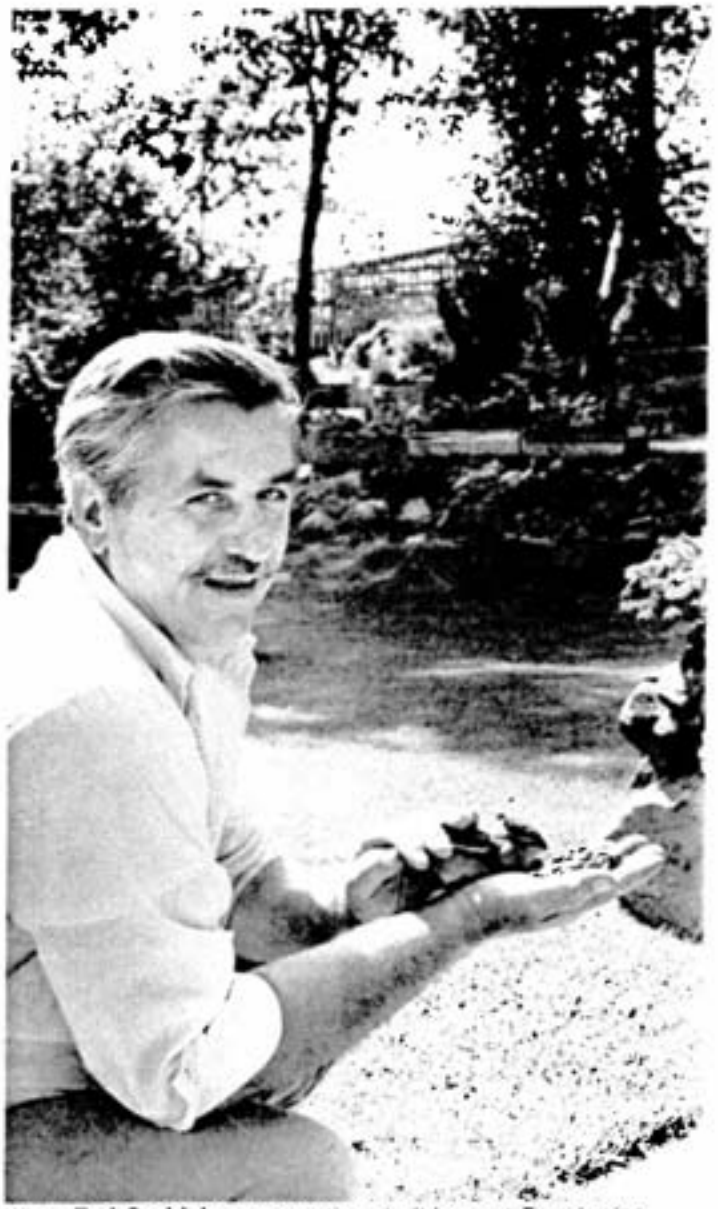
Dr. Walter Curlook turned the switch in September that officially opened the new battery operation at the Copper Cliff nickel refinery. The battery powder plant houses a multi-stage process that will produce 2.5 million pounds of the "200" or battery powder series of nickel powder. Powder produced at Copper Cliff will meet the needs of Inco's North American customers.

One of the many visitors to tour Inco operations in Sudbury was the ambassador of the People's Republic of China, **Wang Tung.** Here, **Mick Throssell,** left, superintendent at the Clarabelle mill, explains the mill's operation to the ambassador, centre, his interpreter and the ambassador's wife **Liu Feng.**

PEOPLE

A lawn swing was donated recently to the Dever Nursing Home by the Garson Mine Association. At the official presentation are, from left, **Bob McFarlane,** chairman of the Garson Mines Association, **Anne Dever, Jim Dever** and **Ron Chartrand,** a Garson mine employee who spearheaded the effort.

On September 8, 1981, the workers' compensation and rehabilitation section of the general safety and plant protection department moved to new quarters. The new offices are situated on the lower floor of the general office building in Copper Cliff . . . the area previously occupied by the public affairs department. Directional signs are placed at strategic places throughout the general office. Pictured here are three employees who share the responsibility for the administration of workers' compensation and rehabilitation matters. From left, **Jane Risk, Janet Kenyon** and **Susan Methot.** The general inquiry telephone number for this department has been changed to 682-5239. Other personnel in the new office area are, **Jack Corrigan, Gerry Dinel, Bernice Larouche** and **Joe Rossi.**



When **Ted Grabish,** an operating shaft boss at Frood mine, leaves work each day in the summer, his thoughts turn to cultivating his flower and rock garden. Hours spent planting, weeding and fertilizing result in a yard that is a gardeners' dream. Ted is pictured here on his well kept property with a friendly chipmunk who finds the food and the surroundings 'just right, thank you.'

PEOPLE

The President of the Senate of the Republic of Italy, **Senator Amintore Fanfani** and his wife **Mariapia** visited Canada during September. President Fanfani came to Sudbury where he was received by the Regional Chairman and the Mayor of Sudbury together with the entire council at a ceremony in the Council Chambers. He was also the recipient of an honorary degree in Laws from Laurentian University. The president toured Inco operations at Copper Cliff as well. Here, from left, are, **Pier Luigi Conti,** the Consul General of Italy, **Francesco Paolo Fulci,** the Ambassador of Italy to Canada and **Dr. Roberto Grosso,** rear, Vice Consul of Italy in Sudbury. President Fanfani, centre, listens to **Tom Antonioni,** superintendent of operations at the Copper Cliff smelter, explain the smelting process.

This June, the Sudbury Basin Safety Group was formed to provide a forum for the exchange of ideas, knowledge and experience on safety for industry safety supervisors. The Sudbury group is one of ten such organizations functioning in the Ontario mining industry. Mine safety groups are supported by the Mines Accident Prevention Association of Ontario. Shown here studying an agenda before the second monthly meeting are the members of the SBSG, from left, **Charlie Trenka,** area engineer in the Inspection Branch of the Ministry of Labour, **Bob Hughes,** a safety coordinator at Falconbridge Nickel Mines, **Bob Shaw,** safety foreman, central mills at Inco, and recording secretary of the group, and from Inco, **Jim Ashcroft,** superintendent of safety, mines and mills, and group chairman.

Bob Paradis, from the transportation department, connects for a hit during a departmental blooperball game. Action took place during the first annual transportation tournament.

PEOPLE

Lefty Reid, Curator of the Hockey Hall of Fame, **Walter Curlook,** President of Inco Metals Company, and **Lou Lefaive,** President of Hockey Canada, are all smiles after a ceremony in which Dr. Curlook presented this replica of the Canada Cup to Hockey Canada, and on to the Hockey Hall of Fame for permanent display. The original Canada Cup and this replica were both commissioned by Inco. The original is on display at Rideau Hall in Ottawa.

Before the Russians attempted to pilfer the Canada Cup in September, the gleaming trophy made of Inco nickel went on display in the company's offices at First Canadian Place in Toronto. **Mike Kelly,** a cash management assistant in treasury services of Inco Limited, thought it was a perfect setting for a snap of a proud father holding his five month old daughter, **Shaunna Erin.** Mike is the son of **Pat Kelly,** a hoistman at Levack mine.

At the 4th Annual Sudbury Industrial Trade Show held September 22 and 23 at the Copper Cliff Curling Club, Inco Metals presented a series of displays depicting the various aspects of Inco Limited. At the Inco booth, host **Ted Nicholson,** left, a buyer in the purchasing department, discussed Inco operations with **Bill Folland,** one of the many visitors who expressed an interest in the Inco family.

Bill Glogger $5,680

From left, Richard Marleau and Jean Beaupariant split $3,300

suggestion

A total of $38,195 was awarded to 206 suggestions in this month's suggestion plan. Due to the large volume of suggestions awarded this month, only those suggestions of $315 or more are listed below.

$5,680 **Bill Glogger** of **Garson mine** netted this month's top suggestion plan award for his idea to purchase an adapter kit which allowed surplus Joy motors to be installed on CIR slushers. Savings were made on parts and labour.

$3,300 At the **Iron Ore Recovery Plant, Richard Marleau** and **Jean Beaupariant** shared $3,300 for their suggestion to purchase cover cloth for cottrell cabinets in shorter widths. The cover cloth was easier and faster to install and resulted in less waste. In the shorter width, the cover cloth also eliminated fire hazards in the cottrell area.

$2,955 **Maurice Picotte** of **McCreedy West mine** noted that the piping used for sandfill line elbow joints frequently wore out and changing the pipe took a long time. Maurice suggested installing six inch heavy duty pipe which lasted longer than the previous pipe. The suggestion reduced the frequency of changing pipes and savings were realized on parts and labor.

$2,535 At **Stobie mine, Doug Jeffrey** noticed that number seven and eight electro-magnetic contactors on Goodman trolleys were not required during trolley operation. The elimination of the contactors reduced maintenance costs and savings were made in materials.

$2,015 **Bob Sawyer** of the **copper refinery** thought that precious metals in the lab effluent could be retrieved, so he suggested that the effluent be pumped to the first stage mix tank or leach sump pump to be processed again. The suggestion reduced precious metal losses.

$1,660 At the same location, frequent breakage of rack roller bearings on the Hyster truck (similar to a forklift truck) prompted **Austin Burns** to suggest installing a steel plate on the truck. The suggestion reduced downtime and costly repairs.

$1,370 **Bill Glogger** at **Garson mine** won a second suggestion plan award this month for his idea to purchase slusher rollers from an alternate supplier. Previously the rollers were discarded due to breakage of the babbit and bushings. The new rollers have replaceable bushings and can be re-used thereby extending the life of the rollers.

$1,215 (additional) At **Levack mine, Walter Krauer** was awarded an additional amount for his earlier suggestion to use air to clean out sandfill lines at pour points for stopes where there is more than one pour point. The suggestion reduced the amount of sand spilled into the drifts there by reducing cleanup time.

Maurice Picotte $2,955

Doug Jeffrey $2,535

Bob Sawyer $2,015

Austin Burns $1,660

plan awards

$915 **Thomas Burke** at **Stobie mine** found that sandfill casing pipe rings were difficult to remove from the end of worn out collar pipes, so he designed a tool to correct the problem. The idea reduced the possibility of burns from falling slag while burning old collar pipes out. Savings were made on materials and labor.

$765 The rubber inside sandfill casings frequently broke off and caused plugged lines, noted **Bruno Pharand** of **Coleman mine,** so he suggested using regular heavy gauge pipe which was less expensive and reduced the frequency of plugged lines.

$645 **George Talbot** of the **smelter** came up with the idea to have tuyere pipe made in the machine shop rather than purchase it outside the company. It was cheaper to make it in the shop.

$645 At the **divisional shops, Bob Canapini** suggested a new design for transformer coils in the permeability recorders. The new design withstood high temperatures and eliminated coil fatigue. Savings were made on materials.

$570 **Guy Downey** of **Levack mine** devised a new method of bonding track, using nine inch track bonds. The suggestion created quick and easy inspection and reduced time for track maintenance.

$560 **Gary Varga** and **John Seminchuk** at **Levack mine** split $560 for their suggestion to revise the loading pocket hoppers. This led to a reversal in the installation of a 15 and 60 inch piece of Trellex billet (rubber wear plate) with the 60 inch located below the 15 inch one. The 15 inch piece escaped wear thus saving half a billet per change for each hopper.

$495 At the **copper refinery, Dominic Castanza** noticed that the hookups on pouring ladles were often bent or filled with copper, so he suggested modification to the hookups. This eliminated copper splash from jamming the hookups, resulting in savings in manpower and ladle repair.

$405 **Bill Perreault** and **Jack Arsenault** at the **copper refinery** suggested to adapt a Wellman crane ram hydraulic cylinder with a clevis at the end. The idea allowed for cylinder mobility, therefore eliminating the possiblity of the cylinder rod breaking. Maintenance costs and downtime were reduced.

$325 **Albert Klussmann** and **Ron Tessier** at **Stobie mine** shared $325 for their idea to design and make a clevis clamp at the Inco shops for 3-boom jumbos. Savings were made on materials.

$325 At **Little Stobie mine, Rene Leduc** netted $325 for his suggestion to apply coats of liquid polyurethane to the walls of the dry instead of retiling the walls. The plastic coating resisted soap, hot water and chemicals and lasted a long time. Savings were made on materials.

$315 **Ray Poulin** and **Norm Buchy** at **Garson mine** split $315 for their suggestion to build up worn out areas on slusher frames. The frames were originally discarded when they wore out. Slusher downtime was reduced. Savings were made on materials.

— Jake's crew — needed no bandages

Jake Clement's crew in the nickel reverb furnace department at the smelter has set quite a safety record — they have gone one full year without a report to first aid — no scrapes, no cuts, not even a need for a bandage.

"As far as I know, this kind of record hasn't been achieved in this department for many years," Jake commented.

Larry Banbury, superintendent of safety for smelting and refining, concurred. "It is a significant achievement for such a large crew to work for one year in a heavy industrial environment without a reported injury. I commend Mr. Clements and his crew and wish them every success in extending their fine record."

Added Jose Blanco, manager of the smelter: "One year without a single reportable incident is a very significant accomplishment and I commend the employees for their dedication to a safe and productive working environment. I will continue to support their efforts to the best of my ability."

Due to the size of Jake's crew, we took a smaller representative group photo for the Triangle.

Congratulations to the entire crew:

Hector Anselmo
Robert Edwards
Morris Henrie
Irving Lapointe
Rheal Lacroix
Ben Machendagoes
Kim Richer
Phil Lindsay
Jake Clement
Byron Ellsworth
John Hachey
Simon Lapointe
Paul Richer
Mykola Suslyk
Frank Morrow
Dale Watt
Ed Lacoste
Nick Wasylenki
Denis Bronconier
Felix Dinero
Dereck Gelinas
Roger Lalonde
Albert Peever
Robert Regimbald
Ed Thompson
Rocky Gagnon
Laurent Robillard
Jacques Belanger
Derio Deldo
Jim Guitard
Garnet Judson
Larry McAllister
Jerry Talbot
Rolland Brisebois
John Kempinski
Don Dumontelle
Ross Carriere
Leo Dallaire
Pat Hebert
Joe Leduc
Darl Nesbitt
Victor Sukoluk
John Whittaker
Garry Limoges
Gary Petitclerc
Roger Lafortune
Aurel Duhaime
Madhu Jalota
Rene Ross
Osyat Kowal
Conrad Courtemanche
Paul Cretzman
Raymond Leroux
Ken Sagle
Almar Natale
Victor Scott
John Stacknick
Walter Wright
Lucien Laroche
John Behun
Tony Meandro