INCO Triangle

DECEMBER 1980

Triangle

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On the cover

Since the real Santa Claus was rather busy, we weren't able to get him to pose for our cover photo. But we were able to get Wesley Pierce, an administration clerk at the Port Colborne research station. Wesley has been playing Santa Claus at children's Christmas parties in Port Colborne for more than 20 years now.

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Andrew Tulloch, plant protection officer, Levack mine

Marcel Vaillancourt, planner, mines engineering, Frood mine

Robert Whipple, surveyor, mines engineering, Creighton nine shaft

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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.

Highlights from second In-term meeting

The second in-term meeting between the company and the union since the signing of the 1979 collective bargaining agreement was held in Sudbury on November 6 and 7. The following is a summary of some of the major items discussed.

Operating Plans

Ontario division president Wint Newman stressed his concerns in the safety and health area and stated that the intensified efforts in accident prevention seem to be resulting in some improvement in the severity of accidents but emphasized that everyone must maintain the current level of effort in this area.

With regard to production planning, Mr. Newman explained that the downturn in business activity in the United States, Europe and Japan continues to adversely affect nickel deliveries. He noted that there are no plans to reduce production levels in 1981 but market conditions could have some effect on this.

Tom Parris, vice-president of mining and milling, said that safety would be given an even higher profile in the mines and mills during 1981.

He also stated that the production rate at the mines is expected to remain about the same in 1981 as it was in 1980. There will, however, be a high level of development work done, especially at Stobie, Little Stobie, Garson and Copper Cliff South mines.

Mike Sopko, vice-president of smelting and refining also stressed that safety will continue to receive major attention during 1981. He announced plans to conduct comprehensive annual safety audits at each of the smelting and refining plants.

With regard to production plans, Dr. Sopko said that in December 1980, current smelting operations will be temporarily cut back to two reverb furnaces and one flash furnace. In addition, operation of the slag cleaning electric furnace will be suspended in the near future. The length of time the company will remain at this level of production is dependent largely on market conditions. He concluded by stating that both the battery powder project at the Copper Cliff nickel refinery and the electrocobalt project at Port Colborne are on schedule.

Safety, health and environment

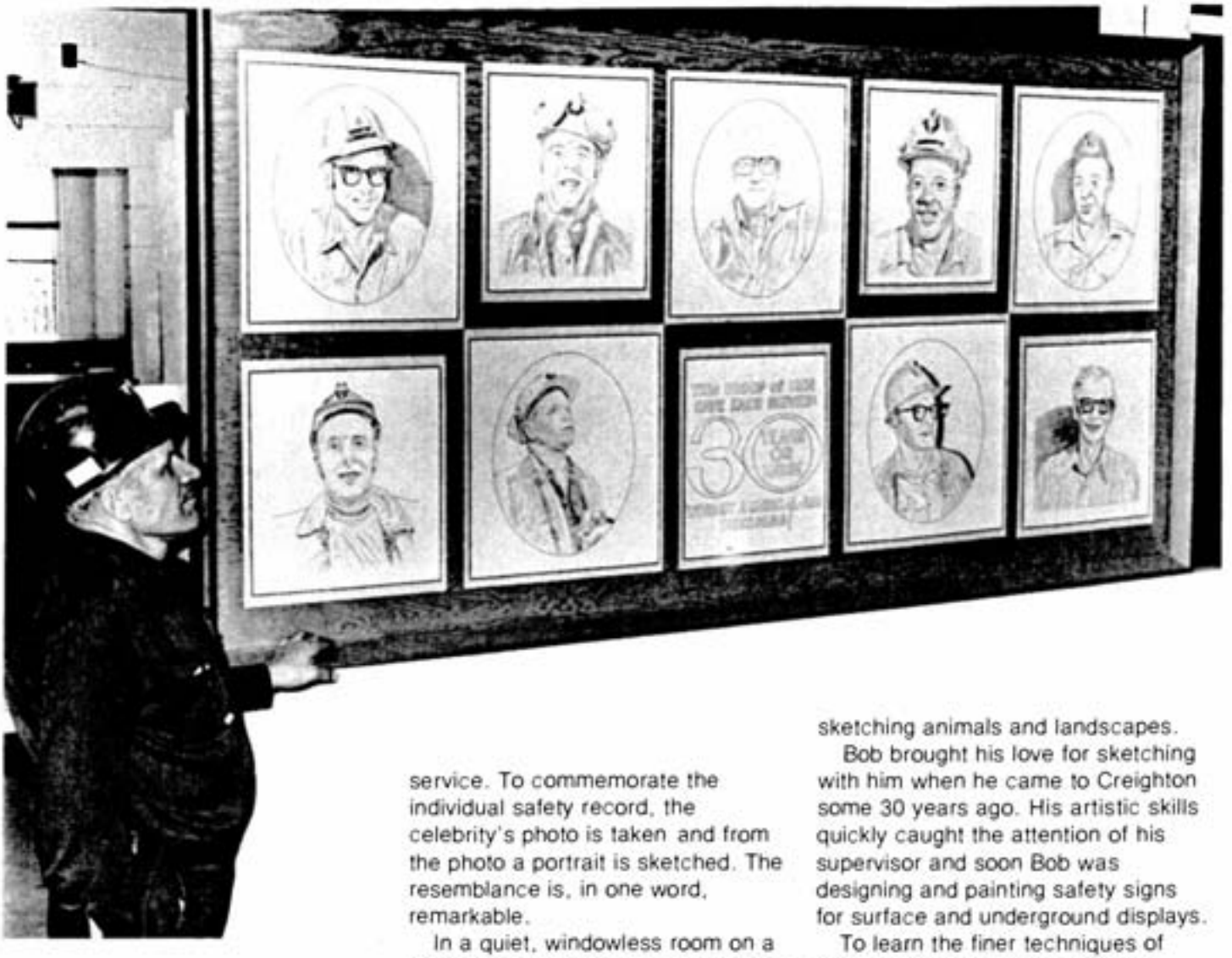
Norm Hillier, manager of safety and plant protection, reported on overall safety performance in 1980 and reviewed the past five years. The statistics showed a steady decline in the number of accidents and their severity until the end of 1979. However, Inco's performance in 1980 has been unacceptable and both the company and the union expressed their concern in this regard.

Albert Magee, director of human resources and environmental services, reviewed the initiatives which were outlined on July 2, 1980 with respect to the effectiveness of all safety programs and practices in the Ontario division.

Primarily these initiatives included the conducting of safety workshops involving all employees and drawing on the employees' experience. He noted that an additional 20 safety supervisors were added in the Sudbury district operations, the company's internal safety audit program was extended, an independent safety audit was conducted by Norm Carriere and Mel Young, and senior management is committed to spend an increased amount of time in the workplace.

Albert outlined in detail the findings of 594 safety workshops in which almost 12,500 employees participated. Essentially the findings centred around the areas of training, the knowledge, understanding and following of safe job procedures and the implications of not following such procedures. He elaborated on the very open discussions which took place on these subjects with respect to the need for continued training, for an improved employer-employee relationship and a primary commitment to safety and accident prevention responsibilities. An intensive study of these findings is currently underway.

Norm Carriere and Mel Young reported on the findings of the independent safety audit which they conducted in all mines and plants of the Ontario division. Essentially their detailed report and recommendations touched on the role of the first line supervisor and a review of specific conditions, concerns and suggestions relating to our safety experience. The recommendations of this audit will also be studied, and Mr. Newman emphasized that input from both the workshops and the above audit will be incorporated into company safety programs to increase their effectiveness.



An art exhibit in the warm room at Creighton nine shaft? That's what it looks like, and the theme of the exhibit concerns all of us — safety.

On the warm room walls are colored safety signs, slogans and charts. There's a large glass display case — the safety hall of fame — featuring photos of employees with the most years of accident-free service. But the biggest attraction can be found on the display board next to the ramp leading down to the deck.

There they are, portraits of the safety celebrities, employees at the Creighton mine complex who have some 15, 20, 30 and even 40 consecutive years of accident-free service. To commemorate the individual safety record, the celebrity's photo is taken and from the photo a portrait is sketched. The resemblance is, in one word, remarkable.

In a quiet, windowless room on a lower level, a man sketches in pencil on a drawing table. The only company he keeps is a small radio on the shelf. Neatly arranged in the room are color photos, frames, camera equipment and most noticeably half a wall of portraits, nearly completed or recently completed.

Bob Peters, Creighton mine's visual aids co-ordinator, is the man in the room. And he's one man who loves what he's doing. "I'm doing exactly what I wanted to do," he said. "Sketching started out as a hobby that worked itself into a full-time job."

As a child growing up on a farm in Saskatchewan, Bob liked to "doodle" by the light of the oil lamp. Art was naturally Bob's best and favourite subject at school. He enjoyed sketching animals and landscapes.

Bob brought his love for sketching with him when he came to Creighton some 30 years ago. His artistic skills quickly caught the attention of his supervisor and soon Bob was designing and painting safety signs for surface and underground displays.

To learn the finer techniques of drawing and sketching, Bob took night school courses in fine and commercial art. He pursued a night course in photography as well, since his job eventually involved taking photos and slides of safety displays and demonstrations.

"I took shots of various jobs underground, showing the right and wrong way to do the job, so that every employee could see how important it is to think safety," explained Bob who works hand in hand with the Creighton mine safety department.

Bob is partial to sketching portraits which are generally done in lead pencil. "I try to capture the person at that particular moment," he continued. "He may have certain expressions that are uniquely his and that's what I try to portray. You just

Safety hall of fame

Bob Peters Creighton's Resident artist

Top right, Bob adds detail to a portrait of a safety celebrity.

Left, "They're a rare breed," states Bob as he looks at some of his sketched safety celebrities on the display board in the warm room at Creighton nine shaft.

Lower right, Bob sketched a portrait of safety celebrity Nick Harrison, a stope boss at Creighton nine shaft for over 25 years. Nick had one medical aid dressing a few weeks after he started working and never had one since. Nick's experience tells him: "Even one dressing in 30 years is one too many."

don't see yourself as other people do."

According to Bob, each portrait takes a few hours to sketch. "I rough it out, add to or subtract from it, then let it sit there. I come back and may decide to add more detail. Then I'll fill in the contrast. If I have the proper paper and pencil it isn't difficult."

Bob came up with the idea to promote safety further by photographing, then sketching the safety celebrities at the Creighton complex. His idea received an enthusiastic response.

"These men are a rare breed," he exclaimed. "I thought this was a good opportunity to give them the recognition they so richly deserve. They have set an excellent example for all of us."

Sudbury'

Old Saint Nick himself wishing everyone season's greetings.

Like Christmas trees, mistletoe and egg nog, the Santa Claus parade is a tradition that lends a joyous, festive air to the season. Last month one of Sudbury's most successful Christmas parades ever, wound its way through the downtown section. While the company has participated in the parade in previous years, this year marked the first time that Inco entered a float in the annual parade.

In keeping with this year's theme of "a family Christmas", Inco's entry featured a pioneer family Christmas complete with log cabin. Inco's pioneers were Sharon Laing from the agricultural department; Roy Hilliar, a yard operator at the nickel refinery, and his wife Frances and children Darrell, Darlene, and Diane; Everett Hopkin, a machinist at the divisional shops, and his wife Debra and daughter Melanie; and the singing Reed Family, with parents Ron and Pat and children Cathy, Rob and Derek.

The Inco Metals float depicted a pioneer family Christmas.

s Santa Claus parade

Many hours were spent by members of Inco's agricultural department in constructing the float. The final result reflects their time and dedication.

"I think that this year's parade was one of the best," comments Maureen Luoma, vice-chairperson of the Santa Claus Parade Committee. She cites the large number of entries, 112 in all, in contributing to that success. The majority of them were bands and brightly decorated floats.

Already the committee is gearing up for next year's parade. In January, the committee will inform this year's participants of what the new theme will be, so they will have plenty of time to prepare for next November's parade. The volunteers will continue meeting on a monthly basis until next September when they will meet more frequently to finalize plans for, what will undoubtedly be, another great Santa Claus parade.

The faces of Christmas

The Hopkin family, left, and the Hilliar family on the Inco float

The spirit of Christmas mirrored on the faces of children as they watch the parade.

Sharon Laing from the agricultural department with her spinning wheel on the Inco float.

Deep seabed mining

Bo Statham, an Inco Limited vice-president with responsibilities for seabed mining, wrote the following article.

Mining the deep seabed seems to have some exotic, almost mystical attraction. Maybe it's the unknown, the fascination that oceans have always held for mankind or maybe it's the fact that we've been told of the great riches that lie on the seabed, just waiting to be tapped.

There is some truth in all of this, and there is great misunderstanding as well.

This misunderstanding has led to concerns in Canada about the impact seabed mining may have in Sudbury, Thompson and Port Colborne. While these concerns can be appreciated, seabed mining is not a near-term threat. We can look to that future with confidence because of the efficiency, productivity and competitive position of the Sudbury and Thompson nickel operations.

The object of deep seabed mining is a valuable resource known as manganese nodules. Although the existence of manganese nodules has been known for more than a century, none have been recovered except for experimental purposes. There is no commercial deep seabed mining today, and none is likely on a significant scale for at least a decade.

Manganese nodules are small, potato-shaped mineral accretions. They are called "manganese" nodules because manganese is the principal mineral in the nodules, accounting for some 28-30 per cent of their content. But, importantly, the nodules also contain about 1.4 per cent nickel, 1.0 per cent copper, 0.25 per cent cobalt and trace amounts of other minerals.

It is believed that these nodules take thousands of years to form, but it is a fact that they are found in very large volume on the floor of most of the world's oceans. The greatest concentration and better metal grades — offering potential commercial significance — are found on the very deep seabeds. Most of the interest to date is in the southeast Pacific Ocean between Hawaii and Central America, at depths of 5,000 metres or more.

Inco, as the world's largest nickel producer, must assure long term sources of supply. It should be emphasized that we are looking far into the future. Our objective is to determine the technical and economic feasibility of recovering manganese nodules as a source of nickel to fill part of future demand. But Sudbury and Thompson are the heart of our operations and will continue to be for many years. We are committed to the stability of employment in those communities as their long term future.

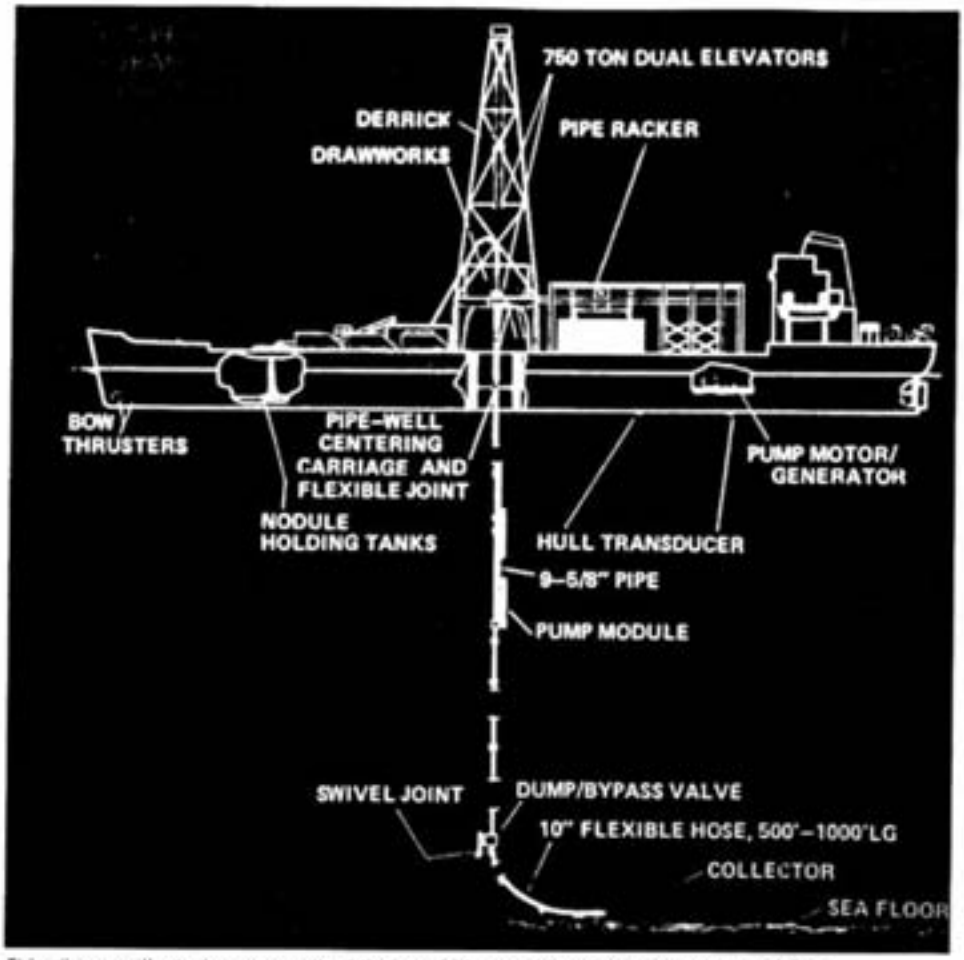
In February 1975, Inco and three partners formed a joint venture to conduct a feasibility study of deep seabed mining. Our partners are companies from the United States, West Germany and Japan. We have explored areas of potential interest in the Pacific, designed and tested a pilot mining system, and conducted nodule processing tests at Inco's Port Colborne Research Station. Our level of activity currently is very low.

A number of other companies, mainly in the United States, Europe and Japan have formed consortia and done studies similar to those of Inco and its partners. Most of these other groups also have reduced their activities to a minimal level.

There are two main reasons why companies have reduced their activities and development work.

First, nickel is the key element that will determine the economics of seabed mining. There is currently more nickel production capacity than is required to meet demand and there are still many undeveloped land-based reserves. Market conditions for nickel are such that seabed mining does not look as though it will be necessary or economically feasible for a number of years. The huge investments required cannot be justified at this time.

Second, there are continuing uncertainties about the legal and political issues involved. Although national seabed mining laws have been enacted in the United States and West Germany, and despite substantial consensus in the United Nations Conference on the Law of the Sea (UNCLOS), serious questions remain. At least one more negotiating session of UNCLOS will be held in New York next year. If agreement is



This diagram illustrates one method that could be used to mine manganese nodules.

reached then, a long period of time will be required to draft the actual treaty, obtain sufficient signatory nations, and develop detailed rules and regulations. Only then will the treaty be considered for ratification by the major industrialized nations. It is generally believed that this process will take at least four to six years, maybe even longer. No one can predict the future of these complex legal and political developments which affect not only the deep seabed but practically every aspect of ocean usage. National security interests, major economic stakes from fish to offshore oil rights, marine research, environmental control and other issues are all involved. The final resolution is a long way off in the future.

Additionally, the costs of development will be high and until market forecasts are favorable and until the basic questions of legal rights to minesites are resolved and the operating rules and regulations and the fiscal regime are known, the massive investments required will be unattractive.

But we do know that we have a very large and efficient production operation here in Canada. We know what we can produce, we know the cost factors, and we believe that nickel from early seabed mining will not be competitive with our Sudbury and Thompson operations. Our task here is to maintain our efficiency and productivity so as to maximize the economic life of the ore bodies that we have.

There is one possibility that could threaten the superior competitive position of land-based nickel producers. That threat is the possible subsidization of seabed mining by foreign nations. A number of major industrialized countries have no domestic sources of nickel and the other metals contained in manganese nodules. If these countries decide, for national policy objectives such as security of supply or reduction of balance of payments, to provide major capital or operating subsidies, then seabed mining could become an earlier and more real concern.

It has always been Inco's position that seabed mining should develop in response to market forces. It should be neither subsidized nor artificially restrained by public policy. If this position prevails and seabed mining investments are made on the basis of economic and free market factors, Canadian nickel interests have little to fear.

Manganese nodules are a valuable long-term resource, however, and someday, will be exploited. Metal contained in the nodules should be recovered to supplement existing land-based sources as demand increases and present sources begin to be depleted.

Although several serious issues remain unresolved, it is likely that final agreement will be reached next year at the Law of the Sea Conference. The long process leading to ratification (or rejection) will then begin, and in the meantime a number of industrialized nations will pass their own seabed mining laws. Companies interested in the future of seabed mining, including Inco or our joint venture, will apply for exploration licenses under these laws and will continue research and development activities. In our case, we will do this to protect a long term potential interest in seabed mining.

Ultimately, market conditions will be attractive, the legal and political risks will be minimized, and commercial mining systems will be developed. When is all of this likely to happen? Probably not for a decade, so that the first commercial mining may begin in the early 1990s. Sudbury and Thompson should not fear this long-term development, however, so long as we maintain our efficient productive capacity and seabed mining is not subsidized by governments.

Drinking and driving don't mix

The Yuletide Season should be a time of good cheer to all. But, says Constable Dennis Tappenden, community services co-ordinator for the Ontario Provincial Police (OPP), too often the holiday period is marred by highway accidents.

"A good percentage of these accidents involve the use of alcohol, said Dennis. "At least three-quarters of the accidents over the holiday season involve someone who is impaired."

During last year's holiday season in Sudbury, (December 24 to 31), one person was killed and 12 others injured. "These statistics may not seem very high," said Dennis, "but they contribute to the 200,000 accidents reported in Ontario during 1979. The hour between 1 am and 2 am has become the most fatal for the province's drivers, with Saturday claiming the majority of lives.

"Over half the highway accidents in the province happen on dry pavement and nearly all occur in good driving conditions," said Denis. "Most accidents happen on paved roads in clear weather, and the majority take place on city streets rather than highways. If the road and weather conditions are good, then the drivers must be at fault.

"The statistics for impaired drivers are frightening," Dennis stated. "With 5 million licenced vehicles in Ontario, it is unnerving to think that one in five of these drivers has been drinking. What's even more upsetting is that one in five drivers will have a fatal accident within a ten year span.

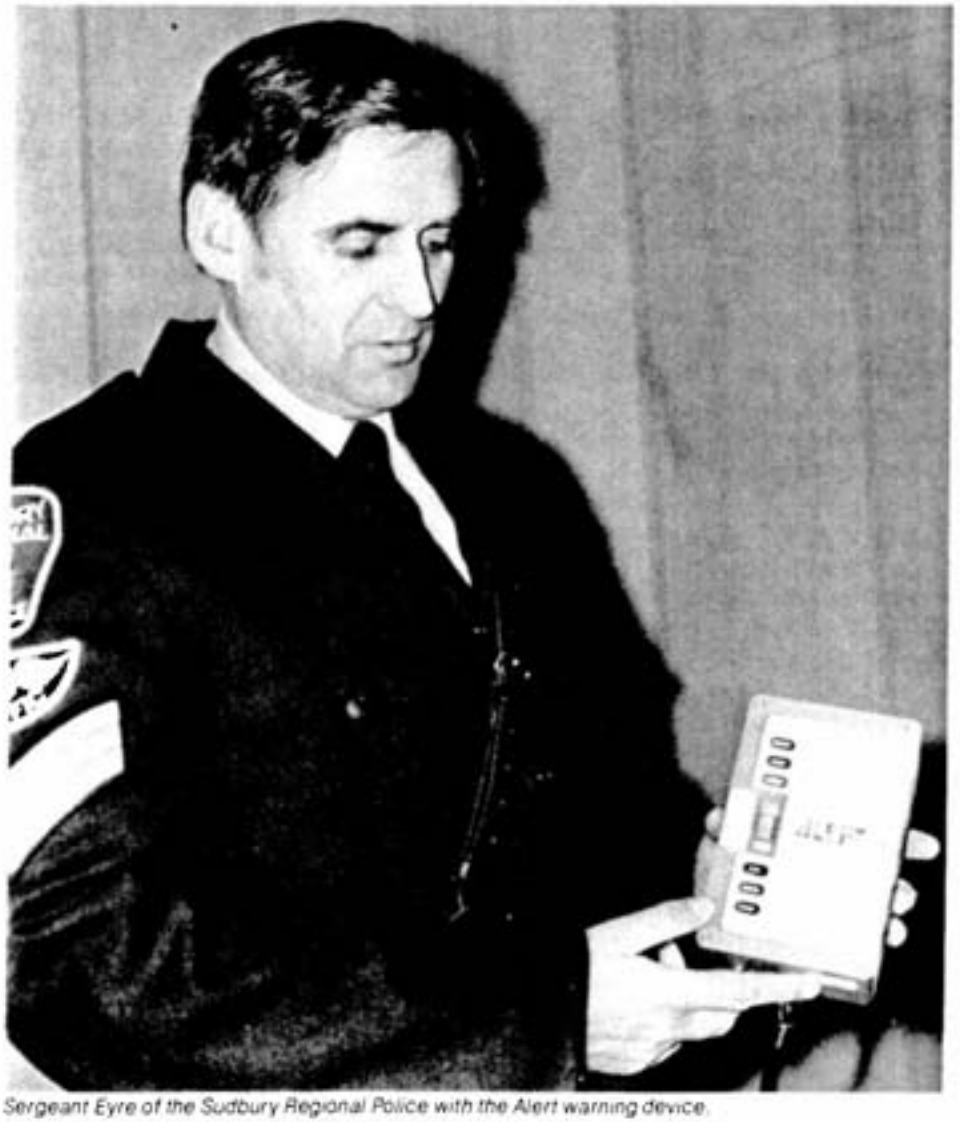
"This is why the OPP and the Regional Police are encouraging people not to drive if they've been drinking. We hold spot checks throughout the year, but the checks held over the holidays are more widely publicized in the hope that people will remember not to drive if they've been drinking. We're attempting to reduce the tragic toll."

Both the OPP and Regional Police will be out in full force this season conducting their spot checks for impaired drivers. Both will be equipped with the ALERT device. This is a small, handheld, roadside screening instrument. Suspected drivers will be asked to blow into it.

If the ALERT device produces the "fail" signal, the person is then arrested and taken to the police station where a breathalizer test is done. An impaired driver caught in such a fashion, is treated as a criminal — for it is a criminal offence to drink and drive.

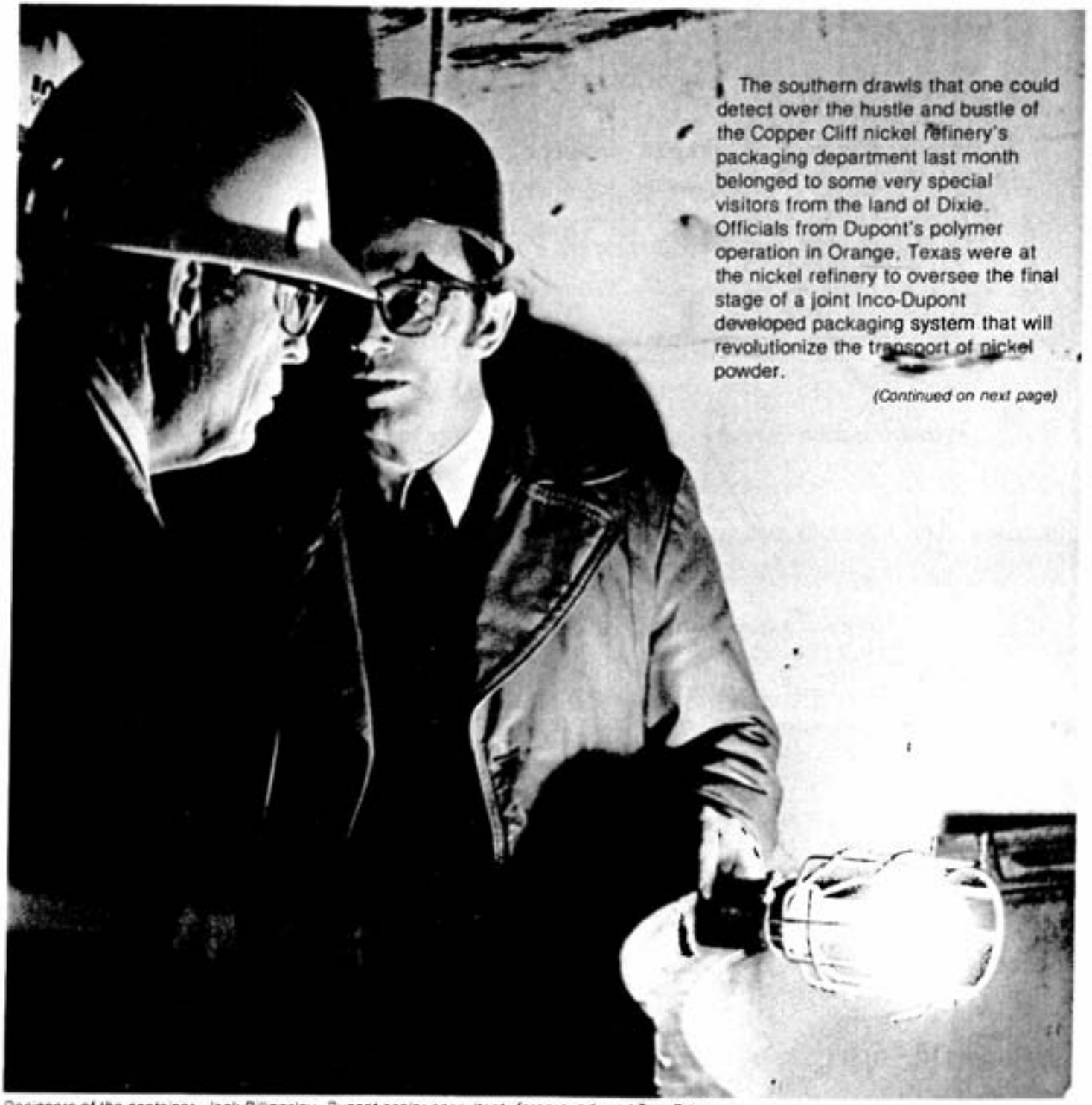
"There are many alternatives for people that wish to drink," said Dennis. "Leave the car at home and taxi, is one. Some taxi companies in Sudbury have a service whereby they send out a taxi and two drivers for the person who is away from home and has had a few too many. The second driver delivers the fare's car to his home. Another solution is to attend parties in groups, with one member of the group remaining sober to drive the rest home".

Whichever way you choose always remember — if you drink, don't drive, or if you drive don't drink.



Sergeant Eyre of the Sudbury Regional Police with the Alert warning device.

Co-operation is the name of the game
New shipping containers designed at CCNR



The southern drawls that one could detect over the hustle and bustle of the Copper Cliff nickel refinery's packaging department last month belonged to some very special visitors from the land of Dixie. Officials from Dupont's polymer operation in Orange, Texas were at the nickel refinery to oversee the final stage of a joint Inco-Dupont developed packaging system that will revolutionize the transport of nickel powder.

(Continued on next page)

Designers of the container, Jack Billingsley, Dupont senior consultant, foreground, and Tom Price, inco project co-ordinator examine their creation after it has been loaded onto a boxcar.

Co-operation . . .

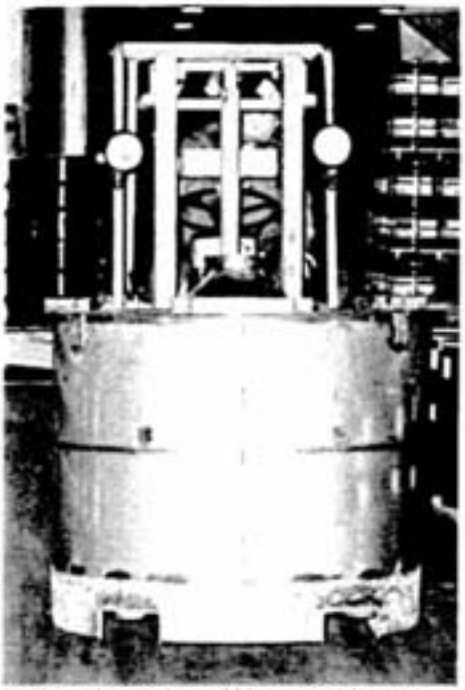
Dupont is one of Inco's biggest nickel powder customers. They use substantial amounts of the product as a catalyst in the production of nylon. Up until now, the powder has arrived at the Orange, Texas plant in the traditional 300-pound containers. Dumping these relatively small containers posed some problems, reveals Ed Lichtenstein, Dupont polymer production engineer.

Alleviating the dust problem associated with dumping nickel powder is a major concern. "We want it (the new system) for dust control," explained Ed. "That was our first thought." There were other "general housekeeping" considerations like residual nickel in emptied cans and disposing of the empty containers. With this situation in mind, Dupont representatives approached Inco officials two and a half years ago. The two companies pooled their resources in an effort to devise a better method of shipping nickel powder.

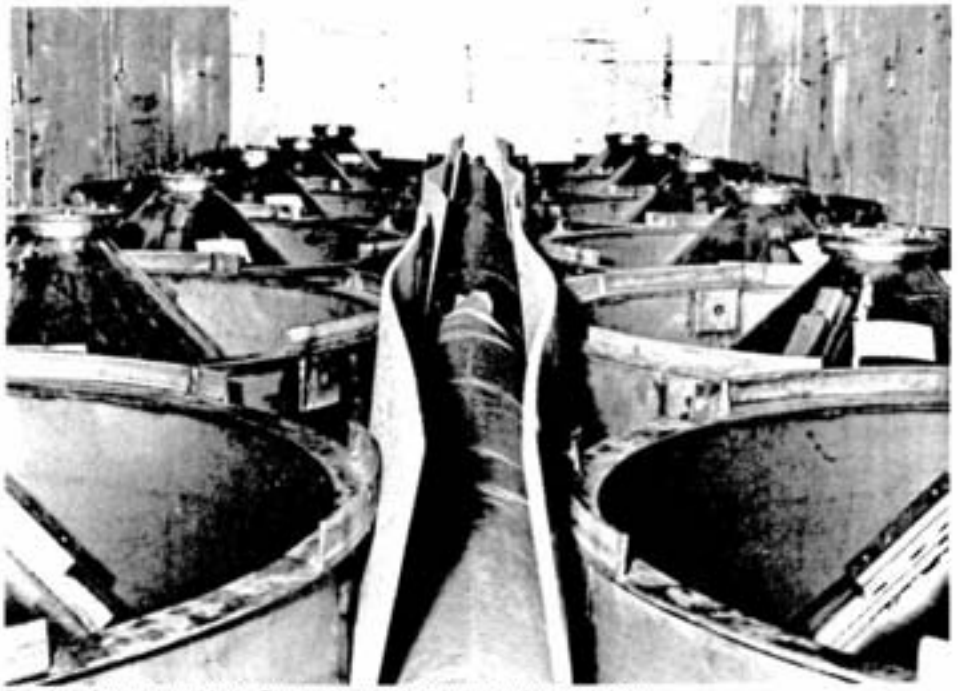
The co-operative endeavor resulted in a round, stainless steel container 48 inches high, 50 inches wide and 157 inches in circumference known as the Dupont bulk powder container. It has a unique design, something like

Top, left — Without a doubt the most crucial and most difficult part of the two and a half year bulk container project came when it was time to load a number of them into a boxcar. Without the efforts of Alan Bales' entire packaging and shipping crew in loading and securing the containers the project may not have worked. Here, packaging and shipping operators Ron Simpson (back to camera) and Larry Woloshyn give their all while banding the containers.

Bottom, left — Packaging and shipping foreman Joe Nichols, left, explains the labeling of the bulk powder container to three Dupont representatives; left to right, Jack Billingsley, Ed Lichtenstein and Mac Guillory.



His fork lift carrying 4,500 pounds of nickel powder, Ron Simpson, packaging and shipping operator, drives toward the waiting boxcar that will carry the containers to Texas.



For their long train ride to Texas the giant nickel powder containers have to be packed in such a manner that does not allow any movement. Here inflated airbags and plywood act as a buffer between two rows of containers.

a funnel wrapped inside a protective cylinder, that reminds one of a demijohn. According to its creators, Dupont's Jack Billingsley, senior engineering consultant, and Inco's Tom Price, project engineer, the bulk powder container holds the solution to problems in handling nickel powder in Orange, Texas.

"It's very easy to make a heavy container," says Jack, recalling the original conceptualization of the can. "The real challenge was to make a light container that would allow us to ship the maximum amount of nickel." The new container weighs 650 pounds, surprisingly light considering its size, and holds 4,500 pounds of powder or fifteen times the amount of the old cans. Adds Tom: "We get maximum product load each time and minimum container load."

The beauty of this new system is that each container is "returnable." When they have been emptied in the south, the containers are merely loaded on a train and sent back to Copper Cliff for a refill. Dupont people no longer have to wonder how to dispose of the hundreds of 300 pound cans. The bulk powder containers are built in such a way as to facilitate stacking so that twice as many empty cans can be returned as were sent down.

A special, automatic, air operated valve loads powder directly into the container at the nickel refinery and directly out of the container in Orange, Texas without exposure to the surrounding air. That, they say will effectively diminish the problem of airborne nickel dust in both operations. Smooth, angled sides enhance the container's flow properties alleviating the problem of residual nickel.

Bulk containers promise other savings. It takes a worker the same amount of time and effort to dump one new container as it does to empty one of the older, smaller variety. Predicts Ed: "Hopefully it will free up our operator to do other things because he won't be dumping it as frequently."

Another feature of the system is that it minimizes spoilage of nickel powder. Moisture, for example, creates havoc with the powder. To keep out moisture, each container is sealed with an inert gas, nitrogen. Considering the extremely humid climate of the Gulf Coast, Dupont people are elated with this innovation and the expenses it will cut.

Perhaps the most interesting aspect of the bulk container story is the corporate co-operation that made it possible. Dupont and Inco shared expertise and the costs of developing the new container up to the prototype stage. Tom thinks this temporary marriage of convenience is practically unheard of in industrial circles. "I've never known it before, not on a project of this scale," he remarks. "They've replanned a system that works well here and is efficient at the other end."

Dupont officials agree. "It's a little unusual for the supplier and producer to get together to construct something that is of mutual benefit to both concerns," stated Jack. "I know at Dupont, we were super-pleased with the help and cooperation we got from Inco."

As 22 bulk powder containers were loaded onto a boxcar last month, all concerned with the project were cautiously optimistic that this would work. The last hurdle to be cleared is the long rail trip to Texas. Chuckles Jack: "If we get them there in one piece, we're home free."

FAMILY

NOW &

1960 *— Dave Scott and his wife Joyce with Terri Lynn, 1½, and Jane Louise, 5. Dave was a mechanic at the copper refinery.*

1980 *— Dave and Joyce have added two more children since the first picture was taken. Children are, Jane, Terri, Cathy and Danny. Dave's still at the copper refinery but is now with maintenance training and safety.*

1980 *— Dan and Rita with, back, from left, Debbie, Edward, Margaret, Jane; front, from left, Carol and Sandra. Dan is retired.*

1960 *— Dan McKerral and his wife Rita with Sandra, 12, Carol, 18, Margaret, 13, Debbie, 10, Edward, 2, and Jane, 6. Dan worked at Frood mine at the time.*

1980 — *Yves and Gene with Melissa, left, and Denise. Yves is now utilities services co-ordinator in the central utilities department.*

1960 — *Yves LeBorgne and his wife Gene with daughters Denise, 8, and Melissa, nine months. Gene worked at High Falls when this picture was taken.*

1955 *Ken and Julie Belter with Wayne, 5, and Valerie, 2. Ken was working at Levack at the time.*

1980 *Wayne and Valerie have sure grown up in the intervening years. Ken still works at Levack mine as a storeman in the warehouse.*

1968 — *Donald and Anita Marion with their nine children; John, Susan, Patricia, Mary, Tracy, Peggy, Joe, Elizabeth and Danny. Don was a second class plantfitter at the Port Colborne nickel refinery in those days.*

1980 — *Don and Anita's family has not grown in numbers but it certainly has grown up. Don is now the plantfitter foreman at the Port Colborne nickel refinery.*

1960 — *Frank Sudac and his wife Helen with Linda, 12, Richard, 11, and Debra, 7. Frank was with the ventilation department.*

1980 — *Frank and Helen with, back, from left, Debbie, Linda, Richard, and in front, Gerry who wasn't around when first photo was taken. Frank is a trackmobile operator at Garson mine.*

1960 *— Sam and Pearl Chyz with Lillian, 2 and Michael, 7. Sam worked at Coniston when this picture was taken.*

1980 *— Sam and Pearl with Lillian and Michael all grown up. Sam is now retired.*

1960 *— Bill Costello and his wife Doris with daughter Darlene. Bill worked at the Iron Ore Recovery Plant.*

1980 *— Bill and Doris with grown up Darlene. Bill is now office supervisor at the Iron Ore Recovery Plant.*

ALBUM

THEN

Dick Dow awarded

Dick Dow, one of Inco's most accomplished and respected pensioners, received further distinction recently when he was named to the Order of Canada, the highest civilian honour in the nation.

Governor-General Edward Schreyer welcomed Dick to the order in a ceremony at Ottawa. The award was presented to Dick in recognition of his long and faithful service to the community.

It is hard to imagine Copper Cliff having prospered without the guidance of its longtime mayor and alderman. But it was a twist of fate that brought Mr. Dow here in the first place. Had it not been for the Great Depression he might never have left his affluent, West Medford, Mass. home. "My family lost everything in the Depression," he remembered, a trace of Bostonian accent still lacing his speech. "It was the best thing that happened to me, probably."

Dick concedes that while the economic calamity shattered his life, it did prevent him, the son of a wealthy stock broker, from continuing his "playboy" ways. He explained: "Money meant nothing, but I sure as a devil learned when I didn't have it."

Hard times prematurely ended his bid for a degree from the Michigan School of Mining. Eventually he went west to work in the oil industry. Sudbury happened to be one of Dick's stops en route to the rigs. He recalls viewing the area with some disdain and wondering how anybody could live here. "Little did I know that five or six years later I would end up in Sudbury," Dick said with a smile.

Arriving in Sudbury in 1935 he promptly got a job at Frood mine and found himself behind the end of a shovel hand mucking ore. "The first month of shovelling almost killed me," Dick said. "No one complained. Unfortunately there were 100 men up top just waiting to take your place.

Longtime Copper Cliff mayor and regional councillor Dick Dow peruses the agenda of the final regional council meeting he attended.

h ighest civilian award in Canada

so you kept shovelling," he continued.

It was during this time he decided to better his lot in life. "If there was going to be any ordering around it was me that was going to do the ordering," stated Dick. "I think that inspired me to produce."

Dick attributes his success in rising through the ranks, to an ability and desire to produce. As a stope leader his crew set a record for the most tonnage per man and the highest bonus of any stope. The trend continued and Dick was rewarded with successive promotions.

When the company's first open pit mine was opened at Frood it was Dick Dow who was appointed its first shift boss. He credits establishing a rapport with his men as the reason behind his shift's productivity. Says Dick: "We were the only place at that time that had the cohesiveness among supervision and employees, so we did mix after work."

When he was promoted from foreman to safety engineer to senior foreman of Frood in 1947 and then to superintendent of Lawson Quarry, the "Dow" way of doing things remained.

Dick Dow managed to establish channels of communication and create a "give and take" environment that helped to defuse potential confrontations.

In the five years he spent at Lawson, he insists not a single grievance had to be settled outside the confines of his office. Company officials, he says, "couldn't believe it was possible."

Dick takes an immense amount of pride in his career as a miner and the fact that he has worked every piece of equipment and done just about every job on the way up. "I was capable of doing any job that I asked a man to do, so I often pitched in and helped," he explained. "I was always favored with good guys."

In 1955 Dick was appointed administrative assistant to R.D. Parker, president of the Ontario division. The announcement was "very unexpected," he said.

One of the first tasks as administrative assistant was to reorganize all the landholdings of the company into a property department. Dick held this position with Inco until his retirement in 1974.

Before and after his retirement, Dick established a reputation as a tireless servant of his constituents in the civic forum. Two years after he moved to Copper Cliff in 1957, Dick Dow was elected mayor of the town, a position he held until the advent of regional government in 1973. After that he continued to represent the views of Copper Cliff people as the alderman for ward 8. This year Dick decided to retire from active politics.

Over and above his political involvement Dick has contributed his time and effort to a myriad of boards and organizations. The Girl Scouts, the Sudbury Memorial Hospital, Thorneloe College and Laurentian University are but a few of the organizations that have benefitted from his experience.

In terms of health, the 71 year old has had a series of operations to eliminate potentially lethal aneurysms. A recent operation necessitated the severing of nerves in his leg to correct the arterial condition. He was told he would never walk again. With typical Dow resolve he made a liar out of the doctor. "Fortunately I had a good therapist who liked a good challenge," he remarked. "So did I."

Relaxing in the living room of his Park Street home, surrounded by awards, citations and other tokens of appreciation, just a couple of hours before his final regional council meeting, Dick reflected on the reasons for his success as a miner, politician and human being; "Primarily the reason for my success with the company is the fact that I like people and I like doing things for people. That is what makes it a little unusual; to get the highest award in Canada for doing something you enjoy doing."

This photograph, taken in 1938, shows Dick Dow, right, then a shift boss, helping one of his men load a blast at Frood open pit.

Sudbury media tour Inco operations

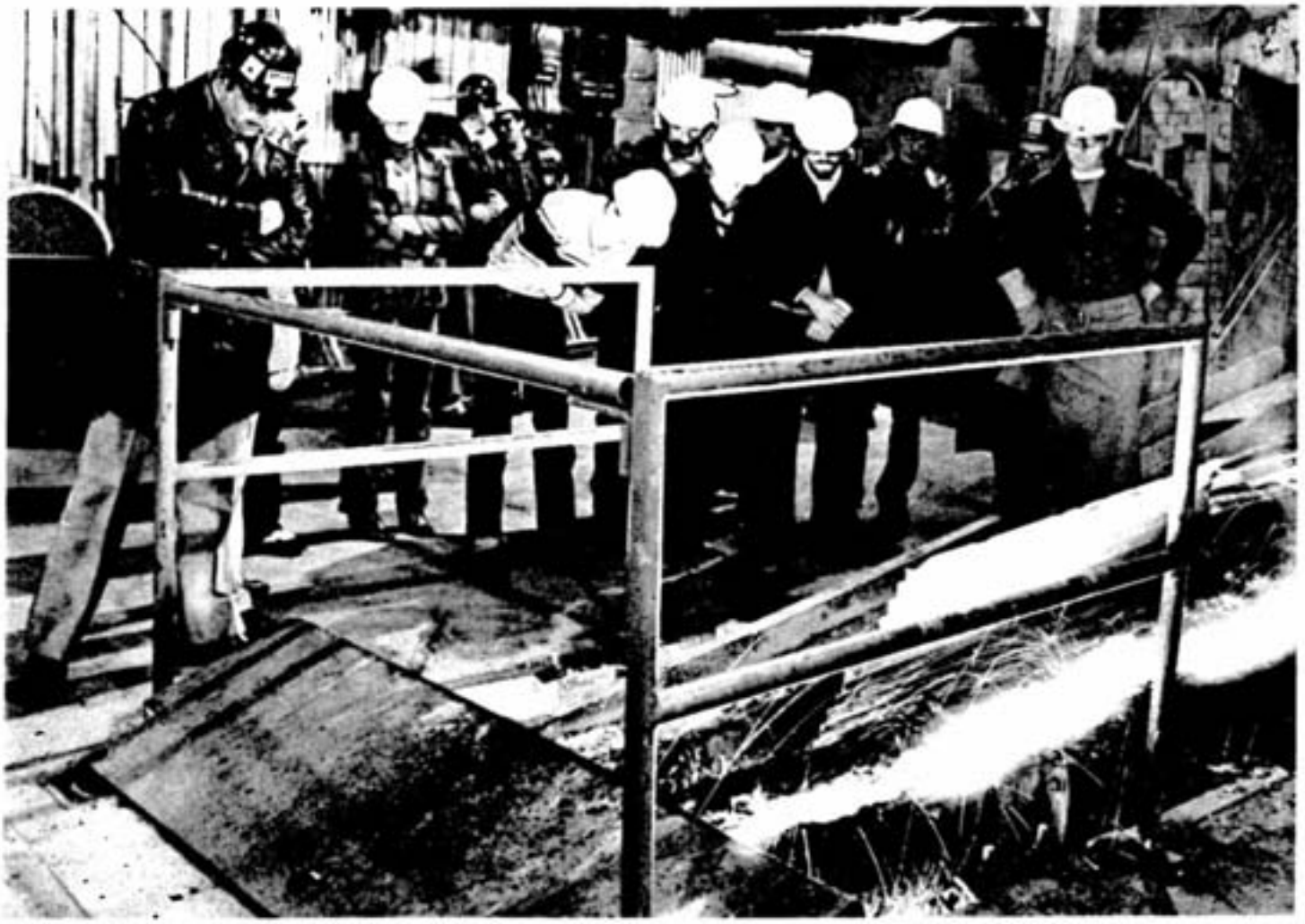
Last month 32 representatives of the local media spent two days touring the company's Sudbury operations and meeting with company representatives.

The tours, hosted by Morry Brown, director of public affairs, and Sid Forster, superintendent, included visits and briefings involving Stobie mine, the Clarabelle mill, the smelter and the nickel refinery.

"The tour and discussions were intended to familiarize the media with our operations," said Morry. "It's important for the media to have a basic understanding and knowledge of our mining and processing, particularly, when they are reporting on company-related events."

Part of the itinerary included informal discussions with many managers and members of the management committee.

Bill Collis, Frood Stobie area manager, briefs the media prior to the underground tour.

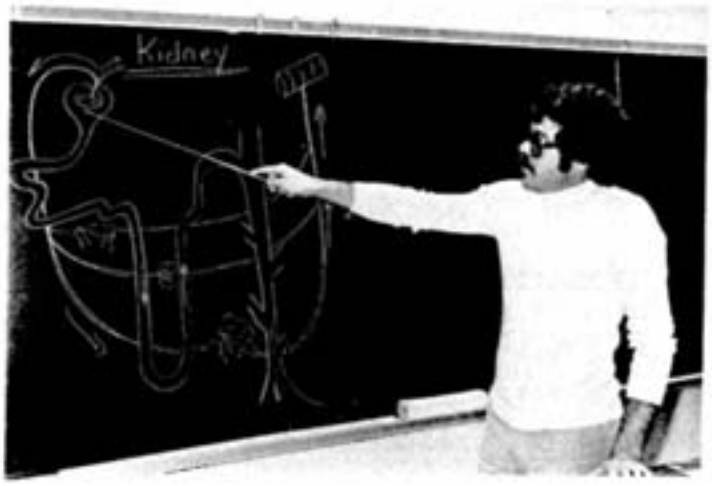


Media representatives get a first hand look at matte being tapped from a reverberatory furnace.

AROUND THE PORT

news and views from the Port Colborne nickel refinery

Two grade 12 students from Lockview Park Secondary School spent one week getting work related experience at the Port Colborne nickel refinery recently. In the photo are, from left,- **Adrienne Smith, Margaret Gyorffy,** daughter of Inco pensioner **Joe Gyorffy** and **Debbie Mathewson,** a clerk-stenographer at the plant. Both high schools in Port Colborne encourage their students to gain first-hand experience in their chosen fields.



Jo Ann Scott, wife of **Brian Scott,** the preventative maintenance co-ordinator at the Port Colborne nickel refinery, has a facinating hobby. She makes wreaths, candle holders, center pieces and many other Christmas decorations from pine cones. Using rings from florists, she wraps these with cloth and attaches pine cones to the outside and the inside of the rings with hot glue. The space between them is filled with random sized cones and a variety of nuts are glued on. The wreath is then sprayed with clear urethane and a ribbon is added as a final touch. Jo Ann has been making these decorations for family and friends for the last three years.

Because of the growing awareness and need for specialists in the field of occupational health, Niagara College in Welland has established a course titled Occupational Toxicology and Health Surveillance. **Rick Hilton,** environmental co-ordinator at the Port Colborne nickel refinery, was asked to teach the course which is aimed at occupational health nurses and other industry professionals. In the above photo, he describes the sites within the kidney where toxic chemicals can interfere with normal function.

PEOPLE

"Oh Christmas tree, oh Christmas tree,
How lovely are thy branches!"
It was a sight to behold in front of the general office building in Copper Cliff on a day in late November as members of the agricultural and central utilities departments raised the giant Christmas tree and adorned it with colored lights. Decorating the 25 foot evergreen was made easier with the help of a boom truck.

Teamwork is the hallmark of every operation at Inco. This is especially true of the effort that went into building the company's float entered in the annual Sudbury Santa Claus parade. The theme of this year's parade was "The Year of the Family", and the Inco float depicted a pioneer family Christmas. Here **Aito Ahopelto,** left, and **Paul Rainville** from the agricultural department, add finishing touches to the float.

Two members of the matte processing department recently became members of the Wise Owl Club of Canada.
Kris Dikran, above, a process laborer in the fluid bed roaster building, was emptying a cottrell hopper when he accidentally bumped into the valve handle on the hopper. His safety glasses were knocked off by the force of the blow and the valve handle struck him on the bridge of the nose and right eye. Because he was wearing his safety glasses, his eyesight was not affected.
Larry Tessier, below, a shift engineer in the FBR extension, was in the process of chemically feeding the cooling water towers when a mixture of caustic soda and chromate spewed out and struck Larry on the face. He immediately flushed his face with water, but if it wasn't for his safety glasses, he would probably have done serious damage to his eyes.

LOOKING BACK

THROUGH THE PAGES OF THE TRIANGLE

1939

Christmas, we often hear, is for the children. Forty one years ago, as the Triangle reported, this was indeed the case as a number of Christmas parties were held by various associations at Inco operations in the district. One of the biggest was held at the Inco Club under the auspices of the Frood Mine Welfare Association.

For 5 hours St. Nick doled out presents of toys and candy to over 2,000 youngsters. Near the end of the great day the hosts ran out of gifts. A truck was dispatched to a nearby toy store which, in spite of the fact it was Sunday, opened its doors so Santa's stock could be replenished.

In that same issue, another use for Monel metal was revealed. Crab fisherman switched to Monel wire for their traps which were previously made of copper and steel. Monel's great strength and resistance to sea water convinced them that Inco's product was superior. Apparently the color of the metal also appealed to the crabs and gave the fishermen increased catches by two to three times.

1960

A history of Inco highlighted the Triangle of 1960. Not the short one published in the magazine, but an entire book on the subject. Published in December, 1960, "For the Years to Come" was called "a fascinating story of the beginnings and growth of International Nickel."

Co-authored by Dr. John F. Thompson, honorary chairman of the Company and Norman Beasley, reporter and historian, the book detailed the Company's growth from the 19th century to modern times, illustrating its evolution into the world's largest nickel producer.

1970

The annual Sudbury Santa Claus parade was featured in full color on the cover of the 1970 Triangle. The mixture of rain and snow that fell that day did nothing to chill the enthusiasm of the more than 1,000 people participating in the parade, nor the more than 20,000 spectators that lined the streets of downtown Sudbury.

Bands, majorettes, clowns and floats featuring everything from cartoon characters, fairy tales and biblical characters captivated the throngs of people who had braved the weather to watch the parade. Inco participated by contributing 170 professional fancy dress costumes to the Citizens Santa Claus Committee.

Copper Cliff senior baseball team 1918.

Don't get caught under the mistletoe

Don't get caught under the mistletoe! That's a familiar warning we hear every Christmas.

Some of us, out of sheer shyness, stay clear of the mistletoe, while others welcome the romantic ritual associated with it.

We know little about the origin of the ritual and even less about the mistletoe itself.

Mistletoe is an evergreen plant with feathery leaves and white, waxy berries which are poisonous. The plant grows as a parasite on deciduous trees, mainly apple and oak, and is found primarily in the United States and Europe, from Great Britain to northern Asia.

The word "mistletoe" originates from Old English and German. "Mistel", in Old English, came from the German word "mist", meaning dung. "Mistle" is also related to the Gothic word for dung, "maihstius."

The word's meaning lies in the fact that mistletoe is propogated from bird dung dropped on the branches of trees. The dung acts as a fertilizer.

The custom of kissing under the mistletoe has long been shrouded in a mixture of magic and religion.

The custom dates back to the time of the Druids.

The Druids were priests, members of a ritualistic religion in ancient Gaul, Britain and Ireland. They worshipped nature deities in sacred tree groves, practiced magic arts, taught the transmigration of souls and studied the powers and qualities of the gods.

The mistletoe branch was greatly revered by these people. "The Druids believed that mistletoe appeared mysteriously on trees without being planted, that it was put there by the spirits or the gods," explained Inco's gardener Alex Gray. "It has mystical powers."

It is believed the Druids gathered mistletoe on Midsummer Eve, about June 21, and at Christmas, about December 21.

This tradition originated from old European sun cults. The ancient Greeks, for example, associated mistletoe with the sun. During sacred times of the year (June 21 and December 21), the sun was farthest from the earth's equator.

To the Druids, the mistletoe branch had amazing power. Prepared as a drink, the plant was supposedly used as a cure for sterility and a remedy for poisons.

It was a sacred branch, a branch sent from heaven. It grew upon a tree that sprang out of the earth. By engrafting the heavenly branch on the earthly tree, heaven and earth were united.

"The white mistletoe berry was symbolic as well," Alex added. "The Druids wore white robes which they related to the white of the berry, possibly signifying purity. White has also been traditionally associated with the holy orders."

The mistletoe bough became a symbol of divine reconciliation to man. The kiss the symbol of pardon and reconciliation. Similarly, the Bible states: "Mercy and truth are met together; righteousness and peace have kissed each other. Truth shall spring out of the earth, and righteousness shall look down from heaven." (Psalm 85 verses 10 - 11)

Alex went on to further explain the old English custom of kissing under the mistletoe: "If a man kissed a lady under the mistletoe, he was obligated to supply the lady with kid leather gloves, usually white leather gloves. If the lady kissed the man she had to give him a white linen handkerchief. The presentation of gifts in each case was viewed as a possible invitation to matrimony."

To the believers, kissing under the mistletoe leads to harmony between heaven and earth, and hopefully between men and women.

To the skeptics, it's an opportune time to steal a kiss.

Maria Malvaso, 4, and Jason Cecchetto, 5, take a good look at each other under the mystical mistletoe. Maria is the daughter of Colette Malvaso, a secretary with public affairs, and Jason is the son of Al Cecchetto, Inco's tour co-ordinator.

Rock so thin you can see through it!

Norm York uses the cast iron lap to wear down the face of a thin section.

Getting an accurate geological picture of ores is an essential task in the business of mining. In order to do this, geologists have to examine the ore samples through a microscope. Preparing ore for microscopic scrutiny is one of the jobs of three senior technicians in the geological research laboratory; Norm York, Reino Maki and Harry Christakos.

One type of sample produced by the geological research technicians is the thin section. To call the sections 'thin' would be an understatement when one considers that the final product of the lab's labors is a specimen only one-thousandth of an inch thick - so thin that light can pass through it. Inco's master of the thin section is Norm York, a seasoned veteran of over thirty years.

Norm begins making a thin section by cutting a small rectangular piece of ore one-eighth of an inch thick from a rock sample. He mounts the section on a microscope slide. Once again he uses a power saw to cut the sample, bringing it down to a thickness of one-thirty-second of an inch. Norm then places it on a cast iron lap or grinder and, with the help of 400 and 600 mesh abrasive, wears down the sample face.

He finishes the process on a 35 micron diamond impregnated lap. Deftly pressing the back of the slide with his fingers, Norm continues the grinding process until he is left with a less-than-paper-thin sample. He finishes by mounting a cover slip over the section to enhance its optical properties.

It takes quite a "touch", Norm concedes, to produce a thin section of uniform thickness throughout. Today he hardly ever "loses" a section, a talent developed over the years. "When I started I lost quite a few," Norm admits. "It's a very nerve wracking job till you learn how to do it properly. It takes quite a bit of patience."

Norm says in the old days, 200 to 300 sections would represent a year's work. Now he, with the help of Harry Christakos, turns out between 4,000 to 6,000 thin sections. Every sample is recorded and stored. Presently, the company has over 200,000 sections on file.

A thin section under a microscope illuminated with polarized light reveals a kaleidoscopic world with each mineral showing up in a different colour. Quartz, for example, manifests itself as pale yellow or gray. The color of feldspar, on the other hand, is a dark gray.

Making thin sections is a rather unique kind of work that not too many people know how to do. Norm finds he is in demand as a teacher of thin sectioning. Inco employees from Thompson and Sheridan Park have been tutored by Norm.

Not all minerals lend themselves to thin section analysis, among them sulphides, arsenides and oxides. They must be examined with

A microscopic section of South Range Black Norite.

reflected light, which means samples must be made into polished sections. This is the responsibility of Reino Maki.

First Reino cuts a section from the rock sample about an inch in diameter and a quarter of an inch thick. He places it in the bottom of a plastic mould. After he labels the section, Reino pours a layer of liquid plastic over top. Once the liquid has hardened, he is left with a section fastened to a plastic base but whose face remains exposed for grinding purposes. Grinding and polishing leave an immaculate scratch free surface which yields the story of that sample's creation. Adds Reino: "There is an automatic machine (for grinding) but it doesn't do as good a job as when it is done by hand. So I don't use it."

Cut and polished ore samples, it was found over the years, made interesting and desirable souvenirs such as book ends, pen bases and trophies. Orders for these items as gifts to guests or employees are often filled by Harry Christakos. Harry describes this function as the lab's "sideline". A fee is charged according to the number of working hours invested and work is proceeded with only upon presentation of an account number. He says making these items is a simple matter of cutting an ore sample to the desired size and shape and putting the piece through three different stages of grinding.

Once in a while making these souvenirs allows him some artistic freedom, Harry says, but not often. Harry knows he cuts quality items and adds: "If you don't do it right you're not comfortable with it."

A master at work, Harry Christakos shapes a book end, one of the lab's sidelines.

Reino Maki peers through a reflected light microscope to examine a polished section he has made.

Left to right: Fred Gignac and Amato Lisi shared $1,025
Fred Gignac alone was awarded $4,300

A total of $13,025 was awarded to 119 suggestions in this month's suggestion plan. Due to the large volume of suggestions awarded, only those suggestions of $100 or more are listed below.

Major

$4,300	**Fred Gignac** at the **copper refinery** made the suggestion to use perlite, instead of mastic, to protect the concrete and steel around the base of the piers and inside the concrete electrolyte cells in the tankhouse. Perlite, a powdered, lightweight, concrete aggregate, has acid-resistant qualities. It is inexpensive, requires little preparation and applies easily. Mastic, a combination of asphalt and asbestos or sand is more expensive than perlite and must be heated when mixed and continuously heated when applied.
$1,025	**Fred Gignac** and **Amato Lisi** at the **copper refinery** suggested to use perlite with portland cement, instead of mastic, to coat the inside of the concrete electrolyte cells in the tankhouse. Perlite mixed with cement is stronger and more impact-resistant than mastic and requires less time to prepare and apply than does mastic.
$880	At the **smelter, Larry Cumini** made the suggestion to fabricate metal straps on the matte mould frames.
$440	**Dale Richards** at **matte processing** came up with the idea to replace bushings on Galigher auto sampler wheels with dust sealed bearings.
$320	At **Creighton's three shaft warehouse, Jack Cleland** suggested to delete drain cock code 8245790 and transfer to drain cock code 1501280. A drain cock is used as a bleeder valve on scooptrams.
$290	**Allan Kaven** at **Frood mine** came up with the suggestion to replace bearings on the Teledyne ditch digger boom pivots with bushings.

Larry Cumini
$880

Dale Richards
$440

Jack Cleland
$320

Suggestion Plan Awards

$290	At **Frood mine, Hector Grenon** suggested that six inch scrap pipe flanges be salvaged.
$240	**Albert Klussmann** at **Stobie mine** made the suggestion to install belly plates on LM56 Copco loaders.
$185	At the **Copper Cliff nickel refinery, Arthur Richardson** came up with the suggestion to install split links on the cottrell screens.
$150	**Camille Leblanc** at **Creighton mine** suggested that dry cement be used to seal upper casing sandfill pipes.
$150	**Stan Rice, Art Reid** and **Gilles Grandmaison** at **Garson mine** made the suggestion to fabricate nuts for the king pin assembly on 12B and 21 Eimco mucking machines.
$150	At the **Copper Cliff nickel refinery, Paul Cote** and **Gerry Labre** suggested improvements to the pneumatic conveying of cottrell dust.
$140	**Keith St. John** at **South mine** came up with the suggestion to mount scoop lights on the fender for better visibility at an ore pass.
$110	At **Levack mine, Richard Mallette** suggested that a jack be installed on the tongue of the tractor trailer.
$100	**Armand Michaud** at the **smelter** came up with the suggestion to install a start-up switch outside the pumproom for the SO_2 fan.
$100	At the **copper refinery, Rolly Bisaillon** made the suggestion to install a pneumatic motorized valve on the pond draining line to reduce acid spills.


I take great pleasure in wishing all of you
a very merry Christmas and a happy
New Year. May all of the joy and warmth
that is present during this season be with
you and your families throughout the
new year.
President
Ontario Division
Inco Metals Company