

Record-breaking cold didn't stop Inco crews from working outside. See Pages 8 & 9.

Hydro bill down \$6 M despite record freeze-up

It was the coldest winter on record, with the worst of the deep freeze coinciding with Inco's Sudbury operation production shutdown. Few expected to keep the Hydro bill anywhere near the \$9.2 million projected for the eight weeks.

The \$9.2 was off by \$6 million.

That's \$6 million *under* budget.

The natural gas bill was \$5.4 million, more than \$1 million under the projected \$6.6 million.

"There's absolutely no doubt in my mind," said Tom Wilson, "that this kind of result would have been impossible without the cooperation and teamwork that we're getting from just about every mine and plant in the Sudbury operation."

As one of five systems operators with the Power Department, it's Tom's job to monitor and control the flow of electrical power. It's an assignment, he says, that relies on cooperation for success.

"Fact is, we can't demand anything. We can only advise and request changes in any power needs requested by our customers. They are the ones in a position to know what they need," said Tom. "What we're finding is that people are generally doing everything possible to accommodate us, to help us conserve."

"We've been getting more and more enthusiastic cooperation recently, and that's because people are starting to understand the value of it, that it's getting results. You don't have to sell people on the idea of energy conservation anymore."

Tom said it's information and education that's done the trick for him. "When I started this job 13 years ago we thought that there was an endless supply of electricity. It was like tap water. Everybody took energy for granted. Back then I wouldn't have believed you could get this much savings out of energy conservation."

Tom, along with systems operators Wayne Lachance, Dick Johnson, Bob Evershed and Art Turner, are in constant contact with operators at other plants and mines.

"Anyone who starts equip-



Tom Wilson, one of five systems operators with the Power Department, monitors the flow of electrical power to Inco's Sudbury operations. He says that the \$6 million in shutdown energy savings are the direct result of employee cooperation and teamwork at all plants and mines.

ment rated at 500 horsepower or more has to call here first for the okay," said Tom. "We try to accommodate by adjusting the load elsewhere or temporarily shutting something down elsewhere whenever possible."

But sometimes, particu-

larly at peak periods when hydro costs are most expensive, it takes the cooperation of the plants to keep costs down.

A good example was a Feb. 28 delay of an hour-and-a-half that saved the company \$400,000.

"At 9:30 p.m. on Feb. 28 we got a call from the operations group at the Smelter and Oxygen Plant," said Power Department operations supervisor Sean Brady. "They wanted to start up a lot of equipment that would have pushed the peak power for the month up

by 30 megawatts."

A flurry of telephone calls between Power Department operators and the Smelter and Oxygen Plant resulted in a 1 1/2-hour delay until 11 p.m., after the peak period.

"We're getting cooperation

continued on page 2

Employees qualified, conscientious: Judge

Inco's emissions reduction program is not only effective, but employees running the system are well trained and conscientious.

Those were the findings of provincial court judge for his not guilty ruling on charges of excessive sulphur dioxide emissions levelled at Inco by the environment ministry.

Last December, after a six-day trial in Sudbury, Judge Matte heard Inco's defence regarding an incident that occurred on Oct. 23, 1990.

"This Court finds that the defence of due diligence is available and that the em-

ployees of the defendant were not only duly diligent, but very diligent," said Judge Matte.

Brian Bell, superintendent of environmental control explained what happened. "On this day there was a very unusual meteorological condition, one that we don't see very often, in fact, hardly ever."

Light winds heading in an east to north-easterly direction with a full cloud cover were predicted that day. The clouds cleared out, and as result, brought some gas back down to the ground. The winds made a complete 180 degree turn and caused the earlier-

emitted gases to mix with new stack emissions. The combination nearly doubled acceptable SO2 emission limits.

This "blowback" condition is rare and hard to predict, according to Brian. "You may expect a blowback once or twice a year but you would never expect one exactly with all those circumstances."

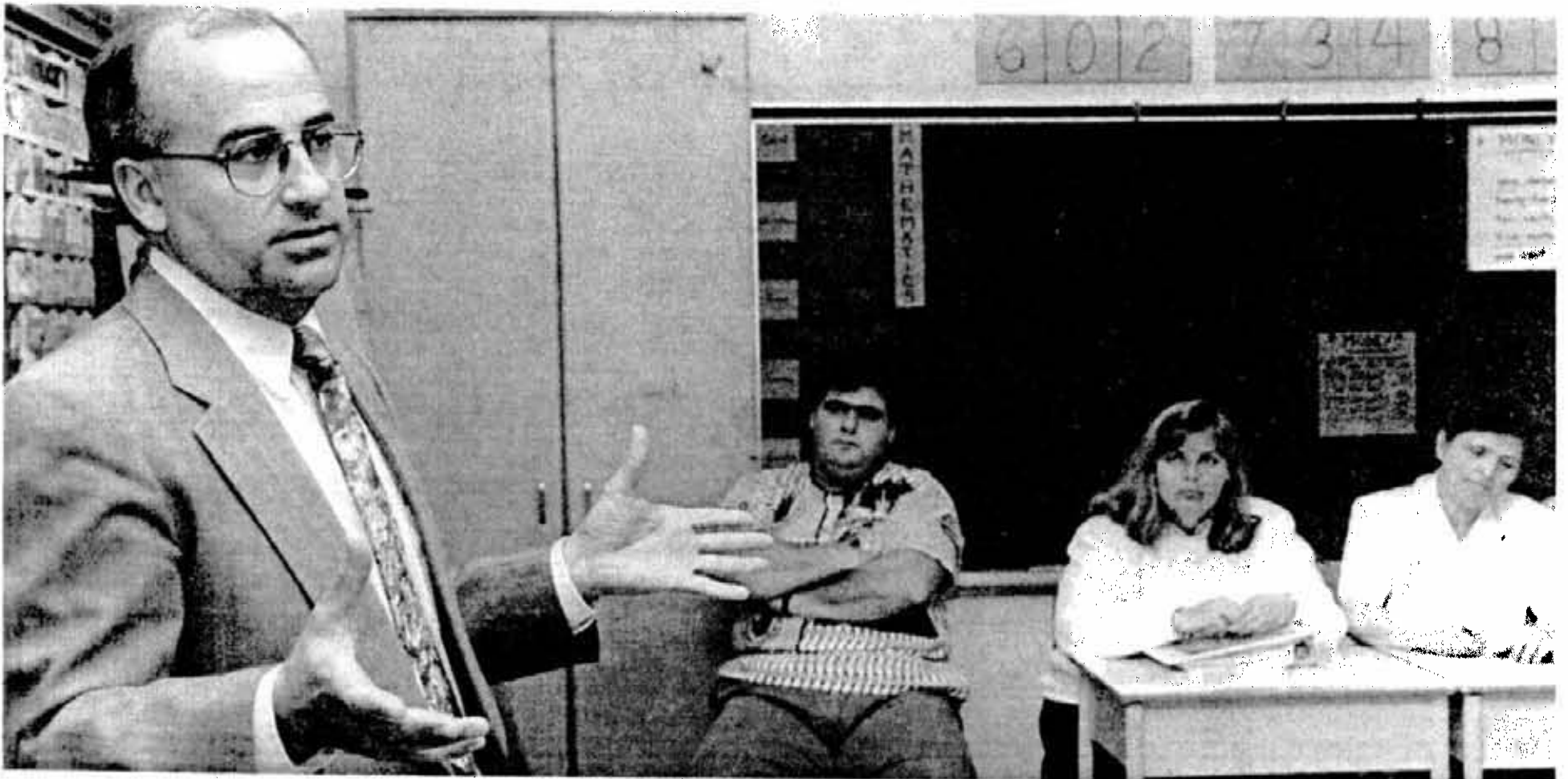
In fact, Brian said that senior environmental analyst Frank Bruhmuller testified in court to the rarity and magnitude of such "blowback" conditions. "Mr. Bruhmuller said in his evidence that in his 19 years of operating this weather

office he's never seen one that severe before."

The Ministry's investigation started shortly after the incident but as Brian pointed out, Inco was charged some 23 months later. "They certainly had to take a very hard look at the case and find out where they felt we made any mistakes in the system that day."

There were two things in the Ministry's opinion Inco could have done better. "One is we should have predicted the 'blowback' condition occurring on that day." Despite

continued on page 11



Inco's involvement in education is helping the community earn a reputation for educational excellence. Seen here speaking to a school group is Inco Emergency Preparedness coordinator Berno Wenzl.

Inco recognized for educational efforts

Inco is a key player in the Sudbury Board of Education's Conference Board of Canada's National Awards competition for Excellence in Business-Education Partnerships.

Entered in the Broad Community Collaboration Category, the entry was submitted on behalf of Inco and other collaborative partners in the Careers 2000 Exposition held in Sudbury last May.

Within the community collaboration category, multiple stakeholder partnerships from across Canada compete with one another. Up to three finalists will be selected from across the country and will compete for the national award in this category. Awards will be presented in April.

"This ambitious endeavour (Careers 2000 Exposition) is certainly a shining example of a broad community collaborative effort worthy of national recognition," said Sudbury board Director of Education Jim Smith.

A summary of the 10-page application reads as follows:

In the fall of 1990, a group of community leaders in Sudbury, including educators, gathered to form a partnership. They formally pledged

to work together to bridge the gap between the classroom and the world of work; thus making education more relevant to today's society.

The all-encompassing name, Careers 2000, was chosen for this Business/Industry/Education Council and a mission statement was devised to solidify its purpose—"to build, through co-operation and collaboration, a powerful partnership among the five sectors of business, industry, labour, government and education with the intent of developing a highly-skilled and innovative workforce which is able to compete successfully in the technological and fiercely competitive global market economy.

In order to achieve these goals, members of Careers 2000 implemented a number of initiatives. Their most ambitious undertaking was the "Careers 2000 Exposition" whose primary purpose was to raise the profile of the many career opportunities available within a variety of fields. The event served to promote the wise choice of career options to respond to marketplace needs. The Careers 2000 Exposition was a spinoff of a similar event of smaller scope

called "Technology Your Tomorrow" held in Sudbury in the fall of 1989, and organized by The Sudbury Board of Education's Vocational Advisory Committee which had been formed in 1984 to promote the importance of technological skills.

The Careers 2000 Exposition, which was three years in the making, was held at Science North in Sudbury from May 4th to 7th, 1993. More than 100 organizations in the business, industry, education, government and labour sectors joined forces to plan and present the exposition. Hundreds of careers were showcased using a hands-on approach, giving students, teachers, parents and the general public an accurate picture of the many career opportunities available.

Representatives from the various participating companies, organizations and educational institutions hosted their respective displays, answering questions from visitors and providing hand-outs packed with key data. These same representatives, and a number of others, donated time, money, equipment and in-kind services. Many hours were spent during evenings and on week-

ends working in preparation for this event. Students from public and separate school boards in the Sudbury and North Shore Regions were invited to attend the Careers 2000 Exposition. In total, about 14,000 students from grades 8, 9, 10 and 11 representing these Boards visited the displays.

A comprehensive evaluation process, consisting of ongoing word of mouth feedback from all participants and extensive surveying administered and compiled by the Ontario Institute for Studies in Education (MidNorthern/Northeastern Centre), confirmed that objectives established by the Careers 2000 Business/Industry/Education Council were not only met, but also far surpassed.

The Exposition is a shining example of a broad community collaborative effort which succeeded in fostering the acquisition of employability skills as articulated by The Conference Board of Canada.

The launch of this collaborative approach has paved the way to new and innovative initiatives aimed at bridging the gap between the classroom and the world of work. Ongoing linkages have been deeply rooted. It has been suggested

that this event should be replicated on a national basis because it has fostered far-reaching, positive change.

Late last year, an award bestowed on the Sudbury and District Chamber of Commerce by the Ontario chamber involved a project that included Inco's participation.

The Sudbury chamber's involvement in last spring's Stay In School Awareness Week won the provincial chamber's President's Award.

An article written in the Inco Triangle was part of the information enclosed in the submission application. The article referred to Inco's participation in the Job Shadowing program held during the first week of March 1993.

"I am certain Inco's participation in the program was instrumental in supporting our application and receiving the award, since it represents a community partnership at its best," said Stay in School promotions officer Sue Dupuis.

"Please extend our sincere thanks to your staff on behalf of the Sudbury Regional Youth Trust Committee and members of the Sudbury and District Chamber of Commerce for their support of this very rewarding project."

Employee enthusiasm promises still more energy savings

continued from page 1

from everybody, from management to electricians, operators and others at the plants and mines," said Sean.

Maintenance and Utilities manager John LeMay said he repeatedly checked the \$6 million (in savings).

"It's hard to believe that our people pulled it off, par-

ticularly in the coldest winter on record."

He said careful planning, attention to detail and good communications played a major role in the savings. "Every plant and mine did a survey and compiled a detailed list of what could be shut down, then assigned people to ensure it was done. The

mines scheduled the first week of startup operations from Tuesday through Saturday, a move that avoided driving the February bill up by increasing peak period power consumption on Monday, Feb. 28.

"It seems the more we do, the more we save," said John. "We came \$300,000 under budget in the 1992 (summer)

shutdown, \$900,000 under in last year's summer shutdown and now \$6 million."

John thinks it's the past savings that are helping to convince employees about the value of coming on board. "I think people are starting to realize that their relatively small contribution by turning off their own office light is

part of the big picture. Combined, many small savings have a substantial impact.

John thinks there's still room for savings. "What we need to do is to be as conscious of energy costs during day-to-day operations as we are in preparing for shutdowns. If we did that, you'd see a major drop in the energy bill."

Inco scholarships give careers a start

The last item on the agenda at the Sudbury Board of Education's Feb. 28th meeting was the highlight of the evening. Trustees paid tribute to Inco for its long-standing scholarship program that has given students a head start on their careers.

To mark the occasion of the Board's 25th anniversary celebration this year a commemorative plaque was given to Ontario Division president Jim Ashcroft. As part of the ceremony, four of the Board's teachers — including Margretta Smith, Tino Lenti, Bev Chapman and Vikki Mitchell — took the opportunity to thank Inco publicly for the scholarships they received.

Vikki was thrilled with the chance to acknowledge Inco for her 1967 scholarship which helped her through the language and literature program at the University of Toronto. Today the veteran teacher of 24 years teaches French and law in the Immersion programs at Lo-Ellen Park Secondary School. "I'm really glad that the Sudbury Board is recognizing what Inco has done throughout the area for education for all kinds of kids."

The occasion gave the teachers a moment to express their gratitude. "This is the first opportunity I've had to say thank you to Inco," said Vikki, whose father, John worked as a mechanical foreman at the Iron Ore Plant. "I think it's about time that Inco did receive that recognition."

Since the Inco Reserved Scholarship Program was launched in 1956 more than 500 scholarships valued at more \$5 million have been awarded. The numbers are outstanding but what is even more impressive is what recipients like these four teachers have done with their educations. Margretta, whose late father Taisto worked as a stope boss at Creighton, was a 1961 recipient. She still believes that the scholarships are a tremendous benefit to students and is glad Inco has kept the program up.

"I think it's a wonderful thing that Inco has continued giving out scholarships for so



Margaret Smith (centre) keeps an eye on her Lively District Secondary School Family Studies students Jacquie Nelson, daughter of Inco carpenter Rick Nelson, and Scott Fabris, son of nickel foam operator Dino Fabris.

long because I think it's very much part of the community," said Margretta, who completed an Honours Bachelor of Science program in Home Economics at the University of Guelph. Now she teaches family studies at Lively District Secondary School. "It's important that we recognize scholastic ability, not just sports figures."

Like all of the teachers, Margretta had the opportunity to teach some of the recent scholarship winners. "I was in charge of the gifted program here so in fact I did teach quite a number of them."

Inco's choice of recipients over the years has Bev's approval. "I've always thought Inco has made some super choices. I've never been disappointed." The evening's presentation was a special one for Bev, who graduated from Carleton University with an Honours Bachelor of Arts degree in English.



"Thanks for the help, Inco," say these four past scholarship winners. From left are teachers Tino Lenti, Bev Chapman, Vikki Mitchell and Margretta Smith.

"I won't say I've forgotten about the scholarship but over the years it's not foremost in your memory," she said. "But it brought back a lot of memories of receiving it and of university days." Bev returned to Lockerby Composite School, her alma mater, where she serves as head of the English department.

Not only did Tino appreci-

ate the scholarship that he received in 1968 but also the summer employment Inco gave him while he went to the University of Windsor for maths and sciences. The head of Lasalle Secondary School's math department added that the extra money was needed. "Inco in those days provided us with summer jobs and it was a real help to many stu-

dents in the Sudbury area to know they could come back and work." His father Carlo worked in the Copper Refinery.

Tino explained that when he won, the scholarship program was structured differently than it is today. In 1968, the scholarships were valued at \$5,000, based on a four-year university course. In addition to tuition and fees each scholarship provided the recipient with \$300 each year and a grant of \$500 to the university chosen by the student. That year 10 were awarded to students with the highest marks.

Today, up to 20 scholarships are granted valued at a total of \$2,500 annually or \$10,000 over four years. Students are chosen by an independent scholarship committee on the basis of scholastic achievements, aptitude test, recommendations from secondary schools and personal qualifications.

Laurentian students do research at Inco lab

Two Laurentian students have completed their Master of Science research by working on the development of new analytical methods for use in Inco's Copper Cliff laboratories.

Uonis Algaedi studied the quantitative determination of talc in metal concentrates using an X-ray diffraction technique, while Abdulwahab Tuwati worked on the determination of platinum, palladium and rhodium in autocatalysts using a gold bead collection method. The photograph shows Abdulwahab presenting copies of his thesis to Bill Kipkie, man-

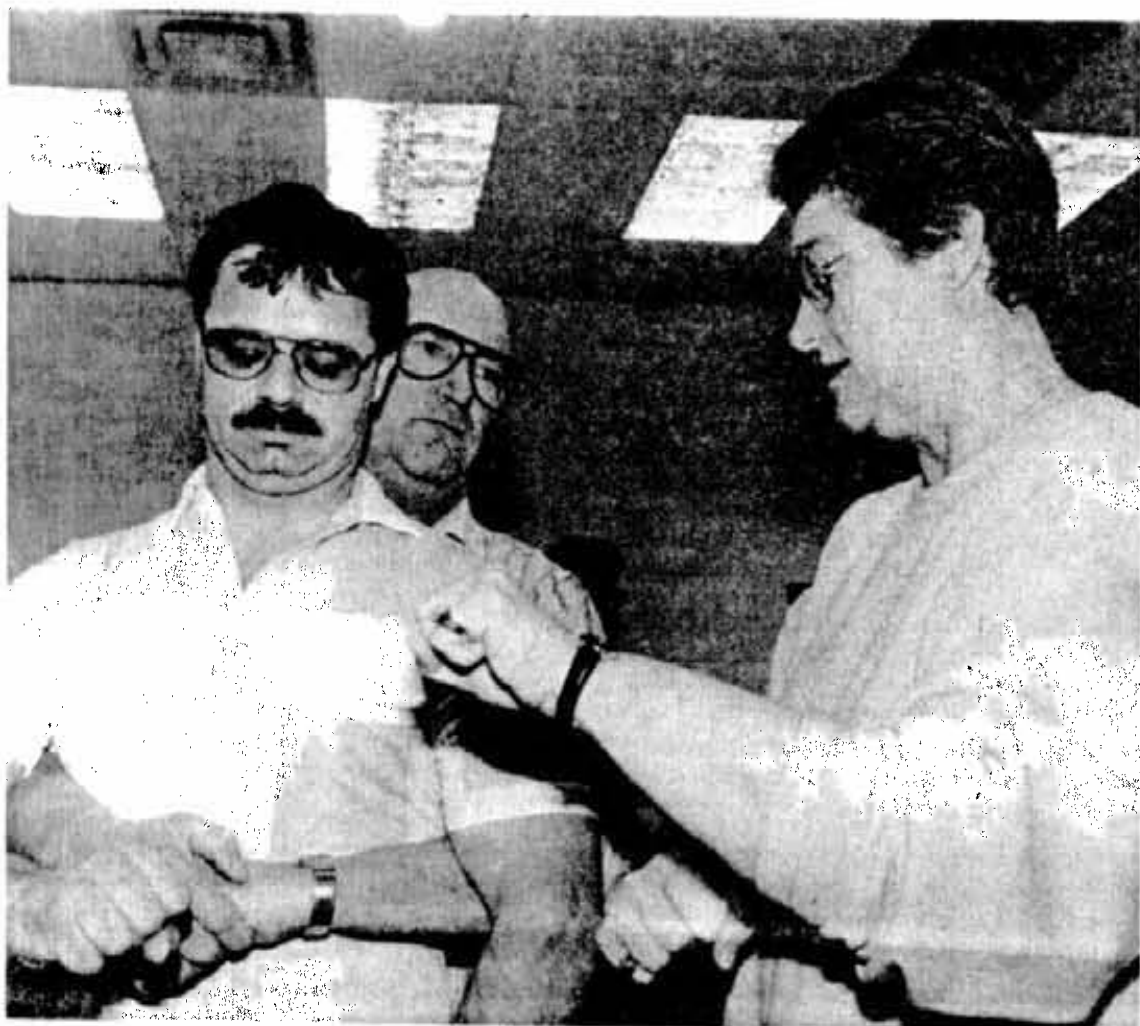


Laurentian M.Sc. graduate Abdulwahab Tuwati (right, seated) presents copies of his thesis to Inco Process Technology and Production Planning manager Bill Kipkie. Looking on are, from left to right; Inco Process Technology Chief Chemist John Bozic and analytical supervisor Stan Maggs, Laurentian Central Analytical Facility director Dr. John Huang and Dr. Frank Smith of the Department of Chemistry and Biochemistry at Laurentian University.

ager of Inco's Process Technology and Production Planning. Standing behind, from the left, are: John Bozic, chief chemist, Process Technology and Production Planning; Stan Maggs, Analytical Supervisor, Process Technology and Production Planning; Dr. John Huang, Director, Central Analytical Facility, Laurentian University and Dr. Frank Smith, of the Department of Chemistry and Biochemistry at Laurentian University. Uonis Algaedi was unable to attend the brief ceremony as he is studying for a Ph.D. in analytical chemistry at Queen's University.

MAKING Change

Good reviews for health, safety project at Creighton



Creighton Mine underground worker Fern Cote and Florin Velliaux get a few pointers from first aid instructor Joanne Derks.



Diane Lavallie gets in behind her partner Annette Murphy as they practice the Heimlich manoeuvre. Both are spouses of Inco employees and decided to take the course to learn some first aid.

A pilot project to improve the health and safety of workers at Creighton Mine has proven to be a step in the right direction.

Since the project's inception last year, changes have been made that benefit everyone from workers and management to the Ministry of Labor and the Occupational Safety, Health and Environment (OSHE) committee.

Fred White, mining health and safety program inspector, devised a new approach to client service by the ministry. Observing the trend of police forces to de-emphasize enforcement and focus more on community programs to educate to prevent crime, he thought the ministry could be more effective if it, too, followed this approach.

His vision was to have the ministry contribute its resources to assist the OSHE committee with its efforts to improve the fundamentals of safety. He hoped to improve safety and at the same time raise the profile of the OSHE committee. Taking into consideration both the needs of the ministry and Creighton Mine, he proposed that all sides come together to discuss their expectations.

"Creighton has a successful OSHE committee and we welcomed the new approach and the assistance the Ministry could offer," said mine superintendent Fred Stanford.

A new committee in-

cluded OSHE co-chairs, Randi Condie and Fred Stanford, worker representatives Dollard Dolbeck, safety foreman Doug Blair and ministry representative Fred White. Subjects chosen in the audit included sources of ignition on mobile equipment, heat and dust conditions and walking conditions.

The committee sat down after the audits, worked through resolutions to the problems uncovered, and created a goal to get immediate safety improvements through an audit/correction program and long-term improvements through a program to reduce back injuries.

Back injuries account for about 30 per cent of injuries at the mine. There was also an off the job initiative which involved first aid training for the families of Creighton miners. This first aid training was done for 40 people by Joanne Derks and Fred White on their own time.

The efforts on back injuries have resulted in a ministry ergonomist working with development crews to re-engineer some of the tasks to eliminate causes of back strain. A 10-minute video on back care, directed by mine clerk Gil Lemieux and starring Creighton miners, has also been produced.

With this small step, a giant leap forward has been made in the relations between the parties. Fred Stanford said

he's pleased with the results of the program. "Sometimes there was a lack of understanding about certain standards. Now everyone knows for sure."

So far, the team of OSHE committee members and ministry representatives has conducted two audits regarding heat and dust and sources of ignition on mobile equipment. Randi said that measurements of heat and dust in the mine, when compared to ministry standards, were found to be acceptable. A third audit is planned to study walking conditions.

Safety workshops have

also been organized and ministry representatives have participated. The ministry also provided training to OSHE committee members on investigation techniques when injuries on the job occur.

Fred Stanford pointed out that there was no charge for the training, which included ways of conducting an investigation and photographing the scene.

Through shared responsibility for workplace health and safety, workers experience fewer injuries, accidents and complaints as people become aware of how to work safely.

To spread the news of the pilot project, worker representative Dollard Dolbeck and his son designed a decal which has been distributed among workers. The message is clear in this program: "Searching for a better way..."

"This has been a trying year for safety at Creighton, but we are convinced that we are on the right path," said Fred Stanford. "Cooperation within the plant and with the regulatory agencies, coupled with a desire to address the basic causes, is a sure way to improve the future working environment."



Gerry Mathieu practices his technique. The Creighton Mine surface worker was among many participants learning artificial resuscitation.

MAKING *Change*

Inco supplier gets into the quality loop



Denis Castilloux and Dave Meandro listen to Ground Control quality assurance coordinator Steve Laberge. In the background is sheet screening that is supplied by Ground Control.

Working together to improve quality benefits everyone. That's how Steve Laberge of Ground Control Lin Sudbury feels about Inco.

The quality assurance coordinator is happy with the direction his company is going in since registering with the Quality Management Institute in 1991. It was upon Inco's suggestion that Ground Control joined and Steve has no regrets. "We jumped right on board and already we've seen the benefits. The costs of starting the program are completely outweighed by what we've saved."

The program has helped to improve the quality of mine support products that Ground Control supplies to Inco ranging from rebar to washer plates. Several changes have

been made, according to Steve. "What I saw in the beginning were repetitive mistakes and no one was learning from them." Now controls are set in place. When a mistake occurs all the events are recorded and a problem-solving team investigates and offers solutions. "You don't keep repeating your mistakes and costing yourself money."

After successfully completing two day-long audits and two compliance audits without any mistakes the company is continuing to strive for excellence. Ground Control is now working towards upgrading its standing from 9,003 in the International Standard Organization program to 9,002.

Through the quality program Steve said Ground Control has learned a valuable

lesson. "It has helped us stand up and face the fact that you've got to improve your equipment and the way you do things or you're no longer in business." The company has taken this to heart bringing in new, modern equipment, setting tighter controls on both materials coming in and finished products going out as well as emphasizing additional training for employees.

As part of this ongoing training approach, 12 Ground Control employees visited Garson Mine last December. For many of the men it was their first trip underground and the experience was beneficial. Steve said that the men gained an appreciation of how the products they make are actually used underground.

"The feedback from the trip

was very positive," he said. "The level of pride in the work upped itself after that trip?"

Such hands-on training is important. "They get to see a product installed and may be able to pick up a couple of things that could help improve the product or its installation, possibly cutting down the time and cost of production," said Steve. This greater awareness will enhance what happens on the workshop floor. "Now they know how the products are installed and work exactly so if somebody asks them a question about it they can explain it in detail because they've

seen it for themselves?"

Ground Control felt it was important for their employees to understand the need for upgrading. "When we're underground we show them why," he said. "We tell them it's because right now you have 3,000 feet above your head, that's the key reason."

It all adds up in the end. "Inco is getting the highest quality product at the lowest cost because when we're saving money, they're saving money," said Steve. "The program has formed a team between us instead of a supplier-customer relationship. It's more of a partnership."

Quality Quotes, Anecdotes

"If we aren't customer-driven, our cars won't be either."

— Donald Peterson, former CEO, Ford Motor Company

"In every instance, we found that the best-run companies stay as close to their customers as humanly possible."

— Tom Peters, American business writer

MAKING *Change*

Results are in

Assessing results has become a difficult but not impossible process involving Continuous and Total Quality Improvement.

In the few years that Inco has participated in formal quality improvement programs, teams, communication, cost savings and training were and still are very important on the road to be the lowest cost nickel producer in the world. But now that everyone should be familiar with the process of change, questions of what benefits has the Sudbury district actually received can be heard. This very paper (the Triangle) that comes out faithfully every month has told of many innovative and rewarding projects that all levels and areas of this company have figured in. There are still many areas of savings to be unearthed.

When you the consumer purchase a good, value or quality for the price paid must be high. Inco's goods are metals and metal byproducts. Our customers demand that we have a quality program in place to ensure the highest standards for their money spent. So this idea of ensuring quality in everything we do is not some idea proposed by some person who wanted to be promoted, it is demanded by our customers. Just as Inco now goes to our suppliers and ensures that we are getting high quality at a fair price. How to measure a company's commitment towards quality improvement is more involved than one might think, the price paid for their product is only part of

the reason to buy it.

There are many different quality standard associations that a company in North America can choose to follow with hopes to become certified. These organizations have various indepth quality standards to follow, and the auditors to ensure conformation to the fullest. The Nickel Refinery has chosen (with customer input) to become certified under ISO 9002. ISO 9002 looks at Production and Installation. It represents a guideline or roadmap the plant will use to become a better supplier to their customers. The customer will not only have a high quality product, but the International Standards Organization's stamp of approval. When they use our now (1995) certified product they can tell their customer that their product is of the highest quality and so down the line until soon we will be recycling quality. So this seems like a huge quality circle. Everybody wants a type of quality assurance, including the consumer.

So the ISO 9002 eighteen Quality System Requirement headings are very thorough. Management responsibility, purchasing, process control, inspection and testing, quality records, statistical techniques and training are just some of the headings. These headings are broken down into many specific areas. All of this costs money and time. But to ensure our market share in a very competitive market, we need to continually improve quality.

MAKING *Change*



Rex Hewlett, Alphonse Lavigne, Charlie Annett and Bruce Bigelow ready a delivery of new explosives for underground blasting.

Teamwork, innovation, new products make McCreedy blasting cheaper, more productive

A cooperative effort among a cross-section of McCreedy West experts, ranging from engineers and geologists to blasting and mucking crew members, has reduced blasting costs while increasing productivity.

A series of trials at McCreedy West Mine showed that it was possible to exploit the characteristics of a new explosive product to get the enhanced results. The trials were conducted out in a series of phases, each addressing a different aspect of the product.

The new product "Fragpak" has virtually replaced the previously-used explosive.

McCreedy underground crews noticed improvements almost immediately.

"Used to be that there were two or three trucks waiting for us to break enough chunks to load up," said development miner Bruce Bigelow. "Now the situation is reversed. Now we sometimes have to wait for the trucks to take the stuff away."

Production has increased dramatically, he said. "We'd put through as little as 300 tons a day. Now, it can be as high as 1,000 tons."

The workplace has improved as well as a result of the changes. "Every time you

blast it kicks up a lot of dust and gases," said Bruce. "That's been greatly reduced now. I figure the health improvements are as important as the production increases."

Bruce and fellow development miner Rex Hewlett were two members of the original team that brainstormed the explosives problem. He figures that the success is the direct result of the team approach. "The people doing the work are the experts. I think it's a good idea that people are listening to us."

Charlie Annett and Alphonse Lavigne know very well the extra work — and hazard — involved in the secondary blasting.

As blaster boss and blaster, both breathe a little easier these days.

"We used to blast (secondary) 10 to 15 tons a day. Now it's perhaps twice a week," said Charlie.

And all blasting is risky. Besides being dusty and dirty, you're planting a charge in ground that's in an unsettled condition."

Says Alphonse; "When you're shoving the pole (with the blasting cone on the end) into place over your head, you get your toes pointed the other way."

"In today's competitive global economy we need to stay

competitive if we are to survive," said the mine's chief engineer Steve Townend. "One area that came under study here is explosives."

In conjunction with an E.T.I. Explosives representative, McCreedy went through a detailed examination and testing phase of "Fragpak" not only to reduce the high cost of watergel explosives, but also to improve fragmentation, which in turn meant higher productivity.

McCreedy West Mine is a 3,000 ton per day underground operation.

The primary blasting method for the production of ore is Vertical Crater Retreat (VCR), accounting for approximately 75 per cent of production. This method involves cratering the ore around boreholes using explosives designed to break the ground.

A major problem was created in downstream processing of the ore by oversize chunks, putting a restraint on production due to the time-consuming handling and secondary blasting.

The product was replaced with the more expensive and powerful watergel product. There were fewer oversized chunks but an increase in unit explosive costs.

There was still room for

improvement.

When the new dry blasting agent "Fragpak" was introduced in 1992, a testing program was begun.

Meetings were held to get ideas from just about everyone involved in the process. Blasters, loaders, scooptram operators, geologists, engineers and others got on board.

"There was a good team effort made to get the project going," said Steve. "That's why this thing worked so well. The folks on the job were the people we wanted to get involved. They're the ones that have the best handle on the problem and how to solve it."

With two similar test stopes selected, a reasonable comparison could be made between different blasting practices to see if there was any effect on the generation of oversize muck.

The difference in chunks between the two stopes, one using the old method and the other using Fragpak, showed a 35 per cent reduction with the revised blasting technique. As well as these improvements, other benefits included better ore fragmentation. Blasting crews liked the new product and reported that it was easy to use and handle.

The testing program was expanded to further dilute the dry agent/watergel ratio, at

the same time maintain or improve fragmentation.

The final results clearly show a marked improvement. The combination of increased break and increased use of lower cost blasting product equated to a 17 per cent unit cost reduction.

In addition to a reduction in explosives costs there was also a reduction in explosive accessory costs and there were fewer blasts per hole.

Production records show that during the test period and the two weeks following the test when the blasted ore would be mucked, production from this stope averaged approximately 400 tons per day more.

Replacement of the watergels with the dry blasting agent increased, especially in areas that were considered dry. The mucking crews began to consistently notice fewer and fewer oversizes chunks during the mucking of stopes. The observations did not stop with just the mucking crews as the tram crews that pulled the chutes containing the uncrushed McCreedy West ore noticed that there was less blasting taking place at the chutes. This made it possible to tram larger tonnages to the hoisting shaft as less time was spent blasting the chutes.

MAKING Change

Trainers focus on teamwork, empowerment

Jerry Pawlowski has been trying to work himself out of a job.

For the past nine months or so, Jerry has been a quality coordinator at Coleman Mine, helping miners and management discover ways to improve the quality of their work. "Ninety percent of the work," Jerry says, "has been on the job with the miners themselves."

"Everyone had to get together as a team, to discuss what their respective roles were and should be . . . to see a bigger picture than just 'me' . . . to establish goals. By consensus, we defined what the process should be."

"My job was to help them each see their work as part of a process," Jerry explains. "They knew there were problems; I just helped them decide which ones to measure and how to measure them. They've learned those things and have been making decisions on what changes were required. The results of the teamwork at Coleman are impressive . . . to the point where I can soon move to help other quality teams acquire the improvement tools they need."

Jerry is a member of a central quality support group that also includes Don Campbell, Sean Romenco, Claude Gravelle, Denis Lepage and Tony Amyotte. They, like their colleagues in Human Resource Development, deal regularly with counterparts throughout the mines and plants.

Denis Lepage brings to the group more than 20 years of experience running what might be considered the granddaddy of employee involvement, the company's 50-year-old suggestion plan.

"It doesn't surprise me that people have bought into the change in culture here," he said. "It's been my experience that when given the opportunity, employees are eager to get involved. Who better to consult about how to fix something than the people who do the actual work?" he said.

It is becoming clear that sustained leadership in today's ever-changing marketplace requires all employees to consistently deliver superior customer value. That means delivering quality of product and service to both external and internal customers. And, it needs to happen in a manner that Ontario Division president Jim Ashcroft describes as "safe, environmentally sound and cost-competitive."

Pausing to emphasize his point, Jim adds: "Every day."

That's a very tall order — and it calls for a fresh management commitment in two significant areas. It is no acci-



Inco's human resource development team are, from left (front) supervisor Karen DeBenedet, general foreman of training Jerry Pawlowski, administrative assistant Benita Smith, training assistant Debi Rosato; (rear) training program specialist Stan Pasierowski, Total Quality Improvement senior advisor Don Campbell, quality advisor Sean Romenco, program coordinator Bill Romas and manager Stewart Tait. Missing is Employee Suggestion Plan supervisor Denis LePage.

dent that a new department carries the name Quality and Human Resource Development.

Under manager Stewart Tait, Q & HRD focuses on two keys to success, and is comprised of two unique but interdependent groups: those who focus specifically on quality improvement and those who deal with human resource development in general.

And they're getting the level of management support they need. Commenting on that, on a day when LME nickel was only pennies above \$1.80, Don Campbell said: "Management is spending more, not less; they accept the need for continuous learning."

Things proven . . . things untried

In the last couple of years there have been a lot of changes. The former Divisional Training department no longer exists. A number of familiar and respected people — people like Wilma Zahavich, John Moland, Larry McLaughlin, and Don Nadorozny, to mention only a few — have retired or relocated.

And, along with Inco and the Ontario Division, many of the training "products" have changed. But not all.

"We're still doing functional training, of course," says Stan Pasierowski, train-

ing project specialist. "And that will continue, although there is a big challenge ahead to update the training manuals . . . and take advantage of today's superior technology."

He knows that technology is only one side of the equation: "It only goes so far; the rest is people. People have to

"People have to have the right environment in order to grow, to satisfy their needs."

have the right environment in order to grow, to satisfy their needs. I want to see us help people to align their personal needs and goals with the company's mission."

Although a seasoned training veteran, Stan is very positive about the future: "The company is changing the way it does business, and HRD has to help drive that change. We're constantly trying to learn what people need, constantly looking for and evaluating new programs to give our customers newer and better tools. We aren't just dreaming up a checklist."

One example of that process is the new Leader 2001 program, a sequence of learning sessions that is given in five blocks of two weeks each — two weeks in, one month back at the job — taking a total of 30 weeks to complete. It responds to needs expressed by supervisors at many levels, both directly and through the

recent Decima survey of employee satisfaction.

Some iceberg!

The relatively small numbers of people in either the Quality group or Human Resource Development are only the tip of the iceberg. As program coordinator Bill Romas puts it: "If you want to stay on the leading edge, you can't do it alone."

There are more than 70 people in the Ontario Division who are involved in some aspect of employee training — most of them 'out where the rubber hits the road'. Doug Naykalyk is a training supervisor in the Copper Cliff Smelter. Sheila Orlando gives first aid training at Port Colborne. Vic Rautiainen is an electrical training instructor. Fred Teed is an instructor at Stobie. Al Wingrave is a trainer on interactive systems and maintenance at the Copper Cliff Nickel Refinery.

All of them, whether out in the field or in the central groups, have a common mission: to provide learning aimed at leading the metals industry.

It's one thing to suppose they share that view, but quite another for them all to show up in one place and actually say so in their own words. Yet, that's exactly what happened on October 1.

It was a bit of a bold move

by Karen DeBenedet and John Duggan, education coordinator at Local 6500. They, along with the committee that helped put it all together, organized something of a landmark event: the first-ever Ontario Division Training and Development Conference.

Removing the barriers

Even with Jim Ashcroft, Steelworkers 6500 and 6600 presidents Dave Campbell and Harold Love there to show their support, it was impossible to predict how 'tuned in' such a large, diverse crowd would be to the idea of collaborating.

But, in that first, introductory hour, there emerged a genuine mood that dialogue was not only possible, but vital.

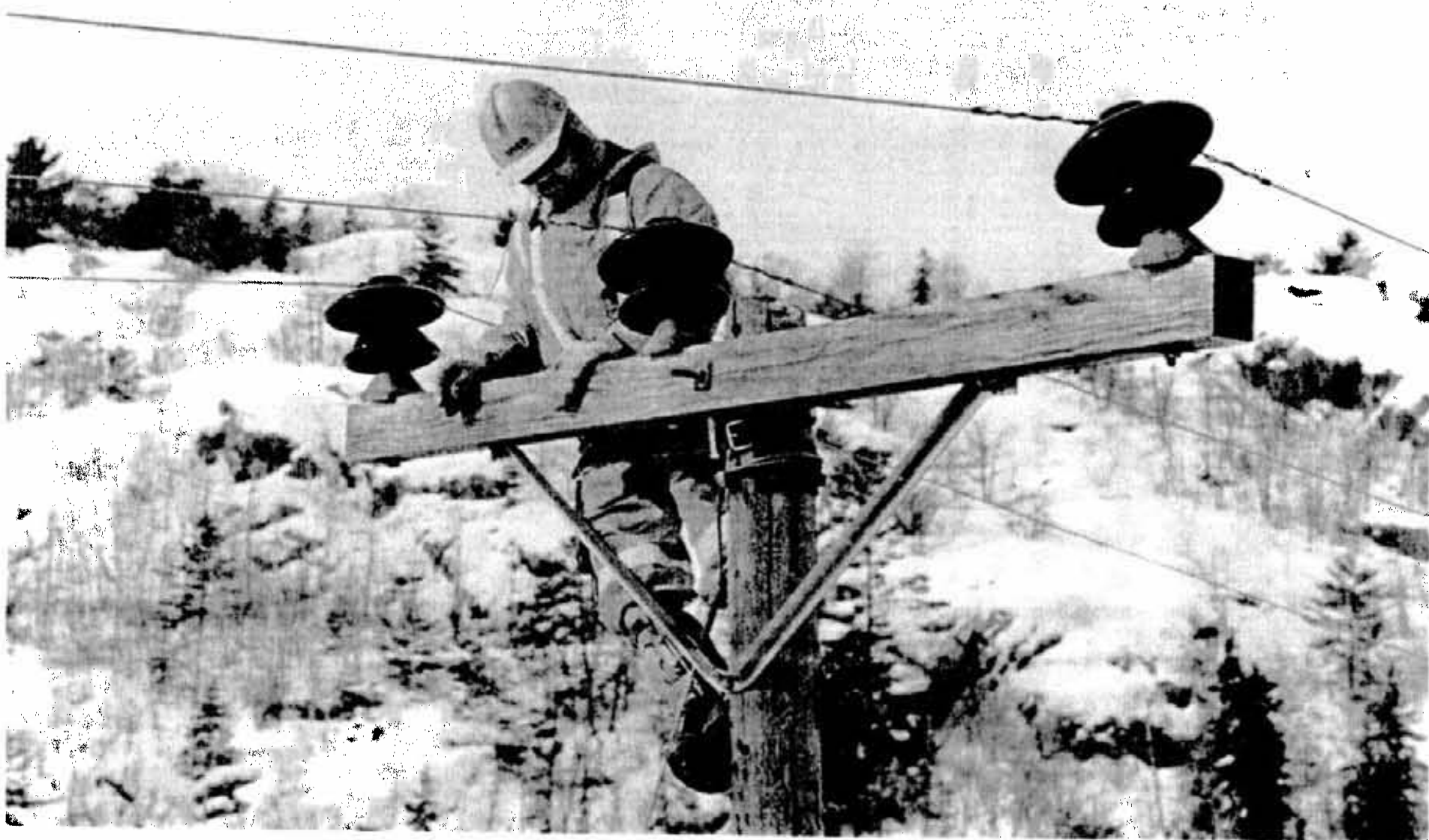
Tony Amyotte, quality instructor for Local 6500, spoke of the need for "a link between the various training departments."

Bob Shaw from Central Mills said he "hadn't realized there were so many people involved in training."

From the central HRD group, Benita Smith was enthusiastic about "building a network" — and Debi Rosato could see great benefit in actually meeting so many people who had only been telephone voices for years.

There was a great synergy — a new whole that was greater than the sum of its parts — in that room, and all because they came prepared to work together toward a common vision.

Up a pole in -50°C weather is Power Department's idea of having fun



Lineman Marty Makela prepares to remove wires from an old pole.

During the coldest winter on record there are better places to be than atop a 75-foot pole with no shelter from the elements — right?

Not necessarily so, say members of Inco's Power department.

A 12-member crew of hardy individuals faced winter's wrath head-on while relocating power lines on a lonely stretch of highway west of Sudbury during the recent production shutdown.

And they had fun doing it.

The relocation project became necessary when the provincial Ministry of Transportation decided to extend a passing lane on Highway 17 West outside of Nairn Centre. The stretch of road had seen several accidents in recent years because of a bad curve, a rock cut and passing lanes in both directions which ended on either side of a hill.

To make the area safer, the Ministry decided to start the westbound passing lane one mile earlier and construction could not proceed until 10 Inco power lines were moved.

"It was fun," said Marty Makela, one of nine linemen on the frigid two-week job in February. "The weather was the biggest factor we were forced to contend with, but it was an enjoyable job for us

despite the conditions. When you're a lineman, you want to do line work and we haven't had a job like this one in a long time so we were up for it.

"We also saved the company money. For the last three years jobs like this one have been contracted out. But in this case we did the work, came in under budget and finished a week-and-a-half ahead of schedule. That proves we have the best people for the job right here at Inco."

The task assigned the crew was to erect 10 new poles and seven strut guys (support wires running from pole to ground) along the highway to make room for the road widening. The wires, a 44 kilovolt line originating from the Wabageshik power plant through Nairn and on to Copper Cliff, had to be removed from the old poles and re-attached to the new poles with a minimal interruption of power.

"It was a big job and we were fighting cold, snow and rough terrain," said lineman Gerry Courtemanche. "But the crews worked well together. While one crew dressed the poles with insulators and hardware, another crew was responsible for digging holes and standing the poles."

To maximize their time on site, the crews worked 10 hour

days, four days a week — which saved about a week's work, said Gerry. A Nodwell go-track, which is essentially a radial boom-derrick on tracks, was used to stand the poles, while a skidder with backhoe attachment was used to dig holes and access locations on challenging terrain.

"There were rocks, brush, logs, hills and snow so deep we had to use snowshoes some days," said Gerry. "And it was cold. If it ever got to -20°C we thought it was a heatwave. But in the end everything was done safely and efficiently."

Crew members braced themselves against temperatures as low as -50°C with lined coveralls, hat liners, balaclavas, heavy boots, mitts and whatever else was required to stay warm. They met safety concerns by watching each other for frostbite and being careful not to sweat, lest it later freeze to their bodies.

The cold also took its toll on the equipment and many mornings were spent trying to coax machinery to start, said line foreman Claude Mailloux. "The garage at North mine deserves a great deal of thanks for providing us with excellent mechanical service," said Claude. "Whenever we needed them they were there, whether to replace the starter on the Nodwell or fix

hydraulic hoses on the skidder. They bent over backwards to help us."

That kind of cooperation was really the key to a successful project, said Claude. "Communication was excellent, the planning process was first-rate and the entire crew worked as a unit. I had fun and I think most of the crew did. Having fun at the job makes it easier."

Joining Marty, Gerry and Claude on the crew were lead

hand Steve Fournier, coordinator Ron O'Shell and linemen Glen Ganton, Fern Poitras, Allan Becks, Kerry Burden, Karl Bubalo, Cam Duncan and George Murray.

"The job was great, we should have more like that," said George. "The cold was a factor alright, but the crew just dressed for it and went about its job. You couldn't ask for a better bunch of guys to work with."



Lead hand Steve Fournier (back to camera) watches the go-to swing a new pole towards him for placement in the hole



Crew members work to erect a new pole on the hillside.



Inco workers are barely visible atop the poles untying wires along the lonely stretch of highway.



Line foreman Claude Mailloux keeps tension on the guy rope used to support the pole while a co-worker works above.



ack prepare ehind him.



Kerry Burden, inside the go-track, confers with Glen Ganton on the best way to drag a hydro pole up the hill.



Linemen Fern Poltras (left), Allan Becks and Cam Duncan (seated) prepare to anchor a guy wire in the rocky terrain.

in touch

Life's no spectator sport for 81-year-old pensioner

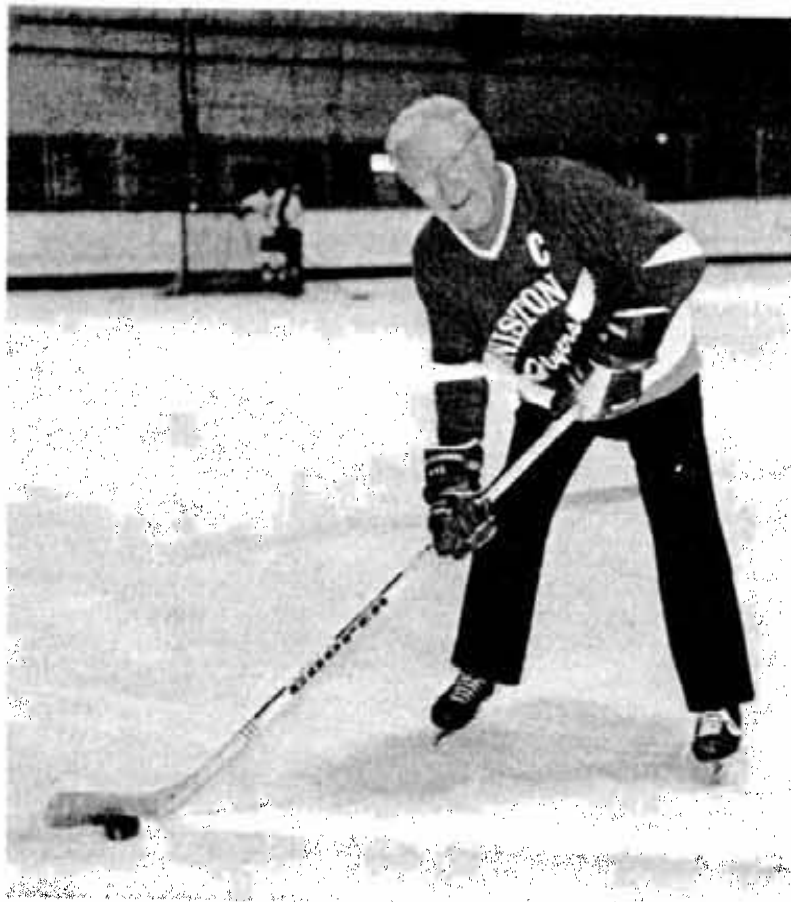
Vernon Johnston may be 81 years old but the Inco pensioner could probably skate circles around those who are a quarter of his age.

Every Tuesday and Thursday, Vernon can be found playing no-hit hockey at the rink with the boys. "We're out here just having fun," he said.

Sports, particularly hockey, have always played a part in his life. Vernon had an early start. "I've been skating since I was born practically," he said. "Out west we started on bob skates."

Having heard about top-notch senior hockey being played in Sudbury he made the move east. "I originally came here in 1937 to play hockey via Toronto from the west," he explained. "I had my leg broken in 1939 and spent 11 months in the hospital, so that really ended my hockey career."

But Vernon didn't become a spectator. Instead he took up playing shinny and coaching and he's still as active today. If his appearance on the



Vernon Johnston poses with the puck during recent game in Coniston.

ice is any testament, he's in good shape despite his bad leg. "I only have 30 degree movement in my leg and that slows me down with these guys." The only disadvantage, he explained, "they know which way I'm going to circle all the time."

While working at Inco for over 40 years in various departments, including mines maintenance, Vernon kept an active life. He credits his late wife Edna for her avid interest in all kinds of sports. "She was quite involved in sports herself and kept me going."

Hockey isn't the only sport that Vernon led tried his hand at. In the summer months he golfs and up until a few years ago when his good leg started to bother him he curled. He also dances at least two or three times a week. His only regret is that his dance days fall on his hockey days on Tuesdays and Thursdays.

When he isn't on the ice or twirling on the dance floor, Vernon said he enjoys watching sports on television especially the Olympic gold medal game between Canada and Sweden and closer to home the Scott Tournament of Hearts.

To commemorate his latest milestone, teammates of the Coniston Flyers threw a surprise party for the man with the number 7 jersey. "The boys had a nice cake for me after the game in the locker room out in Copper Cliff," said Vernon. "I always buy them beer on my birthday, I really didn't expect it." Though they didn't have all 81 candles on the cake, Vernon said it took him a few tries to blow out the two candles they did have until he realized they were trick candles that kept igniting.

Vernon has a simple description of himself: "I'm the type that when I go into something I take it up hard and keep up with the young guys." At 81, some of the young guys would be hard-pressed to keep up with Vernon.

In Memoriam

NAME	AGE	DIED	YEARS SERVICE
Adams, Ken	78	Jan. 1/94	34
Adams, Gerald	65	Dec. 7/93	19
Bell, Thomas	65	Dec. 1/93	36
Bergeron, Joseph	73	Nov. 24/93	31
Blades, Ralph	72	Dec. 9/93	31
Boluk, Harold	78	Feb. 2/94	44
Boucher, Michel	40	Dec. 19/93	16
Brady, Frank	81	Jan. 9/94	38
Bromczeski, John	97	Feb. 13/94	36
Byrne, Joseph	74	Jan. 7/94	26
Cairis, George	57	Dec. 18/93	22
Castonguay, Conrad	63	Feb. 15/94	26
Chayka, Alexander	66	Dec. 12/93	16
Chornoby, Peter	75	Nov. 27/93	28
Davis, Lloyd	85	Jan. 11/94	22
Dixon, Joseph	81	Nov. 24/93	36
Dobrowolsky, Justyn	72	Dec. 1/93	35
Dunnigan, Jerome	78	Dec. 31/93	27
Eden, Gustaf	82	Dec. 19/93	42
Eveline, Emory	77	Jan. 25/94	31
Fabre, Victor	88	Jan. 29/94	25
Flynn, John	66	Jan. 30/94	29
Frattini, Guido	76	Jan. 31/94	45
Gallien, Alban	71	Dec. 4/93	34
Gervais, Moise	89	Jan. 6/94	42
Hudac, George	59	Jan. 2/94	38
Hutchison, William	77	Jan. 29/94	40
Kay, Patrick	51	Nov. 30/93	21
Kennedy, Gorman	75	Feb. 17/94	43
Kitching, Everett	65	Jan. 18/94	22
Kozachenko, William	90	Dec. 3/93	35
Kresan, Rudolph	65	Jan. 23/94	29
Laalo, Walter	66	Dec. 26/93	66
Lafleur, Emile	79	Dec. 20/93	38
Leuschen, Edwin	69	Dec. 11/93	69
Landry, Arthur	77	Nov. 23/93	37

NAME	AGE	DIED	YEARS SERVICE
Mackay, Neil	85	Dec. 18/93	32
Mayhew, Russell	78	Feb. 12/94	27
McDonald, Patrick	78	Jan. 17/94	30
Mihaichuk, Peter	78	Feb. 3/94	39
Moellenkamp, Frederick	55	Jan. 30/94	27
Moffatt, Clarence	84	Jan. 24/94	34
Moreau, Oscar	71	Dec. 2/93	25
Munro, Lyle	77	Nov. 28/93	15
Myers, Leo	64	Feb. 16/94	23
Page, Morris	69	Jan. 18/94	23
Piche, George	78	Nov. 9/93	32
Piche, Rheal	66	Dec. 12/93	31
Poirier, Herve	69	Jan. 12/94	34
Polmateer, Grant	76	Dec. 28/93	31
Porttila, Tauno	75	Jan. 19/94	38
Powell, Burroughs	71	Jan. 14/94	33
Reipas, John	79	Feb. 5/94	33
Rheault, Alphonse	81	Jan. 21/94	41
Rowe, Cecil	61	Dec. 11/93	30
Scinto, Anthony	74	Jan. 27/94	34
Scott, Guy	84	Jan. 8/94	38
Sell, Gilbert	72	Jan. 11/94	35
Shank, Oscar	88	Jan. 24/94	26
Signoretti, Umberto	84	Dec. 20/93	45
Skowronek, Andrezej	76	Feb. 6/94	34
Slabka, Stefan	74	Dec. 1/93	20
Stefanyzyn, Antin	71	Jan. 12/94	32
Stephens, William	79	Dec. 27/93	36
Stromberg, Nelson	85	Jan. 9/94	30
Szmagala, Stefan	87	Feb. 1/94	23
Taricani, Alfred	70	Dec. 22/93	36
Tarkin, Harry	89	Jan. 8/94	32
Van De Rydt, Hendrickus	76	Feb. 10/94	26
Wahamoa, Arlene	60	Feb. 3/94	20
Walker, Alexander	69	Feb. 4/94	35
Zuliani, Giuseppe	86	Feb. 8/94	22



FOR YOUR HEALTH

From the Occupational Medicine Dept.

So you're working shift work! Don't feel alone. One third of today's workforce works shift work. About 75 per cent of us change our sleep habits dramatically on weekends which is similar to working shift work.

About 10 per cent of us adapt very well to shift work, 60 per cent of us cope but have some problems and 20 to 30 per cent of us have major problems adapting. Our brains are programmed for us to be up and alert in the daytime and sleep and repair our body and brain at night. Shift work makes us sleep when our normal cycle is to be awake and alert and keep us awake when we are normally asleep.

Most of us spend 20 per cent of our life sleeping. Disrupted sleep can:

- * make us feel tired physically and mentally when we get up.
- * make us less adaptable and more irritable.
- * make us less interested in doing things and decrease our satisfaction with ourselves.
- * make us less tolerant of ourselves and our family and friends.
- * If we have disrupted sleep for long enough it can make us physically and mentally sick.

Why do changes in sleep patterns or lack of sleep affect us dramatically?

To understand sleep and how we can get its full benefit there are several things that we should know about sleep.

1. Our sleep is most effective when we sleep when it is dark. We are programmed by nature to be daytime animals with a 24 hour cycle which affects our alertness, our ability to make decisions, our blood pressure, body temperature, muscle tension, bloodflow to the brain, and much more. The lowest point in our 24 hour cycle is around 4 a.m.

2. It takes approximately 90 minutes for us to go through several stages of deep and dream sleep so necessary for us to repair our body and our brain. (Dreaming is really our brain "unwinding") Have you ever slept in and gotten up feeling worse than if you hadn't slept so long? This is probably because you got up in the middle of one of your 90 minute cycles.

3. We need to go through at least 4 of these 90 minute cycles in a 24 hour period to stay mentally and physically healthy.

4. What we eat and when we eat it affects the quality of our sleep.

5. Exposure to violence and fighting decreases the effectiveness of our sleep.

Tips for shift workers to benefit the most from you sleep

1. When sleeping in the daytime try to have things similar to night time sleep. Sleep in darkness by having dark curtains or wearing an eye mask, sleep in quietness by wearing ear plugs or cotton in your ears and wake up to light by having timers on the lights in the bedroom that will come on just before you plan to wake up.

2. Sleep in 90 minute cycles. Try to sleep six hours but if you can't, sleep four-and-

Dealing with shift work and irregular sleep patterns on days off

a-half hours or three hours. Try not to get up in the middle of a sleep cycle. If you sleep less than four cycles at one time try to get another one or two 90 minute sleeps in during each 24 hours.

3. Try to keep your normal eating/sleeping routine. For example, we normally eat after work and then go to bed several hours later. Try to keep this routine when you are on different shifts.

4. What you eat and when you eat it can also affect the quality of your sleep. Supper should not be your biggest meal and should not contain much meat, cheese, fish or chicken. Fruit, vegetables and rice or pasta should be the major part of the meal.

5. Unwind before going to bed. Gentle exercises (strenuous exercises a few hours before bed time), relaxing music, a warm bath a few hours before bedtime (not just before going to bed), deep breathing, yoga and other relaxation exercises can help you get more benefit from your sleep. 6. Avoid TV violence, family arguments and the news before going to bed. 7. Avoid sleeping pills as they disrupt our dream sleep and make us feel less alert mentally.

8. Work in shift rotations, if possible, that follow the sun. That's day shift to evening shift to night shift. The greatest number of days off should follow the night shift.

9. Avoid alcohol and caffeine for several hours before bed time.

10. Make sure that you have a good mattress. Before spending money on a new mattress or bed put your mattress on the floor and see if you feel better the next day. If you do then you can put a piece of plywood between your mattress and box spring or get a new box spring and mattress. Water beds help about 25 per cent of people. Try one before you buy one.

Don't change your sleep patterns drastically on your days off, especially if you don't work shift work.

Power naps are a great way to renew your energy. They should be less than 15 minutes long so you don't get into the deeper stages of sleep. If you sleep longer you should try to plan for 90 minutes so you will not wake up in the middle of the cycle and feel worse than before you slept.

Sleep apnea is a serious sleep disorder and should be evaluated as soon as possible.

Sleep apnea is when a person holds their breath when they are sleeping. It often occurs in people who snore. Although people with this problem think that they have slept they do not go through all the stages of sleep and therefore do not get the benefit from their sleep. This means that their brain and body do not repair themselves every night thus leading to health disorders and mental fatigue. A side effect of this disorder is that people with sleep apnea fall asleep very quickly as soon as they stop being active. This can be a serious problem for some people when they drive.

If you suspect that you have sleep apnea or any other sleep disorder have your family doctor refer you to the nearest sleep clinic for an assessment.

We spend one third of our lives in a renewal process called sleep. If we get good quality sleep our waking hours will be spent feeling alert and productive and shift work will not become a nightmare.

Hindsight no help to Inco's weather forecasters

continued from page 1

this fact, Brian emphasized that "all the experts said that it would have been very difficult if not impossible to predict."

Secondly, the smelter was put back in full production when there was still some SO₂ gas on the ground.

"The Ministry failed to understand. In their analysis they thought the new stack emission might have been contributing to the gases already on the ground, but it wasn't," said Brian.

Inco operates a weather office as part of their emissions control program. Dispersion calculations are made for each hour of the day to determine how much SO₂ can come out of the smelter and meet ground level control.

Brian said that the program has two components to it — one is predictive. "The travel times from the stack can be several hours, so once the horse is out of the barn it's gone, so we have to predict

what's going to happen in the future."

The other part is reactive. "We try to finetune our predictions by measuring the weather conditions and ground level concentration of SO₂ and make sure they are consistent with what our predictions were earlier. Weather towers and mobile SO₂ monitors are some of the equipment used to make such predictions.

If the ministry feels Inco has done all it could have done, no charges are levelled. In this case, they felt the "blowback" should have been predicted. But Judge Matte believed Frank and mobile SO₂ monitor operator Philip Dockery carried out their responsibilities at the time and were very experienced and well-qualified.

Brian said that anyone with the luxury of hindsight can often find holes in the decision-making, but he believes Frank and Philip did their best.

"When the guys are operating the emission reduction program, they're operating it as it happens and they have to make instantaneous decisions based on the data they have," he said. "They do a first-class job in dealing with weather predictions and dispersion modeling, neither one of which are exact sciences."

After reviewing all of the evidence, the judge understood the complexity of that day and the difficulties encountered by the operators, Brian said. "There was no evidence to show that anything else could have or should have been done."

He added, "Our two people clearly demonstrated that they were giving a 110 per cent effort on that day and did everything they possibly could to avoid the situation."

The court may have handed down a not guilty verdict in this case, but the problem of "blowback" conditions remains. "I think it's another bit of evidence that we have a

good system. The courts in our last two court cases have found that we not only have a good system, but we also have highly competent and diligent operators," said Brian. "It's always a learning process in the courts to determine what is the socially correct course of action."

He added, "We're not sitting on our hands and saying we won this court case so let's do the exact same thing the next time. We do a post-mortem on these types of events and we use the experience to improve our performance if the same set of circumstances came by again."

Improvements in the system are being made. "The big stack and the emission reduction program have dramatically improved the air quality in the Sudbury area," he said. "Mind you, we have some days where we don't predict everything perfectly and we do have high levels of SO₂ but we are continuing to improve."

Finetuning is being done

with the help of an independent consultant hired a year-and-a-half ago to study the program. Trends in weather patterns and ground level concentrations will be examined and changes made.

Court cases such as this are generally the last resort. Brian understands the Ministry's position and said that environment department members try to work with the ministry as much as possible. "They are accountable to the public and they have to protect the environment. That's their job."

Brian said court challenges are expensive, time-consuming and disruptive. "In all probability the fines would be less than the cost of the defence. We knew going in that it would end up costing us more than simply pleading guilty and accepting the fine, but we felt we had operated the best possible system to the best of our ability with well-trained, conscientious people. It was a matter of principle."

Taking the fear out of Internal Audit

They've been called bean-counters, refugees from the planet Krypton, even Hell's Accountants. Sometimes worse.

From secret enclaves in New York, Hereford, Singapore and Copper Cliff, these mysterious punishers-in-pin-stripes swoop into Inco's functional departments in search of i's undotted and t's uncrossed. Wielding thinly-veiled threats of retribution from no less than the Board of Directors itself, they strike fear into the very souls of those who might even once have fallen short of total, unquestioning compliance with procedure.

Who knows what evil lurks in the hearts of men? Internal Audit, that's who.

At least, that's one perception.

No one is more conscious of those notions — or more convinced that they're wrong — than Carmen Sharpe, Internal Audit's regional manager for Canada. "But we're trying to change those perceptions," Carmen says, "and we're changing the way we do business."

The change process is a team effort.

Support at all levels

On the phone from his New York office, Internal Audit director Joe Bradt says: "The Inco Board of Directors established its first audit committee back in 1941, and the Internal Audit function soon followed. It was set up to ensure that proper business controls were in place throughout the company, and that those controls were working the way they should."

The function has been very important to the company all these years and it still is.

John Black Aird, Inco director and chairman of the board's audit committee, readily offers a window on the workings of his committee: "It is comprised entirely of external directors . . . that is, no Inco officers are members. We meet quarterly to review reports from Internal Audit and, of course, Price-Waterhouse (the external auditors)."

"It's a strong committee that asks a lot of questions. We really do pay attention to what's said in the reports and to the explanations that we get. Believe me, it's not just a front, nor, on the other hand, do we feel like policemen. Not at all. It's just that we offer an independent perspective, and that can be very reassuring to the shareholders . . . and to a management that wants to do things right."

Joe Bradt expresses similar thoughts in his own words: "Changing times require us to get rid of the policeman image. We're here to help people control their part of the business. They're our customers and we want to improve our relations with them. Mike Sopko (Inco chairman) and Lorne Ames (Inco vice-president, Human Resources) have both been very encouraging in this area."

A quality team

Back in Copper Cliff, Carmen Sharpe is very comfortable with today's emphasis on quality and continuous improvement. To paraphrase the country song, he believed in 'quality when quality wasn't cool'. Now, he's not only happy to see other Inco operations going that way; he and his people are practising what they preach.

Tom Newburn came to Internal Audit from the Ontario Division comptroller's department a little over a year ago, after a long time 'on the other side of the fence'. He has a great affection for people in the division, so his enthusiasm for his new department's mission is genuine.

"I came (to the department) at just the right time," says Tom. "I had a lot to learn, using computers daily and all that, but things were changing for the others too. They were taking some new Total Quality initiatives, so I landed right in the thick of it and was able to participate. It was a team process that resulted in some really good guidelines and revised procedures."

"And it's spilling over into the way we deal with our clients . . . our customers. The emphasis is on working with people."

On training stint as an auditor for a couple of years, former Ontario Division purchasing supervisor Nick Palandra adds: "We want to get rid of the old image and get to the customer concept. We want to help, and we can help. I really think that an outsider looking in can often help the insider identify a problem, but I also know that they're very proud of what they do. When we give our customers half a chance to see that we're really on their side, they're all very helpful with us as well. In fact, they're actually asking for our help."

Customer service

Dorothy Cayen, Ontario Division assistant comptroller, is such a customer. She didn't just wait for internal audit to show up she called them in to help: "We had begun re-engineering the accounts payable process and

we wanted Internal Audit involved up front. I saw them as a support group, not as police. Randy Barrazaul came and checked what we had already done and talked about where we were going. Together, we could ensure that the necessary controls were present — even though we were simplifying the process a great deal. I was happy with the results and I think the auditors were too."

Indeed they were. But, even



Auditor Rick Eles and computer systems expert Bob Forsyth review material.

if the feedback isn't always given in glowing terms, they want it anyway. "We're serious about our own continuous improvement," Carmen says, "so we're sending out a customer survey . . . after every audit."

And they want honest feedback. As auditor Rick Eles tells it: "We can only improve if the customers are honest with us. The surveys they send back show us what we have to fix . . . they allow us to measure what is most in need of improvement. That's what feeds our action in the future."

But how is it that an auditor, an 'outsider', can help clients who know their jobs better than anyone?

Nick Palandra doesn't hesitate: "I guess it has a lot to do with something I've found since I transferred in here. Because of the places we go, and the things we see, and the people we meet, we get a macro view of the whole company. We get to see how the pieces fit together . . . I'm seeing pieces that I didn't even know existed!"

Seasoned veterans like Nick, and like Tom Newburn, hadn't expected that. Tom candidly admits: "I'm amazed

at what one learns in Internal Audit. It's just a fantastic training ground."

A management generalist like Nick has had to learn some new techniques: "I'm still the same guy, but I've had to learn more about being exact . . . about basing recommendations on statistical facts."

Tom picks up on that: "The recommendations we make now are designed to help people improve. Huge amounts of time are spent to ensure that reports are clear and accurate."

Hired into the department five years ago, Rick Eles admits: "We're putting out a better product than we used to. The mix of people we have and the growing emphasis on quality has helped us achieve that. For example, we're not afraid to get each other's opinions. We figure that if we can convince one of our peers our recommendation will be clearer to the customer."

Tools of the trade

Bob Forsyth has been with Internal Audit for a long time, specializing in the review of computer systems.

Especially in recent years, that's been a multi-pronged effort.

Bob explains: "I still have to help ensure the security and integrity of the mainframe, with its many users and monstrous files, but that's only part of it. There are a lot of networks now . . . and, of course, a lot of personal computers. I normally don't audit the PCs, unless they're doing an accounting function or something like that — like at Continuous Mining Systems or like they did at Casa Berardi. Otherwise, they're just another tool."

Bob plays down how much he has helped the other auditors learn to use the computer in their daily work, but the proof can be seen in the comfort with which each routinely turns to that 'tool' on their desks — for inquiries, audit planning, report writing, statistical analyses and a myriad of other tasks.

Not high flyers

This small group, although located in the Copper Cliff offices, has responsibility for conducting a sequence of regular and special audits at all Inco operations in Canada.

That includes the Sudbury area, the Manitoba Division, Port Colborne, Toronto office, the J. Roy Gordon Research Laboratory at Sheridan Park, and several of smaller locations. And, once in a lucky while, they may be asked to help out with an audit at Huntington, West Virginia and elsewhere.

That sounds like a lot of travelling . . . and may conjure up visions of first class flights, posh hotels and sumptuous meals. On the other hand, some may visualize a budget so tight that our auditors have to ride overnight buses and stay in the cheapest fleabag in town. The truth is somewhere in the middle.

Carmen Sharpe explains: "we do travel a fair bit, although not as much as when the company was more diversified. And we try to set a good example. We plan our trips in advance and that lets us take full advantage of such things as discount tickets and good hotel rates. We travel only when and where it's required . . . and we don't waste money."

A special rapport

There really are Internal Audit groups in New York, Hereford (for Europe) and Singapore (for Indonesia and the Far East), as well as Copper Cliff, but Carmen's group is somewhat unique, besides having the largest operations to cover.

Although they work for the corporate office, reporting to top management through Joe Bradt, whose job also has a direct line to the audit committee of the Board of Directors, the Canadian audit team sits in the middle of Ontario Division operations.

Bradt gives them full marks for the way they handle that challenge: "It speaks well of Carmen Sharpe and his people that they're able to maintain their corporate independence and at the same time get along so well with the people of the Ontario Division."

There will soon be a tangible example of his support. He's finishing up a new brochure that will be distributed to Inco operations worldwide, to give current and potential customers a factual, readable outline of Internal Audit and how it operates.

With the injection of a little humor, the brochure will address the most common questions about the department. The idea is to remove the mystery . . . to reveal the internal audit function for what it really is.

And Jim Ashcroft is quite clear about that function: "I want people to see this group as a resource that can help them be in control of their areas. Internal Audit isn't just humoring what the division is doing with TQI; they're part of it."

And Jim smiles: "I know they're a corporate group. It has to be that way, to give us the reassurance we need . . . but I still think of them as ours."



HERITAGE THREADS

by Marty McAllister

The shutdown, thank goodness, is over.

You may think such things are among the least of a pensioner's concerns, but not so. For starters, just when some equilibrium had been struck between the availability of donut shop seats and the number of fannies to fill them, January and February brought a fresh flood of time-flush patrons through the frosted doors. A couple of new places opened up, relieving some of the pressure, but I hope they don't see this as a normal state of affairs — unless they know something I don't, which is entirely possible.

Hot Air for Cold Topics . . .

Anyway, the retired and the wannabees had to compete for both space and conversation — although the Olympics and frozen pipes offered a common bond.

Don't they make a big to-do about frozen pipes nowadays? Why, when I was a lad (I always wanted to write that) in Creighton, that sort of went with the territory. Because it was a treat to have running water in the first place, we found it no inconvenience to do those few things necessary to maintain the flow.

Families with outdoor privies had the distinct advantage of only a few feet of water pipe to monitor (Muriel and I spent an eternity like that, the first winter we were married). Generally, though, the thing was to keep cupboard doors open at night — and to always, always keep taps running at a trickle. It was commonplace.

This year has indeed been cold in the Sudbury region — even colder than the old days. My mother-in-law, and this was corroborated by a Florida-bound octogenarian at the Hearst airport, says she simply can't remember a winter this cold for this long. The frost, they say, is down seven feet. But even such a winter would have been business-as-usual for Creighton residents and the pipe-thawing crews from the mine. In a town built mainly on solid rock, it sure didn't take seven feet of frost to get folks' attention.

None of which impresses my frozen-up, waiting-in-line daughter and her family in the least. Like her, with the seventeenth winter Olympics

Back to normal

fresh in their minds, a few hundred local residents likely can't picture a Sudbury team going for gold in pipe-thawing. And little wonder: a recent article in the Star said there were crews going around "un-thawing" pipes. I can't imagine why they would do that, when Mother Nature is doing just fine by herself.

. . . and Warm Climes

Some folks, pensioners and shutdowners alike, traded the snow for sand. John Gast was one of them, although I really think he needs serious help with map-reading. The last I heard, back between Christmas and New Years', John was on his way to Mexico — driving — with his dog. I was even a little concerned for his safety when the rebellion broke out in Chiapas province.

But, with his journalist's nose for trouble, John adroitly avoided it. Somehow, whether he sold his car or the dog, he ended up in Thailand. That's some detour! I think he just went to the ticket counter and said: "Take me where it's warmer and calmer than Chiapas."

Holidaying from Thompson, Janet Johnson found her destination anything but calm. Los Angeles should have been paradise, compared to northern Manitoba's cloak of James Bay air, but she found herself smack-dab in the City of Angels' worst earthquake. Neither she nor her relatives were injured, but the experience was unforgettable.

And A Serious Blessing

The contrast of warm and cold was given special meaning this year for Utilities' Claude Kerr and his wife Pat. Only a couple of days after returning from a thirtieth-anniversary vacation on St. Martin, on a frigid morning in Sudbury, Pat stepped into one of those blinding clouds of vapour behind a bus — and was struck by a car. There has been a great outpouring of love and concern from family and friends, which surely helped fire the determination of a very plucky little lady. Her recovery from serious injuries has been spectacular, with only one small downside: Pat's memory of the St. Martin trip is so clear that Claude will have to find some other excuse to go back. No excuse needed, Claude; you've both earned it — and we'll all wish you bon voyage.

Uniform purchase saves money

New uniforms are boosting the image of plant protection officers while saving Inco money. It's a win-win situation for everyone.

The recent change from brown uniforms to blue was a welcome one according to Reg Gareau. "The brown made us look like service people," said Reg. "We wanted a look that represents authority."

Len Leclair agreed with his co-worker. "The double blues, a dark pair of pants and a light colored shirt look great!"

Not only are the uniforms sharp looking but the price was right. Reg said the switch saved the company quite a bit of money. "We saved more than \$35,000 on winter coats alone. Every five years we're issued new coats but because of the high quality of our new ones they might last six or seven years."

The simple change in color also led to cost-saving, explained Len. "The blue uniforms are more available and the cost is a lot cheaper compared to the brown ones because they were considered special stock."

Reg added that they can now order in bulk quantities and the uniforms don't need further alterations.

Each year the department



Sporting the new look are Plant Protection Officers Lionel Rodrigue and Nancy Digby at Stobie Mine's First Aid. The blue uniforms replaced brown ones that Nancy said looked drab.

receives 150 uniforms for its employees, more than 70 in all. Reg explained how the department has been pushing the idea of new uniforms since 1991. This year they saw some action.

"What really spurred the whole thing was a need for new uniforms. During a regular meeting between the union

and the company it was pointed out that each of the plant protection officers in attendance had on a different style of uniform. No two were the same color even."

After that, a committee was formed to look into acquiring new uniforms. Suppliers were called and a meeting with management was held. "It

didn't take a whole lot of time, about six weeks from initiation to the time we made our presentation," said Reg. "We started wearing our new uniforms on September 13."

The response has been great so far from the staff and the public. Plant protection officer Nancy Digby likes the new look. "The brown ones

got to be so drab looking. I think the blue makes people look a lot more professional."

Image is important when it comes to security and Digby knows first-hand now what it is to be an officer. "Being new to this department I always thought the job would be a breeze. Before, I had shown my pass at the main gate because the regular PPOs' knew me and it was just a matter of going through the gate every morning and waving." Digby said she found out that she had had the wrong impression as a lot of people do.

Plant protection officers do more than simply wave people through the gates and looking professional lends authority to their position. Officer Don Vaillancourt explained what he and his colleagues do each day.

"Our main functions are protecting life and all company assets. Whether it be completing compensation forms or conducting an investigation, pride in performing a large variety of functions in a professional manner has become part of our duties."

It is more than a look to Don. "All in all, we in the plant protection department strive to become the best we can be in performing our duties."

Sports Sports Sports Sports Sports Spo

Creighton-Crean Hill miners on the rocks

Creighton and Crean Hill miners were off for the production shut-down, but that didn't stop them from getting together for the annual Creighton-Crean Hill Employees' Association Annual Bonspiel at the Cop-

per Cliff Curling Club on January 22. The shorthanded winning team consisted of Bill Lainsbury, J.R. Fournier and Richard Beauchamp (team member John Lalonde didn't show up). The runners-up were Scottie Lawrie, Joe Toner, Fred

Stanford and Terry Grattoni.

Bonspiel organizer George Janicki said 28 rinks made for keen competition, and the 112 participants made quick work of a spaghetti and meatball dinner, orange juice breakfast and prizes for everybody.

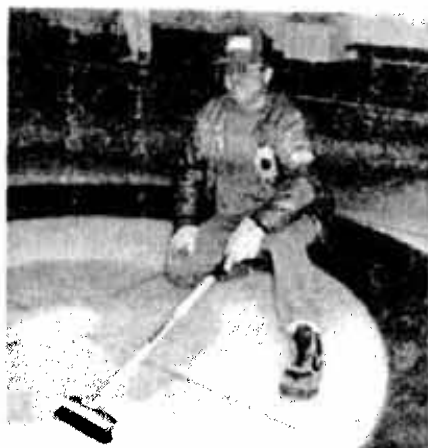
"It's my 10th year organizing the event and like the other years, our people were very enthusiastic. In three days, all the spots were filled. You can't beat the enthusiasm out here," said the Mines Exploration geologist.



Tony Cirillo of Creighton maintenance gets ready to send a rock down the ice.



The three-man winning team picked up "photo-hitchhiker" Jim Kozmick (2nd from left), a curler from a competing team. From left are Bill Lainsbury, Richard Beauchamp and J.P. Fournier.



Equipment operator Ken MacLean guides the next shot down the ice.

SPORTS FANS!

Do you have a plant, office or mine sports league organized? How about an annual, periodic or occasional bowling, curling or basketball event. Whether it be a fully-organized league or a friendly keep-in-shape fun game, we'd like to give you space on our sports pages.

So designate a correspondent, take some pictures (we'll develop the film) or just send the results of your sports event to Public Affairs by inter-office mail or to: Inco Triangle, Public Affairs, Copper Cliff, POM 1NO

Central Mills bowlers head for lanes April 9

The Central Mills Employee's Association will be hosting its annual Bowling Tournament at Plaza Bowl on April 9 at 7 p.m.

There's room for 16 teams of six people, including one Mill employee or Pensioner per team. First come, first served.

Entry Fee is \$15 per person, covering three games, shoes and a prize.

Entry forms should be submitted to any association representative before April 1. For more information, contact Angie Gagnon at 682-5730 or Susan Benoit at 682-8805.

Stobie's Pencil Necks face-off with Muck Monsters

Four recent games in the Stobie Mine Hockey League — the on-going battle between the Muck Monsters and Pencil Necks — provided some of the fastest action (save when these guys are working) in the annals of Inco sports.

In the first game, held at McClelland Arena in Copper Cliff the Stobie Pencil Necks narrowly defeated the Legendary Muck Monsters with a score of 6 to 3.

Leading the Pencil Necks was Pascal "Drainhole" Hamelin with a hat trick. Other marksmen were Kevin "Stick" Small with two and Dan "The Man" Plante with one goal.

Scoring for the Monsters were Gerry "Rolly Poly" Rowlands, Mike "Pretty Boy" Stewart and Mike "Scare Face" Doniec.

It was an unfortunate upset for the Monster organization even though players dominated the game with superior offence, defence and

goaltending. The unsportsmanship antics of the "Pencil Necks" went unnoticed by our usually sharp-eyed referee Ray "Want-to-be" Lemire.

In another game, the "Pencil Necks" again humiliated the "Muck Monsters" 10-4 at the McClelland Arena. Making his debut in goal for the Pencil Necks in a "Cinderella Story" was Ron "The Bomb" Stewart exhibiting his natural goaltending ability. Leading the Necks offensive assault against Wayne "Hole-in-the-Wall" Tonelli was Guy "The Rogue" Roy with four exquisitely executed goals, other contributors included Dan "Grow-Your-Own" Plante with three tallies, Pascal "Drainhole" Hamelin and Don "Wildman" Rask added a pair each. It should be noted that the Wildman's rough house tactics held the Muck Monsters in fear of reprisal and played a major part in the Necks victory.

Making a comeback with his first game of the year for

the Monsters was JC "The Wrench" Marion. He led his team with four single-handed markers.

Rounding out the scoring was Gerry "Rolly-Poly" Rowlands, Rick "The Snake" Gauvin, Mark "Leopard" Lalonde and Jack "The Ripper" Anderson.

Footnotes: On the injury list, sustaining major facial lacerations was Dan "Ugly-Duckling" Serre. Fortunately for him a team of plastic surgeons On-Call at a local hospital were able to perform major reconstructive surgery and Dan has now changed his name to Tom Selleck.

But in a third game, "Jumpin'-Jack Flash" Anderson's tip-in at the 4:32 minute mark of the second sudden death overtime period allowed the Monsters to nip the Necks 10-9. Anderson's goal was a beautifully executed tip-in from Bill "Boom" Blanchard's powerful slap shot and silenced the huge Pencil Neck crowd.

The Muck Monsters trailed 9-1 at one point in the game and launched the dramatic comeback only when "Bench Boss" Dave "The Brain" Fram arrived. An unidentified Pencil Neck fan quoted, "We knew we were in for it once 'The Brain' arrived."

Footnotes:

• Missing from the Pencil Necks' lineup was star defenceman Dave "Chico" Pisaric. It was rumored he was busy taping McCain Frozen Fruit Juice commercials.

• Rick "The Snake" Gauvin shadowed Guy "The Rogue" Roy and as a result the Rogue's goal scoring streak has ended at 40 games in which he recorded 101 goals.

Free agent Kevin "Maximum Ice" Niemela has signed a lucrative long term deal with the Necks. He certainly will play a big role in the Necks' scheme and will be wearing number 7.1 with the team.

The Muck Monsters again

trounced the Pencil Necks in another action-filled thriller. They shortchanged the Necks 12-7. Wayne "Stonewall" Tonelli single-handedly held back wave after wave of Necks scoring chances. (This bought time for the Muck Monsters flickering offence to catch fire.)

Bill "Slapshot" Blanchard led the Monsters scoring attack with the natural hat trick while Guy "The Rogue" Roy chipped in three for the Necks.

The loss for the Pencil Necks snapped their unbeaten streak.

Footnotes:

• The most spectacular goal of the night if not for the season was scored by Brian "Toller Cranston" McDonald. Brian performed a double axial pirouette before tipping in a shot.

• The Necks resorted to the old reverse cooperall trick. This confused the Monsters, however, the officiating crew of Ray Lemire and Ron Leger quickly caught it and the Necks received a 10-minute bench major.

Benefits, Payroll staffers work in shifts during shutdown to maintain employee services

Inco Benefits and Payroll departments are like the mail. Come rain or shine . . . or shutdown, its gotta go through.

Despite the short lead time, careful planning and preparations by the crew of the Benefits and Payroll departments kept services to their 7,000 employee and 12,000 pensioner customers operating smoothly.

Both departments worked with half their staff during most of the production shutdown, alternating people during the eight weeks.

"It all went very smoothly," said health care benefits administrator Diane Olivier. "Things came together coincidentally to make the shutdown period particularly busy for us. It came at the same time as our efforts to update our employees dependents information with the Dependents Information Form we sent out."

Benefits counsellor Dave Bradley said the shutdown went smoothly. "A shutdown is a shutdown," he said. "We're getting pretty good at it. I guess we have no choice. The service this department provides can't wait. You can't tell our customers to wait until the end of the shutdown."

Yet some factors unique to the production shutdown had to be handled. "We had to prepare weekly layoff benefits under the Savings Reserve Fund Plan," said Dave. "Hundreds of people took advantage of the benefits that were designed to provide cash from the plan to supplement their incomes during the shutdown."

Both Diane, Dave and supervisor Terry Duncan agree that keeping things running smoothly wouldn't have been possible without the cooperation of everyone in the department.

"With only half of us here at one time, there was lots of sharing of work," said Diane. "It was very interesting. You got a chance to learn more about other jobs the office."

"Team effort was absolutely essential during the period of the shutdown," said Terry. "This department normally runs on cooperation, but it was more important than ever during these eight weeks. Although people here are specialized in specific areas of expertise, they enthusiastically pitched in to help in other areas of the department."

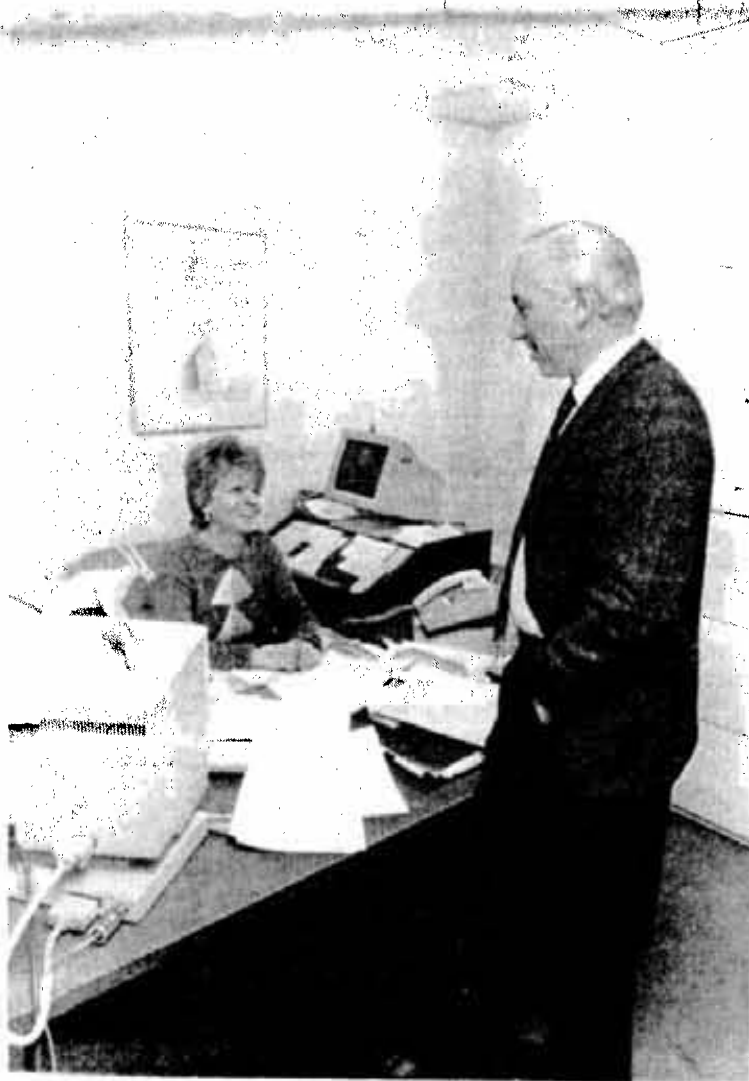
Diane, Dave, Terry and Benefits counsellors Bob Archibald, Richard Myher, benefits clerk Nancy Baldisera and survivor benefits administrator Lorna Seguin all shared the workload from paperwork to answering the ever-ringing telephones.

"People seem to have more time to consider their benefits during a shutdown like this," said Terry. "We had more calls than usual."

Like Benefits, careful plan-



The Pay Office crew: Swamped with phone calls.



Diane Olivier and Dave Bradley: Cooperation, teamwork was the key.

ning and teamwork in the Payroll department kept shutdown glitches at a minimum.

"With the help of the Information Services Department, we were able to set up a separate payroll run for the sub plan payments for hourly and staff employees," said senior payroll analyst Bob Hughes.

"By taking advantage of new technology, the Payroll

department was able to ensure a continued and smooth transition of services to employees. This was achieved with the help of many of Inco's computer experts who made specific computer files accessible to UI Commission employees to replace the time-consuming paper document exchange.

"As far as we know it's the



Counsellor Bob Archibald answers a query.



Nancy Baldisera and Terry Duncan prepare for the day's work. Benefits employees worked in shifts during the shutdown.



Lorna Seguin and Richard Myher go through Benefits files.

first time this kind of close cooperation has been tried," said senior payroll analyst Gary Tuomi. "It made the entire process more efficient. It worked so well that UIC people came from outside of town to look at the cooperative system."

The Pay Office staff also shared the work for most of the eight weeks, with at least

four people at work at any one time.

One thing not planned for was an "avalanche" of telephone calls.

"People had questions about their vacations and when they would get their first sub plan payment. Some pensioners were worried they wouldn't get their cheques during the shutdown."

Yesterdays todays



Hitting the roof

40 Years Ago

After only a couple of years in use in hardrock mining in 1954, the roof bolt was proving its worth in safety and efficiency in underground metal mining.

Adopted from the coal industry, where it was used to bind layers of stratified rock together, it was replacing cribs in big cut and fill stopes and timber supports in drifts and main haulage ways, thereby increasing space and improving visibility and ventilation.

"In coal mines, roof bolts are used to bind the layers together to form a competent beam strong enough to support its own weight and pressure from above," said Norman Wadge, superintendent of Garson Mine. "In metal mining, the application is primarily to lock individual blocks into a self-supporting arch, thus preventing loose from developing."

Even 40 years ago, roof bolts were so dependable, said the Triangle, that if properly seated, they would break before their wedge was pulled loose.

Other stories that month: "Bowling Party For Lively Was Great Success" "Tradition-True, Nickel Belt Is Hockey Hotbed" "Honour Gunners For Great Finish in Northern Ontario Soccer"

25 Years Ago

Two innovative processes in refining, destined to be used in the new \$85 million Nickel Refinery at Copper Cliff, the top-blown rotary converter (TBRC) and the Inco pressure carbonyl process (IPC), were both developments of International Nickel's chemical metallurgical team.

The TBRC made a long dreamed of quest a reality — the direct conversion of molten nickel sulphide to a metallic nickel — while the Inco

pressure carbonyl process (IPC) permitted the simultaneous extraction of nickel, cobalt and iron from mineral concentrates and smelter and refinery intermediates.

The combination of the two processes promised to benefit both Inco's smelting and refining operations by simplifying them, and precious metal recovery, by improving and centralizing the process.

Other stories that month: "Canada's New Nickel Coinage" "Lively's First Winter Carnival" "Levack's Fine Ski Facility Built By Hardy Volunteers"

14 Years Ago

Ventilation at the 7,000-foot level of No 9. shaft at Creighton Mine improved substantially 14 years ago this month when the company installed two new axial-flow fans at the 2,600-foot level. The fans were designed to increase the flow of fresh air to the lower levels of the mine from 600,000 cubic feet per minute to 1,400,000 cubic feet per minute.

They joined four other axial-flow fans presently operating at the 5,000-foot level and a set of return air fans at the 1,900 foot level.

Some 90 inches in diameter and 25 feet long, the axial-flow fans operated much like airplane propellers, boosting air pressure in the ventilation system and forcing it into the lower recesses of the mine.

"As Creighton Mine operations deepen, the mine ventilation system has to be improved continually," explained Milt Jowsey, Inco's assistant vice-president of mining and milling.

Other stories that month: "Inco's Annual Loppet - Firsthand" "Team Effort Produces an All-Inco Cage"

INCOME ideas

by Susan LeMay, CMA

Taking charge of your finances

The Liberal Finance Minister has just brought down the Federal Government's budget for the next fiscal year, and Ontario's Provincial Treasurer is poised to do the same for Ontario in the next few weeks.

Budgeting Planned or unplanned

None of us really wants to deal with budgets, especially our own. Wouldn't it be nice if we never had to deal with them? When we think of budgeting, we often associate it with crisis, shortage and hard times. In reality, we all practice budgeting regularly. There are always more places to spend money (or time for that matter) than there is money (or time) to spend. We make budgeting decisions every day and because we don't want to think about a plan we sometimes make impulsive decisions. Formalizing a budget with goals and plans puts you in control.

It's easy to tell someone else how to budget because you never have to live with the consequences. The result is that much advice about budgeting is either inappropriate or impossible to live with. The budgeting process is much like losing weight. If you go at either of them for dramatic

short-term results, then you get just exactly that. And then, when you have reached your goal, your spending and saving habits go right back to where they were before the budget and you are no further ahead.

A change of attitude

A change of attitude is required. Budgeting is not a penalty. It isn't a sentence to be served for some past 'crime'. It doesn't have to create arguments and hassles. It is a tool to be used for getting exactly what we want. This month we'll look at some of the do's and don'ts to consider, and then next month we'll get down to a specific action plan.

Planning do's

Motives for formalizing a personal budget can make or break the process. If this is going to work, you have to be committed and this means that it has to be YOUR plan.

Setting both short-term and long-term goals make it easier to ensure success for the process. Short-term goals need to be very clearly defined. "I want to be able to pay cash for my new car when I buy it two years from now" is a specific goal. You will know when you have reached it! Long-term

goals also need a time frame and a dollar amount attached to them so that you will know when you reach these goals too. "I have to save for retirement, or my children's university education" is too vague. "In fifteen years I want to have contributed \$30,000 to my RRSP" has both a time and a dollar amount on it. This definite statement does not mean that you can't alter you long-term goals. They have to be flexible. As long as you are working toward a specific financial goal with your budget, you can make changes that affect the details, but the overall goal will stay the same.

Be sure you are considering your priorities. They are not the same as mine or anyone else's, but they are critical to the success of your effort. It is important to you to spend at least one weekend each winter snowmobiling with your friends, don't sacrifice this weekend because you'll just resent the budgeting for making you give up something you really enjoy.

Planning don'ts

Budget plans should not be laid out to help reform your character and habits. For example; don't use a new budget

to 'make' yourself cut down on cigarette consumption by not budgeting for cigarettes. This is a sure-fire recipe for disaster. You are likely to buy the cigarettes anyway, and then since your budget is already blown, you decide that you'll never be able to quit smoking and you'll never be any good at financial control.

Then you'll stop trying. Budgets are a means of taking control of your money, no more and no less.

Next month I'll discuss the details of what you can do to achieve your goals once you have set them. Things like determining your Net Worth and your available monthly income.

MAIL POSTE

Canada Post Corporation / Société canadienne des postes
Postage paid / Part payée
Bik 2065 Nbre
Sudbury, Ontario

WILLIAM L GAGNON
15 MARION ST
LIVELY ON
P3Y 1E9

Manager Public Affairs
Jerry Rogers

Publications Editor
John Gast

for employees and pensioners of the Ontario Division of Inco Limited. Produced by the Public Affairs Department. Members of the International Association of Business Communicators.

Letters and comments are welcomed and should be addressed to the editor at Inco Limited, Public Affairs Department, Copper Cliff, Ontario POM 1N0. Phone 705-682-5428