

Don't get held-up. Prepare for the Year 2000 now!! For details on how the Ontario Division is taking on the challenge see pages 4 and 5.



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**Ontario Division** 

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# PPDs mine from surface by tele-remote

he Ontario Division is making full use of technology to improve production and safety.

But there's been an added benefit in the last year or so.

Skilled miners are returning to production work using the latest in automation as part of a Division-wide effort to make better use of employees who are Permanently Partially Disabled (PPD).

"It's good to be back mining again."

That sums up how **Stan Holloway** feels about being a tele-remote scooptram operator at Stobie Mine.

"This is more meaningful work," said the 25-year Inco employee.

Stan injured his back at Frood Mine seven years ago and was placed in PPD work fixing slushers for the last year-and-ahalf.

"Once you injure your back it's vulnerable to more injury," he said.

As a result he and other miners hurt used to be put into alternate work. Frequently that work was away from the action, as miners see it.

"Nobody wants to sweep the floors when they're experienced miners by trade. After you're injured you still want to do the things you used to do," Stan said.

"I've got a class-A miner's certificate. So it's better to put me in a job like this."

After two months of training on the tele-remote equipment, Stan started his new job as a "robo-miner."

It's better for Stan. And it's better for the Division as well.

"This is more meaningful work. Now Inco is utilizing its people more."

Stan added that he also feels better about the work he does because he's using his skills as a miner again.

for a living."

Now he just does it from surface, remotely driving scooptrams underground to ore passes from the relative comfort of an office chair with television viewing screens acting **continued on page 2** 



# Stephen Hawking to visit SNO

rofessor Stephen Hawking - the most well-known scientist in the world – will be among the guests at the Sudbury Neutrino Observatory (SNO) on the 6,800 foot level of Creighton Mine next month. The guest list of 150 includes other prominent scientists, representatives from Inco and Atomic Energy of Canada Ltd. (AECL), as well as representatives of government and industry from Canada, the United States and Great Britain. Mr. Hawking will visit the SNO site on Tuesday, April 28, and will attend a reception at Science North that evening. He'll also attend the opening ceremonies on Wednesday, April 29, which will include a noon luncheon at Creighton

Mine's surface facilities followed by the official opening at 1 p.m. Tour's of the underground laboratory are planned for later that day.

Once it's open, SNO will house the largest, most sophisticated neutrino detector in the world.

Mr. Hawking, author of the best-selling interpretation of the latest theories of the universe called *A Brief History of Time*, is a professor of mathematics at Cambridge University.

SNO is part of a world-wide effort to understand neutrinos and their emission from the sun. SNO will have the unique capability for neutrino measurements through the use of 1,000 tonnes of heavy water on loan from AECL with continued on page 2



North Mine Mechanic Lucien Tessier has worked on many a scoop in his 32 years with Inco. He's noticed that the newer, leased scoops, do more production work before they come back to him for repairs. For more about the leasing of scooptrams please see pages 6-7.



# **Automation gets PPDs back in mining**

### continued from page 1

as his eyes. Cameras mounted on the scooptrams transmit live video images to the tele-remote office on surface at Stobie.

People used to kid tele-remote miners that they were watching TV for a living.

But Stan said people have more respect for the job now because they have seen a few years of positive results from tele-remote drilling and scooptram operation.

"I used to run these machines underground manually. So now it's just a matter of geography," Stan added.

His cross-shift partner Richard Bainard was also injured on the job, but has enjoyed his return to production work.

"The job I'm on now keeps me thinking all the time," said Richard, also a tele-remote scoop operator.

Richard was a development miner in 1993 when an injury rendered him unable to perform heavy-duty jobs on a regular basis.

He had been building timber trucks since then as part of his PPD duties.

But for the last year he's been on the cutting edge of mining technology.

"It's a great skill to have these days.

Plus, Richard said his 10year-old son thinks his dad has a cool job operating large scoops from surface using video screens and remote controls.

"My son can't believe this is what I do for a living."

But it's more than a hightech video game. Stan and Richard are mining ore in a way that will continue to lower the Division's production costs.

They are part of improving the process on the job as they find what methods work best in tele-remote mining.

"It's getting more efficient by the day," Richard said.

Returning PPDs to production work or back to the work they did before their injuries applies to more than just teleremote miners, of course.

Jim Dunn recently returned to working as a mechanic after injuring his arm in a lifting accident three years ago.

He troubleshoots as a mechanic now. But he still is hands on in his work.

"I come up (from underground) dirty. I'm working as a mechanic again. I enjoy it."



"This is more meaningful work," said 25-year Inco employee Stan Holloway about being a tele-remote scooptram operator at Stobie Mine. Stan injured his back and was placed on the PPD list but he has recently returned to mining work as part of a Division-wide effort.

# Hawking arrives at SNO in Creighton



During the next three months the detector, shown here still under construction at Creighton Mine's 6,800-foot level, will be filled with 7,000 tonnes of ultrapure water in the outer region, and 1,000 tonnes of heavy water within the acrylic vessel at the detector's centre. While the detector is filled, calibration procedures will be carried out to prepare for neutrino observations when the detector is full, which is expected by the end of June 1998.

continued from page 1 the cooperation of Ontario Hydro.

The SNO detector will provide definitive measurements of the energy-generation processes powering the sun, as well as unveiling the fundamental properties of the neutrino, one of the basic building blocks of nature.

Funded by federal and provincial agencies in Canada, as well as by the United States and Great Britain, SNO is being constructed and operated by a collaboration of over 70 scientists from 12 institutions in the three countries.

During the last several months, the final assembly steps for the observatory have been carried out.

On Jan. 28, the last of the 9,500 light sensors for the detector were installed at the bottom of a geodesic sphere, 18 metres in diameter, in the SNO cavity. Designed by the SNO group from Lawrence Berkeley National Laboratory, in Berkeley, Calif., and installed under their supervision, the light-sensor array is a key component of the SNO detector. The light sensors will record tiny light flashes which signify a neutrino interaction in the heavy-water core of the detector.

After this installation, the remainder of the construction equipment was removed from the underground cavity, the polyurethane cavity liner seal was completed, and a final cleaningtook place. The last entrance at the bottom of the cavity will be sealed during the next week. The detector will be ready to be filled with water before the end of March.

During the next three months the detector will be filled with 7,000 tonnes of ultrapure water in the outer region, and 1,000 tonnes of heavy water within the acrylic vessel at the detector's centre.

While the detector is filled, calibration procedures will be carried out to prepare for neutrino observations when the detector is full, scheduled for the end of June 1998.

# NICKEL WORLD NEWS

Falconbridge Ltd. the project can be developed as three percent compared to 1996. phides on a worldwide basis.

Catalyst Ventures Corp.

plans to close its Kidd Creek copper smelter in Timmins for two weeks starting March 30. Production problems at the adjacent Kidd Creek Mine necessitated the shutdown, said an executive with Noranda Inc., which owns 47.5 per cent of Falconbridge. Parts of the mine have been unsafe to work in and production has been hampered for some four months because a large wedge of rock shifted.

Indochina Goldfields Ltd. has announced that its copper deposit in Burma is capable of producing 150,000 tonnes of copper cathode a year. The Singapore-based company reported that a study shows a low-cost, large-scale copper mine.

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Toronto-based Regional Goldfields Ltd. has said it will appeal a Nova Scotia court decision that prevents it from exploring and mining in Jim Campbell's Barren, a wilderness area in Cape Breton.

CaribGold Resources Inc. has bought 600,000 special warrants of Goldeye Exploration Ltd. in a private transaction that, if exercised, would give it a 17.6 per-cent stake in the Thornhill, Ontario-based Goldeye.

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French nickel producer Eramet reports that output at its Doniambo nickel smelter in New Caledonia reached 54,892 tonnes in 1997, an increase of

The plant's production capacity now exceeds 57,000 tonnes.

Noranda Inc. has reported a 77 per cent increase in its fourth quarter profit. Noranda is also planning to spin off two divisions to shareholders.

**RAO Norilsk Nickel**, the world's second-largest producer, is looking to reduce exports and sell more metal at home this year as the price of its products on world markets slumps. Russian nickel exports grew by 32.7 per cent to 201,000 tonnes between January and November of 1997, reports Infomine in its latest quarterly issue on the miningindustry.

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Australia's QNI and Billiton PLC have implemented a joint venture to explore for nickel sul-

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Japan's Hitachi Metals Co. will expand production at its Yasugi plant. The move will lift the company's nickel consumption 20 per cent above current levels at more than 10,000 metric tons per year, a company official said.

The Indonesian government has given the go-ahead for a Broken Hill Pty. Co. Ltd. majority-owned project to produce 40,000 tonnes of nickel and 3,600 tonnes of cobalt a year starting in 2001. Broken Hill's OK Tedi copper and gold mine in Papua, New Guinea, meanwhile, is about to restart normal production after a seven-month drought caused low river water levels preventing it from shipping its copper concentrate.

has received a positive engineering report on its Wedza Mountain gold mining property, in the Eastern Highlands of Zimbabwe. Pervasive free gold has been readily found over a strike length of about 1.3 km in the focus area of the report. At current prices it rep-resents a gross value of \$US 238 million. Contained silver would increase this value.

The Yugoslav copper producer RTB Bor has entered into a seven-year co-operation and financing agreement with Greek metals trader Mytilineos Holdings (MH) whereby MH will invest \$44 million (US) as a major contribution to the cost of expanding and upgrading Bor's smelting capacity. At last month's continued on page 3

# Aerial surveying cuts costs and boosts safety

wave of mapping and surveying is sweeping through or rather flying over the Ontario Division.

Photogrammetric or aerial surveys are proving to be more safe and less costly than traditional ground-level mapping and surveying.

"We're doing lower-level flights to get more accuracy in surveying. It's the better way to go. We're going to go this way from now on," said Trevor Ross, engineer in training with Field Engineering and Surveying.

Photogrammetric surveys are used for site plans, erecting buildings and road construction.

By combining an aerial photograph with an accurate map called a Digital Terrain Model (DTM) a photogrammetric image is created. The image looks like an aerial photo, with one exception - there is no distortion, everything is proportionate.

"Digital Terrain Models (DTM) give the shape of the land. And it's cheaper than traditional surveying with a crew of three people," Trevor said.

"Now when the aerial photo and associated data (such as DTM) comes back in the office. one person does the calculations.'

Incosurveying and mapping using photogrammetric technologies is currently applied to open pit mine volume calculations and as an alternative to traditional survey methods for data collection.

But potential applications of the technique are plentiful and represent a more efficient use of people and funds. Other applications include:

- Tailings Area For volume calculations and planning
- Slag Dump Volumes, moni-toring and planning
- Haulage roads Planning and design
- Field layout and design
- Smelter stockpile inventories Aggregate Pit inventory.

Trevor points out there are several benefits to photogrammetric mapping and surveying.

In terms of safety, surveyors can avoid working in hazardous environments, such as pits with steep and high cliffs, because the new system minimizes the need for such field work.

Photogrammetric surveys lower costs because fewer employee hours are require



Photogrammetric surveys are used for site plans, erecting buildings and road construction. By combining an aerial photograph with an accurate map called a Digital Terrain Model (DTM) a photogrammetric image is created. The image looks like an aerial photo, with one exception – there is no distortion, everything is proportionate.

aerial photography.

An aerial photograph can be repeatedly checked back at the office unlike the original measurements taken in the field, which have to be accepted as accurate.

Trevor has compared the cost of doing a ground-level survey to doing an aerial survey, using Gertrude Pit as his example. A traditional on-the-ground survey, in this example, would cost \$25,200 plus \$9,000 worth of computer work for a total of \$34,200. It should be noted that this represents a yearly cost which includes surveying the pit and surrounding rock piles

#### four times.

An aerial survey, meanwhile, costs less than half that with a \$13,600 survey plus \$2,000 in computer work for a total of \$15,600.

Now, don't get the idea this is an easy process.

After the aerial photography is done, then the real work begins.

The photogrammetric process takes aerial photographs and known ground-control points and measures and observes the shape and contents of the land. The accuracies that can be obtained depend on various factors such as: photo-

graphic scale; camera type; measuring device; operator skill; type of terrain; sun angle; ground control quality; precision; and positioning.

Understanding these factors and how they affect the overall precision is essential to getting accurate results. A wrong combination can render the information useless.

The photogrammetric process relies, for one thing, on more than one photo making up the picture that is used by an engineer to decipher the measurements. Many details must be taken into account to get accurate figures.

Such details as the angle of the sun become important in determining distances. The ability of reading the ground in a shadow can be greatly reduced especially if the photography is done in black and white and not in color.

On one hand, the fewer shadows in a photograph the more clear is it. But on the other hand, no shadows - as a result of a cloudy sky - can reduce the definition of the ground surface.

As in many aspects of the mining industry, human expertise is the deciding factor to achieving success.

# - NICKEL WORLD NEWS -

## continued from page 2

signing ceremony in Belgrade, the president of the Greek company, Evangelos Mytilineos, described the agreement as a strategic alliance that is expected to yield a turnover of some \$1 billion (US), based on current copper, gold and silver prices.

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South Crofty Holdings Ltd. of Vancouver closed its tin mine in Cornwall, England, in early March saying it was no longer economically

per cent nickel in its first resource estimate for its Cosmos nickel sulphide discovery south of Mt. Keith.

Royal Oak Mines Inc. needs

based company said it has confidence in the long-term future of gold and that central banks will retain gold as a significant percentage of their reserves. Placer was reacting to a Barron's newspaper report that the gold producer was part of a plan with other companies to buy bullion to prop up sagging gold prices.

the same work, he said.

Results of the aerial mapping and surveying can be calculated and available within days depending on the size of the project, compared to taking weeks in the traditional method.

"Traditional surveying results in more accurate point shots, accurate to 0.001 feet. But when using aerial mapping we get many more data points and therefore we get a more accurate shape of the land, resulting in more accurate volumes."

A better definition of the land is presented with aerial photography, compared to measurements taken between points of reference at ground level.

There's no need to climb piles of material or to navigate edges ofcliffs and other points of reference. Individual measurements simply aren't as accurate as

QNI Ltd. reports that it has got approval from the Cuban government to explore and assess the San Felipe nickel project in Cuba. QNI is the second Australian nickel miner to set up activities in Cuba, following WMC Ltd., which signed a deal to develop the Pinares de Mayari West nickel deposit in Holguin province in eastern Cuba.

Austria's Treibacher Industry AG plans to maintain ferronickel production at its Austrian smelter, despite nickel prices and a relatively low amount of production.

viable.

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Cancor Mines Inc. of Montreal has formed a strategic alliance with Coleraine Mining Resources of Rouyn-Noranda, Que., to pool chrome-bearing properties in Quebec. Cancor reports that the alliance will enable both mining companies to maximize their asset value during the next demand increase for chrome.

Sherritt Int. Corp. increased production of mixed nickel-cobalt sulfides at its Moa Bay plant in Cuba to 26,512 metric tonnes in 1997, compared with 26,034 metric tonnes the year before.

Australia's Jubilee Gold Mines has announced 401,000 metric tonnes at 8.2

about \$85 million before April 18 to complete its \$427 million Kemess gold and copper mine or will have to temporarily stop the project. Royal Oak said it is in technical default on US\$44 million in bonds. The B.C. govemment, meanwhile, has ordered Royal Oak Mines to stop work at the vital tailings area of Kerness. The order followed a payment dispute between Royal Oak and Knight Piesold Ltd., the Vancouver engineering firm hired to provide management systems for the mine's waste disposal pond.

Placer Dome Inc. has stated that it is not part of any plan with other gold-producing companies to buy bullion from central banks or other market participants to influence gold market prices. The Vancouver-

Rio Algom Ltd. and partner Inmet Mining Corp. have confirmed that their joint Antamina copper-zinc project in Peru is feasible and would cost \$2.2 billion (US) to develop. Under terms of a development agreement with the Peruvian government, the two Toronto-based companies must decide whether to proceed with what would be the world's seventh largest copper producer by Sept. 6, 1998. Rio Algom may increase its stake if Inmet decides to sell part or all if its interest.

# Inco people get ready as Year

# Year 2000: Sharing the responsibility A message from the **Ontario Division** President

The Ontario Division will be Year. 2000 compliant in time to welcome the new millennium. It is a significant challenge, but not an insurmountable problem. There are dedicated people doing both the necessary planning and work to ensure operations continue without interruption on Jan. 1, 2000. The greatest challenge-apart from the technical and management side - is creating awareness of the business implications of the Year 2000 issue and enlisting everyone in the Division to support the solutions.

Successfully addressing Year 2000 challenges relies on your participation. Think about your work environment, how it might be affected and what might be done to make it Year 2000 compliant. This applies to both the office environment and also, critically to computer controlled equipment in the mines and plants.

The Inco Triangle will devote a regular column to the Year 2000 issue for the duration of the project. I would encourage you to read about the issues, discuss the topic with others in the workplace and to track our progress through articles in the Triangle.

"If you can sleep at night you don't understand the problem."

frequently This quoted phrase of Year 2000 wisdom underlines the seriousness of the Year 2000 issue.

In brief, the source of the problem is an old programming convention which may cause computers to mistake the year 2000 for the year 1900 unless fixed. Computers, their programs and computer-control\* led equipment have the potential to bring businesses to an abrupt halt because they aren't ready for the century change.

It's not just a computer or information technology problem. And it's certainly not just an Inco problem.

This is big.

In Canada, the total cost of becoming Year 2000 compliant, the ability to process dates involving the Year 2000, is estimated at \$30 billion to \$50 billion.

"The Year 2000 bug could cost the United States about \$119 billion in lost economic output between now and 2001." stated the March 2 issue of Business Week.

Inco's recently issued 1997 Annual Report gives a current figure of \$16 million (US) to achieve compliance.

It is predicted that worldwide expenses could hit \$600 billion according to the Gartner Group, a business and industry analyst service. There is even a prediction that the stock market will fall 60 per cent.

What makes Year 2000 particularly vexing is that it affects both computers and the embedded processors built into all sorts of modern equipment, from automated factory equipment to cars to cellular phones.

"It is a global problem which has the potential to take lives and kill businesses," said **c Beaulne**, Year 2000 Project manager for Inco's Ontario Division. The inability of computers to handle the millennium change, from Dec. 31, 1999 to Jan. 1, 2000, affects every aspect of our lives – at home and at work. So how did the world

get into this mess anyway?

Well the answer, unlike the solution, is simpleenough.

Had computers started with four-digit year fields, expressing the year 1998 for example with four digits instead of simply as 98, there would be no Year 2000 problem.

Thirty years ago when computers struggled with limited ond expensive storage and memory, devoting four digits to identify the year seemed ridiculous.

The technical gurus of the day firmly believed that the programs they developed would be replaced long before the century rolled over.

Unfortunately, many of these systems were not replaced. Compounding the problem, subsequent developers stuck with the two-digit year field in order to be compatible with earlier programs, leaving the time bomb of a two-digit date field ticking ominously toward the Year 2000.

The other reason the world is in this Year 2000 fix has nothing to do with technology, but rather human nature. People everywhere procrastinated

The Year 2000 always seemed so far away. How many people ever used or even heard the word millennium before 1995 or so?

Industries and governments anticipated that applications developed two or three decades ago would be replaced well before the Year 2000 – but here we are with 21 months to go and we're still using those same applications.

Suddenly the Year 2000 is not some distant time in the future.

### WHAT ARE WE DOING AT INCO?

Inco was one of the first Canadian corporations out of the starting block in the race to Year 2000 compliance. Inco accepted the millennium challenge in 1996 and the project is now well underway with the high priority items scheduled to be compliant by the summer of 1999. The Ontario Division has established a Year 2000 Project Office to plan and to coordinate the task of identification, evaluation, implementation and testing of the required changes. "A massive amount of effort is required before the millennium deadline arrives. That's a deadline that can't be moved. The work is highly detailed and touches everything the

Ontario Division does," said Marc.

"It affects purchasing and contracts. It affects office and plant functions. Those who are hoping the problem will simply blow over without incident are in for a costly surprise," he added.

The road to compliance is an extraordinarily painstaking route. It requires inventories of all computers, software, and equipment. Those that are identified as 'critical' - necessary for business survival - must be investigated to determine whether they are compliant. This means contacting the manufacturers or suppliers of these products and very often actually testing products by giving them a selection of future dates to process.

When it comes time to track down non-compliant dates in the code, locating them is not as simple as one might expect and is further complicated by their vast numbers.

No business is an island in the modern world so Inco's success depends not only on achieving Year 2000 compliance within its own operations. but also within the supply chain and among its customers.

In addition to the Year 2000 Project Office, three subproject teams (Business Systems, Industrial Equipment, and End-user Computing) are managing the process of identifying all critical computer programs and computer-affected equipment.

Another, Supply Management, is tackling the question of supplier compliance and a parallel project, the Company-wide Network Project, is looking at personal computers (PCs) and network servers.

### **Industrial Equipment**

The Industrial Equipment Year 2000 team is

gets," said David Vitone, industrial equipment team leader.

Roy Manning, maintenance planner, likened the Oxygen Plant's Distributed Control System (DCS) to the lungs of the Smelter operation. He pointed out that if we lose control over the oxygen supply to the smelting process, all plants would cease to breathe and have to be shut down.

Testing of equipment that has been identified as critical is scheduled for this summer's shutdown. The final phases of the project involve: identifying the best remedies for non-compliant equipment; implementing the solutions; and testing everything to ensure the equipment works as expected. The target completion date to have critical and noncritical equipment meet compliance standards is the end of 1999.

"Understanding and awareness are our primary hurdles. To maintain projected levels of profitability every employee must support the program. Everyone must understand the danger of not meeting the deadline and everyone must understand the danger of using equipment which is not Year 2000 compliant," David stressed.

### **Supply Management**

The Supply Management subproject is communicating with suppliers of goods and services to the Ontario Division to determine whether any link in the supply chain is at risk.

In order to do business with Inco, suppliers and contractors to the Division must demonstrate that they have plans to ensure they will be in business in the Year 2000 and that their products can handle dates after Dec. 31, 1999.

"A problem with a supplier not being what is called Year 2000 compliant can become a major problem for the Division," explained Henry Salach, Inco Purchasing agent and one of the leaders of the Year 2000 Project. "For example, if a supplier of a critical product such as soda ash was unable to deliver, then we would experience serious operational and production setbacks." By the end of March, Purchasing will add a clause to all purchase orders and RFP's (Requests for Proposal), which specifies that products shipped to Ontario Division must be able to handle date calculations involving the Year 2000. On March 3, at the Annual Supplier

Information Session, Henry made a presentation about the impact of Year 2000, stressing the importance of addressing the issue and alerting suppliers that they will be asked to complete a survey which assesses their Year 2000 plans.

### **End-user** Computing

The End-user Computing subproject focuses on all users of computers no matter where they work in the Division.

Users understand best which programs are most important to their operation so they will be asked to identify which software programs are critical to their operation. These could be databases, spreadsheets or other programs. Each department or plant will also determine which of these will not function at the millennium rollover and be responsible for making any changes required to achieve compliance. The End-user Computing team will provide guidance throughout the process. One of the first tools the team will offer is a suggested set of criteria to assist in determining critical programs.

### **Business Systems**

The Business Systems team is addressing the compliance of the Divisionwide programs which manage such functions as payroll, hazardous materials, time reporting, benefits, staffrecords, vacations and some plant information systems.

Thirty-three systems have been identified as high and medium priority and these represent a whopping 2.4 million lines of code.

The project is progressing on schedule, having completed the inventory and assessment phases and is now involved in converting the code to handle the new century.

The target date for completion of these 35 sys tems is Dec. 1, 1998. The core team of eight will be calling upon expert users of these systems to assist with the testing phase which will begin some time in April. "No interruptions to any systems are expected while they are being investigated, converted and tested. Our work should be invisible to users," said Harry Hawkins, Business Systems team leader.



What happens after Jan. 1, 2000? The hope is that the only noteworthy event will be a Division-wide sigh of relief as it is realized that all critical systems are functioning.

However, due to the complexity of the problem, it is realistic to expect that some small glitches may occur.

Until mid-1999, the focus is on critical systems. Less critical systems will be addressed as time permits in 1999 and on into 2000.

working closely with the plants and mines where computer chips are hiding in a vast array of devices and machinery. Plant employees are carrying out inventories and assessing the relative critical natures of all processes

"We have to find where the problem exists. Everything with a microprocessor, or which is managed by computers, including control systems for many essential processes and lab and industrial equipment must be investigated. Drives on the skips, hoists, fire suppression systems and air quality monitoring systems are among our tar-

### **Company-Wide Network Project**

Sean Romenco heads up Ontario Division's component of the Company-Wide Network Project.

# 2000 deadline draws nearer

Starting in March 1998, all networked PCs and servers will be upgraded to compliant hardware, operating systems and standard software tools. This project is expected to be complete by October 1999.

# Want more Year 2000 information?

If you want more information on this topic check out the November 1997 issue of Triangle. And if you are hooked up to the Internet, have a look at one of the best Year 2000 sites: http://www.year2000.com. Your local library can also locate articles, which have appeared recently in popular magazines.

### What does Year 2000 compliance really mean?

The Ontario Division of Inco Limited has adopted this definition of compliance:

• "Year 2000 compliant means the ability of information technology, including without limitation hardware, software and firmware:

• To correctly and accurately, process, provide and/or receive, including without limitation calculating, comparing and sequencing, date and time data from, into and between the 20<sup>th</sup> and 21<sup>st</sup> centuries and the years 1999 and 2000, including without limitation leap year calculations; and

• To accurately process date and time data, when used in combination with other information technology, if the other information technology properly exchanges date and time data with such information technology."

In practical daily terminology, this means: • Handle date information before, during

# How does this affect me?

Year 2000 readiness is everyone's problem. It may affect your home, your workplace, your recreation. The issue is one that could touch virtually every aspect of our lives, if not successfully remedied.

Safety is a concern.

The compliance of equipment or programs which impact safety is a first priority for the Ontario Division.

Your work is an issue. This is a businessthreatening problem.

"The success of this project depends on the involvement, commitment and vigilance of all employees," said Marc Beaulne, Year 2000 Project manager.

"It is impossible to expect the Year 2000 teams to identify all of the problems so we are counting on everyone to bring anything they suspect may not have been investigated to the attention of their supervisor or e-mail Year 2000. Ask yourself, "What can I do to help solve this problem?"

and after midnight Dec: 31, 1999.

• Function accurately and without interruption before, during and after Jan. 1, 2000 without any change in operations associated with the advent of the new century.

• Respond to twodigit year date input in a way that resolves the ambiguity as to the century in a disclosed, defined and predetermined manner. Interfacing software must make the same century assumptions when processing two-digit years.

• Process 2000 as a leap year.

• Correctly handle date fields containing non-date information and correctly handle a date held in a non-field

• Correctly process any date with a year specified 99 and 00 regardless of other subjective meanings attached to these values.

# Advantages of winning the Year 2000 race?

An important factor for Inco is that companies which are on schedule to solve the Year 2000 problem have a marketing advantage.

Companies that successfully meet the deadline will not only continue in business, but also have a competitive edge.

They will have replaced, upgraded or fixed all essential systems and equipment. They will have inventories and evaluations of programs and equipment and will have streamlined operations by eliminating the nonessential.

## Year 2000 war stories

A petroleum company ran Year 2000 tests on an oil-and-gas production platform in the North Sea. In a simulation, an essential safety system for detecting harmful gases such as hydrogen sulfide got confused and shut down.

Produce Palace, a grocery near Detroit, sued the vendor of its point-ofsale and inventory system after the computer crashed more than 100 times trying to process credit cards with a Year 2000 expiry date.

For Marks & Spencer, the nightmare began with a tin of corned beef rejected on the grounds that it was 96 years out of date. The store is now auditing their 700-plus suppliers for compliance.

British Telecom has given its 1,800 core suppliers a warning that it will stop doing business with companies who can't guarantee their internal IT systems are Year 2000 compliant.

that a 24-10

The U.S. Defence Department's Global Command and Control System flunked a Year 2000 rollover test in 1997. In 10 of the 28 demos, either the software expiry date was activated or the machines froze.

Lufthansa announced that concern about the reliability of air traffic control systems and the legal risks has led them to ground flights for a 24-hour period between Dec. 31, 1999 and Jan. 1, 2000.

# How to reach the Year 2000 Team

If you would like more information or have comments about the Inco Year 2000 Project please e-mail *Year2000*. This address is valid for both MS Exchange and mainframe e-mail. You are also welcome to call any of the project leaders listed:

Inco's Year 2000 Team		
Project Manager	Marc Beaulne	x 8634
<b>Team Leaders and Champions</b>		
Business Systems	Harry Hawkins	x 5363
Industrial Equipment	David Vitone	x 5329
End-user Computing	Carol Eles	x 6044
Supply Management	Henry Salach	x 5438
Company-wide Network Project.	Sean Romenco	x 5825

## Inco's Year 2000 commitment

The company's operations are large and complex and computer systems and equipment are used extensively to accomplish thousands of tasks ranging from carrying out operations in the field to reporting financial results.

The Company initiated a program in 1996 to assess and address its overall vulnerability to 'Year 2000' computer-related date issues for its worldwide operations in light of its dependence on information technology, the sophistication of its computer systems and its interaction with third parties. This program will ensure that the Company's business systems and industrial equipment, including relationships with suppliers, continue to work effectively and accurately through the century date change." – Inco 1997 Annual Report

## Enter the Year 2000 Contest

The Year 2000 Project is looking for a logo to raise awareness of the Year 2000 problem. The logo will appear on a poster distributed throughout the Ontario Division and may appear on other Year 2000 publications. The Inco logo is not being redesigned; this is a special logo for the Ontario Division Year 2000 Project. Here's how to enter:

- Send your logo design to David Brazeau, Public Affairs, Inco Limited, Copper Cliff, ON, POM 1NO.
- All entries should be on 8 1/2" x 11" paper
- Put your name, address and phone number on a separate piece of paper. Do not put your name on the artwork.
- Any media may be used (crayons, ink, watercolor etc.)

### Prizes

- First prize A Hewlett-Packard Pentium computer with MSOffice 95 and one-year access to the Internet.
- Second prize A family pass to Science North for one year. This prize is awarded on the basis of a draw.

Who is eligible?

- Employees, pensioners, their children and grandchildren are eligible.
- Year 2000 Project Office members are not eligible.
- The winner of the computer is not eligible for the second prize draw.

Deadline for Entries: April 17 at 4:30 p.m. . Winners will be notified April 22.

# **Inco's Year 2000 Priorities**

The mission of the Year 2000 Project is to ensure that the effect of the Year 2000 will:

Cause no Divisional safety or environmental incidents Have no impact on our customers and Have minimal impact on cost and production.

# Year 2000 FAQs (Frequently Asked Questions)

Q: What can I do to help Inco become Year 2000 compliant? A: Don't assume someone else will identify a potential Year 2000 problem in your work environment. Read Inco's Year 2000 updates in Triangle, speak with your supervisor about how you can get involved.

Q: Is it okay for me to answer questions from outside sources (e.g. suppliers) about Year 2000?

A: No! Because of the complexity of the problem and the potential legal and financial ramifications all inquiries from outside parties should be directed to the appropriate Year 2000 Team Leader.

Q: What if I'm asked about how prepared Inco is for Year 2000? A: You can say with confidence that Inco was one of the earliest Canadian corporations to plan its attack on the so-called 'millennium bug' and that the Ontario Division's plan is well underway.

# **Production is improved, costs way dc**



### (graphic by Jiggs Sauve - Inco)

Load Haul Dump (LHD) scooptram productivity has increased 46 per cent since 1986 - much of that improvement can be attributed to the use of newer, leased scooptrams since 1992.

easing is better than owning – at least when it comes to scooptrams and other underground equipment.

Leasing the large underground ore haulers, which can cost about \$800,000 each, al-



need a repair," said George Leduc, production miner at North Mine.

In his 28 years with Inco, he's found that like a car, a new scooptram is more reliable and does a better job than an old one.

We used to keep them until they were 10 years old or more. The metal would crack. We'd keep them until they had metal fatigue," George said.

"They'll save us money because the newer scoops spend more time making production instead of being in for repairs."

And that, of course, is the whole point of moving from owning and maintaining our own fleet of scooptrams in favor of leasing new ones and replacing them every few years, said Len Kitchener, senior advisor in Mines Research, which manages the replacement of scoops.



**Dave Neilson** 

"We get rid of the equipment when we should get rid of it now for financial reasons. We don't have to put out big bucks on major components."

Suppliers now keep expensive spare major components, such as \$40,000 axles, instead of Inco having to warehouse them, Dave added.

New during the last two years to the leasing program is a supplier's guarantee of maintenance-cost levels, which will also help reduce costs, Len said.

Leasing of LHDs, or scooptrams, started in the Ontario Division in 1992 and is now the norm at all mines when it comes to acquiring a



The Elphinstone LHD scooptr consistency and availability ( Division, as managed by Min



cause its all relatively new," said Richard Riach, senior specialist with Mines Research

**Richard Riach** 

lows Inco mines to get more production with fewer repairs.

That's because the leased, newer machines are those most utilized.

The scoop operators appreciate the value of using newer scoops on the job every day.

"When you'd bring in one of the older ones for a repair, it would take five days instead of one day because the mechanics would always find more to fix on them. The new ones we lease now are only in for a day or less when they

The same sort of savings apply to other leased, rather than owned, equipment in the Division such as jumbo drills, tractors, shotcrete equipment and explosives loaders.

'We don't keep the equipment for an excessively long time. Replacement is planned," Len said.

"The leases with suppliers are like partnerships - because after the lease expires on an LHD (Load Haul Dump scooptram) then it returns to them," Len said.

"These partnerships with suppliers are saving us money because there's an onus on them to encourage the best maintenance practices," he said.

At Stobie Mine 12 leased LHDs have been in use since late 1992 and the mine has seen savings of \$10.72 million in addition to major maintenance cost reductions, compared with owning scooptrams.

Here's how that extra total breaks down:

• \$6.46 million in operating costs

 \$400,000 in inventory savings

• \$1.25 million in garage expense savings

• \$2.61 million saved in capital rebuilds that were not required.

Dave Neilson, senior industrial evaluator, explained, new unit.

"Another good thing that happens is that the equipment becomes more uniform be-



#### Len Kitchener

"And everybody from operations to maintenance likes having equipment that is more available for use," Richard said.

There's simply more production made from each newer scoop.

North Mine mechanic Lucien Tessier said he doesn't see the same scoop coming into his garage as often as he used to only a few years ago, when Inco bought its own scoops and kept them as long as possible.

The older ones used to run until they were cracked. When our scoops got older they'd be in here every second day," said the 32-year Inco employee.

Good maintenance of old equipment can only do so much, but even in that regard North Mine has had the advantage of an excellent main-

# n – thanks to new, leased scooptrams



a favorite among operators who appreciate the ver equipment provided through the leasing policy of the search.



very much approves of the leased equipment. He said leasing allows inco to have much newer scooptrams in use and that translates into fewer repairs and more production.

**Mechanic Lucien Tessier** 

**LEASING VERSUS OWNING** 

There are several cost reductions as a result of leasing scooptrams, rather than owning. Among them are:

Saves capital.

 Fewer rebuilds – New machines last longer and are more reliable than those owned and kept in service longer.

 Lower fuel and tire costs versus those of a larger mixed fleet – Due to increased machine productivity.

 Maintenance labor and materials costs – Reduced as a result of fewer repairs and breakdowns.

Capital spares reduced – Suppliers are now responsible for capital inventory.

 Makes suppliers more accountable – This has resulted in performance guarantees and made suppliers interested in the maintenance of equipment that will return to them.

 Makes mines more accountable – The leased scoops are listed as an operating expense for each mine and there is an obligation to return them in good operating condition.



Production Miner George Leduc, also of North Mine, said he and other scooptram operators get a lot more use out of the equipment before its tied up in maintenance or repair work. It's like having a new car, George said. The newer scoops just run longer and better.



# Lands For Life is about your land

BRIEFS

Do you enjoy hunting, fishing, snowmobiling or the outdoors in general? Even if you don't, just being employed with a mining company will make a forthcoming Lands For Life public session relevant to everyone at Inco. An April 9 Ministry of Natural Resources hearing at the Four Points Hotel welcomes views from the public on land use and land use restrictions being considered by the provincial government. "We, as a company, need access to all public lands for potential future exploration," explained Ed Debicki, manager of Inco Technical Services Limited. "But anyone with an interest in the mining industry, hunting, fishing, trapping, snowmobiling or camping might want to be there to make their views known before some lands are potentially restricted from some or all of these activities." General public input is scheduled from 9 a.m. to noon.

tenance program. Having new equipment is also more safe, in terms of

daily operations but also in repairs, said **Tim Lauber**, safety supervisor at North Mine.

"When you don't have people crawling all over the equipment all the time, there's fewer chances for injuries from getting hands pinched and that kind of thing."

George also appreciates the safety value of having a newer scoop to operate.

"I like the cabs on them." Richard said the cabs make fora "much nicer working environment and it's safer too."

As an LHD operator himself, George said there's even a comfort factor to operating a newer scoop.

"They ride a little smoother. That's how it is with anything new."

# Slipping is a year-'round hazard

As winter slips away make sure you don't slip along with it.

Just because the snow is melting doesn't mean there aren't any slip hazards remaining.

A wet surface can be as slippery as an icy one.

Here are a few tips to consider in trying to prevent slips and falls where you work and live:

Wear footwear with a good grip, suitable to your work.

Use abrasive strips to increase traction.

Post signs to warn of icy, wet or otherwise slippery areas.

 Clean up spills promptly. If the clean-up will take some time, post a warning sign, add lighting or otherwise draw attention to the hazard and notify the proper authority to have the area cleaned up.

#### 8 March 1998

## EDUCATION & INCO

# **Cambrian students learn at Div Shops**

### By Dave Rollins

wenty-five students from Cambrian College's industrial maintenance course recently visited Divisional Shops to get a better idea of what they might face once they're in the workforce.

"The tour was very educational," said Gerry Levesque, Cambrian's industrial maintenance program coordinator.

He said it gives the students a valuable look at "the big picture" to see the equipment operating on a larger scale.

Student Tina Filion said Cambrian College doesn't have a lot of the equipment she saw at Divisional Shops and much of the equipment they do have at the college is tiny compared to what's used in the industry.

"We get to see it here in the actual scale," she said.

Student Shane Porteous said the tour "puts every-thing in perspective," because much of the course is textbook and theory.

Theory is fine, but you don't actually understand it until it's in front of you," Ms. Filion said.

Pierre Lalonde said the tour gave him an idea of the level of technology he could expect to see once he entered the workforce.

"At school, the equipment is different," he said.

"It takes forever to reset the machines for a job, which is the worst part of it, really."

Mr. Lalonde said while he would like to work at Inco one day, if he could, he's ready to "take it as it comes. If you get in, you get in and

"Here's something you might be familiar with," Len Hirvela says as he points out a gear to Jason Tierney, a Cambrian College student, during a tour of the Divisional Shops warehouse.

if not, you find something else. If I can't get in at Inco I'll be looking at a few places around Toronto."

Another student with his eye on Inco was Jason Tierney.

He said he's been training hard to be in top shape so he can pass the physical requirement to one day work at Inco.

"We'll see," he said. "It'd be nice, that's for sure."

Dave Rollins is a Cambrian College journalism student on an educational placement with Public Affairs.

Paul Berube, a heavy-duty equipment mechanic in **Ontario Division's Central Repair Depot, explains the** process for rebuilding heads to a group of industrial maintenance students from Cambrian College.



# **Graduate shows** students the shop



Lynne Descary, an 11-year employee and one of the first women in the trades at Inco, takes a measurement in the machine shop at Divisional Shops.

ne of the Inco people Cambrian College industrial maintenance students were able to talk to during a tour of Divisional Shops was Lynne Descary, 11-year employee

too many problems because she didn't expect anyone to change just because she was there.

"Coming into a male-dominated workplace, you have to accept them and their ways without letting them walk all over you." She noted that her machine shop co-workers are a good group to work with. Lynne said the skills she learned in college became more useful to her in the last three years, after she moved from mills and mines to the machine shop.





**Jack Maskell** gives Cambrian College students, Shane Porteous and Guy **Boulanger the** benefit of his 25 years of experience at Inco, showing them how to set up a job on the engine lathe.

and one of the first women in the trades at Inco.

Because Lynne is a Cambrian College graduate herself, the tour quides made sure the students got a chance to speak with her.

One student in particular, Tina Filion, was encouraged to talk to Lynne.

"They made sure I talked to Lynne, since I'm the only girl in the class," she said. "It was supposed to be inspirational, and I guess it was."

She explained it was good to know there's room in the industry for women and get an idea of what she's going to have to deal with from the men once she's out there.

"But if I can deal with these guys (her classmates), I can deal with anyone."

Lynne said, while entering a male-dominated field wasn't an easy chore, she didn't have

"You do mostly alignment, rigging and installation in the field, while here it's strip and assessment work."

She said the intricate work at the shop is the kind of work she was trained to do.

Lynne said she likes her job because of the variety of work she does and the people she works with.

"Most of the people around here are willing to help each other out and share information. They're a good bunch."

# **Charting Division processes lowers costs**

P lotting the dots pays. Watching and charting various processes in the Ontario Division is one of the latest efforts being made to improve efficiency and lower production costs.

Nicknamed plotting the dots, results of careful process tracking don't take long to see.

Tom McDonald, acting production facilitator, said, "Plotting the dots has given us a running chart."

That may not sound significant but it's already saving more than \$500,000 a year at the Copper Cliff Mill in the reduced use of costly filter aid chemicals. Filter aid chemicals are used in the dewatering process of concentrate fed from Clarabelle Mill.

The Copper Cliff Mill takes concentrate from Clarabelle Mill, dewaters it and sends it to the Smelter.

"We cut our filter aid use in half. In 1997 we spent \$1 million on filter aid. So it's a savings of half a million dollars a year," Tom said.

That's on top of improvements in process efficiency at Copper Cliff Mill.

"We've increased our production from 30 to 40 tonnes per filter hour to 60 to 70 tonnes per filter hour. It means there's less wear and tear on equipment to get the same results."

The use of other equipment, such as pumps, has also been made more efficient simply by plotting performance on charts and spotting ways to maximize use and minimize costs, he said.

"It's a visual thing. It was easy to see where we could improve on our on-line systems (of process charts)."

Tom said the computer charts plotting the process dots make it clear when machines can be turned down without sacrificing any quality or quantity of the dewatering process.

"We measure density going into the filter. We found we were able to run half as much equipment to get as much production."

If your area isn't already plotting the dots, it likely soon will be, said **Joe Dippong**, senior advisor in Total Quality Management.

Joe said training sessions with employees are spreading the good word about plotting the dots.

"As we unroll the quality workshops it is very satisfying to see trainees becoming teachers."



Tom McDonald, acting production facilitator at Copper Cliff Mill, said plotting the dots on his computer charts is already saving more than \$500,000 a year at the mill in the reduced use of costly filter aid chemicals. Filter aid chemicals are used in Copper Cliff Mill's dewatering process of concentrate, which comes from Clarabelle Mill.

# Here's what to expect

Expected outcomes of the Quality process of plotting the dots are:

- Improved planning process.
- Ability to measure progress against plan.
- Increased process capability with minimum capital.
- Everyone working on adding value.

# Plotting the dots Q & A

Quality's Joe Dippong answers some common questions of the dot-plotting process. Q. Why are control charts so important?

A. "They are the clear voice of the process and will prevent you from responding to noise (normal variations in a process) while ensuring you do respond to signals."

Q. Must data show evidence of control prior to plotting it onto a control chart?

A. "No. One purpose of the control chart is to detect the presence or absence of a state of statistical control so don't wait, start now."

Q. What is the difference between attribute charts and XMR charts?

A. "XMR charts use empirical limits, while attribute charts use theory to construct limits. So while you are checking to see if your theory is correct I will be using XMR charts to improve my process. Who do you suppose will win that race?"



### End of an era

The Davis Street electrical substation switch was thrown for the last time, shutting down the last of the 25-cycle electricity at Inco's Port Colborne operations, at 3:30 p.m. on Feb. 25. 'It's the end of an era," says Jack Parker, maintenance technician. "We've been trying to get out of 25cycle power for the last 30 years. The Davis Street substation supplied power to the plant since 1928. Inco purchased the unit from Ontario Hydro in 1961. The old soda ash system was the last process to operate on 25-cycle power. Its recent replacement with an updated system operating on 60-cycle electricity, means the entire plant will now operate on 60-cycle power, which Jack says better serves Inco's present needs.

"Twenty-five-cycle power is like a dinosaur, and is obsolete," Jack says. "It's just not used in the industry any more."

## Try try again

## Family alive today thanks to detector

Carbon monoxide (CO) is colorless, odorless and le-

furnace, a mid-efficiency unit purchased over 10 years ago. The gas company was called, and found a buildup of scale and dust which was blocking the furnace.

Carbon monoxide poisoning is the leading cause of accidental poisoning in North America, with fatalities on the rise over the last five years. This trend can be attributed to fossil fuel burning appliances and modern building techniques. At least 80 per cent of all homes have at least one device posing a potential threat for carbon monoxide poisoning. One of those devices is the chimney. When birds or animals build their nests in the chimney, the furnace is improperly ventilated and carbon monoxide build-up results. Carbon monoxide can be produced by incomplete combustion of natural gas and other fuels. The symptoms of CO poisoning may be felt when there's just 100

parts of CO per million in the air.

Although Mike and Brenda felt only mild symptoms, carbon monoxide can be fatal. When a person breathes carbon monoxide the gas is absorbed into the bloodstream, and displaces and replaces the oxygen. Often, the result is damage to the heart, brain damage and coma leading to the death of the victim. Every year more than 1,700 people die from accidental CO poisoning and more than 10,000 others are treated as a result of exposure to high levels of carbon monoxide. Mike bought the alarm several years ago through Inco, which subsidized half the \$54 price tag. Little did he realize then, it would save his family's life. He now encourages everyone to install a carbon monoxide detector in their home.

## for success

If you don't succeed at first, try, try again.

That's the motto **Larry Slow** and his fellow employees of the Nickel Processing department use in trying to win the Safety Smart slogan contest.

Larry continually submits suggested captions for the safety and thinking slogan contests in the Safety Smart Employee Safety Magazine.

Although he has won second prize twice before, Larry's recent submission won first prize and \$100 in the Winter '97 issue of Safety Smart.

Congratulations Larry, keep thinking safety.

thal.

While the CO often goes unnoticed, a carbon monoxide detector recently alerted **Mike Hili**, a cobalt operator at the Port Colborne Refinery, and his family to the deadly gas pouring into their home.

"I walked into work, and the phone was ringing," recalls Mike, who says his wife had called the fire department.

"Just after I left, the alarm went off."

Mike remembers feeling sluggish the previous few days, while his wife, **Brenda**, was suffering from headaches. Sluggishness and headaches are classic symptoms of carbon monoxide poisoning.

Mike's problem was the

"It was a small price to pay," Mike says.

# Muscle coordination is a From the Occupational Medicine Dept. key to safety at work and home

### by Heather Wallingford

If the muscles of our body are working properly they will react the way we want them to with little effort or thought and will help us to react safely when unexpected things happen. This makes us more efficient and safe.

YOUR HEALTH

If the muscles of our hands are working properly we will be able to do things efficiently and decrease the risk of injuring one of the most important parts of our bodies.

Poor coordination of our hands can lead to injury, accidents, equipment damage and cost us and the company that we work for a lot of money.

#### Many things affect our coordination Natural ability

FOR

Have you ever wondered why some people are natural athletes and can learn new skills very easily, while most of us have to practice a lot before we master a new physical skill? There are still others who are clumsy, who have great difficulty learning physical skills even with practice and always

seem to be hurting themselves or breaking and spilling things.

The well-coordinated person can usually pay attention to several things and still perform well physically and so tends to stay out of unsafe situations or does the right thing when in an emergency.

Poorly coordinated people can usually perform well when paying attention and everything is going well for them but have difficulty doing things safely when other things are happening around them or in their life.

Whether we are naturally well coordinated or not there are things that we can do to improve our coordination and make it less likely that we will get injured or get into an accident.

Improve coordination by:

- Keeping fit
- Getting enough sleep
- Eating properly

 Minimizing your alcohol intake.

### Keep fit

There are several aspects to fitness. If we have some muscles that are strong and others that are not used very much, we are over-using one group which leads to repetitive strain injuries. Balance of strength of long muscles and some flexibility is essential for good coordination and avoidance of repetitive strain injury. Strength of short muscles that stabilize each joint, protects the joint from injury, uses less effort and improves overall strength. Endurance delays fatigue and improves your circulation.

Do 10 to 20 minutes of exercise every day for the short muscles that stabilize your joints.

Do a continuous activity for at least 15 minutes a few times a week, such as walking, riding a stationary bicycle, swimming or cross-country skling to keep your heart fit so that you have some endurance.

Eat properly

Our bodies and our brains need a balance of nutrients, water and oxygen to work efficiently.

The food we eat is what the body uses for nutrition for the muscles and nerves. If there are not enough vitamins, minerals and other essential nutrients our muscles and nerves do not fire efficiently which decreases our coordination, endurance, attention and mood. Eating properly increases your energy.

Here are some nutritional tips:

- Eat breakfast to provide some nutrients to the body.
- Eat several fruits and vegetables every day.
- Drink at least eight glasses of water a day.
- Do not eat much fat, which is an energy robber.
- Do not eat much sugar, which is quick energy but soon robs your energy.

 Get onto an eating plan to lose weight, for those who are overweight. The extra weight gives every part of the body extra work and puts

coordination at a mechanical disadvantage.

#### Keep your stress to a minimum

Stress is usually from things that we cannot do anything about. When we are in control we usually consider it a challenge. Challenges increase our energy and enhance our coordination.

Stress, on the other hand, increases the tension in the muscles, which makes us less well coordinated.

It also puts us into our fight or flight reaction mode, which causes us to over-react. Both of these aspects decrease our coordination, efficiency and our safety.

When we have things that are bothering us they often are in our thoughts and distract us so that we are not paying as close attention to what we are doing, which also decreases our safety.

There are some people who are naturally more calm and oth-

ers who are more tense. Learn and use techniques to relax at least once a day. With practice we can do this in a few minutes. For those of us who are tense, it is very important to learn techniques and ways of thinking that will help manage stress.

To keep stress to a minimum, we should only worry about the big issues that we can do something about. Keep in mind that the only thing that you can really change is yourself and the way that you think.

Make a list of all the things that bother you that you can not change and stop thinking and talking about them. Making a plan for the things that are troublesome that we can change and working toward changing them puts us in more control of our stresses.

Getung some counselling can also help us to relax.



### Get enough sleep

If we are tired we are not as well coordinated and do not have our usual endurance. We also have difficulty paying attention, especially if we have other things on our minds. The amount of sleep that you need is different for each us. At least six hours a night is recommended for good health.

Try to get at least six hours of sleep a night. We may need seven-anda-half or nine hours if we are doing physically-demanding work. This does not have to be all at one time, but should be in 90-minute cycles so that the body and the mind are rejuvenated. Waking up in the middle of a 90minute cycle makes us feel worse than if sleeping less. It is possible to make up loss of sleep if it is done within a week or so. No time for 90 minutes of sleep? Then take a 10 to 20-minute power

nap. These are refreshing for a short time. More than 20 minutes and less than 90 minutes will usually leave us feeling mentally and/or physically tired.

Difficulty getting to sleep? Get some help as there are many things that you can do to help you get to sleep.

Those of us who snore and hold our breath have sleep apnea, which robs energy in the short run and causes serious health problems over time. Go to the family doctor and get a referral to the sleep clinic for help.

出口 新学生 计指示

### Alcohol and drugs

Even one drink has an effect on our reaction time. Drugs and alcohol change the chemistry of our brain and our nerves so that they do not react as quickly, which effects our attention, our muscles and our balance. They also cause unpredictable changes in our thoughts and our mood.

### Summary

To improve coordination:

• Do at least 15 minutes of exercise a day for short muscles and long muscles.

• Do 15 minutes of exercise a day for the heart at least three times a week. • Get at least six hours of sleep in 90-minute cycles.

 Take 10 to 20-minute power naps, if 90 minutes is too long. • Eat nutritious meals, especially breakfast.

• Cut back on the energy robbers - fat and sugar.

 Learn and practice relaxation techniques every day. • Get some counselling if needed.

• Decrease the amount of alcohol consumption.

• Remember, a happy, well-rested, well-nourished person, who is not all stressed out, is not only safer but is a joy to be around.

# LET'S TALK SAFETY with Ron Rafuse Is it an accident Or a risk?

Over the past few years in the safety articles it has been stated there is only one way to do the work, and that is the safe way.

There is no choice between production and safety, because the only way to produce is safely. Yet people continue to get injured and incidents of high potential continue to happen.

This same issue faces us in all areas of everyday life, from highway accidents and snowmobile fatalities to home accidents.

Can we really call it an accident when a person who had training, knowledge and skills decides to make a choice and take a stupid risk? An accident is defined as an unavoidable act of fate.

People often think, "It cannot happen to me."

If anyone can prevent the event from happening by evaluating the situation and using skill, knowledge and training, then it can be avoided by making the right choice.

Every day, each of us finds ourselves in a situation where we consciously or unconsciously make a choice about what we think is a risky event.

For example, the choice you make about wearing a seat belt, running that yellow light, or how close you follow the car in front of you.

Constantly, choices are made as to whether or not something is a risky event.

The question is where do you draw the line in making these personal choices each day?

By taking the time to evaluate each situation and make the right choice, it will reduce the likelihood of an injury or incident.

The personal choices each of us make with risk can be influenced by the attitude we have at the time. In many cases on the job, it is the level we think our supervisor will accept.

With automobiles and recreational equipment people start to drink

alcoholic beverages and soon the ability to make the appropriate choices disappears.

Every day we make choices and decide if the risk is to be taken. There is some risk in everything we do and everyone must be aware of this. The risks have to be evaluated and choices made that allow us to reduce the risk of injury and incidents.

> The tools used to make these decisions in the workplace are rules, standards, training, equipment and knowledge or skill. But the final thing you need to ask yourself is, do I have the right attitude to prepare myself for making the smart choice in this situation?

> As spring approaches, it brings with it sunshine and a different breed of vehicle to our streets and highways called the motorcycle.

> One of the most common causes of motorcycle crashes is being cut off by another vehicle.

> Don't pull out in front of an oncoming motorcycle. It is hard to judge the speed at which it is traveling and the driver may not be able to slow or swerve without losing control of the bike. Don't tailgate a motorcycle or cut in quickly if you pass. The motorcycle can go out of control very quickly by such things as a change of road surface. Spills on bikes can mean serious injury or

death for the rider.

Motorcyclists, on the other hand, must remember to signal properly. Do not dart in and out of traffic putting yourself in danger from larger vehicles and always wear the required protective riding gear, including a proper helmet to protect against head, face and brain injury.

Always remember that by making the proper choices and evaluating each situation, injuries can be prevented.

Ron Rafuse is superintendent of Safety in the Ontario Division



Name	Date of Birth	Date of Death	Years of Service	Name	Date of Birth	Date of Death	Years of Service
Armond Belanger	03-29-40	02-23-98	34	Ovilla Latendre	01-29-19	02-27-98	25.3
John Bertin	08-12-17	02-22-98	28	Hermini Leclair	06-10-22	02-10-98	36.5
Harry Bihun	11-30-19	10-23-97	28.5	Maurice Leonard	06-24-25	02-06-98	- 29
Ray Bowhey	08-19-23	02-18-98	29.5	Sergio Mancinelli	04-26-29	02-03-98	35



William Bowie	10-14-22	02-08-98	25
Arden Buell	07-04-23	02-06-98	43.5
Laindon Burnett	08-01-33	02-28-98	30.5
Joseph Carrey	07-19-16	02-17-98	40.5
George Cloutier	03-16-30	02-27-98	31
Eldred Dickie	06-06-09	02-07-98	39.3
Angelo Dirocco	12-18-22	02-05-98	34.5
Boris Harbulik	07-29-20	02-13-98	21
Omer Jean	07-10-17	02-18-98	31
Earnest Kilroy	01-13-14	02-02-98	38.5
Edward Lamirande	10-05-25	02-19-98	38

Donald McDonald	05-14-01	02-24-98	34.8
John Mohan	02-27-29	02-15-98	31
Konrad Muth Jr.	09-08-30	02-27-98	39
Bruno Polano	12-26-14	02-04-98	42
Joseph Predon	06-27-28	02-25-98	30.5
Mike Ricci	05-05-05	02-06-98	36.7
Jean Rivet	05-20-17	02-13-98	30.5
Simon Sheehan	01-25-14	02-04-98	38.7
Laurier St. Aubin	06-21-19	02-25-98	35.5
Wilfred Thivierge	02-04-25	02-05-98	25
Arthur True	04-11-18	02-21-98	36.5

# Inco scholar has come a long way

By Dave Rollins

Aron Marsaw has come a long way since he earned an Inco scholarship in 1992.

The son of Wes Marsaw, who recently retired after 38 years with Inco, Aaron graduated from Laurentian University with his degree in Political Science and Philosophy. Then in 1995, he was the first Laurentian student selected for the prestigious Rhodes Scholarship.

The scholarship allowed Aaron to spend three years at St. John's College in Oxford, England, working on his Master's of International Development Studies in Philosophy.

He says he'll be finished his master's in July and his next step is law school at the University of Toronto, which has also offered him a scholarship to study there.

Wes says the University of Toronto contacted him first and told him they were going to offer Aaron the Newton Rowell Award scholarship, because of Aaron's high academic standing and community involvement.

"They called him, he didn't apply for the scholarship," Wes says.

Wes says this scholarship is just icing on the cake because U of T was Aaron's first choice of the law schools he applied to.

The Newton Rowell

Award is given to three students per year and was set up by former Lt. Gov. Hal Jackman, in memory of his grandfather.

The selection process for the award takes into account a student's charity work.

"Aaron certainly qualifies there," said Wes.

Aaron has done a lot of work with local charities, from entertaining terminally ill cancer patients by playing classical guitar for them, to doing lectures at elementary schools for the Canadian National Institute for the Blind. Aaron is legally blind as a result of a benign tumor found when he was 12 years old.

Aaron says, in a telephone interview from Oxford, he was surprised to receive the scholarship. He didn't think the university gave any scholarships to first-year students "or at least not very many."

According to Wes, "It was a stroke of luck."

Aaron says while he may experience a little culture shock switching from Oxford to Toronto, he's looking forward to studying in Canada again.

Canadian universities are much more structured than British ones, Aaron says. In Canada, a student has to do tests and assignments regularly to earn a certain number of credits each term, while at Oxford he's given reading lists and assignments and then has to wait until the end of the year to be assessed. He says, while he's not looking forward to writing tests and quizzes again he is "looking forward to studying under the structure I'm familiar with.

"That will be refreshing."

Also, in Toronto, he expects "less formality than here at Oxford."

Aaron says he'll be happy to leave behind certain traditions, like "High Table," a table for the professors which is a foot higher than the student's tables for the times when students and professors eat together.

Toronto itself is much different, according to Aaron, who has been down there on several occasions.

"Toronto is a much bigger city than Oxford," he says. "In Oxford you can pretty much walk everywhere you want to go, while in Toronto you have to use the subway and buses."

Aaron says he plans to continue getting involved with the community once he's in Toronto, but will probably stick to the university community, like participating in clubs, until he has a better idea of his new school workload.

The thing Aaron says he's most excited about, right now, is studying law.

"I'm very interested in the different issues involving law, both national and international," he says. "I'm especially interested in international law and development."

After he's graduated, he says he hopes to work in international development, working on build-



Rhodes scholar Aaron Marsaw has been given another honor – this time from the University of Toronto.

ing relations between Canada and Latin America. Back when Aaron won the Inco scholarship, Wes jokingly said, "You should shoot for Rhodes once you're in university, Aaron."

Wes says Aaron's come a long way since then.



Science North's Rob Gagne meets one of the miners at the Mining Show. The science centre plans to update the 10year-old exhibit, which features much of Inco's mining history and the importance of Sudbury in the world as a nickel producer during the past century and into modern times.



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