

INCO TRIANGLE

VOLUME 25

COPPER CLIFF, ONTARIO, AUGUST, 1965

NUMBER 5

A Rainy Day at Bell Park





Published for all employees of The International Nickel Company of Canada Limited.

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Editorial Office, Copper Cliff, Ont.

Authorized as second class mail by the Post Office Department, Ottawa, and for payment of postage in cash.

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Lloyd Sleaver

In excellent health after 38 years of service with Inco, Lloyd Sleaver of Copper Cliff decided to take an early service pension and enjoy leisure while he was still able.

Reminiscing for the Triangle, Lloyd stated that he was one year old when his father was killed in a logging accident in 1905 in St. Charles. "There were six children in the family and five of us went into an orphanage in Toronto while my mother came to Copper Cliff with the youngest and found work at the Yellow Club as housekeeper. When I was nine my mother remarried and brought us children to Copper Cliff. We came on the train to Copper Cliff station and I got a big kick out of riding in the two-horse surrey with the fringe that shuttled between the station and the town.

"I left school when I was 17 and got a job at Cameron Falls



Mr. and Mrs. Sleaver

with the Ontario Hydro as cook's helper. We were cooking for about 1,000 men and I had to get up at five in the morning and mix the powdered milk, called Klim. I had to mix about 100 gallons of the stuff. After breakfast I helped with the dishes and then it was time to mix more Klim for lunch and after that for supper. After a year of Klim and dishes I decided to try my hand at driving logs on the Sauble River and I enjoyed that about as much as the Klim so I came back to Copper Cliff and got a job with Inco in 1923. I started on the blast furnace dumping floor."

In 1926 Lloyd headed for Detroit but found no work and the next year he returned to Copper Cliff



NEVER UNDERESTIMATE THE POWER OF A WOMAN

Nickel Park, lush with summer beauty, was only a couple of blocks away, but up at the top of a hill of bare rock, in the glare of a noon-day sun, sat three little girls. "What on earth are you doing up there?" a man called up to them. "We are eating our lunch," one replied. "Well why are you eating your lunch there?" the man persisted, although he should have known better. The answer was a gem of baffling feminine logic: "We are having a picnic." Brenda and Sharon Pollock, who live in Copper Cliff near the rock hill, and their guest Annabelle McMaster from Hanmer, were the young ladies. The man will remain anonymous.

where he was rehired as a laborer in the converter building. He became a brakeman in 1928, a trolley puncher in 1929 and was a converter skimmer from 1930 to 1942 when he was promoted to shift boss on the copper converters. He became general foreman of the converter building in 1955 and retired in that capacity.

Lloyd was married to Alice Chambers in 1930. The Slevaers have four sons, William a teacher, Lloyd junior in Montreal, John a pro hockey player with the Toronto Maple Leafs, and George in the metallurgical department at Copper Cliff. They have three grandchildren to date.

Mr. and Mrs. Sleaver are considering a move to Whitefish to live, which would locate them closer to their summer camp on Lake Penage.

At a big retirement party at the Copper Cliff Legion hall Lloyd was presented with a purse of money and a beautifully machined model of one of the converters that were such a familiar sight to him for almost 40 years.

Men have been getting sissier ever since they quit striking matches on the seat of their pants.

Arthur Reid

Born in 1910 in French River when the town was a booming lumber centre, Arthur Reid was four when his family moved to Toronto and seven when they struck north again to settle in Massey.

Retired recently on disability pension due to a heart condition Arthur and his wife Gertrude are looking forward to returning to Massey to spend their retirement years in that peaceful and pleasant town on the Spanish River. Leaving school at 17, Arthur



Mr. and Mrs. Reid

spent four years travelling from one job to another until in 1931 he decided to seek a higher education and attended Normal School

in North Bay. Armed with his second class teaching ticket in 1933, Arthur returned to Massey to join the school staff and marry Gertrude Karau. In 1937 a hard look at the economic situation proved to Arthur that he could earn three times as much as a miner so he pulled stakes and moved to Sudbury to start work as a nipper at Frood mine. In 1952 he became a steel sharpener, the job he held when he retired.

The Reids have three sons, Fred and Arthur at Creighton mine, and Patrick, employed in Sudbury. They have three granddaughters. A quiet man, Arthur enjoys reading and a good game of chess. He is looking forward to having a garden to tend at their new home in Massey.

Walter Fowler

The Triangle talked to Walter Fowler recently on the occasion of his retirement from the Company on service pension.

"My father came from London, England, and often told me of the times when he would be returning from work around midnight and would hear the bobbies shouting, 'Jack the Ripper strikes again,' and he would see the shrouded victim lying in the street."

Born in Montreal in 1900, Walter started his apprenticeship as an electrician in 1917. On holidays in the Laurentian Mountains he met Winifred Frankton, whom he married at Montreal in 1926.

Walter and his bride moved to Sturgeon Falls where Walter took



Mr. and Mrs. Fowler

charge of the winding shop at the Spanish River Pulp and Paper Company mill. In 1930 when the plant closed down Walter was transferred to the five-family town of nearby Crystal Falls as a power house operator. In 1934 through a tip from a visiting fisherman Walter got a job at Inco as an armature winder in the electrical shop at Copper Cliff. In 1966 he was promoted to foreman, the position he held at the time of his retirement.

Spry as a cricket at 65, Walter has been an outdoorsman all his life and has had a camp on Onaping Lake for the past 23 years. His carefully groomed house and garden on Cochrane Street in Sudbury and his camp will keep him busy summers, while building a boat in his basement is slated for the coming winter. A trip to England is being considered for 1966 to visit Mrs. Fowler's relatives on that side of the water.

The Fowlers have a family of two; daughter Mrs. Winifred Page and son Norman who works for the Inco mechanical department in the shops at Copper Cliff.

Walter said it himself, "I feel as fit now as I did 20 years ago, there's lots of work left in me yet."

INCO FAMILY ALBUM



A carpenter at the Nickel Refinery, Port Colborne, Elio Concessi is a great do-it-yourself man, having built and finished three fully modern homes. Here he is in the third one with his wife Margaret and children Diane, 12, Michael, 6, Catherine, 10, and Laurei, 2.



Coach of the Thompson Tigers baseball team, and a home movie expert, Bernard Champagne is also the head of a fine family, as this picture shows. With him and his wife Doris are Jo-Anne, 10, Laureen, 11, Bradley, 1, and, in front, Brian, 4, Warren, 6, and Wayne, 2½. Bernard is with the mechanical department's concentrator crew.



Surrounded by their nine children, Ron and Theresa Delorme can well be proud of their wonderful family. Ron works as a fluid bed roaster operator at Copper Cliff and has been with Inco since 1948. Seated, left to right, are recently wed daughter Susan Lepage, Mrs. Delorme with Kevin, 1, Ron with Craig, 3, and Debora, 7. Standing are Brenda, 16, Gail, 14, Garry, 12, Brian, 10, and Bruce, 9.



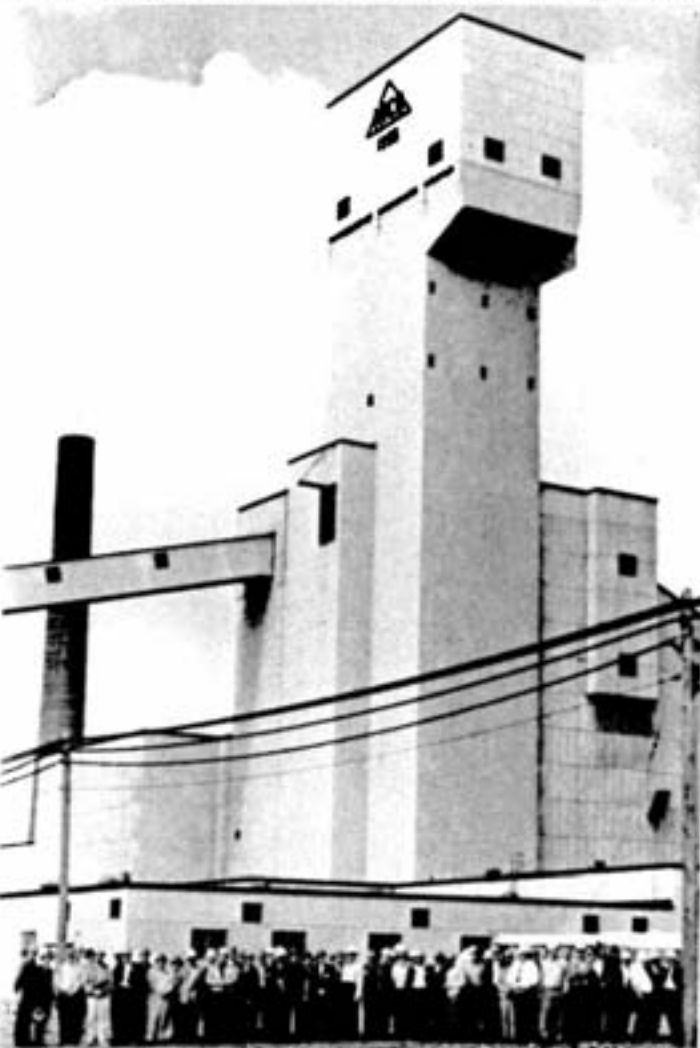
"Being the only boy in a family of five you can bet that young Michael gets a lot of attention from his sisters," said Reg Lalonde. Reg has 14 years' service with Inco, the first two at Copper Cliff in the reverb building, the last 12 as a stope leader at Frood mine. Their happy children are Diane, 10, Michael, 5, Lillian, 12, Joanne, 15 months, and Michael's twin, Monica.

(Left) A safety engineer at Creighton mine for the past year and a half, Bill Moffatt has also worked at both Copper Cliff and Frood mine during his 15 years with Inco. The Moffatts have a home in Sudbury but during the months of July and August they move out to their camp on Black Lake to the fresh air, sunshine and sailing. Seated behind Bill is 10-year-old Tom, centre is Donald, 7, and completing the picture is Bill's wife Sophie.

(Right) Pat Poland was eight years with the police department in Copper Cliff before being transferred to the security detail at Murray Mine where he has worked for the past six years. A smart new house in the Robinson subdivision, Sudbury, is home to this happy family. From left to right in the picture are Pat's wife Jenny (daughter of Coniston's Bill Curloak), Patrick, 9, Pat, Carol Anne, 10, and Danny, 7.



Mining and Industrial Executives Impressed by Thompson's Progress



On their tour of the Inco plant at Thompson the Alberta and Northwest Chamber of Mines & Resources group posed for a photograph at the base of the 264-foot mine headframe.



Photographed at Thompson airport shortly after the arrival of the tour's big DC6B were G. H. Finland, manager of the Chamber of Mines; Doug Ross and Arne Sorenson, respectively secretary and president of Thompson Chamber of Commerce; H. E. Lake and W. M. Gilchrist, respectively vice-president and president of Eldorado Mining & Refining, Limited, Mr. Lake also being president of the Chamber of Mines.

Seventy five prominent executives, representing many of Canada's leading mining and industrial companies, took a good look at Thompson July 5 on the tour arranged by the Alberta and Northwest Chamber of Mines and Resources.

Flying from Edmonton their plane, a DC6B, was the largest yet to land at Thompson airport.

The visitors expressed amazement at the development which has taken place within only a few

years at Manitoba's great young nickel city.

They were taken on a conducted tour of the International Nickel plant. Jeff Hamilton, industrial development commissioner for the City of Edmonton, said, "I speak for our entire group in saying we are tremendously impressed by this large and very modern and efficient operation. I wish we had it at Edmonton."

Entertained at the Thompson Inn by Inco and the Thompson



H. W. Peterson, general manager of Inco's Manitoba division, and Honorable Sterling R. Lyon, QC, Manitoba minister of natural resources, shown at the buffet dinner given by the Thompson Chamber of Commerce.

Chamber of Commerce, the visitors were welcomed by H. W. Peterson,



STU HAMILTON

Young Stars Staged Real Cliff-Hanger

Although Bruce Brewer of Toronto played beautifully precise golf to win the International Nickel trophy in the annual invitation tournament at Sudbury's Idylwyde course, a couple of young fellows locking horns in one of the semi-final matches stole the spotlight.

Sandy McAndrew of Copper Cliff, who was the tourney's low qualifier with a sparkling 70, tangled with Stu Hamilton of Brampton, the youngest member of the Ontario Willingdon Cup team, in a match that kept a big gallery simmering in hushed excitement.

Both power hitters, the fine young shotmakers played a bold, attacking game. Hamilton thrust into the lead and was four up after the 10th hole but McAndrew staged a brilliant comeback, winning five

general manager of Inco's Manitoba division, and heard an enthusiastic address by Honorable Sterling R. Lyon, QC, minister of mines and natural resources, who described the industrial potential of northern Manitoba in terms of the Nelson River power project, an intensified government-sponsored geological survey, a new miner training program, and the opportunities for such industries as a pulpwood plant.

After a buffet dinner, featuring a variety of Manitoba fish and attended by 112 guests and townsmen, colored picture slides of the early days of Thompson were shown. Several of the visitors managed to work in an enjoyable hour's fishing at Paint Lake.



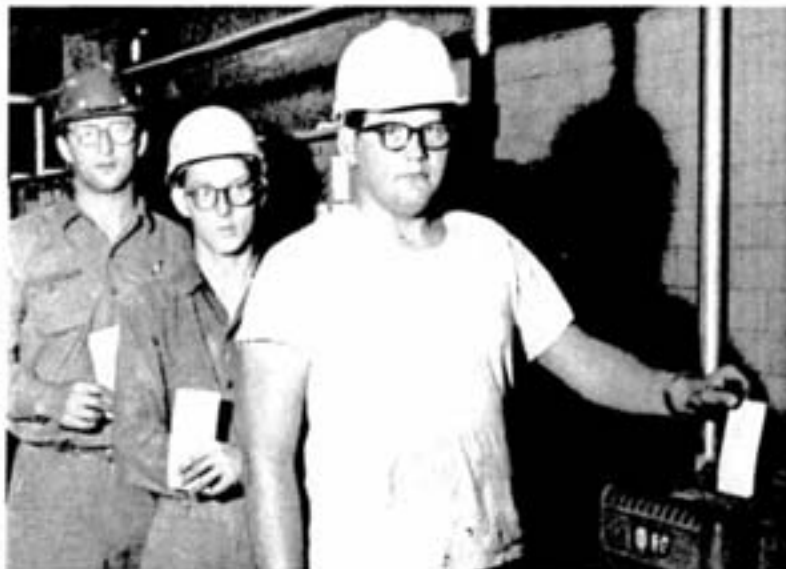
SANDY McANDREW



Idylwyde president John McCreedy presents the Inco trophy to Bruce Brewer of Toronto.

straight holes to go one up at the 15th. Hamilton replied on the 16th with a tremendous low-flying wedge shot that dug in a few inches from the pin for a birdie, and when McAndrew faltered on a three-foot putt for his par at the 17th the Brampton player had it made.

The tournament as usual drew a large entry including many of Ontario's best amateur golfers, and provided an excellent exhibition for players and spectators alike.



HERE ARE FOUR of the third-generation-Inco lads among the students who have found summer employment at the Nickel Refinery in Port Colborne. Tom Lambert is shown on the left as he signed his Inco employment card. The husky fellow punching in is John Kopinak, and following him are Robert Eros and John Brema.

Several Third-Generation Incoites Among Student Employees at Port Colborne Refinery

Among the Port Colborne students who are working at the Inco Nickel Refinery this summer to earn money to continue their education are several who represent the third generation of their families in International Nickel employ.

A growing number of permanent employees at Port Colborne, as in the Sudbury district, are third-generation Incoites, an indication not only of the continuing contribution of the industry to community life but also of the high regard in which it is held by the families of its employees.

Assisting in the education of young men of the community by providing vacation employment when possible is also a source of much satisfaction to the Company management, especially when they represent succeeding generations of Inco families.

The following thumbnail sketches of the Inco background represented by the young students pictured here will be of interest to Triangle readers, particularly at Port Colborne where their family names have long been familiar in the community.

Douglas Hammond: Douglas' father, Frank Hammond, is a substation operator with 32 years of service. His grandfather, Frank Hammond, senior, was assistant master mechanic and at the time of his retirement had 35 years of service with the Company.

Richard Jarram: John Jarram, the father of Richard, is an electrician. His service goes back 25 years. Richard's grandfather, the late Walter Jarram, was a foreman in the electrolytic department with 28 years' service.

Allen Rivers: The Rivers family is well represented in the employ of Inco. Allen's father, Robert, is a foreman in the leaching and calcining department with 30 years' service. His two uncles have 53 years of service between them. The late Robert Rivers, senior, Allen's grandfather, was iron-worker foreman, and his service

at the time of his retirement was 23 years.

Richard Sandelli: Richard is the son of Frank Sandelli, now retired from Inco after long active employment. His grandfather, the late Joseph Sandelli, was head stripper in the electrolytic department with 26 years of service at the time of his retirement.

John Kopinak: John Kopinak's father, the late John Kopinak, senior, was a soda ash tankman and at the time of his death and

had 27 years with the Company. Fred Kopinak, the grandfather of John junior, had 24 years' service at the time of retirement.

Robert Eros: The late Simon Eros, grandfather of Robert, worked in the leaching, calcining and electrolytic department until his retirement in 1955 with 27 years' service. Robert's father is Paul Eros, assistant chemist in the precious metals laboratory, with 24 years to his credit.

John Brema: John's father, Louis Brema, is a plastic finisher in the electrolytic department with 31 years' service. John's grandfather, the late John Brema who was a skimmer in no. 1 building,



ONE of the many third-generation Incoites who have become permanent employees at the Port Colborne plant is Rodger Leveille, shown at his job in the refinery.

had 10 years' service at the time of his death.

Douglas Bearss: Elvin Bearss, the father of Douglas, followed in the trade of his father as a mechanic. Elvin, a machinist, has completed 25 years with Inco. Douglas' grandfather, Layton Bearss, well known for his me-

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DOUGLAS BEARSS, who starts his university career in engineering this fall, was photographed in one of the Nickel Refinery lunchrooms as he polished off his pint of chocolate milk. The four students putting their heads together for the good of Inco in the second picture are Doug Hammond, Richard Jarram, Allen Rivers and Richard Sandelli. All are Port Colborne High School men. Doug Hammond will enrol at Ryerson in Toronto this fall.

8 Million Miles Without Injury From Collision!

Speaking of highway safety, a subject very much on people's minds these days in view of the shocking accident toll, Inco open pit haulage truck drivers have driven the equivalent of 338 times around the world without a single road-type collision.

The 30-ton trucks, operating in all kinds of weather and road conditions, have travelled uphill and down, day and night, a total of almost 8½ million miles since open pit mining commenced at Froid in 1938. To the credit of the drivers, and the mechanics who back them up, there has never been an injury from a collision accident, either at the Froid-Stobie pits or at Clarabelle where the unblemished record has been carried on since 1961.

During that time the open pit trucks have hauled a total of over 131 million tons of ore and rock, 30 tons to a load.

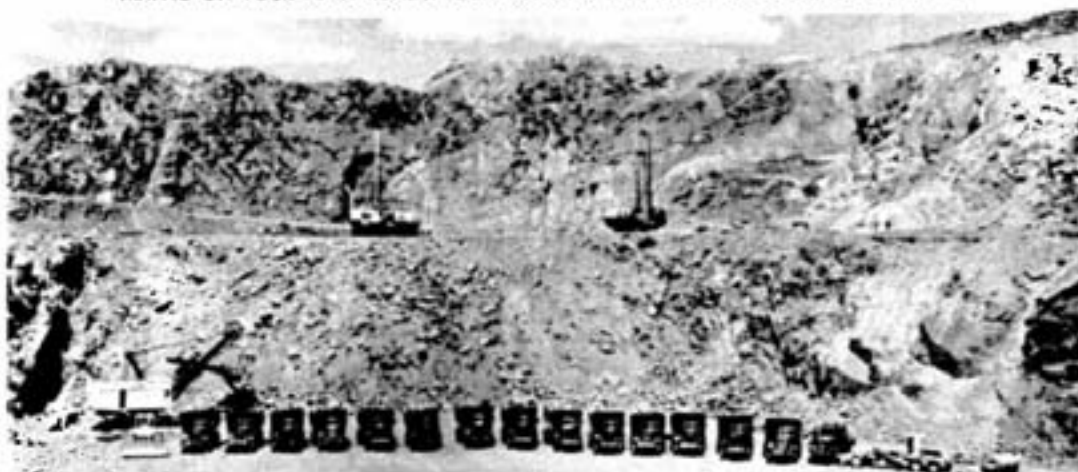
Rules of the road at the Clarabelle pit are basically the same as those in effect on the public highways. A driver must operate his vehicle at a safe speed and at a safe distance from the vehicle ahead.

The haulage truck driver is a specialist to the extent that he was given a training course by an experienced driver and was then examined by the mechanical department on his driving habits and his knowledge of the proper gear ranges to use when travelling empty and loaded, down and up hill. Through safety demonstrations and personal contacts by members of supervision he is regularly reminded of his mechanical and operating responsibilities.

But what of the so-called human factor? How come these men, at



TRAFFIC ON FOUR MAIN ROADS CONVERGES AT THIS POINT IN CLARABELLE OPEN PIT



A LINEUP OF THE PIT HAULAGE TRUCKS, SHOWING ALSO AN ELECTRIC SHOVEL, ROTARY DRILLS, ROAD EQUIPMENT



A typical Clarabelle haulage truck driver climbs into his cab at the start of a shift. Charlie Grandmaison has been at the wheel for 23 of his 26 Inco years, has never been in an accident in his truck or his own car.



THE CLARABELLE OPEN PIT DRIVERS POSE WITH MEMBERS OF SUPERVISION



THE PIT MECHANICS FROM BOTH CLARABELLE AND FROID GARAGES, WITH MEMBERS OF SUPERVISION

the wheels of 60-ton leviathans, negotiating spiralling ramps often glazed with ice and subject to fairly dense traffic patterns, how come they have travelled over 8 million miles without a collision accident?

Clarabelle pit superintendent Norman Creet thinks the answer lies in mental attitude. He thinks the average driver of a heavy industrial vehicle has a greater sense of responsibility for the safety of others than does the average motorist.

"From the time he is dispatched from the truck park at the start of his shift by the garage foreman until he parks his truck again at quitting time," says superintendent Creet, "the open pit haulage truck driver's actions are guided by three main considerations. One is his understanding of haulage regulations. Another is his constant alertness to changing conditions. And the third, and perhaps most important, is his respect for others. This respect is a cardinal rule of safe driving: Don't insist on your own right of way even if the other fellow is in the wrong."

The Clarabelle pit has an extensive network of roads and ramps connecting the main pit, the north extension, the sink cuts, the rock waste dump and the crushing plant and shops. In addition to the fleet of huge haulage trucks, of which there are 17, the traffic includes the explosives truck, grader, wheeled and crawler bulldozers, various tank and service trucks, contractors' vehicles including mobile cranes, and, of course, periodically the big electric shovels and rotary drills when they are changing location.

Service and maintenance of the pit vehicles, an integral factor in the splendid safe driving record, is carried out on a highly organized schedule. Truck engines are completely overhauled every 3,500 hours, jackshafts every 4,500 hours, transmissions every 5,000 hours. In addition every truck receives a thorough inspection at regular 100-hour intervals. The maintenance program is divided between the Clarabelle and Frood pit garages, the latter handling engine rebuilding and tire repair.

Personnel shown in the accompanying group photographs taken at the Clarabelle pit is as follows:

GROUP PHOTO NO. 1

Haulage truck drivers, grader and bulldozer operators, and members of supervision:

Front row, Roy Cooke, Dan Roy, Norm Shank, Tony Holler, Vinc Suszek, Ernie Smith (assistant superintendent), Norm Creet (superintendent), Charlie Grandmaison, Charlie Shamas, Doug Purcell, Tony Green, Shelly Shells-well.

Middle row, Len Hearty, Eddie Schroeder, Red Harvey, Laurie Ramsey, George Tyler, Tyko Maenpaa, Cliff Belanger, Tiger Gouin, Uke Romanuk, Spike Fike, Bill Carlyle, Ted Pluta, Gerry Brunelle, Brock McBeth.

Back row, Len Menard, Hal Russell, Gordon Johnson, Gerry Desjardins, Greg Roles, George Quigley (operating shift boss), John Todhunter (operating shift boss), Campbell Girdwood (master mechanic), Dennis Yawney (operating shift boss), Fred Steel (operating shift boss), Vic Gudrunas, Hector Doyon, Gino Manarin.



INCO AGRICULTURAL DEPARTMENT PROJECTS HELP RELIEVE DISTRICT HAY SHORTAGE

Below normal rainfall in May and June caused a shortage of hay in Sudbury District this year, so the crop from areas reclaimed by the Inco agricultural department has been a real boon to district livestock owners. Picture shows a crew busy raking and baling hay in the big field at the western approach to Copper Cliff. This swamp area was drained, cleared and seeded in 1963. Last year it produced a crop of rye. Sections of the tailings area and a field opposite the Iron Ore Plant, all part of the Inco reclamation program, have also yielded much-needed hay this summer.

GROUP PHOTO NO. 2

Garage mechanics, storemen, vulcanizers, and members of supervision:

Front row, Roy Johns, Cec Burton, Joe Funnell, Ernie Powlesland (mechanical shift foreman), Ray St. Pierre (garage foreman), Campbell Girdwood (master mechanic), Jack Serpell (mechanical shift foreman), Albert Wickie (mechanical shift foreman), Charlie Sandberg (plate shop foreman), Fitz Fitzjohn, Al Mantle, Pete Dowdall (stores foreman).

Middle row, Tom Thorpe, Del Obumawin, Del Graham, Armas Wilta, Steve Wasilchuk, Joe Austin, Ken Palmateer, Scotty Scott, Ted Griffin, Bert Rush, Gordon Barber.

Back row, Cec Tyees, Eddy Schroeder, Joe Grenier, Romeo Chatelaine, and Ken Weaver (garage mechanic leaders), Gus Rainville, Earl Rowley, Lou Eppich, Albert Morin, Percy Lloyd, Harry Dimes (garage mechanic leader).

PERSONNEL NOT SHOWN

Lindsay Hodgins (operating general foreman), Bill Vaananen (operating general foreman), Buster Tennyson (operating shift boss), O. Davison, D. Menard, L. Callaghan, T. Hearty, A. Jacobson, M. McNicol, P. Boscarol, N. Leclair, G. Wright, E. Matte, P. Maitland, E. Sloan, P. Baccaglia.

Paul Talbot

Born in 1906 in St. Cecile, Quebec, Paul Talbot was six when his father sold his saw mill and moved the family to Temiskaming where he bought another mill.

Paul worked for his father until 1925 when he married Regina Dallaire and decided that he would like to help Henry Ford build cars in Dearborn, Michigan.

Back to Canada and Three Rivers in 1927, Paul worked for a paper company until 1929 when he came to Sudbury and started at Frood mine as a trackman. Six months later he became a pipe fitter, the trade that he followed for the next 17 years until his last move to powderman. Re-



Mr. and Mrs. Talbot

cently retired on pension, Paul says he misses the boys at the mine.

The Talbots had eight children, two of whom, Rolande and Roland,

were twins and decided to arrive during the depths of the depression. Seventeen grandchildren ranging in age from 1 to 19 now keep the grandparents busy but when the mood hits him Paul is off to his favorite fishing hole to wet a line.

Asked if he was thinking of returning to St. Cecile, Paul replied: "I don't think so. I was back there in 1935 and the town was only half the size it was in 1906. Maybe it isn't there at all by now."

"What is considered the dangerous age" someone asks. Many consider it the period from birth to death.



COMPANY'S THOUGHTFULNESS APPRECIATED BY PENSIONERS

In order that monthly cheques for Inco pensioners residing in the Sudbury district would not be delayed by the mail strike, special arrangements were made by the Company for their distribution. Pensioners living in Sudbury were advised by press and radio that their cheques would be available at the Inco Club, where senior clerk Al Northwood is seen in the above picture handing that highly important document to Ivan Gawalko. Pension cheques were also delivered by car to all district post offices from Sturgeon Falls through to Massey, in the French River area, and from Levack through the Valley to Capreol. Tom Peters, Len Turner and Guido Gobbo were the special emissaries who handled this assignment. The Company received many expressions of appreciation from pensioners for its thoughtfulness.

cy Depends on e Maintenance

per Cliff smelter has played a very important part in maintaining a continuous and safe operation.

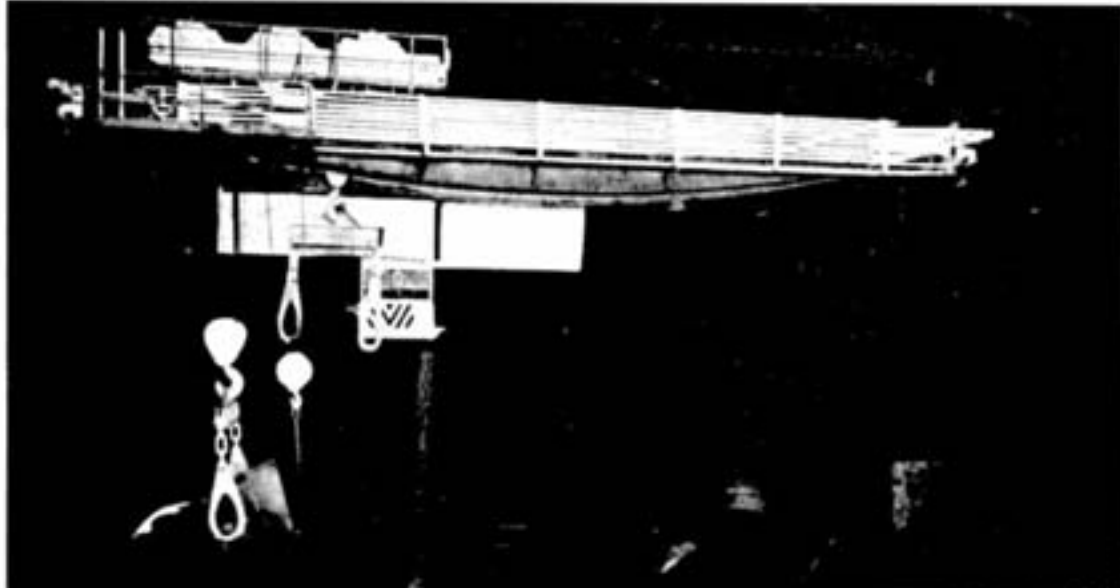
The converter aisle at the Copper Cliff smelter is 1,435 feet long and 66 feet wide. Along the north side of the aisle are seven nickel reverberatory furnaces and two copper furnaces. Nineteen 13-foot diameter x 35-foot Pierce-Smith converters are situated in line along the south side of the aisle. Sixteen of the converters handle nickel matte, while three handle copper matte.

Six 60-ton overhead cranes serve the converters and furnaces. While these cranes are only a part of the metal handling equipment, they are the work horses and are of primary concern to the maintenance departments.

The converter aisle cranes transfer molten nickel and copper mattes from the furnaces to the converters for further processing, and transfer molten slag from the converters back to the furnaces. In addition, they deliver finished Bessemer matte from the converters to the casting department and molten blister copper to hot metal cars for transport to the refinery.

The converter building operates 24 hours per day, 7 days per week. During a 24-hour period up to 2,500 tons of molten matte and slag are lifted and transported across the aisle in ladles of 12-to 16-ton capacity. This requires a great deal of movement by the six

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THIS LONG SHOT SHOWS one of the six 60-ton cranes which travel the converter aisle, moving up to 12,500 tons of molten material in a 24-hour period. A pot of converter slag is being poured back into a reverberatory furnace for further treatment. Safe and continuous operation of these cranes requires alert preventive maintenance.



HERE LEO LABELLE is making a regular daily inspection of the hoist trolley of one of the six 60-ton converter cranes. He files a full report on its condition and orders immediate maintenance work if necessary.



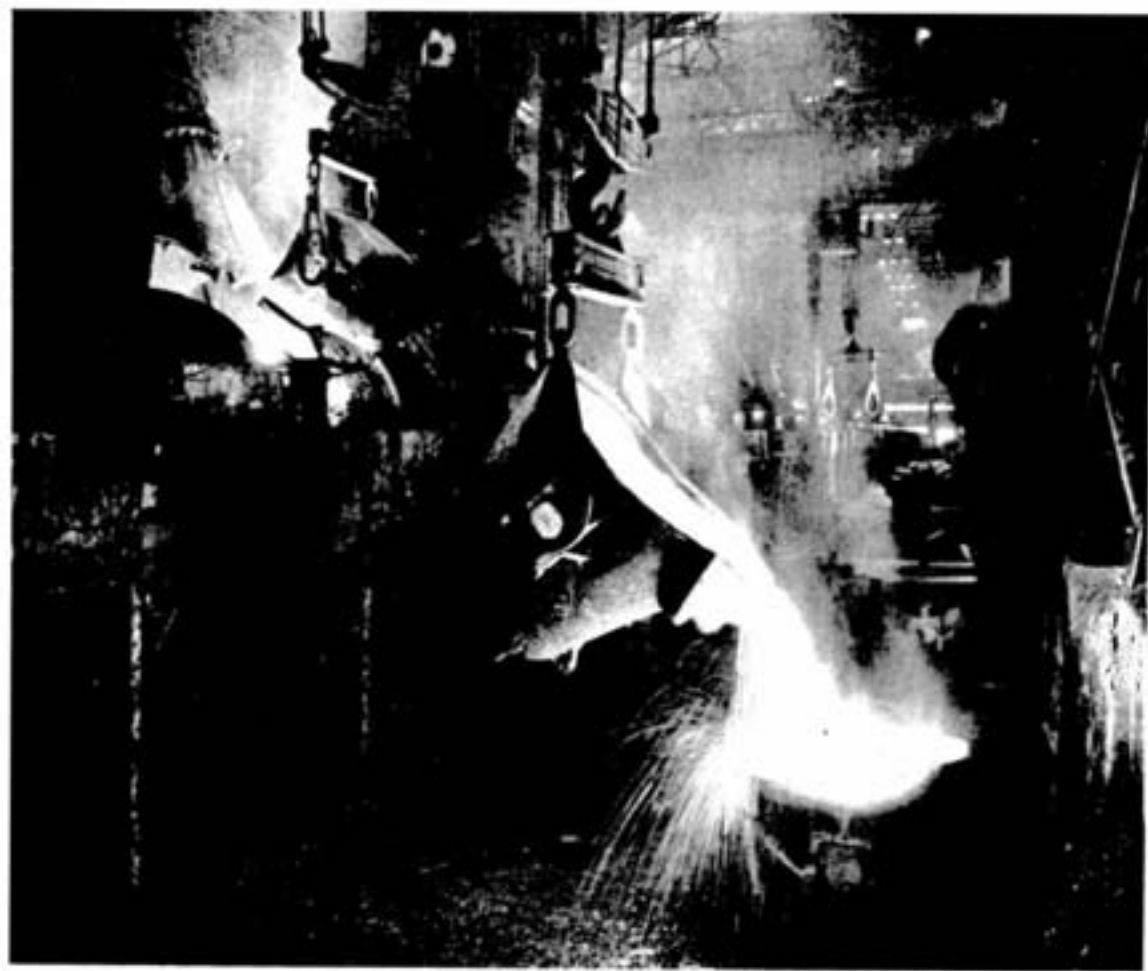
AT THE BEGINNING of each 8-hour shift the lifting bails on the cranes are inspected and the lower end of the hoist assembly checked for freedom of movement. Wielding the testing hammer in the picture is Pat Weir.



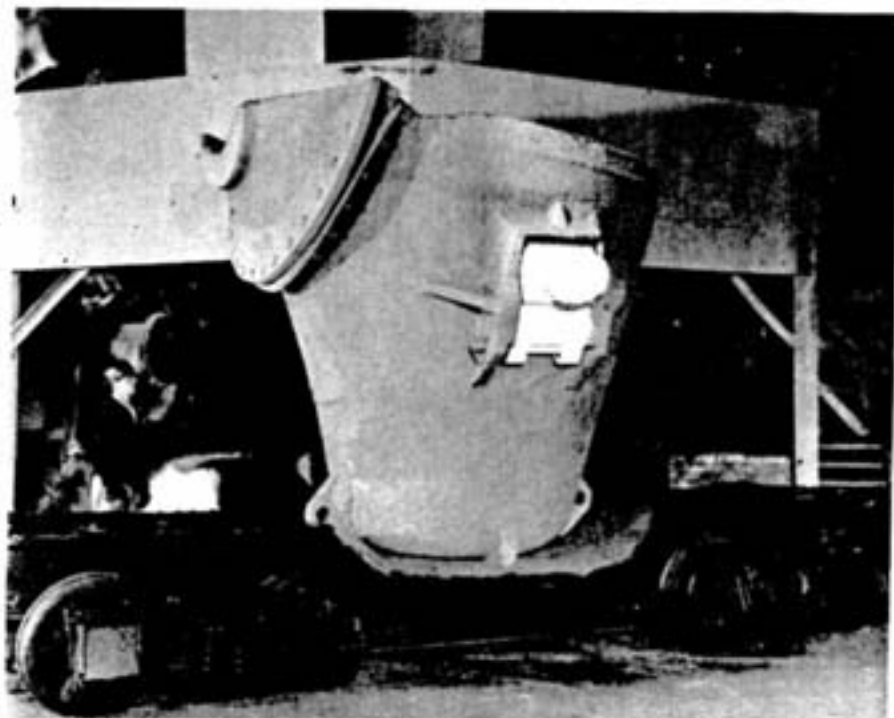
his ultrasonic reflectoscope, used for inspecting metal components, either in place or in the shop. The device displays blips on the screen and can be

THE FOUR HOT METAL CARS which transfer molten blister copper from the Copper Cliff smelter to the Copper Refinery require rigidly scheduled preventive maintenance. There are four of these cars, each with a capacity of 50 tons.





THE IMPORTANCE of preventive maintenance to the safety and efficiency of operations in the converter aisle of the smelter is illustrated in this view of typical activity. Handling thousands of tons of molten material every day, the lifting equipment including cranes, bails, hooks, cables, trunnions, shackles and shackle pins must be kept under regular surveillance.



SHOWN HERE is a transfer car and ladle in which molten matte is moved from the reverberatory furnaces to the converters. The ladle holds up to 15 tons of metal at temperatures in excess of 2000 deg. F. The trunnion has been painted white to show that it can be removed for inspection and heat treatment. The smelterman shown is Cecil Chellev.

Smelter Efficiency Alert Preventive

A sound preventive maintenance program is an important part of many industrial operations; in certain phases of smelting processes, such as in the handling of molten materials, it is an essential service.

Smelting, in the production of nickel and copper, could be regarded as the heart of the entire extraction process. In this phase of the operation large tonnages of molten materials are handled. Preventive maintenance of the equipment handling molten materials in the converter aisle of the Cop-

Preventive maintenance, the science of heading off trouble before it starts,

has been brought to a high degree of perfection in the handling of molten materials at Inco reduction works by the mechanical department. The techniques and procedures involved were described in a paper prepared by the staff and presented at the annual meeting of the Canadian Institute of Mining and Metallurgy in Toronto by mechanical superintendent F. G. Burchell. This article is a condensation of the paper.

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AN EXTREMELY VALUABLE device is used for detecting flaws in crane hoist cables. If present, flaws are indicated by the pinpointed within a fraction of an inch.



THE NAMES of recently retired Norman Anderson and Casey Jones were synonymous with safety promotion throughout their long careers with Inco. The above picture, which appeared in the Triangle in June 1951, recalls a highlight of their illustrious achievements in accident prevention. Over 600 attended a cabaret dance to celebrate what was then an all-Inco safe-shift record established by the Anderson-Jones shift at Frood-Stobie 3 shaft. Safety

engineer Mel Young organized the party, Bud Fisher arranged the floor show, and Johnny Jurczyk's orchestra supplied the music. In the photograph, left to right, are Mr. and Mrs. Mel Young, Mr. and Mrs. Norman Anderson, mine superintendent C. H. Stewart, Mr. and Mrs. Casey Jones, Mr. and Mrs. Eldred Dickie, and Mr. and Mrs. Art Proulx.

Norman Anderson

Norman Anderson, underground superintendent who has retired from Frood-Stobie mine on early service pension, was born right into the nickel industry in 1905 at Victoria Mine, the Mond Nickel Company smelter townsite which was located two miles off the old Soo Highway about 15 miles west of Copper Cliff.

His father was general blacksmith, handling the work for the smelter and also for the nearby Mond mine. Later the family lived at Worthington mine.

Anderson senior also operated a stable with teams of driving horses for hire to cater to the local traffic between Crean Hill, Mond, Worthington and Whitefish.

The community had a lively life. "I wasn't much for the box so-



GENERAL MANAGER J. A. Pigot was one of the speakers who praised Norman Anderson's contribution to Inco.

cials," Norm admitted, "but we had good baseball and soccer. We played against Webbwood and Espanola, and later against Coniston, Garson and the Burwash guards. We had some great games."

As a lad of 12 Norm did odd jobs in the village store, at 16 graduated to picking rock in the rockhouse, then became a miner.

Leaving the Mond after the cave-in at Worthington, Norm headed north to Kirkland Lake where he worked at the Wright-Hargreaves mine, but after a couple of years he was ready to return home. Allan Brock hired him for Inco and he started at the Frood as a shoveller in May of 1929. Except for a year as general foreman at Creighton he was a Frood-Stobie man throughout his career. He became a shift boss in 1935, and further promotions came steadily. He had a strong flair for leadership and was highly esteemed both for his judgment as a miner and his friendly interest in his men. He was appointed a general foreman at Frood in 1941, and two years later became underground superintendent. During his final year he was underground superintendent at the Stobie section.

He was married in 1930 at Sudbury to Eva Mumford, whose father was superintendent at Garson mine and had previously been super at the Mond and Worthington mines. Her brother Earl is superintendent at Creighton.

The Andersons' four sons are all Inco men, carrying on the family mining tradition. Three are at Thompson where Bill is a divisional foreman, Norman with the geologists, and Delbert a shift boss; the fourth, Darwin, is underground at Levack. Their daughter Joanne is a nurse at Sudbury General Hospital. They have eight grandchildren.

"I'm in good health and now's the time to enjoy it," Norm said in explaining his early retirement. He and Mrs. Anderson will spend the summers at the comfortable camp at Fairbanks Lake which they've had since 1937; for the balance of the year their address will be the Summit apartments in Sudbury.

Honored guest at a banquet at-

tended by a large representation of the Inco mining fraternity. Norman Anderson was presented with a television set and a host of good wishes for happiness in his retirement.

Casey Jones

Casey Jones was building a road into his camp at Crooked Lake this summer. It was a classy road, right up to department of highways specifications, and a visitor remarked on this.

"That's some road for a camp, Casey."

"My boy," said Casey, "when you've worked for a company like Inco as long as I did, you don't do anything half way."

At Frood-Stobie mine, where he was underground superintendent of the Stobie section until his retirement last November, Casey Jones had a reputation for demanding a high standard of workmanship and safety. He took pride in doing any job properly and thoroughly. Although ill health plagued him he never let his interest and enthusiasm lag.

Born at Rainy River in 1905, Casey had six years' experience as a trapper in the far North behind him when he arrived at Frood in 1930. With his father and his brother Joe he operated 120 miles of trap-lines north of Fort Vermilion. They built five cabins along the route, then separated, each taking a section of lines. Sometimes they didn't see one another for a month.

"Lonesome? You bet it got lonesome," said Casey. "But there was always plenty to do in the evening when you got in from the traplines. There were moccasins to dry, bannock and beans to cook for the next day's meals on the trail, hides to take off the stretchers, skinning to be done. And a fellow was usually ready for sleep when these jobs were done, after mulling from 20 to 25 miles during the day."

"We kept track of the days by cutting notches in sticks. We



PENSIONER JACK CULLEN came up from North Bay to attend Norm Anderson's retirement party at Legion Memorial Hall and get in some good-natured needling about their experiences underground in the earlier days at Frood. In the centre is Frood-Stobie superintendent S. J. Sheehan.



MR. AND MRS. CASEY JONES posed for the Triangle camera in their handsome permanent home at Crooked Lake, 35 miles south of Sudbury.

trapped mink, fox, ermine, lynx, beaver, wolverines, marten, fisher, muskrat, wolves and bear. To keep ourselves and dogs supplied with meat we shot deer, moose and caribou.

One Christmas after they had cashed in their furs at the Hudson's Bay Company post at Fort Vermilion, Casey and Joe took a trip out to Edmonton, Calgary and Vancouver. They lived it up in real style, then headed back north in February, broke. It took them 17 days to make it on snowshoes from Peace River to Fort Vermilion.

But Casey had one trip worse than that. One spring he left the trap line alone and started for home in a big canoe with his catch of furs. He went through all the rapids until he came to the last one. Here his canoe upset, and half his furs and all his provisions went into the river. He saved his gun, but no shells or matches. He walked about seven miles down the river and then met some Indians. From them he misunderstood directions, and after two more days of travelling he knew he was lost. He had no food or means of getting any for almost five days. Then he found a blazed trail and followed it to a homestead. Exhausted, and his clothes in shreds, he was taken in, fed, clothed and given a lift to Fort Vermilion.

Pulling out of the rugged and lonesome life in the North in 1927, Casey spent six months working in a paper mill at the Lakehead, then went to Johnstown, Pennsylvania where he got a job in the U.S. Steel plant. There he met Gladys Kidner, whom he married in 1927. They have one daughter, Shirley, who lives in Toronto.

It was on August 2, 1930, that Casey started at Frood, and his first job was cutting the lawns, but he was put on the business end of a shovel on 2600 level shortly afterward. In 1933 he fell heir to Ted Gaetz's stoop on 2800, then went shifting in the school stoop where he first met Art and Ron Silver, Jim Parlee, Jim Dewey, Red Early. When the 1600-2200 country was opened up in 1937 he moved there as junior foreman, on the shift opposite Ed Mills.

Promoted to senior foreman he was transferred to Levack in 1939, became a general foreman in 1947 and moved back to Stobie where he was appointed underground superintendent in 1951.

Highly personable and popular, Casey was given a great sendoff on his retirement. At a banquet at Legion Memorial Hall the appreciation of the company for his outstanding work was expressed by assistant vice-president T. M. Gaetz.

He was presented with a duck boat to add to his sports equipment at his Crooked Lake "camp", which is actually a beautiful permanent home with all the modern trimmings.

Although he has the odd bad day his health has improved, which will be good news to his wide circle of friends.

BIBLICAL GUIDANCE

A recently ordained minister was explaining to the bishop why he had resigned from his first charge.

"There were thirty-four girls, old maids and widows there, all eager to marry the pastor," he said.

"Well," said the bishop, "you know there's safety in Numbers."

"Not for me," replied the minister. "I found it in Exodus."



Bad and Good Guys Still Making Mayhem Inco Club Wrestling

The gent shown above in the white shorts and boots and wavy tresses is not giving forth with song or rendering a Tarzan ape call. He's just trying to gulp in some air after a brutal fist landed "accidentally" somewhere in the region of his solar plexus.

The gent is wrestler Terry Garvin of the Garvin brothers (combined weight 446 pounds) from Alabama. The brothers were the villains in a recent tag team match at the Inco Club against "The toast of the Universe," Georgeous George (216 pounds) from California and Doug Kinslow (231 pounds) from Kentucky. The bad guys won the match, much to the riotous disgust of the paying customers, and were roundly booed and hissed to their dressing room through a rain of paper cups and other debris.

The upended character in the other picture is bad guy Danny Debeau, who is about to receive a bone-shaking body slam from a good guy Bobby Hart. But body slam or no body slam Danny came right back and won the bout.

"So you think those guys are tough," growled an inveterate fan at ringside. "You should have been here the night when one fan jumped up onto the apron to object to a little hair pulling just as Don Evans had Luther Lindsay on the ropes. Don winds up with a haymaker, Luther ducks and the fan got clobbered right on the snoot and landed six rows back in the crowd. Let me tell you, he didn't object any more that night!"

The inveterate fan was seated at ringside, one of 500 of the faithful at the Inco Club enjoying the excellent wrestling that can be seen every Monday night from May till October with wrestlers of all shapes and sizes promoted by that master of the art himself, Larry Kasaboski.

How big do wrestlers come? Well now, there was the Blimp who weighed in at 660 pounds and stood up against two husky 250-pounders. It was a hectic fight

with the 250-pounders bouncing off the Blimp in all directions until finally the big guy was upended and the rafters are still rattling from the fall. They say it was harder to get the Blimp back on his feet than it was to knock him down!

At the other end of the scale there are the mighty midgets who clock in around 90 pounds and can move like greased lightning. Little Lord Littlebrook gave the local fans a beautiful display of gymnastics, acrobatics and wrestling when he fought at the club.

The referees who have to work with these mountains of manhood sometimes get caught in the mayhem and end up with their backs to the canvas, counting the stars that seem to be mingling with the ring lights.

Injuries are surprisingly rare, and are usually limited to mat burns and the odd dislocation. Most of the wrestlers are well-trained athletes who can spring from the canvas after a fall that would put an average person between the sheets for a month.

During one bout at the Inco Club one wrestler was slammed to the canvas so hard that the platform collapsed beneath him and he disappeared down the hole. His opponent, eager to take advantage of the situation, dove into the hole followed by the two other tag team members. For a while all that could be observed from ringside was the odd hand or foot, until the referee went down and ordered the boys back to surface.



Hear about the guy who came away from Las Vegas with a small fortune? Trouble was he went there with a big fortune.



Here's all the evidence anyone could ask to prove the success of Thompson Rotary Club's efforts to provide a playground for the children of their own.



Shortly after the club was established in 1961 it received a grant of land from the Local Government District for this purpose, and the next year volunteers sprang into action with axes and shovels to clear the site. With money raised by the Rotary Fair a wading pool was built in 1963 and an attendant hired for the afternoons. Slides, swings and jungle bars were added in 1964. This year a second attendant has been engaged, and it's not hard to see why.



Elected mermaid queen of this year's Flin Flon Trout Festival was a Thompson girl, attractive Dorothy Merkley, daughter of Inco mine shift boss R. C. Merkley. Dorothy is 20, works in the Thompson branch of the Toronto Dominion Bank. Among her prizes were a mink jacket, a complete wardrobe, a Toronto modelling course, a gold watch, and a trip to Winnipeg and Calgary.

Murray McKenzie's
**Photographic
Notebook**
of
THOMPSON

Hugh Munro

Born the son of a shepherd in Wicks, in the highlands of Scotland in 1902, Hughie Munro was only knee-high to a set of pipes when his father set out for Canada in 1905 to find a new home for his family.

In 1906 the rest of the family followed and settled on a farm near Melita, Manitoba. Twelve years later Hughie married Aman-



Mr. and Mrs. Munro

da Payette and became a farmer in his own right near Regina. Moving east in 1935 he joined Inco in 1937.

But for one wee pebble Hughie might not have become an Inco employee. The story goes that the Company was not hiring on the day that he presented himself and the doors of the employment office were closed. He stood in the crowd for a while and then he decided that action was necessary.



Here's a good shot of the Thompson nickel refinery's well-known Roe Wilcox, relaxing on his lawn with his dog Chinook. Not so relaxed is the gent in the other picture, Stan Fielding, popular furnace operator at the smelter. Painting his house at 88 Lynx, Stan was getting valuable help from wife Kaye, who kept pointing to spots he had missed.



That's when he tossed the pebble at the upper window to attract attention and advised the irate head that popped out that he had made employment arrangements a month before.

Starting as a chute puller at Frood mine, Hughie had tackled most underground work before he became a member of the ventilation department. In 1953 he was transferred to the ventilation department at Stobie where he worked until sickness forced him to take an early retirement.

Hughie and Amanda have a family of two, Mrs. Eva Beattie of Toronto and Mrs. Edna Dreisinger of Sudbury. They have six grandchildren.

An all-round sportsman but a specialist in curling, Hughie has an enviable record behind him. He

is a member of both the Copper Cliff Curling Club and the Granite Club. His mines department rink won the blue-ribbon Collins event at Copper Cliff in 1947, 1948 and 1949. He skipped his team to runner-up spot in 1961 in the mixed bonspiel at Falconbridge and won that event in 1962 and 1963. Also in 1961 his team won the president's cup in the NOCA. A golf and football fan as well, Hughie will now have lots of time for both watching and participating of his favorite sports. His many friends and old opponents will wish him an early return to health.

The only failure which lacks dignity is the failure to try.

—Malcolm F. MacNeil.

Henry Sarazin

"I'll be okay if I take it easy, but that's a hard thing to do after all these years," said Henry Sarazin, who recently retired on disability pension after a second heart attack laid him low.

Born in Blind River in 1911, Henry spent five rugged years in the J. G. Mc-Padden lumber camps before becoming a grader on a planing machine in the mill at Blind River.

Married in 1933 to Alma Lauzon, he stayed at the mill until lack of work forced him to look around for another job. Leaving his wife and family in Blind River, Henry came to Sudbury and tried for work with Inco but was four pounds short of the minimum weight requirement of 150 pounds. Moving on south he was hired by the Nobel munitions factory as a cordite mixer, ate hearty for a couple of weeks, then came back to Sudbury and made the weight with Inco as a mucker at Garson Mine. After one month of hand mucking he moved to a mucking machine which he operated for the next four years after which he became a stoop boss. In 1955 Henry became a motorman, his job at retirement.

These days Henry enjoys a stroll down town to meet his old friends, or a quiet walk to the park on Lake Ramsey to stretch out and soak up some sun. When his health improves he'll look for a part-time job. "A guy can go nuts just doing nothing."

Henry's daughter Mrs. Lillian Clyde has made him a grandfather eight times and his son Lawrence twice. "Nothing like grandchildren to keep a guy feeling young," said Henry with a chuckle. "I love 'em all."

Alde Vanier

"There was no road to Espanola when I was a boy," said big Al Vanier. "If you came in from McKerrow you walked across the CPR bridge, if you came in from Webbwood you came up the Spanish river by boat."

Born on a farm at Espanola in 1910, Al was one of a large family with four brothers and three sisters. His first job was with the bush gangs cutting pulp wood. In 1939 he joined Inco at Frood mine as a shoveller, three months later became a motorman, and has remained in this capacity until he retired recently on a disability pension.

With daughter Jennette and three grandchildren in Espanola, and daughter Mona and three grandchildren in Montreal, Al will be pretty busy visiting. He also plans to visit brother Alf in sunny California with an eye to settling there.



Alde Vanier



Copper Display Greatly Admired

Hundreds of tourists as well as Sudbury District residents have admired the attractive and instructive copper display in the Inco Window at the Sudbury Chamber of Commerce offices in the President Hotel building.

"Nickel, as the Company's name indicates, is Inco's primary product but it is closely followed by copper" says the sign in the centre of the exhibit, and just below it for comparison a copper cathode is displayed alongside a nickel cathode from Port Colborne.

Pretty Chamber of Commerce clerk Betty Vienneau is shown in the picture posing beside a selection from the many special shapes in which pure electrolytic copper is produced at the Copper Cliff refinery. Betty made a particularly good model because her dad happens to work in the Copper Cliff smelter where molten blister

copper is shipped in hot metal cars to the refinery.

In the picture boxes are colored transparencies illustrating the produc-

tion of copper at the refinery, operations in copper rolling mills and electrical wire plants, and a number of finished copper products.

Third Generation

(Continued from Page 5)

chanical ability, had completed 26 years with the Company at the time of his retirement.

Thomas Lambert: His father, Edmund, is a former Inco employee, now police sergeant with the Town of Port Colborne. Thomas' grandfather, the late Thomas Lambert, was carpenter foreman and his years of service with the Company numbered 13.

Rodger Leveille: A Port Colborne High School graduate and now a permanent Inco employee, Rodger is the son of Florent Leveille, foreman in the electrolytic department, who has 18 years of Inco service. He also has three uncles working in the Nickel Refinery, with a total of 31 years' service. His grandfather, Daniel Leveille, was a tube filter man and at the time of his retirement had 22 years of credited service.



Smartly designed trays, coasters, regimental buttons, locks, doorknobs, keys and blanks, and sections of heavy wire and cable are included in this display of a few of the multitude of products made from Inco ORC brand copper, which has a world-wide reputation for distinctive quality.

Sam Kraszewski

Well-known to hundreds of Inco people as a member of the maintenance staff at the Employees Club in Sudbury, where he has worked since 1945, Sam Kraszewski has joined the ranks of Inco pensioners.

A bachelor, he plans to build or buy a little house near the city where he can raise a garden and rusticate in comfort.

Sam's father and brother made their escape across the river and out of Poland in 1913 but he was caught and sent back.

Six hours later he swam it again and was successful.

Landing at Quebec he worked for a while on the section for the CPR, then headed west. At Fort William he got locked in a box car but some boys, looking for wheat for their pigeons, let him out. The incident undermined his faith in box car travel and he walked the rest of the way to Winnipeg.

His first connection with Inco was in 1918 when he worked for a time at the O'Donnell roast yards but he was caught in a layoff after the big conveyor bridge was installed to heap the green ore for roasting. In later years he held jobs at Frood and Creighton. Working for a construction company as a carpenter at Copper Cliff in 1941 he was severely burned in a blast in the coal plant and was laid up for a year.

Sam says he has enjoyed his connection with the staff and members of the Inco Club and will probably be a frequent visitor there with the other pensioners who regularly drop in for a chat and a game of cards.

Thompson Mine Rescue Team Wins Manitoba Championship



Jubilant reign at Thompson with the news that the Inco mine rescue team had captured the Manitoba championship in competition with teams from San Antonio Gold Mines, Sherritt Gordon Mines, and Hudson Bay Mining and Smelting.

Presentation of the strikingly designed Mine Safety Appliances Co. trophy took place at a banquet given by International Nickel in honor of the victorious team and their wives. Photo shows Inco general manager H. W. Peterson receiving the trophy

from MSA district representative J. T. Vanchuk. To the left of Mr. Peterson is H. S. Banasik, Inco superintendent of safety, who assisted by mine safety engineer Gordon Vivian and safety director H. Bloy of the Mines Accident Prevention Association of Manitoba, carried out the mine rescue training program at Inco. Members of the championship team, left to right, are Herman Rohwer (captain), Carl Jensen (co-captain), Roger Mineault, Henry Squires, Tom Bishop and Simeon Pelland. The team members

were presented with inscribed pewter mugs by H. P. Boucher, superintendent of mines. Last year the Inco team finished second in the competition.

Three other teams competed for the right to represent Inco in the provincial competition: 1, W. Kuzniak, R. Lalonde, O. Manigre, J. Haines, A. Gibbs, H. Inman. 2, N. Menard, F. Norgate, K. Kildaw, I. Belfour, K. Barron, W. Lederhaus. 3, T. Stephens, M. Herasymowich, M. Merko, A. Nabess, W. Laing.

Willie Bruyere

Willie Bruyere was born in Gracefield, Quebec and, like many others on leaving school, went to work for the Paper Company cutting pulp wood.

In 1948 he came to Port Colborne and started with Inco, working in the electrolytic department at various jobs. Retiring on disability pension Willie said, "I don't want to quit working, but my doctor's advice was to slow



Mr. and Mrs. Bruyere

down and take a rest due to my heart."

In 1953 he married Helen Dick and they have a family of four: Ginette, Brenda, William and Brian, all at home.

It is the hope of Willie's many friends that he will have a long and happy retirement and that his health will soon improve.

This is an untidy, undisciplined, contentious world, and we might just as well face it.

—Adlai E. Stevenson.



ART MATTICE



LES SMITH



KEN BROWNELL



HUGH HAMILTON



ART HAMILTON

Basement Team Shows Power

With a 9-0 victory over the C shift lineup from No. 4 Building the E.N.R. Basement team showed a lot of power in a recent sched-

uled game of the Port Colborne Nickel Refinery softball league. Pictured above are some of the Basement players in action. The

way Les Smith is meeting the ball in the second shot is typical of his team's drive and hustle. Art Mattice shows his class on the mound.

Bill Ryan, Art Hamilton and Bob Thompson are the executive

committee of this year's Port Colborne plant league, and the other teams in the scramble are C Shift from No. 5 Building, Office and Shops. Games are played at the Inco Recreation Club diamond off Killaly Street East.



VENERABLE ANCIENTS PARADE AT PORT COLBORNE

A cavalcade of antique cars toured Port Colborne to ballyhoo the annual Lions Club Carnival. Two well-known Inco men, Jim Walter and Charlie Bridges, both antique car enthusiasts, loaned venerable ancients which they have reconditioned and restored with loving care. A 1914 Model T Ford and a 1939 La Salle were Jim's contribution, while Charlie entered his 1931 Buick. Along with a 1926 Reo fire hose truck they made quite a contrast with the 1965 Pontiac Parisienne which was the carnival draw prize.



No refugee from the Calgary Stampede is this, but Inco pensioner Tommy Christie of Port Colborne. An almost daily pastime for Tom is to slip down to Comet Boy and exercise the riding horses Doug Clark keeps stabled there. The popular little ex-farmer of the electrolytic department, from which he retired in 1959 after over 35 years' service, cuts quite a dashing figure in the saddle.

Smelter Efficiency

(Continued from Page 9)

cranes. Thus an understandably large amount of preventive maintenance attention is devoted to the cranes and auxiliary equipment.

Transfer Cars and Ladles

Molten matte is tapped from a furnace into a transfer car in a tunnel adjacent to the furnace. The car, with a full ladle of matte, is moved out by car puller into the converter aisle.

This car is similar to a railway flat car, but smaller in size. The ladle sits on the flat deck of the car but is not fastened down in any way, requiring that the car be level at all times and that derailments or structural failure be avoided completely. This is achieved by daily inspections and lubrication of track, wheels, journal bearings, and frames, with

repairs made if found necessary. At the same time the puller cable, drive and sheaves are inspected, lubricated, and adjusted.

The cast steel ladles which contain the molten matte at temperatures in excess of 2,000° F. require considerable maintenance. Cracks and metal washouts may occur on the bottom, sides, and rims of the ladles. These are repaired in the shops by cutting out the damaged areas and filling cracks with weld or with steel patches of the same thickness as the ladle wall. The ladle trunnions, with which the crane bails engage to lift the load, are detached from the ladle after each 12 months of service, for a careful visual inspection and thermal stress relief.

Crane Bails

The crane bails are manufactured in the Copper Cliff smelter shops by welding together three laminations of ASTM A-203 nickel steel plate cut to shape. They are carefully ground smooth at the loading point and stress-relieved at 1,150° F. During service, the bails on each crane are given a visual and hammer test inspection at the beginning of each 8-hour shift. Every six months they are removed and taken to the shop where they undergo a "dye penetrant" inspection for fatigue cracks, stress relief, and a "dressing-up" at the loading points.

Cranes

The six 60-ton capacity cranes span 66 feet and travel on a runway the full length of the converter building 60 feet above the ground floor.

The lifting speed of the main hoist is about 30 feet per minute, and maximum runway speed is about 5 miles per hour. They are in continual 24-hour-per-day use in a very demanding service, and due in most part to the rigid schedules of inspection and preventive maintenance have a remarkable performance record.

The parts of the crane which can be reached from the floor are inspected at the beginning of each 8-hour shift. Along with the bail inspection as previously mentioned, the hook is examined and checked for freedom of swivel. The cable sheaves and cables are inspected at the same time, and any damage or defect is repaired immediately.

Besides off-the-floor inspections of the lower parts of the cranes

each shift, each crane is inspected on top daily by a competent mechanic and electrician. All the moving parts, bearings, and cables are inspected and "listened to" while in operation to try to detect faults. This inspection usually takes up each crane for about half an hour, after which the inspector records his findings on a report form.

Once each week the cranes are put into a service bay for a more detailed inspection, lubrication and servicing. The inspector checks with the crane operator to find if any unusual noises, vibrations or faults were noticed during operation. Wheels are examined for broken flanges and flat spots, and loose bearings and bolts are adjusted. Inspection covers are removed from the speed reducers to check for chipped or worn gear teeth. Couplings and brakes are checked for misalignment. Air conditioning units and vital parts of the crane structure are examined and serviced.

A vital part of the crane, the hoisting cables, are given a thorough examination weekly. The inspector looks for kinks or broken wires, and sees that the cables are properly wound through the sheaves and around the drums. A written report is made of the inspection and work done.

A monthly inspection is made of the eight wheels on the crane to check for wear and unequal diameters. It is essential to keep wheel diameters equal to within 1/16 inch, particularly the drivers, in order to maintain smooth running on the runway. Also, a close examination is made of the bearings and gears on the hoist shafting.

On a semi-annual basis the main superstructure of each crane is inspected to insure that there are no loose rivets or bolts, and no structural defects; also the crane runway is cleaned and inspected.

It would seem that this rigid inspection schedule would preclude any serious failure in the hoisting equipment. Nevertheless continued efforts are being made to improve inspection techniques, to broaden the scope of inspections, to modify designs, and to take advantage of new and better materials of construction.

Main Hooks

Each main hoist hook on the converter cranes is dismantled once per year for a thorough inspection. The shank is magnafluxed in search of cracks, examined for other flaws which could be stress concentration points, then given thermal stress relief. Besides this annual dismantled inspection, the hooks now receive an annual in-situ ultrasonic inspection. Improvements in design have also been made. There has not been a hook failure in over 15 years.

Ultrasonic Inspection

Ultrasonic inspection for flaws in the hoist shafting has proved very successful, especially in sections which cannot be observed by visual inspection.

As an example, a defect in a shaft was indicated by the ultrasonic method in place on the crane. This shaft was taken out of service immediately, taken to the shop and dismantled. The ultrasonic equipment had indicated a crack 17 1/2 inches from the end of the shaft. It was actually found 17 1/2

inches from the end. The crack was indicated to be 5 1/2 inches long around the periphery and proved to be 6 1/2 inches long. A depth of 2 1/4 inches was indicated and found to be 2 1/2 inches. This was convincing evidence of the accuracy and reliability of the method.

One of the chief advantages of ultrasonic testing is the portability of the apparatus. It is especially adaptable to the testing of shafts, and can be carried right up on the crane. The equipment consists of a cathode ray oscilloscope, amplifier and other electronic circuitry in a chassis weighing about 50 lbs.

A probe connected to the set, when placed on the end of a shaft, transmits ultrasonic vibrations through the shaft from an electronically excited crystal. Any discontinuity such as a crack, void, shoulder or the opposite end of the shaft stops the forward progress of the vibration and reflects it back to the instrument. The instrument measures the elapsed time between initial impulse and return, and indicates this as a "blip" on the cathode tube or screen. The position of the "blip" along the horizontal sweep line enables the operator to pinpoint the position of the crack along the shaft and by manipulation of the probe on the end of the shaft he can also determine the extent of the crack. The instrument is very sensitive and an experienced operator is essential for accurate, dependable results.

Experience with this technique has shown it to be very reliable. The presence of cracks and defects indicated by the ultrasonic test equipment was, in almost all instances, confirmed in subsequent visual inspections.

Study of the reasons for shaft failure led to redesign and upgrading of materials at stress points to eliminate further metal fatigue.

Hot Metal Cars

Other important hot metal handling equipment which demand rigidly scheduled preventive maintenance are the hot metal cars.

Hot metal cars of 50-ton capacity are used to transfer molten blister copper from the Copper Cliff smelter to the Copper refinery, a distance of nearly two miles. Along the route to the refinery the track passes above a main highway. Accidental spills must be avoided and, to prevent mechanical failure, again a preventive inspection and maintenance system is practiced.

Daily, weekly, and monthly visual inspections of wheels, axles, bearings and tilting mechanism are carried out. This has resulted in a record of no serious accident involving a hot metal car in more than 25 years. In addition, main axles are now ultrasonically inspected annually.

Conclusion

Experience has shown that equipment handling molten materials 24 hours per day in the quantities described is subjected to severe and unusual stresses, and for this reason must be subjected to the closest and most rigorous type of preventive inspection and maintenance that is practical. Ultrasonic means of testing, particularly of shafts, has broadened the degree of inspection possible and is contributing greatly to the overall preventive maintenance program.

Sudbury Italia In Third Place In Semi-Pro Loop

Although it's only their first year in semi-pro company, Sudbury Italia are holding firm in third place in the 12-team National Soccer League, and look like a sure bet to make the four-team play-offs.

Led by such stars as Franco Rosati, Ferruccio Deni, Mario Zuliani and Manuel Rocha, and backed by the outstanding goal-keeping of George Momoli, Italia went undefeated for 13 games.

The accompanying pictures show some of the action when Italia played Windsor Teutonia to a 2-2 tie at Queen's Athletic Field.

Although at times they lack the fire and enthusiasm of amateur matches, the semi-pro games produce some beautifully polished performances, and are drawing an average of 1,000 fans.

Nine of the teams in the National Soccer League come from Toronto, one from Kitchener, and one from Windsor.



CLOSE CALL IN THE GOAL MOUTH



NO. 5 WAS REALLY FLYING



GRACEFUL AS FIGURE-SKATERS



A HUMAN PRETZEL



OOPSI HE WENT THATAWAY



CRASH LANDING AND SOME PRETTY FOOTWORK
THE CROWDS ARE BIG AND BOISTEROUS