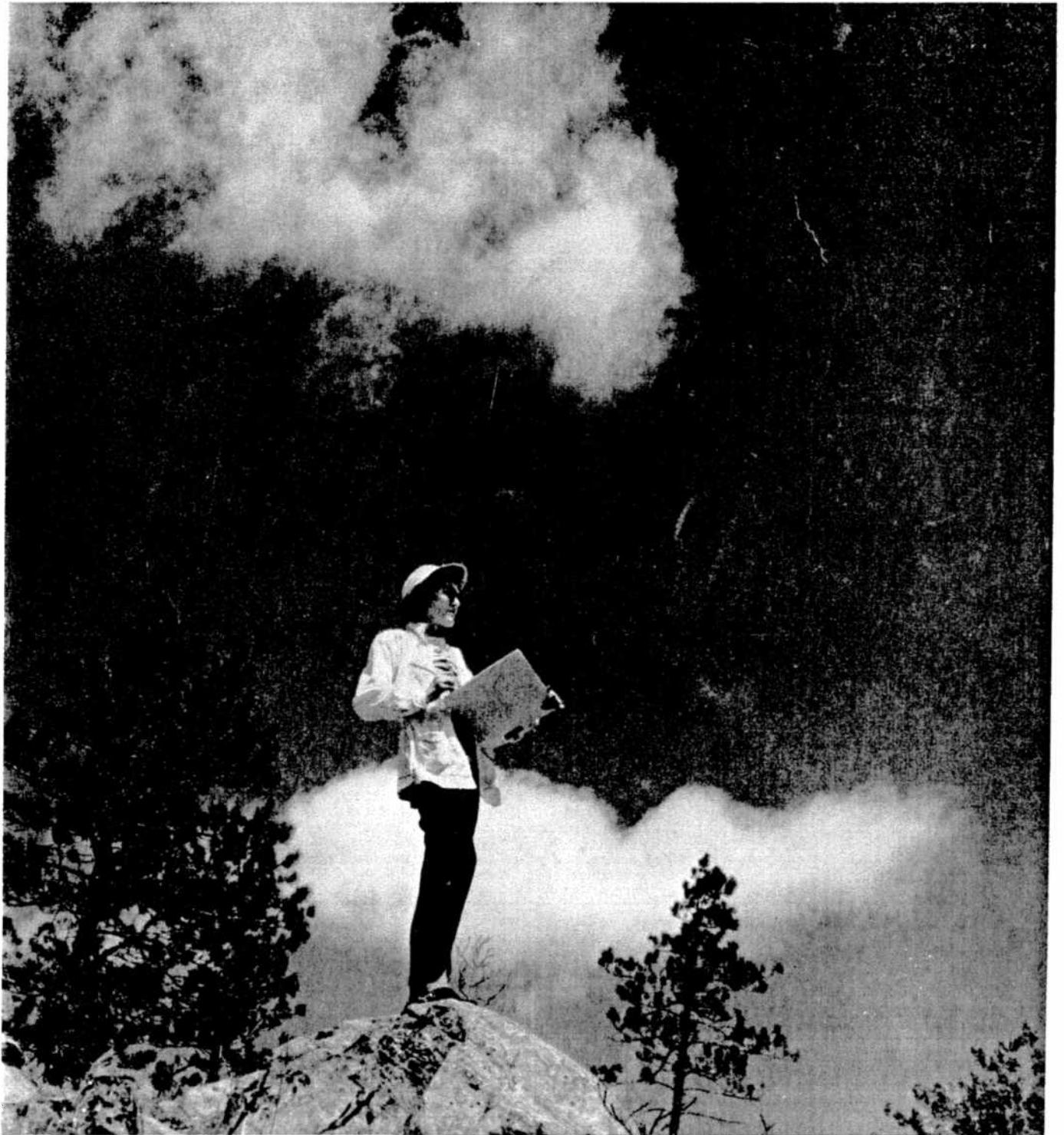




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NUMBER 3



Up In the Clouds



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Only Few Metals Satisfy Nuclear Reactor Needs

Materials used in a nuclear reactor must serve both an engineering and a nuclear function and "only a small number of the metals and alloys available can satisfy most of these conflicting requirements," Marcel A. Cordovi of The International Nickel Company, told delegates to the Seventh International Congress of Mechanical Engineers at The Hague, Netherlands, June 3.

"Even then," Mr. Cordovi continued, "the choice of materials often must be based on engineering judgment which, in the present state of reactor development, is not adequately supported by pertinent experimental evidence or actual service experience."

Nickel-containing stainless steels and nickel-base alloys are important among the few metals or alloys that satisfy nuclear power requirements, he said.

Mr. Cordovi, a member of the atomic power developments section of International Nickel's development and research division, was the only American invited to present a paper at the congress. His paper entitled "Selecting Materials for Nuclear Power Stations," outlined various basic considerations in the selection of materials for use in nuclear reactors and presented an analysis of the problems that the materials engineer must face in reactor construction.

"There are four convenient functional categories into which metals used for reactors and reactor cores can be divided: fuel element, moderator, control system, and structural materials. The number of useful metals and alloys currently available in each category is quite limited," Mr. Cordovi pointed out. "Many of these materials were little more than scientific curiosities until recently; they required considerable development before they could be utilized in reactor components."

In a discussion of nuclear fuels, such as uranium, thorium and plutonium, the speaker emphasized that they "must be clad or jacketed to protect them from corrosion by the coolant and to prevent escape of fission products and other radioactive materials from the fuel element into the coolant stream." The cladding material should have a "low thermal neutron absorption cross section in order to minimize the amount of competition with useful absorption in the fuel . . . it should be capable of meeting

stringent requirements with respect to physical, mechanical and metallurgical properties . . . and it should be inexpensive.

"Of the several materials which meet the above specifications to a greater or lesser degree, zirconium and austenitic stainless steel are the most practical for heterogeneous thermal power reactors."

Mr. Cordovi mentioned that the control materials used in reactors present many of the same problems encountered in the design of fuel elements. In addition to a high thermal neutron capture probability, he said a control material must also possess satisfactory structural strength, resistance to wear and mechanical shock, ease of fabrication, and must be available at low cost.

"The application of structural materials in the primary cooling system of the nuclear power plant requires special knowledge in two fields: (a) the corrosion behavior of metals in the specific coolant and (b) the interaction of radiation with matter . . . Among the structural materials which meet the necessary nuclear requirements and possess adequate high temperature mechanical properties and

corrosion resistance are stainless steels, zirconium alloys and Inconel nickel-chromium alloy."

Referring to the problems presented by radiation, Mr. Cordovi said "much work remains to be done before we can realize the full engineering significance of irradiation-induced effects and establish suitable design criteria to compensate for these effects on the properties of materials."

In his concluding remarks, he stated that "the feasibility of economic nuclear power depends to a large extent on our ingenuity in applying known materials technology, in developing new materials and in effecting process improvements resulting in reduced fabrication costs but without compromising the product quality. The materials engineer must call upon the entire technology of metals behavior and processing for the proper rearing of this new and exciting infant industry."

A VERY GREAT DANE

A man took his Great Dane to a vet.

"Doctor," he said, "you've got to do something. My dog chases sports cars."

"Well, that's only natural," replied the vet, "Most dogs chase cars."

"Yes," the man agreed, "but mine catches them and buries them in the back yard."

QUICK QUIZ

1. Wheat normally accounts for what proportion of Canada's railway freight traffic?

2. Where in Canada is "Spud Island"?

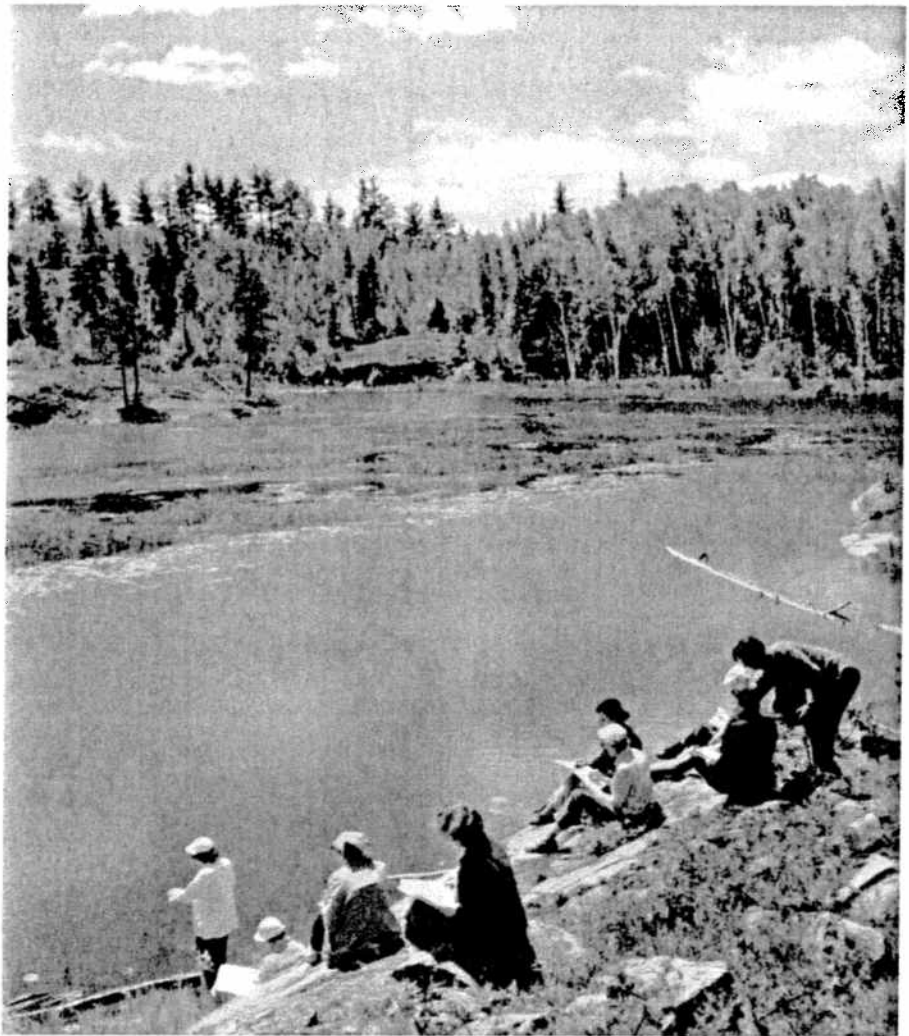
3. What proportion of births in Canada occur in hospitals?

4. By what agreement is the Canada-United States boundary an unfortified line?

5. What son of a Halifax dockyard carpenter established the first regularly scheduled steamship service between Europe and America?

ANSWERS: 3. Better than 4 out of 5. 1. Wheat uses one third of all rail freight. 4. The Rush-Bagot Convention, signed in 1817. 2. Because of its large potato export, Prince Edward Island is nicknamed "Spud Island". 5. Sam Cunard, founder of the great Cunard line.

Highway 69 Scenery Takes Fancy of Art Club



On a beautiful day in June the Sudbury and district Community Art Club made a sketching trip to Rock Lake, on Highway 69 below Burwash. Picture shows some of the members and their Scottish-born instructor, Durham White: Mrs. Dorothy Young (club chairman), Mrs. Gladys McKay, Mrs. Doreen Wadge, Mrs. Agnes Salo, Mrs. Brigetta Triese, Mrs. Madeline Reid, Mrs. Mary Clarke, Mrs. Doris Chambers, and Mrs. Babe Meaden (who also appears in our cover picture "Up in the Clouds").



LEVACK: Mr. and Mrs. Charles Kimball with Peter, 10, and Brenda, 8. Charles works in the electrical department at the mine and as a sideline is on the refereeing staff for the wrestling bouts at the Inco Club in Sudbury.



PORT COLBORNE: Mr. and Mrs. Donald Wilson with their daughter Cindy, 1, and son Brad, 4. Before her marriage Mrs. Wilson was a nurse at the nickel refinery first aid room.



COPPER CLIFF: Here's Andy Simeon of the crushing plant with his wife, their daughter Ann, 15, and their sons Fred and Emilio, 18 and 23. They live in Sudbury. Andy became a member of the Inco Quarter Century Club in 1956.



CREIGHTON: Mr. and Mrs. Tony Schriml with Eldene, 9, and Marlene, who was 14 on June 10. Their home is in Lively. Tony is a drill fitter at No. 3 shaft.

INCO FAMILY ALBUM

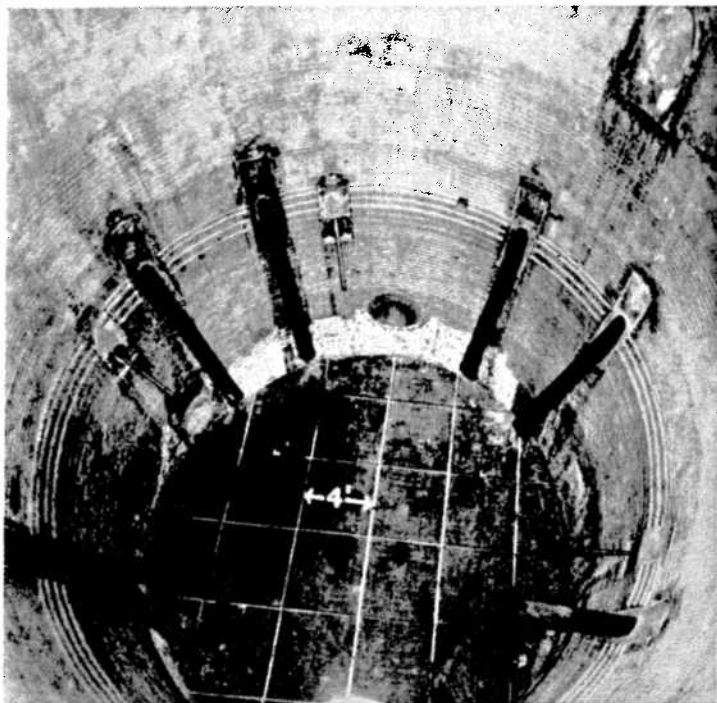


CONISTON: Raymond Lapointe, who works in the sinter plant, lives in New Sudbury with this charming family. The kiddies are Eloi, 1, Camille, 4, Gilles, 5, Denise, 3, and Andre, 2. Andre and Denise have the same birth date.

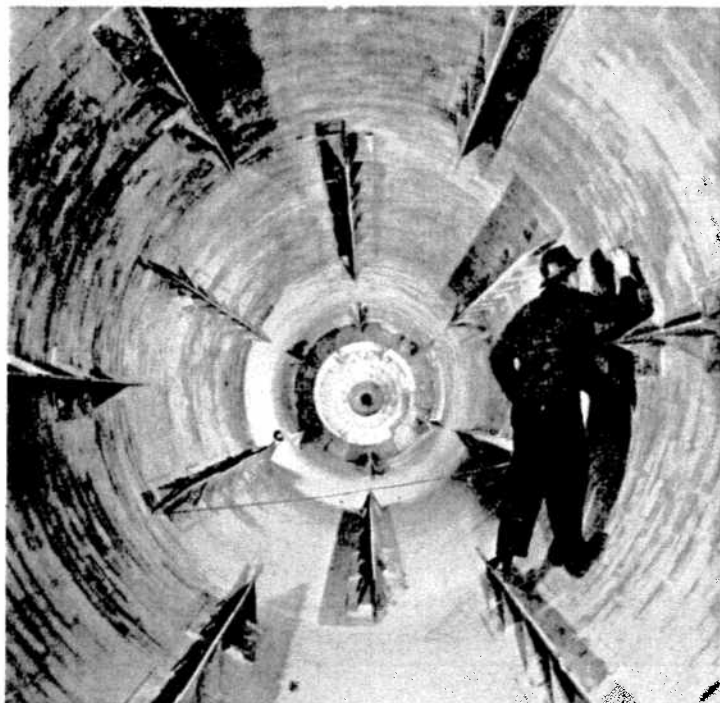


FROOD: Mr. and Mrs. John Sander with Dennis, 11, Carol, 8, Rodney, 6, and Mary, 1½. John works on 800 level of the mine, in the blasthole area. He has been a Frood man for 11 years.

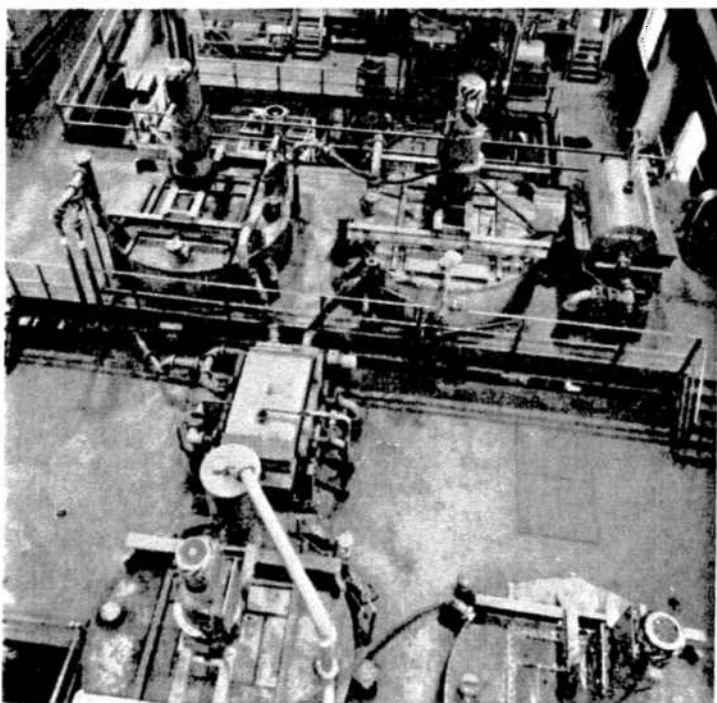
Four Phases of Inco Iron Ore Recovery Process at Copper Cliff



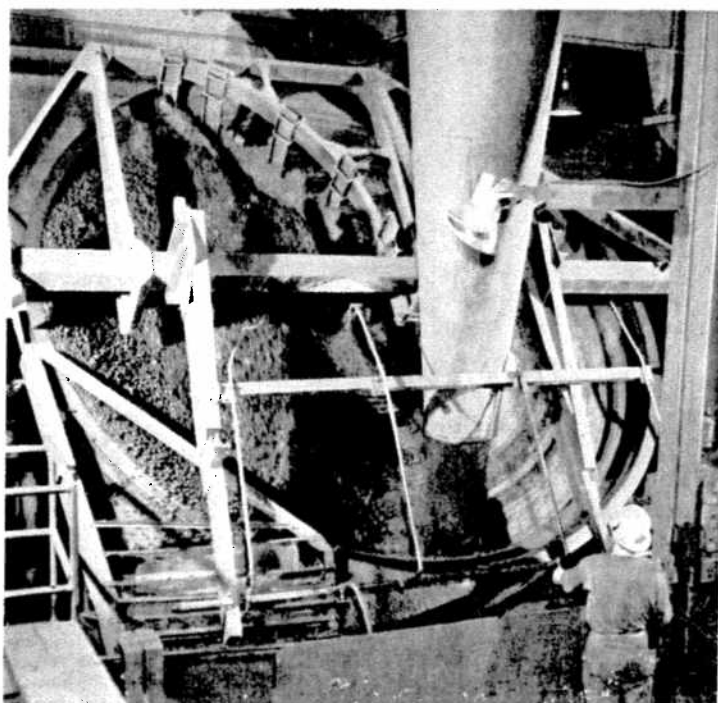
First major unit operation in the production of high-grade iron ore at Copper Cliff is to remove sulphur from the pyrrhotite concentrate by roasting. The above picture gives an inside view of one of the two huge Inco fluid bed roasters in which this is accomplished. This roaster has a capacity of 550 tons per day, double that of any other roaster now in service. It is a refractory-lined cylindrical shell 43 feet high from hearth to roof and 26 feet in diameter. The rich sulphur dioxide gas made available by these roasters is used to produce sulphuric acid and, at the pilot plant stage, elemental sulphur.



In the second phase of the iron ore recovery process, the roaster calcine is treated in a gaseous reduction kiln where a chemical change takes place which frees the nickel content of the calcine so it can be removed by ammonia leaching in the next stage of the operations. Picture shows the interior of one of the two rotary kilns at the Inco plant. Steel cylinders 185 feet long, with an 11½-inch lining of fire brick, they are the largest gaseous reduction kilns in the world. The lifters are made of high temperature-resistant nickel steel castings. The research engineer shown conducting a test is Steve Pinkos.



Leaching tanks and permanent magnet drum thickeners are seen in this picture taken in the leaching building, where the third phase of making high-grade Inco iron ore takes place. Metallics and sulphides in the product from the rotary kilns are leached in ammoniacal solutions at atmospheric pressure for the extraction of nickel, copper, and cobalt, which are then sent to other sections of Inco operations for further treatment. Six stages of leaching are involved, including a grinding operation and five stages of washing. The leached and washed magnetite is pumped to the pellet building for agglomeration.



On three 16-foot Lurgi balling discs the magnetite is rolled into 1-inch pellets in the final stage of the Inco iron ore recovery process. The fineness, moisture, and rate of the magnetite feed, the size of the disc and the speed at which it is operated, and also the angle at which it is set, are all critical factors determining the size of the pellets produced. In this operation the discs are set at a 45-degree angle, turn at four revolutions per minute, and have a capacity of 20 long tons per hour each. After baking in a sinter machine the pellets are ready for shipment. The operator shown is Cliff Cardinal.



The freighter *Algoway* is shown at the Georgian Bay port of Little Current, loading the first iron ore shipment of the 1958 Great Lakes season from International Nickel's iron ore recovery plant at Copper Cliff. Over 25,000 tons of iron ore pellets was piled on the dock ready for the opening of shipping. The two men in the picture, on hand to observe the commencement of loading operations, are Weir Adamson of the primary metals section of the Inco sales department at New York, who is in charge of iron ore and cobalt sales, and Graham Massecar of the metallurgical department at Copper Cliff. In the closeup on the right Mr. Adamson holds Inco iron ore pellets, the highest quality iron ore produced in North America.

Iron Ore Recovery Another Major Triumph for Inco Process Research

Capacity operation has been attained at the International Nickel Company's iron ore recovery plant at Copper Cliff.

The \$20,000,000 plant is the first unit of an installation which will have a capacity of more than 1,000,000 tons per year of pyrrhotite. The first unit can treat 1,000 tons of pyrrhotite per day, cor-

responding to an output of 250,000 tons of iron ore per year.

The plant uses an Inco process that treats a nickel-bearing iron sulphide to yield pellets containing 68% iron, 0.15% nickel, 1.5% silica, and 0.01% sulphur. This is the highest quality iron ore recovered in North America. It is shipped to steel companies in Canada and

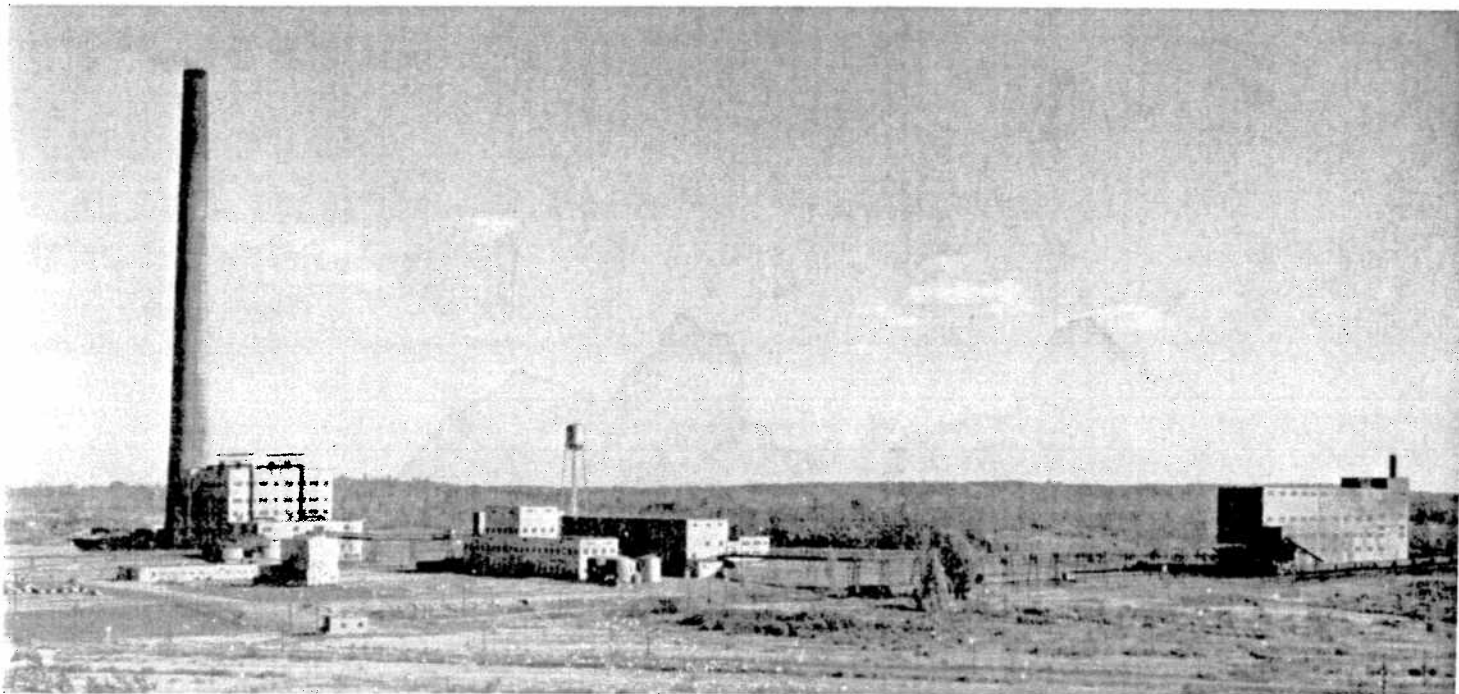
the United States.

The main units of equipment at the Inco iron ore recovery plant are of larger capacity than any known comparable apparatus built to date. The chimney, 637 feet high, is the tallest smelter chimney in the world, the roasters have double the capacity of any other roasters now in service, the gaseous reduction kilns are the largest anywhere.

Inco's iron ore recovery project represents another major triumph for the Company's work in process research, and constitutes an outstanding metallurgical advance.

Ore milled by Inco consists essentially of pentlandite, chalcopyrite, nickeliferous pyrrhotite, and rock minerals. For the past 25 years or more, milling practice involved floating a bulk rougher and a scavenger concentrate. The bulk rougher concentrate, containing most of the pentlandite and chalcopyrite, was separated into high-grade nickel and copper concentrates. The nickel concentrate was then combined with the scavenger concentrate, which contained most of the pyrrhotite, and was smelted. Consequently nickel smelt-

(Continued on Page 13)



In this general view of Inco's iron ore recovery plant at Copper Cliff, the big building at the base of the 637-foot stack is the roaster-kiln building, and in front of it are the office-changehouse building and the cooling tower. In the centre of the photograph are the recovery, leaching and water treatment buildings, and back of them the water tower which has a capacity of 144,000 gallons. To the right is the pellet building in which the final product is produced.



Eight charter members of Levack's Woodland Pistol Club line up for a few practice shots, Fred Sealy, Jacob Kleniewski, Don Ross, Doug Lanktree, Joe Ribic, Bob Wotton, Allan St. Jacques, and Norman Grigg. Standing behind them is their chief range officer, Morris Howard.

Pistol Club Is Levack's Latest Sports Activity

While driving the river road back of Levack on a quiet Sunday afternoon the sudden crackle of gunfire may well make one instinctively duck for cover — or call for Wyatt Earp. There is no need to do either, however, since the staccato bursts shattering the silence are presented with the compliments of the Woodland Pistol Club, Levack's most recent sporting venture, and threaten no danger.

Started a little over a year ago with a handful of enthusiasts the club now boasts 30 members and anticipates an even larger membership soon. Allan St. Jacques, a caretaker at Levack mine, organized the group and is its president. Other officers are Scotty Gregg, secretary, and Don Ross, treasurer. Three Inco policemen are among its members. A high gravel pit along the Onaping river is its present "home."

A great competitive sport, pistol shooting requires extra strong, steady nerves and muscles and is not recommended for those with hangovers. Many members practise almost daily, weather permitting.

First of the Woodland Pistol Club's regular monthly shoots was held on a recent Sunday when the team of Don Ross, George Ruller, John Bryant and Doug Lanktree shot their way to a 1,051 score out of a possible 1,200 points to win the Sun Valley Service Station trophy. This trophy will be up for annual competition as will others donated by local merchants.

The shoot consisted of 10 rounds each of slow, rapid and time-fire. The range is 20 yards and each contestant is first allowed five warm-up shots.

Members are divided into teams of four men with the combined score counting. Every move on the range is under the strict surveillance of the chief range officer. This official has absolute authority and nobody loads, fires or examines a target without clearance from him. Morris Howard holds down this important post with the Woodland Club. This officer is appointed annually and at any time



LEFT: John Bryant shows range officer Morris Howard the five bullseyes he has just scored at time-fire shooting. RIGHT: Club president Allan St. Jacques presents the trophy for the club's opening shoot of the season to the captain of the winning team, Don Ross.



Allan St. Jacques and Joe Ribic display various types of pistols. Joe is holding a 357 Python Colt Magnum, a very powerful gun which has not yet been used at the Woodland Pistol Club. Others shown are of .22 calibre. The box in the background is a portable kit containing spare parts, ammunition, and cleaning equipment.

may deputize others to assist in ensuring absolute safety.

With the contestants ready on the firing line, the range officer's orders go like this: "Load five — lock (slide clip home) — ready on the right side — ready on the left side — ready on the firing line." Then a whistle blast starts the firing. A stop watch keeps time. 5 minutes in slow fire, 20 seconds in time fire and 10 seconds in rapid fire. Another whistle denotes the time lapse.

A perfect target, of course, is 100, made up of 10 bullseyes. The rings on the targets for time and rapid fire are slightly wider and number from 6 to 10. For slow fire the rings start at 4 and offer a slightly smaller target. Scoring is checked on the buddy system, that is competitors confirm each other's scores. The chief range officer settles any disputes.

A good target pistol, Allan St. Jacques told the Triangle, costs from \$90 to \$125. The average

weight is around 38 ounces, which is often increased by as much as half a pound by the addition of weights along the underside of the barrel. These help steady the aim and vary according to individual preference. Many club members remove the conventional grip from their pistols, and carve and instal custom grips of their own. All this adds up to more accurate shooting, they claim.

The members are very enthusiastic about the future of the Woodland Pistol Club, with plans in the making for a more elaborate set-up. A 25 and 50 yard range is on the books, as is a clubhouse from which members could shoot in all weather, winter or summer. They hope to make a start on building it this summer.

Their president said that when they get a little more practise they hope to exchange visits with other pistol clubs in the district.

The Woodland Club is affiliated with the National Rifle and Pistol Association, the Canadian Civilian Association of Marksmen, and the Ontario Revolver Association. All members' weapons are licensed along with their range.

50 Years Wed



On April 22, 1908, at Glen Huron, near Collingwood, Mary Jane McAllister became the wife of Samuel John Rose. Half a century later this fine couple were guests of honour on their golden wedding anniversary at a celebration staged by their family and friends.

Mr. Rose, an Inco pensioner since 1950, first came to the Sudbury district in 1910 and worked as a hoistman at the old Mond mine. He saw most of his service at Frood, where his son Orland and his son-in-law George Field now work. Another son Vernon is on the lab staff at the Creighton mill, while two others, Alex and J. C., are employed in Sudbury.

Among their treasured mementos of their golden wedding Mr. and Mrs. Rose have a certificate of congratulations and good wishes from the provincial secretary on behalf of the Ontario government.

HE'LL GET THE POINT

The customer was buying a fountain pen for his son's graduation present.

"It's to be a surprise, I suppose," observed the clerk.

"I'll say it is," the father replied. "He's expecting a convertible."

Vigorous Frood Bowling League Climaxes 21st Consecutive Year



B Section league winners: Eldred Dickie presents his trophy to Al Marshall (captain); behind them are John Taylor, Nick Maciborka, Ed Whalen, Ray Ceaser, Joe Kaksonen, Ed Moore.



B Section playoff winners: Norman Creet presents the Bruce King trophy to Ed Belfrey, George Pitman, Johnnie Kruk (captain), Keith Harris, Herbie Beall. Not shown, Lou Midgley.



A Section playoff winners: Fred Fiorotto (captain), Jim Kilby, Frank Jenkinson, Frank Shepherd, Sammy Jones, Carl Sloan, Mike Panas. They won the C. H. Stewart trophy.

Almost 300 bowlers and their ladies enjoyed the banquet and presentation of trophies that brought to a colorful close the 21st consecutive season of the Inco Club's Frood bowling league. Planned, arranged and conducted by that pair of smooth operators, league president Eldred Dickie and secretary Albert Stone, the event was well up to the high standard they have set for themselves over the years.

Flowers for the ladies, refreshments, dinner and dancing were all on the program at Legion Memorial Hall.

Members of the championship teams who stepped into the spotlight at trophy time appear in the accompanying photographs. Unfortunately not pictured is Leo Marcotte's team, winners of the Norman Anderson trophy for the C section league: Norm Whissell, (Continued on Page 10)



A Section league winners: Sid Sheehan (second from the right) presented his trophy to Cec Burton, Tony Saloun and Dunc Risk (captain). Not shown, Wes Lepage and Cliff McGregor.



On the left is Doug Dickson, who scored a clean sweep of individual awards in B Section. The centre picture shows three members of the Frood team that won the new John A. Pigott inter-mine trophy, Jack Boyle, Erle Dunn and George Robinson; not shown, Percy Dowse and Tony Hebert. On the right are C Section playoff winners, who received F. McAteer trophy from Stan Dobson: Henry Vendette, John Sauve, Art Pyne, Bert Robertson; not shown, Emil Dubrieul, Ronnie Cain.



LEFT: At Eli Kiviaho's big retirement party, held at the Sudbury Serbian Hall, some of his old Creighton pals gathered around him for this picture, Joe Lovsin, Herman Punkari, Alf Emblin, Eli, Jack Treasure, Joe Zimmerman, and Bert Behenna. **RIGHT:** A surprise guest at the party was vice-president Ralph Parker of Toronto, superintendent at Creighton mine many years ago, who dropped in to offer best wishes to his friend Eli.

Eli Kiviaho Living Legend At Creighton

When he finished his final shift at Creighton mine and stepped into retirement the other day, little Eli Kiviaho had the distinction of holding the longest service record of any Inco employee in Canada, having joined the Company in 1910.

In his job as "machine doctor" he was well-known throughout the mine, and no man was held in higher respect or affection. He had the reputation for being thorough and completely reliable. His interest in his work was reflected in the Suggestion Plan awards he received, one of them for over \$200.

Away back in 1937 the Triangle carried a feature story on Eli Kiviaho of Creighton, hailing him as the "Frugal Finn" type of new Canadian who was making a substantial contribution to the growth and development of the country.

At that time Eli was fighting back from a serious economic blow. His small farmhouse on the old Soo Road just east of Victoria Mine had been destroyed by fire. The family took up temporary abode in a small cookhouse, and the five sons slept in the machine



On his final day at the mine Eli was congratulated on his fine record at Inco by Creighton superintendent Earl Mumford, and then said goodbye to Wilf Moore, underground superintendent, and Charlie Quinn, general foreman, at No. 3 shaft.

shed, and everybody knuckled down tight to save money for a new home. Eli bought one of the abandoned buildings at Crean Hill; he and the boys dismantled it and hauled the lumber to their farm. Working swiftly against the approach of winter they soon built a comfortable house.

Not a shift did Eli lose at Creighton during all this trial and tribulation. In the winter months he travelled the 17 miles to and from the mine on skis; in the summer he often walked or ran the whole distance. He was tireless, steady, quietly ambitious.

Even his lifetime hobby of hunting had to be profitable if Eli was to achieve the goal he set for himself, so he declared a one-man war against wolves. Armed with his rifle he would set out on his skis for a likely wolf district and there circle around until he crossed a wolf track. Then he was off, and five or six hours later he usually had his quarry. The wolf, exhausted and exasperated by the relentless pursuit, would stop to howl. This was its fatal mistake, for Eli was a crack shot. The result was another nice bit of bounty to go into the old Kiviaho sock.

It's little wonder that Eli is already a legendary character among those who know him.

Eli's most thrilling hunting experience occurred about 1930 while he was skiing near the Vermilion River. One of his ski poles went

through the snow into a hole and he couldn't pull it out. He dug away the snow and found that he had broken into a bear's den, for there was a bear's head directly in front of him, and a bear's paw was holding the ski pole. The pole had apparently interrupted the bear's winter sleep so he had just laid his paw on it.

Eli immediately shot the bear and then went to McFadden's camp, nearby, to get help in removing the 300-pound brute. Eli and McFadden returned with a length of cable, and as Eli was tying the cable around the bear's head he heard a noise further back in the den. Eli warned McFadden, "there's another one in there," and McFadden thereupon thought it was about time to strike out for other parts, but Eli grabbed his rifle, got a bead on the second bear's head and shot him. The two men then prepared to get the two bears out when another movement in the den indicated the presence of still a third bruin. McFadden promptly took off. Eli stuck to his gun, so to speak, and put a bullet through the head of the third bear. It was a little smaller than the other two, he said.

An athlete in the tradition of the great Finnish distance runners, he competed in the marathon races popular in the Sudbury district in the early days, usually arriving by bicycle at such distant points as Capreol just as the race was about

to begin. Often he ran 45 or 50 miles just for the satisfaction of testing his iron constitution. Little wonder that he soon was held in awe by some of his soft-living friends.

Eli was born in Lappajarvi, Finland, the son of a farmer-fisherman who had a family of eight. Eli's brother Joel made a trip to Alaska to look for gold and came back home to Finland with stories about Canadians wearing big rings they made from silver mined at a place called Cobalt. Eli and Joel decided to go to Cobalt and get in on some of that silver mining, but on arriving in Canada they went to Sault Ste. Marie by mistake, and there met a man named Cap Hambley who was hiring men for Creighton mine, near Sudbury. So Eli and Joel came to Creighton instead of Cobalt, and never once regretted it.

They rode in Mike Furlong's buggy from Sudbury to Creighton, and got stuck in the mud near Kallio's farm. Eli went to work at the mine, shovelling rock. He drew 17 cents per hour for a 10-hour day. He lived at Kulmala's boarding house. When the mine powderhouse blew up and broke all the windows on the north side of the town, Mrs. Kulmala thought the end of the world had come for sure.

With his first pay Eli bought a rifle, a Winchester 30-30 that cost him \$17.50, and soon he was bringing in enough fresh meat to pay



Eli holds a homemade gun, barrel and stock sawed off, that he used as a boy to hunt wild turkey in Finland; it is more than 200 years old. Mrs. Kiviaho holds the powder horn and mould for making bullets.

Long-Time Partnership on the Frood Bus



There's a lot of Inco service climbing aboard that Frood bus. Having his ticket punched is Arthur Simond, who started with the Company back in 1923 and has been at Frood for close to 30 years. Close behind him is Frood's surface track boss, the genial Moe Fior, who has service dating back to 1920. And punching their tickets is popular Delongchamp bus driver Bill Gallant. Bill has been on the Frood run since 1927, and both Arthur and Moe have been regular passengers of his since then.

for his board. That way he didn't have to cash his cheque. There was wonderful hunting in the woods back of Creighton. White pine four feet wide grew on the shore of Meatbird Lake, which teemed with trout. To Eli this life was just about perfect. Along came Bob Pascoe and Harvey Simpson and Joe Butler, and they thought it was a good life too. Those were happy days.

Not one to let contentment lapse into laziness. Eli dreamed of buying a farm, and getting some trap lines going, and otherwise establishing himself. These and other ambitions were shared by Hilda Maki, daughter of an Inco miner, and she and Eli were married in 1916. It wasn't until 1933 that they got their farm, and after that they had the fire and other setbacks, but they persevered and worked hard, and now they're comfortable and secure.

Of their six sons, Emil works in the Inco electrical department at Copper Cliff, Edward is employed at Levack mine, Gene operates a service station of his own, Allan works at Elliot Lake, John works at Aero-Nickel, and Billy attends school at Whitefish. Their daughter Lila goes to Copper Cliff high school. Three of the boys are married and so Eli and his wife have 10 grandchildren.

When asked what he'll do now that he is "retired", Eli's answer came quickly, "I have to be outside." So in the summer he'll work on the farm, and in the winter he'll operate a trapline, either in his home district or elsewhere.

And if there are any wolves around where Eli is, they'd better look out, that's all we have to say to them.

MADE THE BEST OF IT

Two seven-year old boys had just been to a romantic movie.

"Wasn't it awful," said one.

"It wasn't so bad," replied the other. "During the kissing scenes I just closed my eyes and made believe he was choking her."

STARTING YOUNG

The young husband had just arrived home from the office.

"What's the matter, darling?" he asked. "You look flustered."

"Oh, I've had a dreadful day," his wife answered. "First baby cut his first tooth, then he took his first step, and then he fell and knocked out his tooth."

"Then what happened," asked her husband.

"Oh, darling," she answered in a shocked voice, "he said his first word!"

ANTIDOTE NEEDED

One of these days somebody's going to come up with a book on "How to Get Out of Doing it Yourself."



Teams of monitors moved carefully through the contaminated area.

Complete Course In Civil Defence

Final exercise of an 11-week course in radiation monitoring was held at Copper Cliff high school grounds, when the members carried out a mapping operation in a contaminated area.

A grid was laid out and small boxes containing a radioactive substance were spotted on it. Working in pairs, the monitors used radiac sets to measure and map the high and low zones of radiation. They wore rubber boots and gloves, and coveralls with all openings covered by masking tape. Each man also carried a dosimeter indicating how much radiation he himself was receiving.

The course was part of the Sudbury and district's Civil Defence organization's program to set up a protective system for the public against the dangers of radioactive fallout. It was attended by a selected volunteer group of some 40 key personnel, about half of them from Inco. Their instructor, Walter Lalonde, told the Triangle they were a keen and enthusiastic class, and it had been a pleasure to work with them.



Bill Campbell and Tom Crowther shown as they measured and mapped radiation with a radiac set.

Another Distinction For Dr. J. F. Thompson

The Institution of Mining and Metallurgy has awarded to Dr. John F. Thompson, chairman of the board of Inco its Gold Medal for 1957 "in recognition of his distinguished services to metallurgical science, research and practice, with special reference to the nickel industry."



Dr. Thompson received the medal at the annual general meeting of the Institution at Burlington House, London, England, on May 15.

Earlier this year, Dr. Thompson was the recipient of the Charles F. Rand Memorial Medal of the American Institute of Mining, Metallurgical, and Petroleum Engineers.

Picture shows Dr. Thompson (left) receiving the medal from G. Keith Allen, president of the Institution.

See Great Scottish Soccer Team



A memorable event in the history of Nickel Belt sport was the visit to Sudbury in June of the famous international Scottish soccer team, Hearts of Midlothian, who delighted a capacity crowd at Queen's Athletic Field with their skill in a match against Northern Ontario All Stars. Picture shows Hearts' inside left, Bob Blackwood, driving a hard shot at Mike Leslie, who was sensational in the nets for the All Stars. Another local standout was Kurt Herman at left half. The match was arranged by Sudbury District Football Association under the excellent direction of president Jim Nemis. In an interview in Montreal the Hearts said their reception in Sudbury was the best of their tour.

Whisker Margins Decide Playoffs At Garson Club

With their usual smartly organized and largely attended banquet at the Club Allegri in Coniston, the men's and ladies' bowling leagues of Garson Employees Club put the finishing touch to another season of fun, fellowship, and fine bowling.

There were eight teams in each of the two sections of the men's loop, of which Cecil Ace was president and Ollie Matson secretary-treasurer. The competition couldn't have been much closer — the A section championship was in doubt until the second-last game of the schedule, and the B section wasn't decided until the very last game, in which Ralph beat Matson by 2 pins.

The B section playoff games were thrillers too: Ralph beat Burton by 9 pins, Matson beat Morin by 5 pins, and then in the final Matson took it over Ralph by 1 pin.

The eight-team ladies' league got good management from Mrs. Katie Cull, president, Mrs. Claire Monk, secretary, and Mrs. Grace Brankley, treasurer. They too had a very successful season with some closely contested playoff matches. Outstanding bowler of the league was Mrs. Alice Young, who won all three individual awards.

Banquet arrangements were excellently handled by Ollie Matson, assisted by Mrs. Claire Monk and others from the league executives. In service to his fellow bowlers Ollie certainly rolled up a handsome score.

Following the regular bowling playoffs came the annual tournament for the Garson Employees Club championships. All club members are eligible to enter this 5-game tourney, in which total pins count. Some exceptionally good scores were racked up in this year's event, in which Cecil Ace emerged as men's champion with a total of 1363 for the five lines and Mrs. Katie Cull the ladies' champ with 1089.

Vigorous Frood

(Continued from Page 7)

Ukie Marsolais, Cliff Cote, Ted Barnat, and George Parks.

In the individual awards department the big winner of course was Doug Dickson, who walked off with a triple crown in B section: high single (373), high triple (876) and high average (220). Other individual winners were: A section, high single (428) and high triple (980) Earle Dunn, high average (251) Dunc Risk; C section: high single (361) and high average (217) Ray Ceaser, high triple (790) Wes Lepage.

THE FAMILY HONOR

The kindergarten teacher had been struggling with the top hook on a child's new raincoat for nearly five minutes. Finally, in exasperation, she asked, "Did your mother hook this coat for you this morning?"

"She did not!", said the child indignantly. "She bought it at a store!"

Here Are New Inco Champs Crowned in Garson Bowling



LEFT: Winners of the Todd trophy for the regular schedule in A section, and also of the Garson Mine Athletic Association trophy for the playoff between the A and B sections were Tauno Perala, Vic Kreko, Gordon Young, Vaino Maki, Vern Kallio and (not shown) E. Valkilla. RIGHT: Winners of the Davis trophy for the B section playoff were Arthur Lye, Calvin Carr, Joe Brosseau, Ollie Matson, Len Matson and (not shown) R. Linskog.



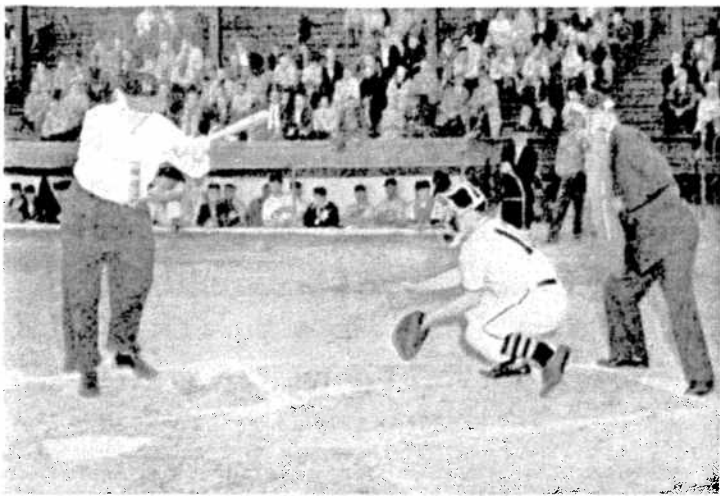
LEFT: Winners of the Pidutti trophy in the consolation event were Don Cull, John Gates, Ned Gascon, Ted Cole, Bud Hoffman. RIGHT: They were presented with the "Skunk" trophy because they only won 13 points all season in A section: Curtis Francis, Ken Paris, Gerald Clyde, Haldon Ritch and (not shown) B. Mentis, R. Mentis, A. Duncan.



LEFT: Winners of the Demarco trophy for the regular schedule in B section: Cecil Ralph, Pat Levesque, Joe Cull, Frank Grande and (not shown) G. Cull and J. Vaillancourt. RIGHT: Individual scoring champs were: front, Tom Rollins, high single, B, 382; Ken Spencer and Andy Muir, high single, A, 396; back, Cecil Ace, high average, A, 234; Byron Spencer, high average, B, 223; Jack Laking, high triple, A, 920; (not shown) J. Ceccone, high triple, B, 925.



LEFT: Winners of the Garson Employees Club trophy for the regular schedule in the ladies' league, and also the Roy trophy for the playoff were: Mrs. Hilda Ashick, Mrs. Colleen Beaudoin, Mrs. Elizabeth Lye, Mrs. Leone Ritchie, Mrs. Anita Morrow, Mrs. Ina Synnott. RIGHT: Winners of the consolation event in the ladies' league were: Mrs. Florence Claes, Mrs. Adele Grande, Mrs. Peggy Paris, Mrs. Katie Cull, Mrs. Rita Chokan and (not shown) Mrs. Grace Brankley.



In the ceremonies launching the opening ball game of the season at Queen's Athletic Field, Doug Walker's mound offerings were rather "low on the inside" until he got the range. Here hitter Sam Rothschild watches one bounce by, catcher Spike Boal dives for it, and umpire Barney Barnett tries to make it look like a close call.



Among the opening night fans was Harriet Maddock of the purchasing department at Copper Cliff, third from the left in this picture, who attended with three of her friends, Carol Kallio, Sylvia Chyka, and Barbara Destefano. Considering the coolish weather there was a pretty good crowd.

Early Race Is a Close One

If early indications give the long-range forecast, the top slot in the Nickel Belt senior baseball loop won't be decided until the last out is called along in August.

Creighton, Copper Cliff and Coniston are all bunched close in the first three positions, with Garson a good fourth. Only Frood Tigers are lagging.

The league's first game was played at Coniston on June 5 when the home boys beat Garson Greyhounds 11 to 8 in six innings.

Opening game at the Sudbury park was on June 12 with Garson coming from behind to trim Frood by a 10 to 8 score.

Offensively Coniston had their heavy artillery in action early this year. After six games they sported a team batting average of .322, which is just short of terrific. In the early averages Copper Cliff's Joe Zorica was tops individually with a whopping .588 as of June 20. Of course when it comes right down to solid hitting many a competent observer would give Creighton catcher Jack Howe the nod.

In the fielding department Copper Cliff were leading the parade with a classy .956 average, closely pursued by the Greyhounds with .942. Hapless Frood were at the bottom of this department too with .864.

Plagued with errors and lacking a strong offensive the Tigers had no wins in their first six starts. However coach Spike Boal expects better things from many of his young hopefuls when they get the nervous kinks ironed out. On the other hand the Garson Greyhounds have been producing some mighty exciting baseball and undoubtedly are headed for a higher rung on the league ladder.

Despite the lack of senior imports and the jitters of the juveniles, the teams are playing a pretty good brand of ball. That 12-inning thriller between Creighton and Copper Cliff was an example. With hot weather coming (we hope) the clubs should soon be at their peak and with some solid support from the bleachers will dish up a very acceptable brand of baseball fare.

Lawrence Jeffrey at Coniston 34 Years

Lawrence Jeffrey started working in the smelter at Coniston in 1924. Retired now, he is certain that the past 34 years have been worth while. With good health, a comfortable Inco service pension, a fine family and a host of friends, he is all set for the future.

Lawrence has moved back to Beachburg, near Pembroke, where he was born in 1893. He worked on the farm there until 1924 when he came to the Sudbury district and found work at Murray mine. The mine closed that year but he quickly got another job at Coniston. He moved to the smelter substation in 1930, and became an operator in 1933. The last year of his long service at Coniston he spent in the machine shop.



Mr. and Mrs. Jeffrey

In 1921 Lawrence married Mabel Lyons, who said of their return to Beachburg, "We'll just love it. Like going back home for us." Her husband felt the same way since many friends and most of their relatives are there. The Jeffreys have one son, Stanley, who has worked for Inco at Coniston since 1939, and a daughter, Shirley, who is to graduate from Ottawa Civic Hospital this June. They have three granddaughters.

Lawrence figures that landscaping the large lot around his new home at Beachburg will keep him busy this year and possibly next, which suits him fine. He and his wife had lived in the same house on 4th Avenue in Coniston for 30 years.

On his departure the boys at the plant presented Lawrence with a

dandy electric drill which has already seen a good deal of action. He prizes that tool highly, for both sentimental and practical reasons.

Saw Canada First, Then Settled Down

Before joining Inco in 1929, Pete Moskal had worked in and seen more of this country than many native Canadians.

Born in 1894 on a farm in Austria he had little formal schooling. In



1911 he followed his stepfather and brother to Canada, and that was the best move he ever made, he says.

His first job was at White River working for the CPR, followed by a couple of months harvesting in Saskatchewan.

From there it was on to British Columbia as a lumberjack, then back to the shipyards at Fort William. He spent a year helping build a power house at the Soo, was a paper maker for several years at Fort Francis, worked at various jobs in eastern Canada and finally hooked up with Fraser-Brace on Inco construction. When the chance came he joined the Company's transportation department at Copper Cliff.

Pete transferred to the mechanical department in 1942 and worked steadily with the mechanics until recently when he was sidelined on disability pension. He hopes lots of warm summer sun will improve this condition.

Still a bachelor, Pete says he was on the move too much when he was younger to get married, and has now grown accustomed to what is referred to as "single blessedness." He plans on remaining in Sudbury where most of his friends live.

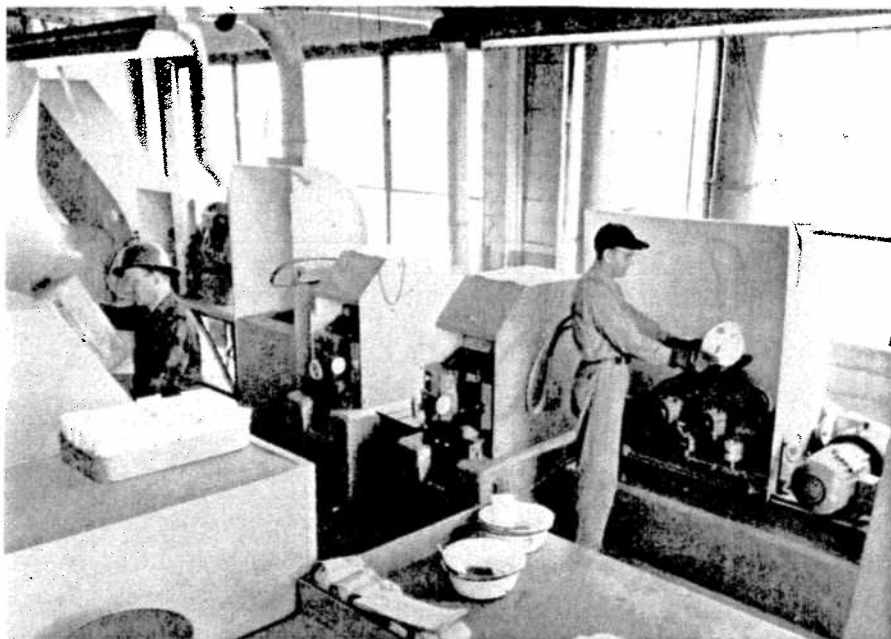
THE ETERNAL ENIGMA

Why is it a woman braves wintry winds in nylons—but grabs 80% of the blanket at night?

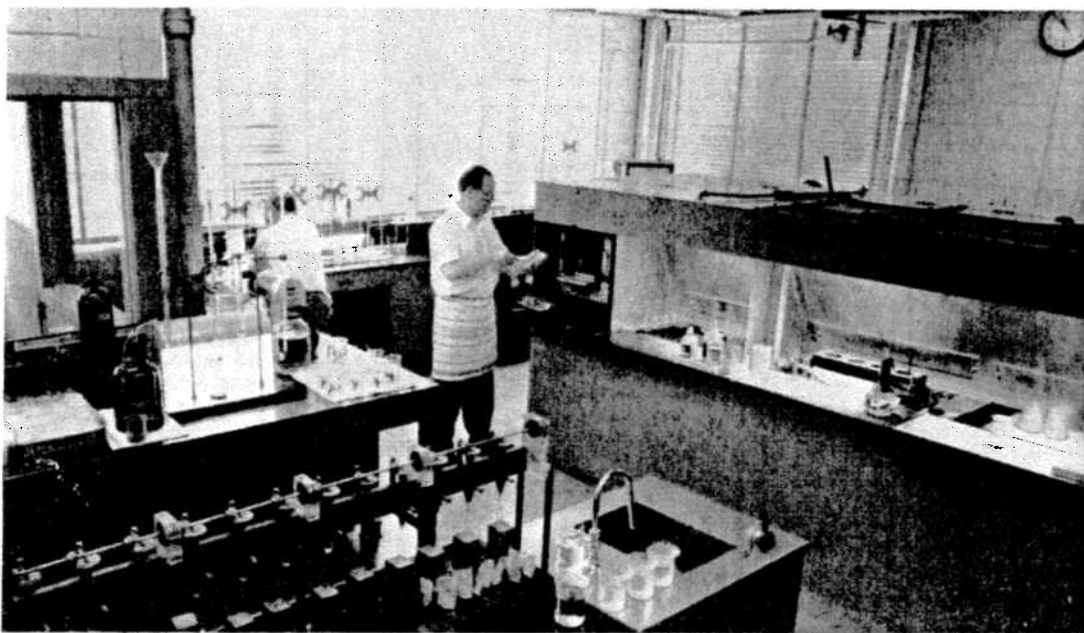
Copper Cliff Champs at Inco Club Receive Trophy



A 20-team league, largest in recent years, battled right down to the wire to decide bowling supremacy among Copper Cliff members of the Inco Club in Sudbury. Val O'Neill is shown above as he presented the trophy to the victors, Super Bertuzzi (captain), Mike Skuro, Karl Krasowsky, John Dryjanich, and Phile Della Vedova. Big man of the loop in individual scoring was Roger Sabourin, who took all three.



In this view of the grinding room Rolly Miron feeds ore samples to the Denver crusher and Hector Robidoux pours a partly crushed sample into the rolls. On the right Bert Potvin is making up composite samples of materials used in the plant which have been brought in for analysis.



In picture of the main laboratory Kaye Benn is removing a crucible from one of the two small electric furnaces. In the foreground is a plating machine, and on the right are fume cupboards.

Coniston Smelter Control Lab Is Neat, Efficient

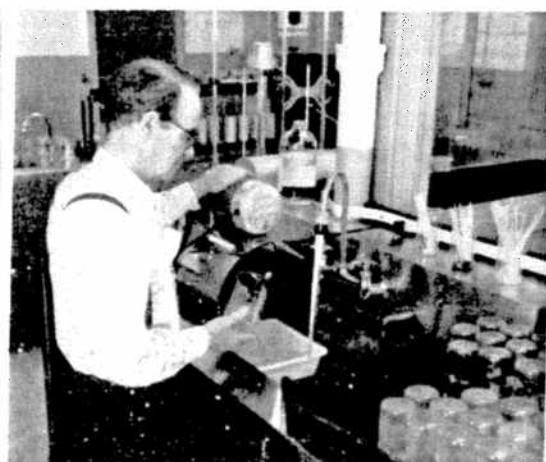
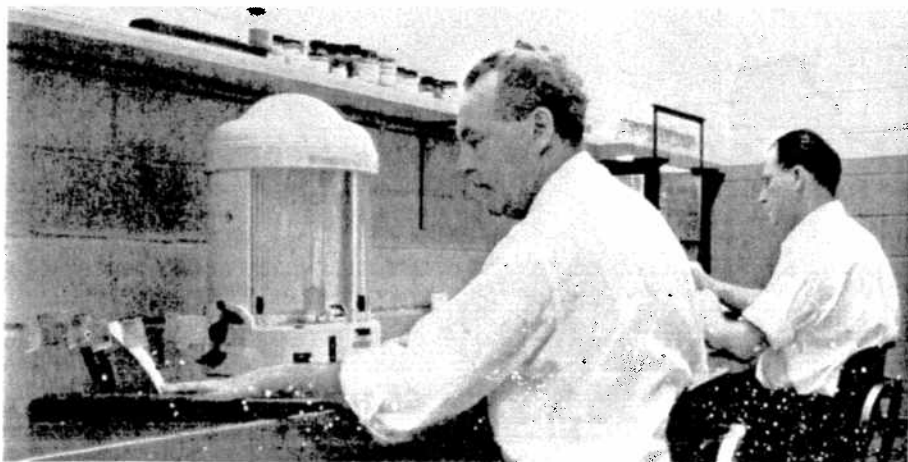
In their lighter moments smeltermen sometimes refer loftily to the plant lab as a necessary evil which they tolerate out of the goodness of their hearts.

But when the chips are down they make no bones about its usefulness.

Working in close collaboration with the plant, the control laboratory through a continuous program of tests and assays provides the smelterman with indicators enabling them to maintain top standards of quality and efficiency.

In other words it's like having your own closed-circuit television, built in.

At Coniston smelter, as at Copper Cliff, Creighton mill, and the refineries, the control lab is an integral part of the operations. It handles about 3,000 samples a month, including starting materials



On a highly sensitive single pan speed balance Herb Fitzgerald, assistant chief chemist, weighs in platinum cathodes used in plating copper from samples; next to him Kaye Benn weighs silica samples. On right George Chisholm operates automatic beaker-cleaning machine.



J. L. Rogerson, chief chemist at the smelter control laboratory at Coniston, in September will complete 29 years of Inco service.

for the plant such as ores, lime-stone flux, and coke; intermediate products such as converter slags, spout slags, settler slags and furnace mattes; and, of course, the final product, Bessemer matte.

It also processes a variety of special assignments, including strange deposits occasionally found in out-of-the-way places. Some of the diamond drilling samples from the Inco mines are also prepared and assayed at Coniston.

The Coniston staff takes great pride in its laboratory, which is part of the plant's new administration and changehouse building. It is designed to handle its work with speed and efficiency. This is particularly true of the grinding room where convenience and utilization of space are outstanding in the arrangement of the equipment and the system of exhaust ducts and cyclones for dust removal.

In these neat, bright quarters, as in all labs, there's always a deadline to meet. The Coniston staff has an excellent reputation for giving accurate, dependable service to the plant.

Warren Koth Manager Of Copper Refining

Appointment of Warren Koth as manager of Inco's copper refining division was announced by R. H. Waddington, general manager, Ontario division, effective May 1.

Mr. Koth succeeds Russell Hewgill, who has retired.



A background of billets.

Born at Bay City, Michigan, Warren Koth attended high school and junior college there. Moving to New Jersey he was employed by United States Metals Refining Co., a branch of American Metal Co., at Carteret, where Inco copper was then being sent for refining.

In June, 1929, he was one of a small group chosen from the Carteret plant to move to the Sudbury district to assist in completing construction and "starting up" phases of the new copper refinery. During his career there he has held the following positions, superintendent of tankhouse departments, superintendent of casting and yard, process engineer, assistant to the manager, and assistant manager.

Mr. Koth was married in 1930 to Helen McIntyre. They have two sons.

Iron Ore

(Continued from Page 5)

ing capacity at the Company's reduction works was limited because of the large quantity of iron to be eliminated.

Immediately after World War 2, Inco intensified studies on the isolation and treatment of pyrrhotite, with two major objectives: to increase the effective capacity of the smelter, and to produce from low-grade Sudbury nickel ores a valuable ferrous by-product, at the same time paving the way for the eventual recovery of elemental sulphur.

Inco's laboratory and pilot plant campaign, commenced in 1947, continued for eight years and culminated in construction of a large-scale plant near Copper Cliff to recover nickel and iron from nickeliferous pyrrhotite. Construction was started early in 1954, and the first unit was placed in commercial operation early in 1956.

Many attempts at utilization of the iron content of Sudbury ores have been made in the past, but almost invariably the desired end-product was nickel-bearing iron or steel, or ferro-nickel. Major disadvantages in the production of such nickel steels were inability to eliminate copper, and loss of precious metals.

After much study and research

Drilling in a Square-Set Stope at Frood



Operating an airleg drill at Frood-Stobie No. 3 shaft is Jan Szolka. He is drilling off a breast in 19.25 stope on 1400 level. Note the clean, uncluttered work area and the bulkhead in front of the driller's feet, standard safety practise at Inco mines.

as to the most suitable type of iron product, Inco decided to base its process on the production and treatment of a clean pyrrhotite concentrate low in nickel, copper, and precious metals. The process developed and ultimately selected involves the production of a clean pyrrhotite concentrate, roasting, reduction of the non-ferrous oxide values to metal and the hematite to magnetite, and leaching with ammoniacal solutions to remove the nickel, copper, and cobalt.

Production of high-grade iron ore at Inco was described in a paper presented to the annual meeting of the American Institute of Mining, Metallurgical and Petroleum Engineers in New York in

February. Authors of the paper were Paul Queneau, assistant to the vice-president of Inco, and E. H. Bracken and Daniel Kelly, superintendent and assistant superintendent respectively of the iron ore recovery plant at Copper Cliff.

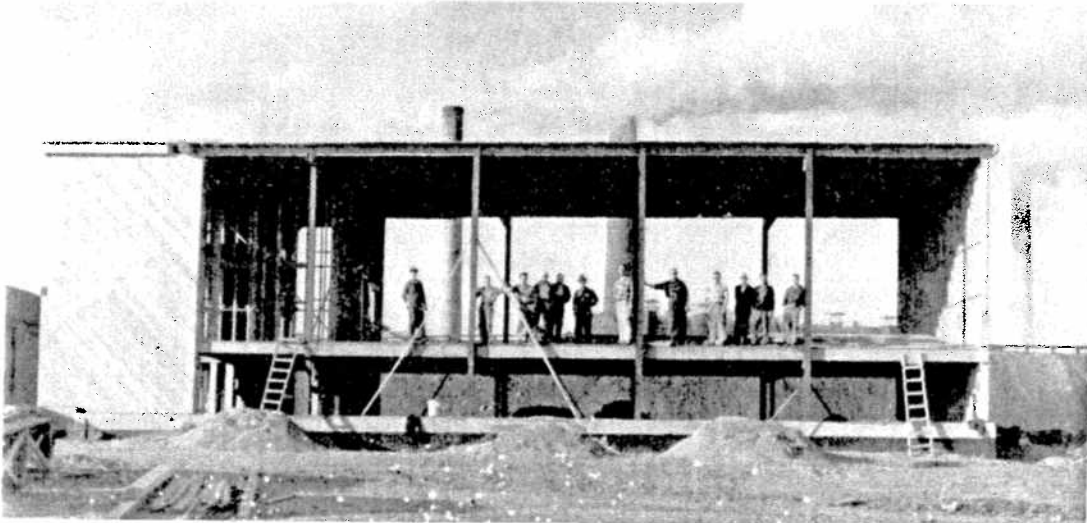
A STRANGE OCCURRENCE

Albert was taking part in a local concert. He was only seven years old, but recited so well that he was encored.

"Well, Albert, and how did you get on?" asked the proud father when he returned home.

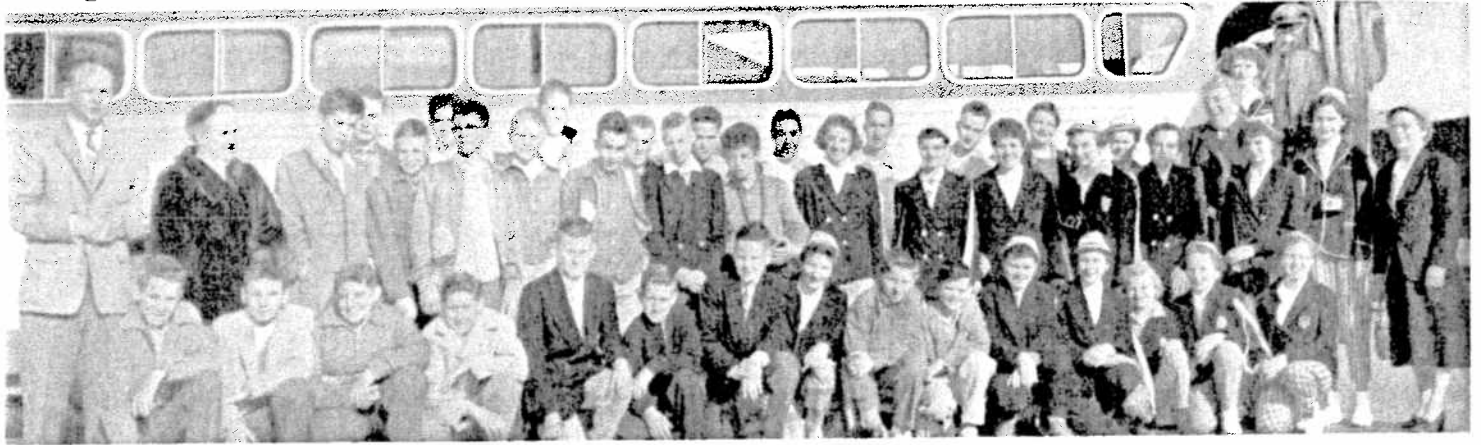
"Why, I thought I did all right," replied the youngster, "but they made me do it again."

New Legion Building Rising Swiftly at Copper Cliff



One of the most ambitious "do-it-yourself" projects in the history of Sudbury district is proceeding apace at Copper Cliff, where the 230 members of R. L. Beattie branch, Canadian Legion, are putting up a \$75,000 building, doing the financing and most of the work themselves. Situated next to the curling rink, it will contain a large hall with banquet facilities, and a clubroom. Mel Reid, chairman of the building committee, and Ross Clarke, his assistant, pay tribute to the enthusiasm and willingness of the members to take their turns in work parties, one of which is seen in the above photograph. Almost all the skilled trades are generously represented in the branch's membership.

Creighton Grade 8 Students Made Annual Educational Pilgrimage to Ottawa



Following a custom of many years which has since become a popular feature at other schools in the district, grade 8 students at Creighton Mine public school took their annual educational tour to Ottawa, visiting many points of interest en route and in the nation's capital. To pay for the trip they staged several projects which

netted \$1,100, to which their parents added another \$700. The above photograph by Rene T. Dionne shows the party about to embark:

Front row, left to right, Tom Briggs, Benoit Mallette, Angelo Aiello, John Celestini, Jim Paul, Larry Bobbie, Brent Holmes, Mary Ellen Reid, Bobby Wilgos, James

Maloney, Harriet Gotro, Bonnie Marion, Litza Takela, Mary Ella Magill, Sheila Emblin.

Second row, Keith McNaughton, teacher, Mrs. V. Trembley, music teacher, Richard Mealey, George Trefiak, Garth Wunsch, Donald Burnside, Hubert Starcevic, Andy Nesbitt, Walter Pristanski, Suzanne Dennie, Rochele Cayen, Kaye Either

Catherine Dzurban, Carolyn Henny, Pauline Cayen, Susan McGruther, Mrs. L. McLean, school nurse.

Third row, Michael Quinn, Brian Luck, Don Adams, Larry McLean, Richard Boyer, Roger Galipeau, Paul Roy, Dennis Wickie, Pirkko Rautanen, Jean Maloney, Miss U. M. Black, principal, Ruth McLennan, Cliff Brunton, bus driver.

Picked Rock at Creighton in 1908

General foreman of the yard and transportation department at the copper refinery for close to 20 years, "Army" Armstrong has retired on service pension. He first worked for the Company picking rock at Creighton No. 3 rockhouse in 1908, but his continuous Inco service dates from 1930 when he started at the copper refinery.



Mr. and Mrs. Armstrong

Moving to Sudbury district with his parents in 1900, "Army" attended school at both the Creighton and Gertrude mines, where his father was employed. In 1914 he was working for Mond on a geological survey back of Windy Lake when word came of the outbreak of war. The whole camp went to Sudbury and enlisted; "Army" recalls that he was in uniform about one week after war was declared.

Shell shocked in 1915 he was invalidated to Canada and discharged late in 1916. The following year was a big one for him — he married Janet McIntosh in Toronto, and took a civil service course that fitted him for a job in the customs office at Trenton.

A change of government in 1927 also changed "Army's" employment status, so back he came to Sudbury, where he worked as a diamond driller until 1930. His

first job at the copper refinery was in the office where his knowledge of the intricacies of customs regulations was very useful.

The Armstrongs have three daughters: Jean is Mrs. Archer of Toronto, Audrey is Mrs. Dr. Powell of Port Arthur and Beverley is Mrs. Rodman of Toronto. They have seven granddaughters but only one grandson, so it's not hard to guess how he rates with his grandparents.

Since "Army" suffered a mild heart attack a year or so ago he has taken things comparatively easy and intends continuing that way. A little gardening and daily walks help keep him both occupied and in good shape.

A trip back to his wife's beloved Scotland is a future possibility but

for the present "Army" is quite happy with things as they are.

He Travels Best

A story once familiar to all children told of a wise king who was opening a new highway and offered a purse of gold to the one who should "travel best" over the new highway.

Few realized what was meant by the term "travel best", and on the day of the event a great array of contestants arrived prepared to travel the road as speedily as possible.

At the close of the day, when most of the competitors had reached the destination, all complaining of a pile of stones on the new road

which had impeded their progress and made travelling difficult, a youth came to the finishing point carrying a bag of gold he had found beneath the pile of stones which he had removed. He took the gold to the king and asked that it be returned to its rightful owner.

The king said, "Keep the gold. It is the prize for which so many have competed this day. You alone, of all the contestants, have shown that you realize that he travels best who makes the way safer for those who follow."

DEEP DOWN DELIGHT

Nothing I know gives you a finer glow of satisfaction than parking on what's left of somebody else's nickel.

Modern Metals Show Puts Canadian Products on Stage



More than 2,000 attended the recent Modern Metals Show held in Toronto by Alloy Metal Sales Limited, Inco sales subsidiary.

A record group of experts in the metals field—some 100 representatives of more than 20 companies—were on hand with a series of exhibits providing the latest information on development and design of new products in nickel, stainless

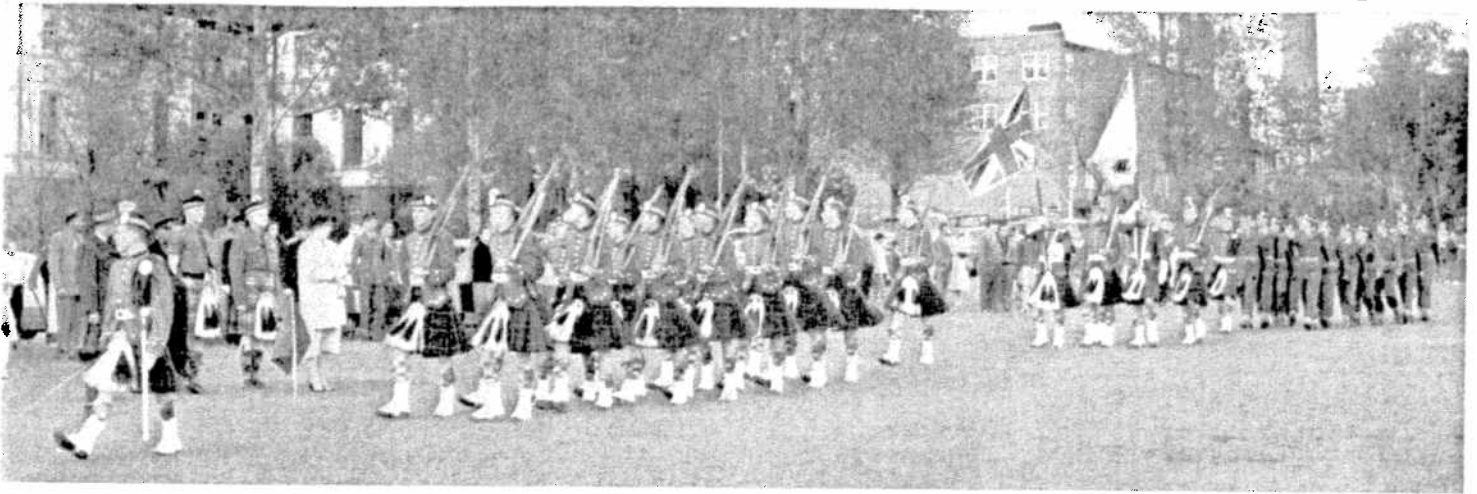
steel and aluminum, along with data on processing methods.

Purpose of the show, said Alloy president A. H. Galley, was to acquaint industry at large with the advantages and highly varied applications of these metals and to impress on users that the products and accessories such as fittings and fasteners, are readily available.

Photograph shows the elaborate

International Nickel display, centred by a booth in which several types of Inco welding rods were given on-the-spot demonstrations. Products illustrating applications of ductile iron and the various Inco nickel alloys in many branches of industry were on view. Similar exhibits were set up by Aluminum Company of Canada and Atlas Steels Limited.

Copper Cliff Highlanders Receive New Colors from Daughters of Empire



After presenting new colors to Copper Cliff Highland Cadet Corps on behalf of Nickel Chapter IODE, the regent, Mrs. Austin Smith, is seen taking the salute on the march past.

On her right are two officers of the corps, Capt. Jeff Hervey and Lieut. Chuck Lishman, and Rev. Gilbert Thompson, who consecrated the colors. Representatives of various Sudbury military units were guests of Major Robin Swain for the auspicious occasion. In the top picture Cadet Lieut. Johnny Goudreau leads No. 1 platoon; next comes the color party under Cadet Lieut. Frank Twardy, proudly bearing the brilliant new standards, the Queen's color, which is the Union Jack, and the Corps color, which is white with red crests; then comes No. 2 platoon under Cadet Cpl. Brian Swain. The other picture shows the corps pipe band under Pipe Major Sam Laderoute, and immediately following them is Cadet Capt. Raimo Tulisalo, commanding officer of the corps.



Levack Man 44 Years, Work or No Work

Andy Shuparsky arrived at Levack 44 years ago, walking in on the bush trail from the railway station.

Back in those days Levack was just a regular mining camp, Andy says. The late Frank Eager was superintendent at the mine and gave Andy a job. He spent several years in the yard and underground, three years in the steel shop and eight years in the rockhouse. When the mine was shut down, shortly after the rockhouse fire in 1930, Andy went into semi-retirement at his self-sufficient little home on Warsaw Street, and remained there until he was rehired in 1937. He had complete faith in the future of the mine.



Mr. and Mrs. Andy Shuparsky shown with some of the strawberries they are growing indoors. Berries are already forming on the larger plant.

Although he was out of work almost seven years, Andy says he and his wife lived quite comfortably. "We keep cow, some pigs and chickens, and grow lots of vegetables, and I had a few dollars

in bank," he explains with a grin.

Born in 1892 Andy left the Ukraine in 1912, crossed into Austria and embarked for Canada. He worked a year in Montreal, then for several months on a railway extra gang at White River. Coming to Sudbury in 1913 he first worked at the North Star mine, then went to Levack in 1914. He has worked as a dryman there since he was rehired in 1937.

In 1929 Andy married Josephine Kolagzij at Levack. Their son Bill works in the machine shop at Levack mine, and their daughter Annie is married to Doug Unwin, also a Levack mine employee. Four grandchildren have the run of the Shuparsky home.

Andy has about an acre of ground that annually produces hundreds of quarts of strawberries, plus garden vegetables for home and sale. Last year he sold enough green onions alone to keep the wolf from the door for a long time.

Now that he has retired on Inco service pension his garden will continue to be a healthy and profitable hobby.

Lots of Time Now For the Steam Bath

"When I want a steam bath I go over to Mauno's place," smiled Mike Kauppi, "and I have lots of time to enjoy them now."

Mike has retired from the converter department at Copper Cliff on a well-earned service pension. His son Mauno, a well-known former Sudbury Wolves stalwart, has a fine built-in steam bath at his home in Waters township.

Born on a farm in Finland in 1893, Mike came to Canada in 1920. His father who had preceded him to this country told him that Canada or the United States were the

only countries to live in. Mike went directly to Copper Cliff where he had friends from his home town in Finland.

Helping build the creosote plant was his first job, and he worked there for several years after its completion. He worked at Inco for a short time in 1921 and in 1926, then joined up for keeps in 1928. Except for a short spell in the yard all his years were spent on the converters. He was a puncher for many years, then transferred to the bins.



MR. AND MRS. KAUPPI

Mike married Lempi Kortesoja at Copper Cliff in 1926. Their daughter Lily (Mrs. Antti Kurkimaki), is a former member of the Inco insurance and retirement section at Copper Cliff, and their other son Arvo works at the iron ore plant. They have eight grandchildren who get the run of the place when they visit the family home on Temperance street, where the Kauppis have lived since 1930.

Mike is taking his new-found leisure all in stride, and with jobs around the house, exercising the dog, and watching TV, figures he'll keep out of mischief. On top of this he has his wife's smiling ad-

mission that it's nice having him home all the time. So with Mike things are good — very good.

THAT BIG IF

The doctors report that it's all right to drink like a fish—if you drink what the fish drinks.

Teenagers Entertain



"Oops! Steady, girls!" cautions Litza Takala as she climbs to the peak of the pyramid. The gymnastic display was part of the excellent Variety Show staged by Creighton teenagers in the Employees Club. Musical numbers and a square dancing exhibition directed by John Quinn were other items on the program, of which Shirley Ann Ingraham was chairman.

Rebuilding Crusher Roll Shafts Challenged Machine Shop Skill

The boys at Copper Cliff machine shop, that den of ingenuity where the unusual is commonplace and the impossible a welcome challenge, have come up with another sample of their ability to cope with almost any job.

Their latest feat is rejuvenating the hearts on the huge shafts from the crushing plant rolls, which after 27 years of steady service deserve a little building up.

It's one of the largest jobs yet to be handled in the shop, according to mechanical general foreman Lloyd King. Each shaft is over 15 feet long, 21 inches in diameter, and weighs 16 tons. Two have already been rejuvenated and the remaining 12 are earmarked for early treatment.

Showing signs of wear after more than a quarter century of service the heart, which is the core around the shaft that holds and revolves the roll shell, had to be either replaced or rebuilt. The mechanical department decided that rebuilding would be more economical. Since the original hearts were of cast iron and could not be built up too successfully with weld, it was decided to shrink on a mild steel ring 5 feet in diameter, and 9 inches wide, with a 3-inch wall. The rings are being forged as needed in the blacksmith shop at Copper Cliff and then sent to the copper refinery for machining on their 84-inch vertical boring mill.

To accommodate the shafts in the lathe, the headstock had to be

raised and two special pedestals installed for support.

When the shaft is set in the lathe the old heart is first turned down from an original 5-foot diameter to 4½ feet. Next the heated ring, which expands as much as a quarter of an inch, is fitted and allowed to cool shrinking itself into almost part of the original. The face of the ring is then turned down to the exact dimensions.

A mild steel ring is being used so that if this job is ever required again it may be done by building up with weld, a simpler and more economical method.

In addition to the ring job the face of each heart, which has also become worn, is being reconditioned by machining down and rebuilding with plate. The plate is studded in place and the outer part of the ring welded to it.

The tapered ends of the huge shafts, which fit into the flywheels have also been reduced in size as the result of long wear. This is being corrected by fabricating a metal shim to take up the slack, each shim tailored to the personal measurements of the individual shaft.

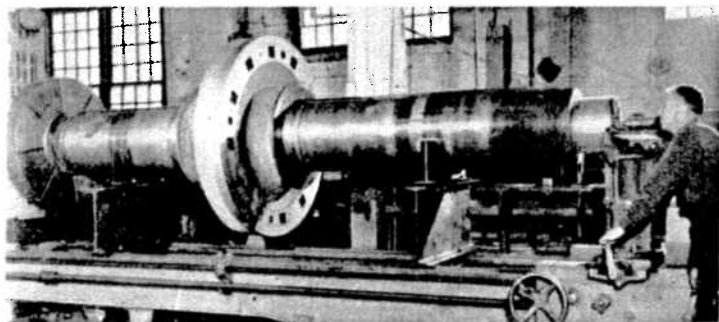
The final job is to ensure that the flywheel retaining nut has a good deep set of threads to hold it tight. So the old thread is first turned down on the lathe and built up anew with weld, and then a new, deep thread is cut.

The Inco mechanical department has done it again!



Win Art Awards for Lively High School

A very realistic alligator cleverly fashioned from papier mache stole the show at the display of art and handicraft from district secondary schools, held in Sudbury public library. It was made by Garry Sandberg (right, above) of Lively. The other two Lively High School students shown with him, Agnes Zamiska and Harry Nolan, won awards for paintings. The annual exhibition is one of the many worthwhile activities of the Sudbury Arts and Crafts Club. It also holds a show for the elementary schools.



Installed in a lathe at Copper Cliff machine shop is one of the 14 huge 16-ton shafts from the crushing plant rolls, which are undergoing rejuvenation after some 27 years in service. In the centre of the shaft is the heart, which has been rebuilt by shrinking on a mild steel ring. The machinist in the picture is Ken Vance.

Bass Season Has Opened

The angling season for the gamest of North American game fishes — the black bass — opens in most of Ontario from June 28 to October 15. Creel limit is six per day; the size limit was removed in 1956.

Bass are found almost everywhere in Ontario from the Great Lakes to the extreme north, and right across the province from Quebec to Manitoba. They may be caught still-fishing, casting or trolling.

The largemouth black bass may

be distinguished readily from the smallmouth because the mouth of the largemouth extends beyond the eye. Both fish are dark green, ranging to brown or almost black. The largemouth usually prefers warmer waters than the smallmouth and often is larger.

The world's record largemouth, caught in Georgia, where the waters are warmer than in Ontario, was 22 lbs. 4 ozs. The largest smallmouth caught in Ontario weighed nine lbs. 2 ozs. The world record smallmouth was taken in Florida and weighed 14 lbs. The largemouth in Ontario averages two to three pounds, though seven and eight-pounders are frequently caught.

"Among our game fishes, no

species surpasses the smallmouth black bass (*Micropterus dolomieu*) in popularity. It is not only the gamest of North American game fish but the habit of the male of guarding his nest and young so faithfully arouses the admiration of those acquainted with the life history of this splendid fish," says Dr. J. R. Dymond, at one time director of the Royal Ontario Museum of Zoology and now consultant to the Ontario Department of Lands and Forests Division of Fish and Wildlife.

Of the life history of the black bass, he says: "In late May or June, and in some places much later, depending on whether the season is early or late, the male bass begins to make his nest.

He likes best a shallow place where the bottom is covered with coarse gravel and where there is a log, a big rock or a bank to afford protection from the waves and so that he will have to look out for enemies on only one side. The female does not deposit the eggs on any particular day according to the calendar, but waits until the water gets fairly warm (61 to 65 degrees Fahrenheit).

"In some years and in some districts the water does not reach this temperature until quite late in June or even as late as July.

"After the female has deposited the eggs, she goes away from the nest but the male stays on guard to keep away fish and other enemies that would destroy them. He also fans the nest with his fins, thus keeping the water around the eggs fresh and pure.

"The eggs of the bass are very tiny. It takes 10 or 12 placed side by side to reach an inch but they contain yolk, just as a bird's egg does, on which the little fish lives after it is hatched and before it is able to get food for itself from the

water. When the little bass is first hatched, there is so much of the yolk hanging in a little sac beneath it that it cannot swim, but sinks into crevices between stones in the centre of the nest. The food material diminishes as the tiny fish grows larger, but until it is totally absorbed the yolk continues to weigh him down so that he cannot escape from the many enemies such as perch, sunfish, catfish, snapping turtles and many other hungry creatures in the water.

"If it were not for the male bass who guards them from their enemies while they are helpless, few of the newly hatched bass would every grow to be very big.

"By the end of August the young bass are generally from two to four inches in length. More rapid growth takes place in some localities than in others, and especially in ponds where bass are hatched and reared under semi-artificial conditions. It requires several years for bass to reach a length at which they build and guard nests of their own and many are caught before they reach such a size.

"The food eaten by the bass varies from one body of water to another. The small ones eat tiny microscopic animals which they find in the shallow water they frequent. As they grow, they take larger and larger animals, the adults eating chiefly crayfish and fishes of various kinds, including small perch and minnows.

"Unfortunately, other fishes often found in the same waters with bass eat the same sort of food as the bass, and so when there are many such competitor fish in bass waters they reduce the supply of the food which might otherwise go to the support of the bass. The rock bass is one species that has almost the same food habits as the black bass in many waters."