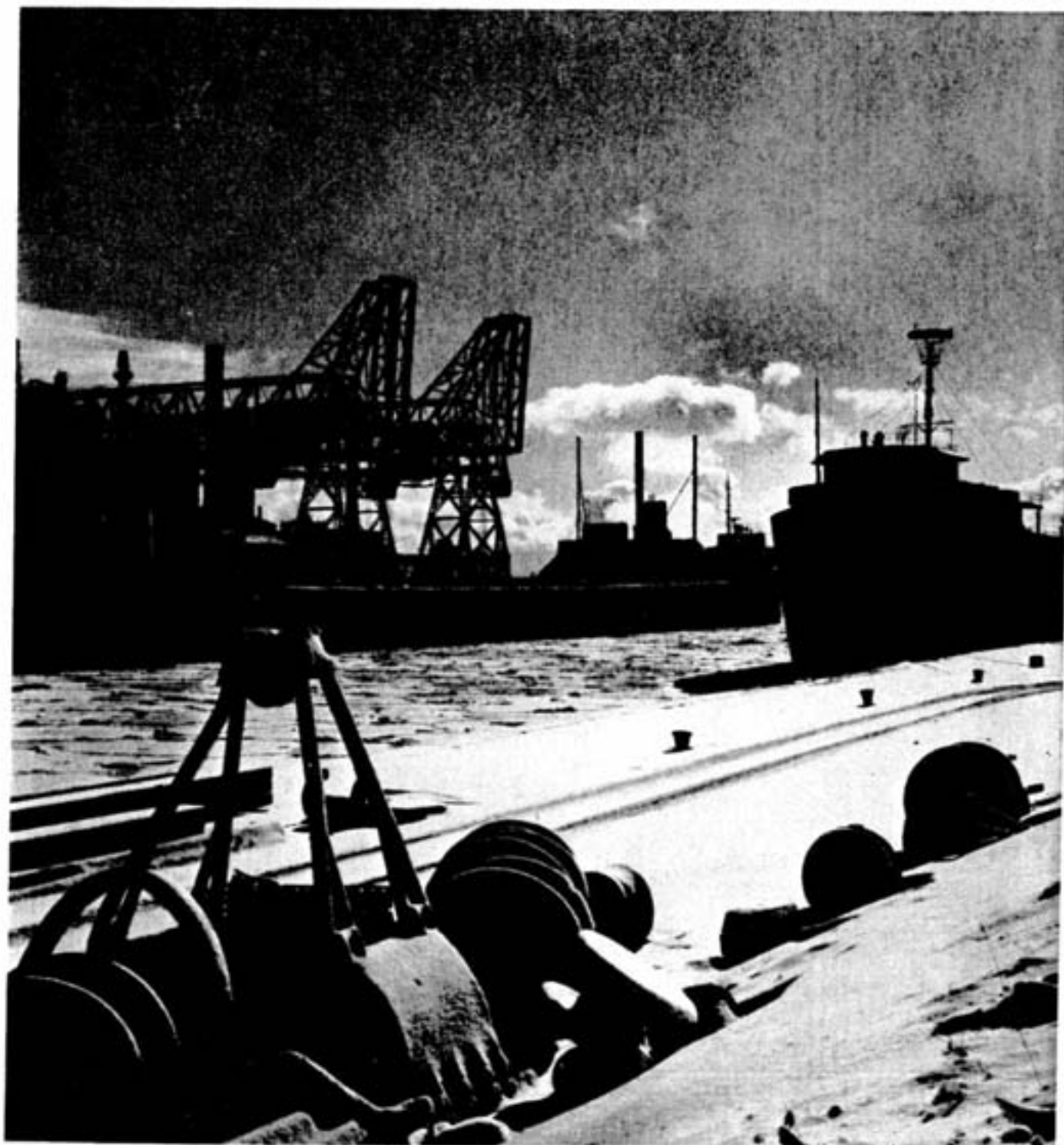


# INCO TRIANGLE

VOLUME 18

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NUMBER 6



In Winter's Grip



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## Dramatic Turns Again Highlight Nickel Industry

The year 1958 was marked by dramatic changes in the nickel industry, highlighted by abundant supplies of nickel throughout the free world for both civilian and military purposes as well as by vigorous competition for new markets. Dr. John F. Thompson, chairman of the board of Inco, said in a review of the nickel industry in 1958.

"The free world attained a new high in annual nickel production capacity in 1958, estimated at about 525,000,000 pounds — almost double the capacity existing prior to the Korean conflict," he said.

"Total nickel consumption in the free world during 1958," Dr. Thompson continued, "is expected to be between 325,000,000 and 335,000,000 pounds, compared with about 415,000,000 pounds in the previous year. The principal cause of the decrease was the business recession in the United States and Canada which had a particularly strong effect upon the production of durable goods. Because this coincided with a period of heavy inventory liquidation by consumers, nickel deliveries in all forms were appreciably lower than consumption. In the United Kingdom and on the Continent there was only a slight decrease in consumption.

"Canadian production during 1958 declined sharply, largely as a result of a strike which began in September at International Nickel's mines and plants in Ontario. Prior to this, due to reduced demand, the Company had announced three curtailments in production which ultimately lowered its output to an annual rate of approximately 300,000,000 pounds, or about two-thirds of capacity. Cuban production was also reduced as a result of lower demand and internal disorders in that country.

### Production Capacity to Increase

"Today's free world annual nickel production capacity of approximately 525,000,000 pounds is expected to rise progressively in the next few years," Dr. Thompson stated. "This capacity, it is estimated, will reach about 550,000,000 pounds in 1959, about 600,000,000 pounds in 1960, and about 650,000,000 pounds in 1961. It is significant that the projected 1961 nickel production capacity will be about double the estimated total free world consumption in 1958. As a result, consumers who had been forced for a protracted period to curtail their uses of nickel for

civilian purposes can now be assured of steady, abundant supplies of this extremely useful metal in the years ahead.

"A substantial part of the estimated increase in free world nickel production capacity by 1961 will be forthcoming from International Nickel's Thompson mine in Manitoba which has been under development for two years. This project is scheduled to start its breaking-in period some time in the latter half of 1960. Full production at the annual rate of 75,000,000 pounds will be reached as soon as possible after the end of the breaking-in period. At this rate, International Nickel's production capacity at its operations in Ontario and Manitoba will total 385,000,000 pounds per year. The Manitoba project will be the world's second largest source of nickel, exceeded only by the Company's operations in the Sudbury district, which have an annual nickel production capacity of 310,000,000 pounds. This project is being financed from Company

funds and without any government guarantee of a market.

"The free world's total potential output in 1961 also includes from Canada that of Falconbridge Nickel Mines Limited and Sherritt Gordon Mines Limited. As the result of expansion programs in which these companies have been engaged, their respective capacities will reportedly amount to 55,000,000 and 27,500,000 pounds per year. It has been reported that the capacity of the United States Government-owned plant at Nicaro, Cuba, will be 54,000,000 pounds annually, and Freeport Sulphur Company has announced it will produce 50,000,000 pounds of nickel annually from its deposits at Moa Bay, Cuba. The capacity of producers in the United States is estimated at some 20,000,000 pounds of nickel annually, originating largely from the M. A. Hanna Company's deposit at Riddle, Oregon. According to published statements the French nickel company, Societe Le Nickel, with mines on the island of New

Caledonia, contemplates increasing its nickel output to some 50,000,000 pounds per year. In addition, there will be a relatively small output of nickel in Japan, which is also produced from New Caledonia ores.

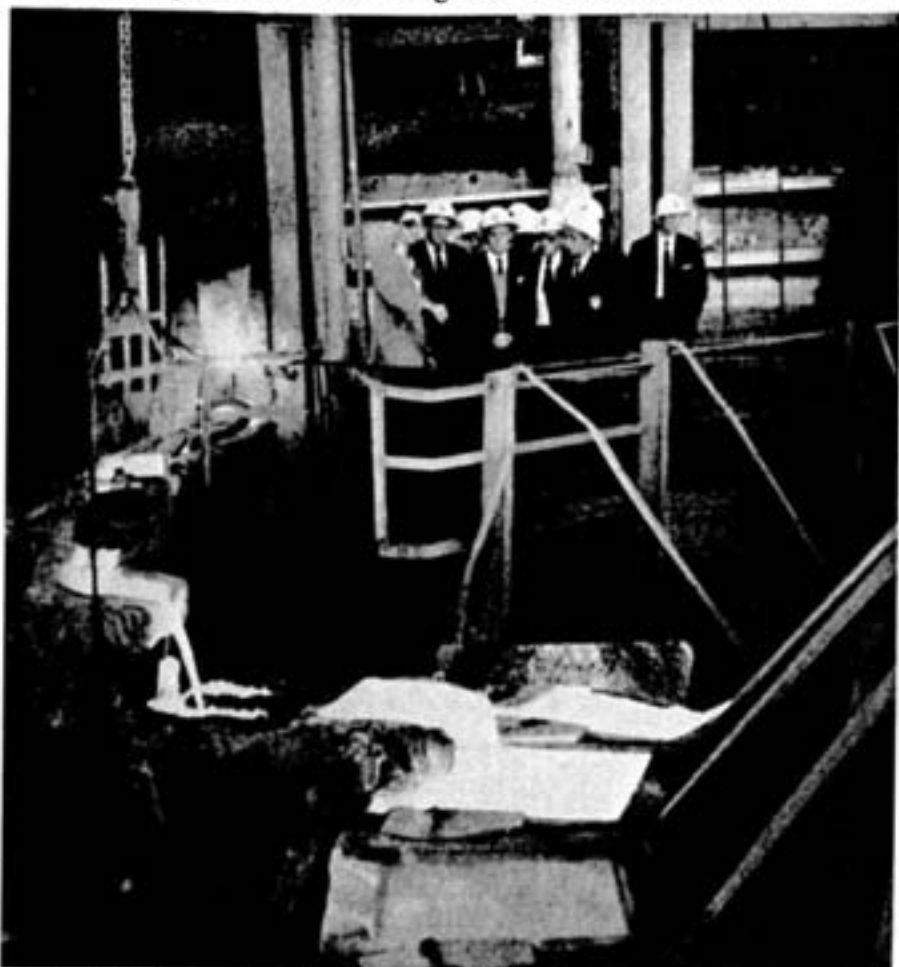
"In October, 1957, the United States Government authorized the diversion to industry of some 135,000,000 pounds of nickel scheduled for stockpile delivery in 1958. Due to the over-supply, much of this nickel, a large portion of which was premium-priced, did not find markets. The Government has announced it will also offer to industry in the United States all the nickel — about 100,000,000 pounds — contracted for stockpile delivery in 1959.

### Nickel Applications

"The greater availability of nickel during the year brought with it changes in applications, some new and others a restoration of older uses which had been in effect prior to the period of restricted civilian supplies. Free world nickel con-

(Continued on Page 14)

## British Boys Gain Knowledge of Canada on Annual Tour



Another 40 British secondary school boys were interesting visitors at Inco plants at Copper Cliff during the annual tour sponsored by W. H. Rhodes, the generous Bradford Industrialist, to strengthen the ties between Great Britain and Canada. In this photograph a group of the boys watch the pouring of anodes at the copper refinery; they are David Wilson, Brian Masters, B. L. Luke, Brian Andrews and Anthony Rickett, and their guide, whom they are bombarding with questions, is Stewart Smythe.

# INCO FAMILY ALBUM



**COPPER CLIFF:** Jack O'Hara, who works with the maintenance mechanics at the mill and has master-minded their shift league hockey team since away back when, is a proud and happy man here with his wife and their family: Bob (who is a copper refinery man), Judy, 16, and Chuck, 14.



**LEVACK:** Here's Charlie Hewes, the popular mine safety engineer, with his wife and family, David, 10, Peggy, 6, and Billy, 4.



**CREIGHTON:** Mr. and Mrs. Joe Hodgins with Debbie, 5, and Danny, 2. They live in Lively. Joe works in the warehouse at Creighton mine.



**PORT COLBORNE:** Garfield Howes, who works in the stores at the nickel refinery, has a wife who was a Saskatchewan girl. Their children are Doreen, 9, Kathryn, 7, and Sandra, 5.



**FROOD-STOBIE:** Hector Bleau, a 1st class rigger at Frood where he has worked since 1935, is shown with his wife and family: Patrick, 18, Denis, 14, and Carman, 10. They live on Murray Street, Sudbury.





Mr. and Mrs. C. C. Chapman and Friend

## Chapmans Now Live at Newmarket In Happy, Well-Earned Retirement

C. C. "Chappy" Chapman retired from his post as superintendent of purchasing and stores with one of Inco's longer service records. He started with the Company back in 1913 and wound up with 43 years of credited service.

"When I first came to Sudbury for the CPR Charlie Dorian was chief clerk there." That was in 1912. The following year Chappy joined Inco as a scale clerk, working a 13-hour day, 7 days a week.

Having some previous typing experience he soon joined the general office staff as stenographer for the safety department. Laid off at the start of the war he was called back in 1915 and put to work in the mail, file and stationery department.

He joined the Royal Flying Corps in 1917 and spent a year in England. Returning to Copper Cliff in 1918 he joined Bill Waterbury in the purchasing department.

The staff then numbered 4; today it has 17 members.

During the depression of 1921-22 he sold office furniture and school supplies through the Maritimes. In 1922 he returned to the purchasing department, became purchasing agent, general purchasing agent and finally superintendent of purchasing and stores.

"Our work was always interesting," he told the Triangle, "with new products and equipment continually coming on the market." The years 1929 to 1931 were his department's busiest. Supplies and equipment for the new Frood mine as well as the new mill and smelter at Copper Cliff were being purchased.

The largest piece of equipment Chappy recalls buying was the huge conical drum hoist for Creighton No. 5 shaft. Other purchases have run the gamut from

the tiniest screw or washer to huge mills, converters, transformers, crushers and hoists to an annual tune of many millions of dollars. Purchases of operating supplies during 1957 exceeded \$35,000,000, compared to 1930 when they were slightly over \$3,500,000. The total stores inventory today runs close to \$15,000,000; in 1930 it was just over \$1,500,000.

Clarence Chapman was born at Battersea, near Kingston, in 1893. His first job was in a hardware store. When a chance came for a job with the CPR at either Moose Jaw or Sudbury Chappy chose the north. "Best choice I ever made," he says.

In 1925 Clara Boyd of Creemore became Mrs. Chapman; their daughter Claire is Mrs. Bob Clark of Niagara Falls. Two grandchildren have special privileges at the Chapman home, even in the modern new one they have just built at Newmarket.

A keen fisherman, Chappy still hopes to land a few more of those really big trout he used to lug ashore to their camp at Birch Island. Biggest one he ever hooked was a 26½-pounder at the time of the late President Roosevelt's historic visit to Birch Island in 1942. Chappy presented the fish to a delighted president.

A more recently acquired hobby, color photography, is also giving Chappy a lot of pleasant hours. A southern motor trip planned for this winter should produce some interesting transparencies.

So with travelling, hobbies, a lovely camp and a beautiful home, the Chapmans are enjoying all the best in retirement.

### RESUMING PUBLICATION

The Triangle was not published during the strike. This is the first issue since August.

## Bob Mornan Wants To Start a Levack Model Aircraft Club

"Model aircraft building and flying, a fun filled, fascinating hobby that is really the most": that's the enthusiastic opinion of Levack's Bob Mornan.

For five years Bob has been enjoying this sport and is so sold on it that he would like nothing better than to share it with others. In short he'd like to form a group of model aircraft enthusiasts at Levack similar to the one he started with at Lively. That's when the real fun comes in, he claims, swapping ideas, information, parts, models and experience.

According to Bob a person doesn't have to be clever with his hands, handy with tools or any of those familiar taboos in order to enjoy model aircraft. The requirements are a degree of patience and the ability to exercise a little care. Model kits come plainly marked for assembly. Bob points out, and soon your first completed model gives you a real glow of satisfaction. This glow increases in direct ratio to the number of models one builds, according to Bob, and with his 12th model underway he is at white heat.

After building comes flying the tiny craft and this, Bob said to the Triangle, is really living. Model aircraft are usually equipped with fractional horsepower glow plug engines that turn up to 10,000 rpm and drive planes at speeds up to 80 miles an hour and even more. Miniature jet engines are also appearing on the market.

The most common method of guiding the plane in flight is with a contact control handle. This device consists of a double reel of fine monel wire contained in a handle which keeps the plane on a leash and enables the operator to control its movements. The wires from

the control handle are attached to control guides in the wing tips which activate tail elevators, etc., and determine the plane's movements.

The most exciting method of plane control however is by radio — more expensive but far more fun, Bob says. Wire controls of necessity, restrict the plane's flight to a circle of roughly 100 feet whereas remote radio control permits much greater latitude. This is the goal of most model airplane hobbyists.

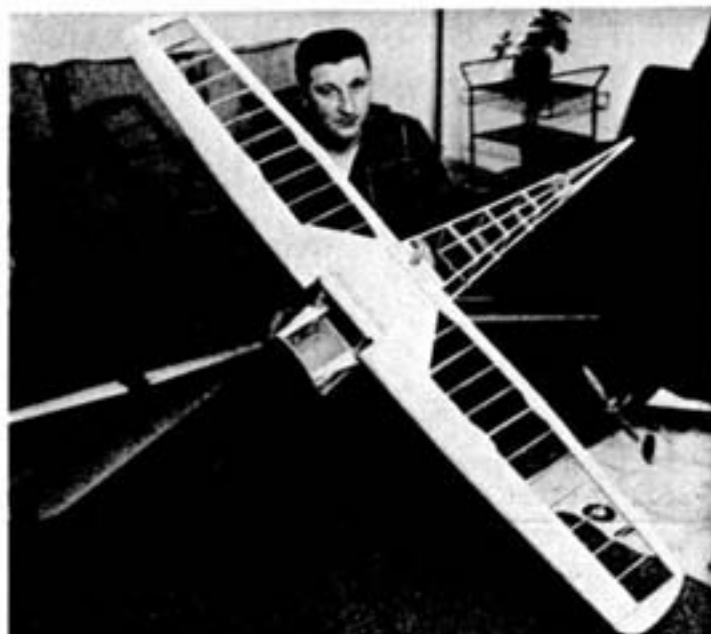
Bob is now working on his largest model to date, a Cessna "170" scale model with a 6-foot wing span which he hopes will be radio-controlled. Readied for flight this balsa wood plane will weigh around 3 pounds. Radio control equipment would almost double this weight but the plane is designed to carry it. Building it will give Bob at least 100 pleasure-packed hours after which will come the fun of flying and displaying it.

Build in the winter, fly in the summer is Bob's motto and with Levack's fine new high school campus as a model Malton or Idylwyde airport, next summer can't come too soon for him. By then Bob hopes there will be others joining in the fun. Anyone interested may get in touch with him at Levack mine, at his home at 101 Oak street, or by phoning him at WO. 63776.

"I'm a very lucky guy to be living in Levack," Bob said, as our interview ended. "It's a dandy town for both kids and adults. I can hunt, fish, ski, square dance, and build and fly airplanes all in my own back yard almost. What more can a guy ask?"

He who rebukes the world is rebuked by the world.

—Rudyard Kipling



This Cessna "170" scale model is Bob Mornan's most ambitious project since he started building model aircraft five years ago. He hopes to equip it with radio controls.



On behalf of his old work-mates a committee called on John and Mrs. Gliha and presented him with some new take-it-easy equipment which pleased them immensely. From the left are George Chew, Dave Fortin, Mike Pashko and Tom Matejko.

## "I'VE NEVER HAD IT SO GOOD!"

For three years during the depression John Gliha was unable to find work. Retired now on service pension from Frood he feels he never had it so good.

During those depression years, he recalled, his own savings and help from his wife's brother managed somehow to carry him through. In 1933 he went to work at Frood where he remained until retirement last year.

At Frood he worked for a time in the rockhouse, as a surface trackman. In the dry for close to 10 years, and in the salvage shop for another 8 years.

Landing in Canada in 1924 John spent only a few months on an extra gang at Winnipeg before coming to Sudbury where he got a job at Levack mine. In 1925 he brought his wife, Amelia Zypic whom he married in 1923, and their daughter Amelia over to join him.

After the fire at Levack in 1929 John was laid off but worked six

months with the Fraser-Brace construction company before being laid off there too. In 1930 with no prospect of work he went back to his native Austria, but very shortly returned to Canada. To John, Canada even in a depression was much preferred.

John has three daughters all married. Amelia is Mrs. J. Vizjak of Vancouver, Mary's husband George Schroeder works at Frood and Yvonne's husband Walter Maximuch at Levack. Their son Frank works at Onaping. To date John boasts four grandchildren and is hoping for more.

Daughter Mary and her family live with John and his wife in their fine new duplex home in the Alexander Park area. Sudbury. A little gardening there helps keep John occupied but generally he takes things easy. A trip to visit his daughter in British Columbia is being planned for this year and John is keenly looking forward to it.

## Five Generations at Big Family Reunion

When Bill Rowlands' son Gerry was born three years ago he became the fifth generation of an old Ontario family to be on the scene at the same time. Last July, at the 34th annual reunion of this pioneering family at Paris, Ontario, all five generations were together for the first time.

In addition to Bill and his son Gerry, shown right, Bill's mother, Mrs. Frank Rowlands of Sudbury, her mother, Mrs. Orvall Turnbull of Paris, and her mother, the grand matriarch, Mrs. Thomas Armstrong, also of Paris, were all present.

Exactly 100 members of the Fink-Armstrong family met at Paris for this year's reunion.



Bill has worked at Frood-Stobie since he joined the Company in 1952.

## Accounting Dept. Moves Announced

The following changes in the accounting departments' staffs were announced at Copper Cliff on January 12:

Mills Austin, appointed assistant to the comptroller, transferring to the Toronto office;

D. Cowell appointed works auditor, Sudbury district, to supervise the accounting departments of the Company's mining and smelting and copper refining divisions.

Born near Ottawa, Mills Austin joined Inco in April 1929 at Port Colborne, starting in the sliter plant. He was transferred to the



Mills Austin D. Cowell

accounting department of the copper refining division in August, 1930, and to the mining and smelting division five years later. In 1948 he returned to Port Colborne as assistant works auditor. In 1953 he was appointed works auditor of the mining and smelting division at Copper Cliff. He is married and has one daughter.

Donald Cowell, who was born near Birmingham, England, had his first affiliation with Inco in May, 1930, when he joined the accounting department at the copper refinery. He was appointed assistant works auditor there in 1938, and works auditor in 1945. He is married, has three sons and a daughter.

## Gifts Without Season

Lord, I would thank You for these things:

Not sunlight only, but sullen rain;  
Nor only laughter with lifted wings,  
But the heavy muted hands of pain.

Lord, I would thank You for so much:

The toll no less than the well-earned ease;

The glory always beyond our touch  
That bows the head and bends the knees.

Lord, there are gifts of brighter gold

Than the deepest mine or mint can yield:

Friendship and love and a dream to hold,

The look that heartened, the word that healed.

Lord, I would thank You for eyes to see

Miracles in our everyday earth:  
The colors that crowd monotony,  
The flame of the humblest flower's birth.

Lord, I would thank You for gifts without season:

The flash of a thought like a banner unfurled,

The splendor of faith and the sparkle of reason,

The tolerant mind in a turbulent world!

—JOSEPH AUSLANDER

## Our Front Cover

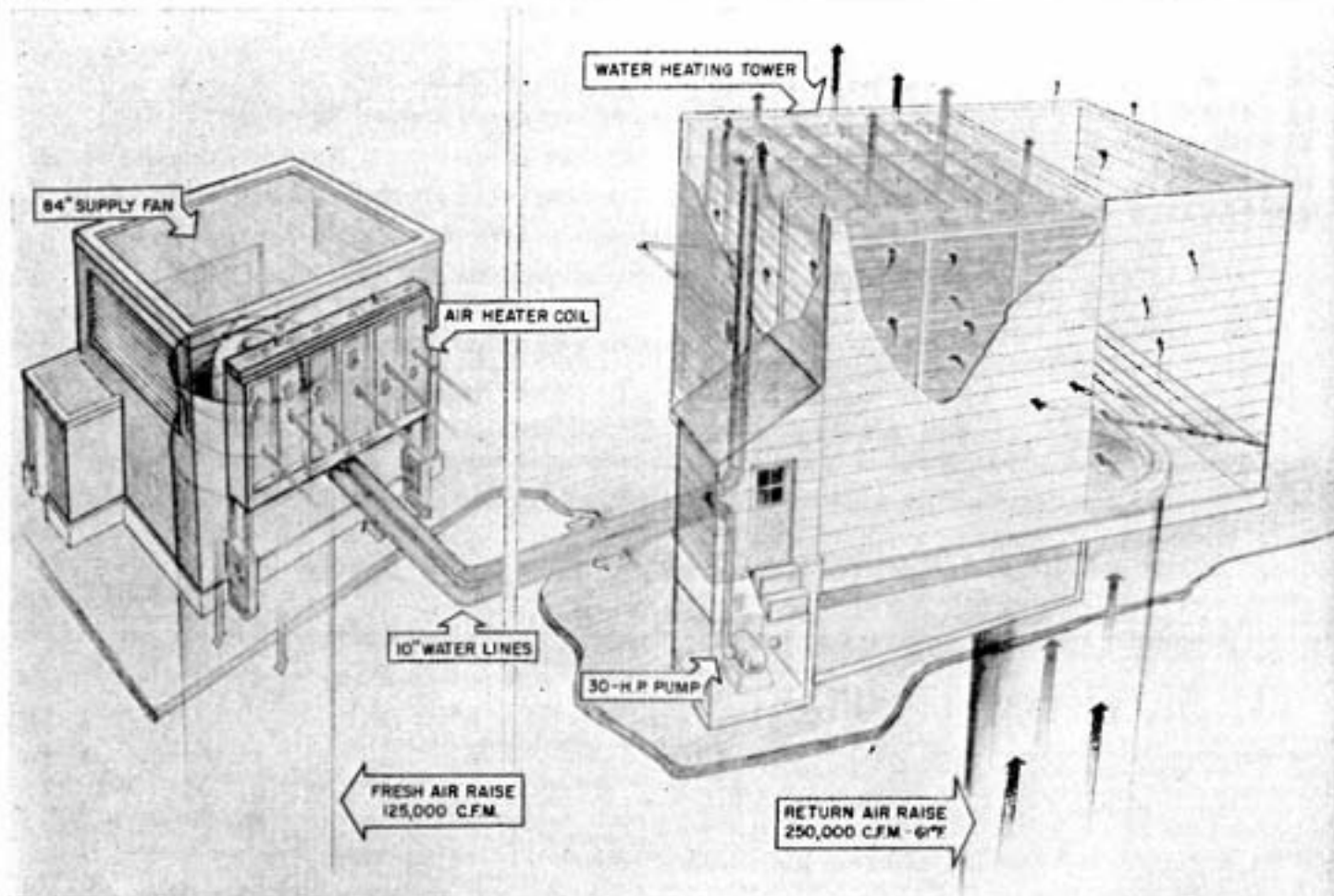
The picture on the front cover of this issue, titled "In Winter's Grip," was taken at Port Colborne. Dimly outlined in the evening light are two of the many lake boats berthed for the winter in the ice-locked Welland Canal. Standing sharply against the skyline are the unloading bridges of the Canadian Iron Furnace Co. The clam and cable spools in the foreground were part of the equipment used in the deepening of the canal for the St. Lawrence Seaway.

## President Sounds Firm Note of Confidence



Inco's vigorous program to develop and hold new markets for nickel was outlined by the president of the Company, Henry S. Wingate, during a recent visit to the mines and plants. He spoke with pride of the Company's achievements in coping with many problems affecting both the production and sales of its products, and struck a note of confidence and optimism for the future. Picture shows him (left) just prior to a luncheon in his honor at the Copper Cliff Club, chatting with K. R. Johnston, assistant to the superintendent of transportation; E. H. Bracken, superintendent iron ore recovery plant; B. M. Forsythe, general purchasing agent.





**Composite View** Artist's cut-away sketch showing Creighton Mine's unique heat exchange system. On the left is the fan house with the air heater coil installed in an opening in the west wall, and over it is superimposed an impression of the circular concrete fresh air raise through which the heated fresh air is pumped to the underground workings. The return air raise from underground leads into the water heating tower on the right, in which are installed the fill racks through which the water filters while it is being heated. This drawing was made by Inco artist Orest Andrews.

## Creighton Warms Fresh Air By Heat Exchange System

By Jas. G. Rutherford

A unique heat exchange system, installed at the collars of two adjacent airways at the Creighton Mine, is used to heat fresh air supplied from surface to the upper mining levels. The required heat is obtained by cooling return air exhausting to surface from a deeper section of the mine.

Creighton is one of five mines operated by the International Nickel Company of Canada, Limited, on the rim of the Sudbury Basin in northern Ontario, and is located on the south range of the basin nine miles west of the city of Sudbury.

### Heating Mine Air

In the Sudbury district the temperature at surface during the four winter months, December to March inclusive, averages 15 deg. F., and the minimum temperature is approximately -30 deg. F. It is necessary to heat the fresh air supplied to underground at those mines where a large volume is handled through a direct airway to operating levels within 2,000 feet of surface.

The normal practice at Inco is to install a heater designed to raise the temperature of a reduced

volume of air, about 65 per cent of the summer volume, from -20 deg. to 30 deg. F. Some additional heat is transferred to the air from the rock walls of the airway, especially during any short periods of severely cold weather.

Various types of heaters are used for this purpose at the five mines. These are described briefly as follows:—

1. At two of the mines, steam blast coils are used in the discharge duct of the intake fan. The larger installation consists of seven 30 x 60-in. single row coils. Steam is supplied at 35 p.s.i., and the coils are rated to heat 110,000 c.f.m. from -20 deg. to 30 deg. F. The volume of air supplied to the coils and through a bypass above the coils is controlled thermostatically using dampers operated by modutrol motors. The fan speed is reduced during sub-zero periods.

2. A direct-transfer oil-fired air heater, rated at 7,000,000 b.t.u. per hour, is used at one mine. The burner modulates from one-quarter to full fire and cuts on and off automatically, depending on the outside temperature. The fan volume is kept constant over the heating period, at 125,000 c.f.m.

3. At one intake, where it is necessary to supply 500,000 c.f.m. during the winter to maintain a positive upcast in stoping areas partially mined through to surface, the fresh air is heated in two large open stopes which form part of the intake system. Water is sprayed at the top of the stopes so as to form ice in the cold air; the ice builds up in the stopes. The latent heat of freezing is the main source of heat transferred to the air. During sub-zero periods the maximum volume of water sprayed exceeds 500 g.p.m., and the total heat supplied to the fresh air amounts to 25,000,000 b.t.u. per hour.

4. The most recently installed air heating system is a surface heat exchanger, rated at 7,200,000 b.t.u. per hour, in operation at Creighton Mine, which is the subject of this paper.

### Creighton Mine

There are two separate underground mining operations at Creighton. Between surface and the 1500-ft. level, a large tonnage of disseminated ore overlying the original workings is being mined by panel caving. On the lower levels, the higher grade breccia ores are being mined entirely by the square-set method. This is Inco's deepest operation, with the lowest level development 5,425 feet below surface.

A separate ventilation system

has been established for each mining area:

### Lower Mining Area

The square-set mining area is ventilated by a push-pull system; both the intake and exhaust fans are located underground, above the mining zone.

Fresh air is drawn from surface through the open pit and the footwall workings into the main intake airway, 600 feet below surface. Most of the fresh air is supplied from the intake to the lower production levels, and the air upcasts through the stoping blocks.

The exhaust air is drawn into the return system near the top of the mining areas. The underground exhaust fan delivers 250,000 c.f.m. to the main return air raise to surface, a 17-ft. diameter circular raw airway, and the air reaches surface at a temperature of 61 deg. F., saturated. The collar of this return is located just south of the main surface plant.

### Upper Mining Area

The slusher drifts in the caving mining area are ventilated primarily by an exhaust system. The tail-pulley end of each slusher drift is connected to a return air raise driven in the footwall on the boundary of each mining panel. These air raises are connected by transfer drifts to the main return, a 15-ft. diameter circular raw airway that extends to surface. The

vertical exhaust fan on the collar of this return handles 300,000 c.f.m.

A fresh air system, with a surface fan and a raw air raise, 120 sq. ft. in cross section, supplies more than half of the fresh air directly to the slusher drifts via the service connections; the balance is drawn down from surface through the caved ore and the boxholes into the slusher drifts by the exhaust fan. The intake fan is an 84-inch diameter axial flow fan mounted vertically on the concrete collar of the air raise. The fan impeller, which has adjustable pitch blades, is mounted on the downward shaft extension of the 150-h.p. 720-r.p.m. vertical motor. The fan will handle a maximum of 200,000 c.f.m. at 4 inches; during the winter its performance is reduced to supply 125,000 c.f.m. at 2.5 inches. The collar of this intake is located south of the main surface plant, just 125 feet from the collar of the main return from the square-set mining area.

#### Heat Exchanger

It is necessary to heat the fresh air supplied directly to the caving area during the winter. The proximity of this intake to the collar of the main return, through which a large volume of relatively warm air is exhausting to surface, suggested the possibility of installing a heat exchanger between the two airways. The return air, if cooled from 61 deg. to 40 deg. F., would release 1.5 times the 7,200,000 B.t.u. per hour required to heat the fresh air from -20 deg. to 30 deg. F.

Several methods were considered, including a direct heat exchange between the two air streams, and systems using coils in each airway with anti-freeze or brine circulating between the coils. The heat exchange system in use was accepted as being the most practical. The equipment was installed in the summer of 1956 and its performance has been very satisfactory.

The heat exchanger consists of two units, one at each air raise, and water is the heat exchange medium. At the return air raise, the water is heated by direct contact with the return air in a tower adjoining the stack on the raise; the tower is similar to a compressor water cooling tower. At the fresh air raise, the outside air is heated as it is drawn through a large water coil that occupies one wall of a house constructed over the intake fan.

The water is circulated between the two units through 10-inch insulated pipe lines by a 30-h.p. pump handling 1400 U.S. gal. per minute. The pump draws warmed water from a sump below the tower and supplies it to the coil; the water circulates through the finned tubes of the coil at high velocity and the cooled water is returned to the top of the tower. Except for the resistance of the two units to airflow, which is equivalent to 40-h.p., the power to the pump is the only energy required to operate the heat exchange system.

#### Water Heating Tower

A concrete sump, constructed partially below ground level beside the concrete collar of the return air raise, is the foundation for the water heating tower adjoining the



**Air Heater** The air heater coil, consisting of 840 vertical tubes, is installed in an opening in one wall of the fan house. Openings in two other walls of the fan house allow unheated fresh air to reach the fan during the warmer eight months of the year.

exhaust stack over the raise. The sump has a capacity of 19,000 gallons of water.

The tower is 25 feet square and 24 feet high, and is constructed entirely of red cedar with Type 304 stainless steel hardware. The return air is directed into the lower section of the tower, through an opening 8 feet high and 24 feet wide, by closing stainless steel dampers in the exhaust stack on the return air raise. The air upcasts through the tower and discharges out the top through spray eliminators. These consist of two courses of boards set in frames on edge at a low angle so that the air is deflected as it passes through each course; any free moisture carried by the air impinges on the boards and falls back into the tower.

The resistance of the tower to airflow is overcome by the underground exhaust fan. The tower was designed on the original volume of 200,000 c.f.m.; with the present volume of 250,000 c.f.m., the dampers are not closed tightly during the winter and approximately 25,000 c.f.m. exhausts directly through the stack.

Cold return water from the air heater coil is delivered to the top of the tower through a 10-inch insulated pipe and distributed over the tower area through a system of rectangular wooden troughs, consisting of one central launder and seven transverse launders at 3-ft. centers. The water discharges from the transverse launders through 1-in. diameter downspouts, spaced 3 feet apart in the bottom of the launders, and falls onto splash plates 13 inches below the spouts. The downspouts and splash plates are made of bakelite. The water trickles down through eight full decks and three partial decks of fill racks, with double fill racks between each

The temperature of the water is increased up to 9.5 deg. as it passes through the tower and the return air is cooled a maximum of 11 deg. F. In cooling the saturated air, over 7 g.p.m. of water vapour is condensed. To prevent a build up in the acidity of the water, 21 g.p.m. of water is drained off the return pipe through a 4-in. drain line, and the difference is made up with fresh water supplied to the sump, controlled by a float valve.

The circulating pump is located in a concrete well at the low end of the sump and is operated with flooded suction.

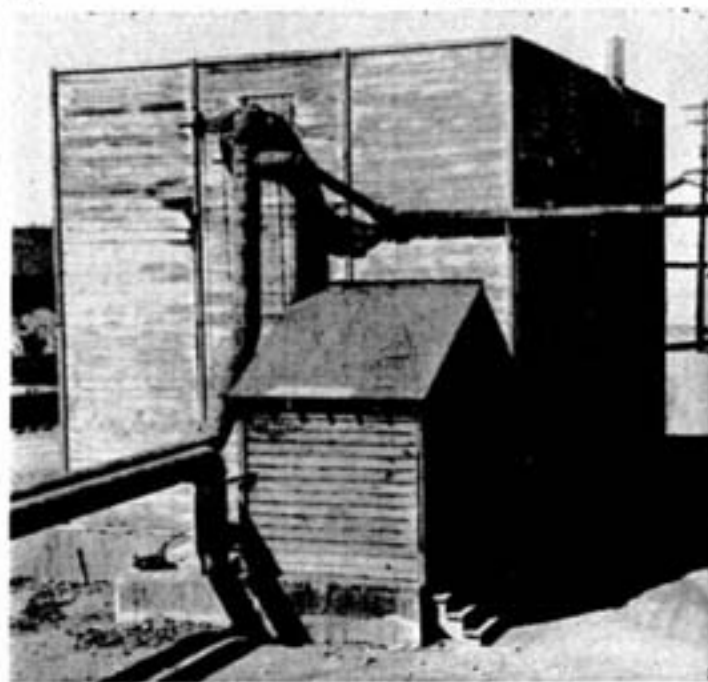
#### Fresh Air Heater

The fresh air heating coil is located against one wall of a brick tile building that houses the vertical fan on the intake to the caving area. The building is 20 x 18 ft. x 20 ft. high, with a flat concrete roof slab. An electrical control room, 6 x 9 ft. x 10 ft. high adjoins the fan house.

There is a large opening in each of three walls of the building. Two of the openings, in opposite walls, allow unheated fresh air to reach the fan during the warmer eight months of the year, the flow being controlled by manually operated louvers. The third opening is the entry for fresh air passing through the heater. In the winter the fan volume is reduced from 200,000 to 125,000 c.f.m., and all the air is drawn through the heater.

The air heater is 17 feet 3 inches wide and 12 feet high, and is supported 7 feet above ground level against the outside of the wall at the opening. The heater consists of 840 vertical tubes, 3/4-inch o.d. and 10 feet 2 inches long, set in eight rows in a heavy steel frame which is constructed in six sections with 140 tubes per section.

The warmed water is pumped to the supply side of the bottom header, up through the 420 tubes (eight rows) in the three sections (Continued on Page 16)




**Water Heater** Giving little hint of the important and highly efficient operation taking place within is the simple appearance of the water heating tower in the Creighton Mine heat exchange system.









## Annual Visit of You-Know-Who Thrills 13,500 Inco Youngsters

As in past years Inco children in the Sudbury district were guests of the various plant athletic associations and other groups at nine separate hugely successful Christmas parties. Kiddies from 4 to 12 years of age, more than 13,500 of them, enjoyed entertainment, gifts and a most welcome visit from that man-of-the-year every year, Mr. S. Claus.

Frood Stobie, Creighton, Garson and Levack each held their party at the local Inco employees club, as did the copper refinery. At the Sudbury club some 4,000 Frood Stobie and open pit kiddies received gifts, candy, and apples, and watched movies while parents and guardians were treated to cake and coffee. The committee in charge consisted of mine superintendent Sid Sheehan, Eldred Dickie, Charlie Cranston, Garnet Milks and Oliver Penman, with assists from a host of others.

At the Creighton employees club two sittings were necessary to accommodate the 850 youngsters who came for the show. At the end of each performance Santa and his helpers distributed fruit, nuts and candy. Mine superintendent Earl Mumford with Jack Deacon, Jim Martel and George Lynn headed up a fine committee which had plenty of volunteers. (Continued on Page 11)

## Creighton People Get Praise for Fine Gardening

Creighton Mine last year maintained its supremacy among Inco towns on the horticultural scoreboard. Announcing the results of the annual Inco gardening competitions C. A. Young, chief of the Company's agricultural department, said "Garden competition was keenest at Creighton Mine, where the increase in good gardens which are at present just below the quality of the top three is most heartening, and augurs well for gardening in that town."

Reviewing the season from the viewpoint of the man with the hoe, Mr. Young said, "The adverse cool dry weather of May and June retarded the setting and growth of annuals which stood still until the warmer weather accompanied by the rains of July provided the necessary stimulant to promote growth. The quality of annual and perennial bloom generally was the poorest in recent years, but offsetting this was the prolonged profusion of bloom shown by the various flowering shrubs which provided the major bright spot in the season's gardening."

If Creighton drew unqualified praise from the agricultural department for its horticultural efforts, the reverse was the case for Copper Cliff. "Gardens in Copper Cliff," reported Mr. Young, "remained in the doldrums into which they lapsed during the past two or three years due to increased interest in camping and a consequent slackening of interest in gardening. Householders generally have seeded their gardens to grass, and although the grounds are neat they lack the color that was so prevalent five or so years ago. It should be mentioned however that the top gardens are still of high calibre."

In a section of Coniston in which there are many privately owned homes there had been "a surge of interest in gardening" that had produced several beautiful gardens, although in the Company-owned residential area of the town "retrogression in interest" which had been apparent the previous year still continued.

Levack gardens were on about the same level as in 1957. Mr. Young's report stated, with a general neatness apparent throughout the town. In Garson Mine there was an increase in the number of awards over the previous year as a result of the increased quality of gardens found there.

Led by the H. J. Squirell garden, again outstanding. Lively produced a fine showing.

In the annual competitions of the Sudbury Horticultural Society Mr. and Mrs. Squirell also captured 13 first, 10 seconds, and seven third prizes, as well as eight trophies which included the J. A. Laberge trophy for the best garden with lawn and flowers, 50 feet and over, in the Sudbury district, and the A. E. Hodge trophy for the most outstanding home garden lot in the Sudbury district. Romeo Leroux, Sudbury district representative of the

Ontario department of agriculture, said "The color balance in this garden was magnificent."

Many other Sudbury-residing Incoites well-known for their gardening skill and enthusiasm were prominent in the Horticultural Society's prize list, among them Mrs. Roy Day, Mrs. W. E. Chad-dock, Mrs. L. Puro, and William Mutch. Those residing in Inco towns who received this extra recognition included E. A. Posten of Copper Cliff, and three gifted Creighton gardeners, William Oja, Mrs. A. Kaukonen and Mrs. Anne Silvenen.

Bill Mutch, who works at Garson Mine, achieved a notable triumph when his collection of vegetables became the first in the history of the Society to win the City of Sudbury cup. Pictures of his beautiful home grounds on Moonlight Road appeared in the August issue of the Triangle.

Judging of the Inco garden competition was done by Romeo Leroux and Tom Vickers of Sudbury, and T. H. Peters of the Company's agricultural department at Copper Cliff.

Following were the results (the competition at Copper Cliff was brought under one class instead of being divided into two as in former years):

### Garson Mine



Mr. and Mrs. A. R. McLennan

A. R. McLennan, 18 Rule, \$10.00; A. Dockrell, 112 Henry, \$7.00; A. Lye, 329 Pine, \$5.00; P. Norris, 5 Henry, \$5.00.

### Copper Cliff



Mr. and Mrs. E. A. Posten

E. Posten, 30 Power, \$20.00; W. Rogers, 3 Market, \$15.00; H. Shavang, 35 Evans Rd., \$10.00; W. L. Taylor, 4 Kent, \$9.00; W. Trotter, 4 Kent, \$8.00; J. M. McQuillan, 41 Evans Rd., \$7.00; D. S. Thom, 15 Power, \$5.00.

Awards of \$5.00 each to the following: W. Kuhl, 13 Power; C. B. Matthews, 44 Finland; A. Stoddart, 5 Chapelle; T. Gladstone, 17 Power; L. Hamilton, 5 Chapelle; H. Rosien, 908 Balmham; H. L. Cleary, 7 McKee; R. M. Thomas, 12 Chapelle; A. Nickle, 10 Balmham; J. R. Clark, 38 Poplar; A. Ills, 93 Balmham; F. Lisecke, 19 Orford; M. Puskarneko, 21 Orford; E. Stoddart, 10 Jones; A. D. Harrison, 19 Cobalt; J. A. Beaudry, 4A Peter St. N.; C. Bump, 18 Orford; E. C. Crouse, 3 Evans Rd.; P. Lowrey, 5 Evans Rd.; H. E. McKay, 1A Orford; M. Kostash, 38 Nickel; P. I. Ouliv, 48 Evans Rd.; D. Ballard, 48 Evans Rd.; Rev. L. T. Pikkusari, 15 Finland; Mrs. E. Fox, 14 Jones; P. Steiman, 5 Cliff; P. E. Bender, 39 Evans Rd.; A. R. Thornborough, 55 Power; A. Morelo, 38 Craig.

E. H. Sutherland, 37 Power; N. Meaden, 19 Nickel; C. H. Byers, 38 Peter St. N.; W. E. O'Brien, 4B Peter St. N.; M. Lemke, 38 Power; J. L. Roy, 36 Evans Rd.; Y. Vesanen, 29 Poplar; J. Clark, 6 Granite; M. Rogers, 10 Union; H. Allan, 101A Balmham; P. Imperatori, 33 Dorrice; H. Sheldis, 13 Succo; L. M. Ramsey, 44 Evans Rd.; J. Stewick, 13 Poland; E. O. Tigert, 5 McKee; M. Eaglen, 5 North; W. E. Lawson, 4 Market; W. L. Aggie, 30 Power; J. L. Shaw, 18 Cobalt; A. R. Clarke, 4 McNevin; T. Moland, 21 Nickel; K. Salo, 21 Succo; Mrs. J. Burgess, 15 Oliver; L. Zanetti, 37B Dorrice; W. Zinkale, 8 Oliver; T. O'Connor, 22 Church; D. Shetti, 8 Basilio; A. Balfon, 15B Florence; G. Visentin, 25 Craig; R. Degan, 13 Craig.

### Coniston



Mr. and Mrs. M. Martinello

M. Martinello, 98 Second St., \$20.00; S. Fiorentini, 17 First St., \$15.00; M. Gerolametto, 36 Second St., \$10.00; E. J. Orendorff, 17 First Ave., \$8.00; Mrs. L. Fornell, 38 Edward St., \$7.00.

Awards of \$5.00 each to the following: L. Marcon, 30 Second St.; V. Battistuzzi, 39 Second St.; Isidore Pilon, Sr., 48 Edward St.; O. Faradiz, 31 First Ave.; N. Honski, 25 Dubreuil St.; W. Paster, 48 Third Ave.; H. Cresswell, 41 Second Ave.; O. Barbe, 7 Albert St.; D. Bakachek, 1 Dubreuil; J. Shetley, 6 Fifth St.; M. Yalichuk, 68 Dubreuil St.; R. Ketter, 42 Second Ave.; P. M. Aggie, 43 Second Ave.; N. Stydchuk, 60 East St.; N. Zeleny, 24 Nickel St.; V. Milland, 32 Second St.; W. Demeka, 16 William St.; P. Gobbe, 349 John St.; G. Wanzak, 48 Dubreuil St.; J. Bronicheski, 71 William; J. Packosa, 83 William; Ilio Parolin, 80 Second St.; G. Cuchin, 19 Fifth St.; P. Balam, 8 Fifth St.; D. Simmons, 12 Balam; Mrs. J. Shrive, 48 Concession; T. Tancredi, 32 Balam; Aldo Limarilli, 20 Second St.; G. Bon, 71 Second St.; M. Orendorff, 84 Second St.; G. Modesto, 41 Third Ave.; D. Oliver, 19 Third St.; R. Ballantyne, 43 Fourth Ave.; W. Evershed, 44 Fourth Ave.; E. J. Strom, 17 Balam; Hector Robidoux, 88 First St.; E. Libraleaso, 200 First St.; C. H. Clarke, 140 Romford Rd.; Mrs. P. Borek, 36 Dubreuil; J. Chwyk, 34 William; N. Wroblewski, 89 William; J. I. Weiland, 18 William; J. Mahubenski, 44 William; J. Wosbeck, 3 Fifth St.

### Creighton Mine



Mr. and Mrs. Wm. Oja

W. Oja, 2 George, \$20.00; E. Kaukonen, 15 Victoria, \$15.00; N. Siveren, 48 Alexandra, \$10.00; M. Kotanen, 15 Edward, \$9.00; J. Hutton, 31 George, \$8.00; W. P. Hughes, 24 George, \$7.00; E. Tahvanainen, 61A Wavell, \$5.00.

Awards of \$5.00 each to the following: E. Wunoch, 8 Edward; A. Ontashek, 42 Alexandra; J. Leikin, 21 Alexandra; T. Ojulin, 23 Albert; J. Thomas, 37 Wavell; T. B. Murphy, 35 Wavell; C. Hestawaser, 9 Edward; K. Sutarinen, 20 George; G. Syrakas, 3A Albert; J. Ballot, 12 Nicholas; J. F. Nichols, 4 Connaught; H. H. Smith, 15 Churchill; P. Oetro, 12 Victoria; C. P. Briggs, 57 Wavell; D. Marston, 58 Wavell; F. Dobranowski, 48 Lake; R. Dumencu, 19 French; J. Sandre, 7B Albert; P. Samikaa, 12 George; D. P. Shannon, 18 Lake; W. Lasowik, 25 Copper Cliff Rd.; H. Grant, 10 McNaughton; W. Greer, 18 Algoma St.; J. Moore, 7 Grey; N. MacDonald, 6 Victoria; A. Maronpa, 18 Grey; V. E. Trembay, 41 Alexandra;

J. Koski, 1A Algoma St.; E. McLean, 8 George; J. Olsbe, 7 George; R. Jefkin, 10A Albert; S. A. Baby, 2A Travers; P. Szapackinski, 12 Joffre; J. W. Craigen, 15 Churchill; W. A. Mitchell, 19 Churchill; E. H. Mosher, 31B Wavell; C. S. Luck, 39 Wavell; J. Takala, 34 Copper Cliff Rd.; Rev. J. Evans, 5 Lake St.; H. Farrell, 28 Lake St.

### Levack



Mr. and Mrs. H. Knight

H. Knight, 33 Birch, \$20.00; E. Hinton, 14B Sixth, \$15.00; R. J. Driedel, 127 Hemlock, \$10.00; P. T. Crome, 7 River-view, \$8.00; W. D. Kenordy, 18 Third Ave., \$7.00.

Awards of \$5.00 each to the following: E. A. Buckingham, 108 Larch; J. C. Shillington, 19 Third; W. J. Anderson, 181 First; W. Gunn, 21 Third; J. Pilon, 52 First; W. C. Bragg, 109 Birch; A. A. Ryter, 108 Oak; J. Austin, 38 Church; H. P. Boucher, 11 Valley Rd.; V. Koski, 28 Spruce; M. Brisse, 21 Fourth; A. H. Pabel, 10 Riverview; E. Maki, 34 Maple; R. Bug, 109 Oak; K. M. MacLeod, 172 First; H. P. Corkal, 108 Birch; M. Ayotte, 114 Larch; J. D. Wright, 52 Third; R. Kallumaa, 52 Pine; D. White, 45 Cedar; D. A. Simpson, 13 Valley Rd.; T. Baastach, 715 Warraw; O. Pashko, 17 Second St. S.; P. Bartol, 30 Copper St.; G. O'Shell, 12 Copper St.; R. Procyshyn, 27 Main St.; W. Bushnell, 14A Sixth; M. Koski, 49 Balam; C. Shuler, 85 Poplar; C. A. McKee, 51 First; A. Kaczmarek, 4 Fourth; D. Vachon, 22 Fourth; J. H. Hatch, 108 Fir; C. B. Allen, 109 Ash.

### Lively



Mr. and Mrs. H. J. Squirell

H. J. Squirell, 241 Twelfth, \$20.00; A. Jarreau, 259 Tenth, \$15.00; W. J. Koch, 244 Eleventh, \$10.00; J. Archibald, 207 Fifth, \$8.00; J. A. Hutton, 247 Ninth, \$7.00; G. Pilon, 256 Ninth, \$5.00.

Awards of \$5.00 each to the following: P. Kuchinski, 238 Ninth; W. E. Pritzel, 287 Birch; A. K. Young, 297 Birch; F. Huska, 283 Fifth; R. C. McDonald, 207 First; C. Lyons, 244 Eighth; E. Pilon, 237 Seventh; N. Utley, 568 Charles; J. P. MacDonnell, 317 Eleventh; J. H. Oliver, 245 Ninth; A. O. Khonen, 277 Sixth; E. Hydr, 568 Main; H. Carrer, 248 Twelfth; A. Elliot, 238 Tenth; W. Tuttle, 275 Eighth; P. W. Larocque, 354 Queen; Elizabeth, L. A. Blake, 251 Twelfth; A. Tumersek, 253 D St.; J. C. Bingham, 279 Birch; O. K. Allan, 611 Queen Elizabeth; Russell Brown, 209 Second; R. H. Barreau, 281 Tenth; M. C. Kossata, 256 Twelfth; C. N. Oodard, 592 Main; J. C. Bee, 254 Eighth; R. Allan, 249 Ninth; F. W. Clapcott, 235 Eleventh; E. C. Eviline, 215 Fourth; E.



# Annual Visit of You-Know-Who

(Continued from Page 8)

Two shows were also required at Levack and Garson where hundreds of excited children gave a fine display of early-season Christmas spirit. Garson counted close to 900 heads while Levack catered to 1,000. Entertainment, gifts and candy was on tap and additional gifts were distributed later to kiddies who were away at the time of the parties. At Levack a committee of mine superintendent Frank McAteer, Mel Young, Gord French, Bob Wotton and Ken McLeod with the help of others presented another smoothly managed affair, while at Garson mine superintendent Bruce King had Dave Lennie, Vic Stone, Tom Scanlon, Hec McKinnon and many others working like a team of pros.

At Willisville the school was again the scene of a fine party and concert for Lawson Quarry children. Planned and produced by the schoolmaster, Leo Burton, aided by Mrs. Stevens, Mrs. Kennedy, and his wife, it was a holiday season highlight. More than 80 attended, and the grade school children received gifts.

Parking his reindeer at the outskirts Santa entered Lively by fire-truck and after a triumphal trip through town invaded the high school auditorium for a program

of entertainment and gift giving. It is reliably reported that Santa was, upon leaving Lively, well nigh speechless, having personally greeted each of the 1,300 admirers. The hustling committee in charge there had Jim Oliver, Ralph Brown, Bob Williams, Len Hayes and Johnny Spec in its lineup.

The copper refinery party at the Inco employees club in Sudbury was generally conceded to be one of their best efforts to date. Some 800 kiddies joyfully answered the roll call, wherein each family group is called by name to meet Santa and get their gifts. A fine colour movie completed the entertainment. Fred Cooper was in charge of the committee with Sandy McGillivray, Bill McBain, Herb Gattoni and Howard Caldwell to assist him.

Copper Cliff reduction plants followed the previous year's pattern and provided a highly entertaining theatre party. Four of Sudbury's major theatres, booked for Saturday morning, were packed with happy gremlins who braved sub-zero temperatures to attend. A two-hour menu of cartoons, shorts and comedies highlighted by a visit from Santa and terminative with candy and apples gave a fine time to all. About 3,700 children attended including those of iron ore plant employees and Creighton families living in Sudbury. Bus transportation was provided to and from the theatres. On the committee were Jack Lilley, Gord McLean, Hugh Allen, Red Maltby, Tom Gladstone, Val McGauley, Jay McCarthy, Al Longfellow and Bob Butler, with many others assisting.

At Coniston a fine community effort resulted in a Christmas party at the new club Allegri for some 750 children of Inco employees. Two packed sittings enjoyed a program of carol singing and movies before Santa arrived with gifts and candy. In charge of this event were Joe Barnes, W. Conlon, P. Desautels, C. Duncan, J. Forestell, L. Frappier, G. Geoffrey, G. Gibson, A. McLean, A. Rivard, D. Stimson and Roy Snitch.

## QUICK QUIZ

1. In what year was the international agreement signed that created the "undefended border" between Canada and the United States?
2. Wheat was first grown in the Canadian west in what year?
3. Immigration in the first half of 1957 totalled 182,418. What was the total for the first half of 1958?
4. Of foreign commodities sold in Canada, what proportion comes from the U.S.?
5. Of Canada's 4,055,000 dwellings, what proportion are owner-occupied?

ANSWERS: 1. About 88 per cent of Canadian homes are owner-occupied. 2. In the first half of 1958 immigration totalled only 87,744. 3. In 1817, the Rush-Bagot agreement. 4. In 1957, 71 per cent. 5. In 1954 wheat was grown in the valley of the Carrot River, Sask., by French explorer Chevalier de la Corne.

Material prepared by the editors of Quick Canadian Facts, the pocket annual of facts about Canada.



Santa makes his triumphal arrival in Lively riding in state on the town fire truck.

## Stainless Steels Get Big Ballyhoo Continent-Wide

A major cross-Canada promotion aimed at increasing stainless steel markets and developing new fabricating sources in the important consumer product field will be staged February 2-14.

The program is sponsored by The International Nickel Company of Canada, Limited, in co-operation with the T. Eaton Co. Limited. Believed to be one of the largest promotions of its kind ever to be held in Canada, it is aimed directly at consumers, with Eaton stores from coast to coast participating.

Theme is: "The Gleam of Stainless Steel" and around it has been built a comprehensive promotion including daily newspaper advertisements, supporting radio spots and full page ads in national consumer publications.

Newspaper and magazine advertisements will feature some 20 consumer items made from stainless steel. Advertisements in more than 90 Canadian dailies will refer to displays in local stores. On the national level, two full page ads in Maclean's and Le Samedi and large space advertisements in Financial Post, Northern Miner, Financial Times, a number of foreign language papers and selected college and high school publications will carry the story to housewives, businessmen and the trade. Commercials featuring stainless steel consumer products are scheduled on 21 radio stations.

Items to be highlighted include stainless cooking utensils such as those on display in the Inco window in Sudbury, appliances, flatware and other household and consumer products.

A specially prepared slide film has been provided by Inco and sales people will receive descriptive and informational literature on stainless steel to aid in selling.

A simultaneous promotion in the United States involving 29 leading department stores across that country also will have its effect here, mainly in the form of intensive advertising in such national publications as Saturday Evening Post, Look, and local co-operative newspaper advertising.

Also co-operating with Inco in the Canadian program is Atlas Steels Ltd., Welland, major Canadian producer of nickel-containing stainless steels, which will also sponsor national advertising. In addition, Canadian fabricators are lending support with special offers to Eaton's stores for the period of the promotion, and it is hoped that the promotion will interest established and new fabricators in the production of additional consumer product items not presently produced in Canada.

### TAKE YOUR CHOICE

"Yes," said the explorer, "once I was so hungry that I dined off my pet parrot."

"What was it like?"

"Oh, very nice."

"Yes, but what did it taste like?"

"Oh, turkey, chicken, wild duck, plover... that bird could imitate anything."

## Murray Mine



Mr. and Mrs. W. Vaananen

W. Vaananen, \$10.00; G. Paine, \$7.00.





Mrs. Keast relaxes in the living room of their lovely Long Lake camp. On the right she is seen busy in neatly terraced garden behind the cottage.

## Here's How Gordon Keasts Found Way to Richer, Fuller Life

Set on the curve of a gently sloping bay, encompassed by a stand of beautiful white birch, is one of the most attractive summer residences on the west end of Long Lake. Good taste and fine workmanship are obvious inside, outside and around about this place which for at least six months of the year is the home of the Gordon Keasts of Copper Cliff.

That they are proud of this home is evident when one talks to them, and proud they may well be since they built almost all of it themselves.

Back in 1948 the Keasts first became interested in a summer

camp and after discovering this virgin lake area they purchased about 2½ acres and built a small cottage. Today that cottage serves as a guest house and is a perfect little showplace.

By 1948 Gordon and his wife had discovered that a sure way to a fuller life was to always have some project on the go. A start on their present beautiful camp was the result, and it has been a great boon to them. They prepared their own plans, made many changes and came up with a really fine residence. It is roomy, 36 x 24 feet, and has a fine fireplace living room 16 x 27 feet overlooking the lake. A gem of a kitchen,

two bedrooms, bathroom, loft and bar take up the remaining area. Recently Gord added a neat breezeway, tool shed and barbecue.

The living room is panelled in knotty pine and the remainder of the house in that old reliable gyproc painted in attractive colors. The very pleasing exterior is the result of using a transite cedar grain shingle, Gord said, which is exceptionally weatherproof.

"We were the first campers in that area," Gord told the Triangle, "and you either travelled by water or through the bush by an old Indian trail." From the foot of the Black Lake road much of his material had to be rafted to his

camp site. Eight hydro poles were purchased, much of the lumber lashed to these and sailed down the lake shore. The poles were then used as sills for the new camp. A road now services the area where many camps have since been built.

Ardent gardeners in Copper Cliff, where they have lived for many years, the Keasts have a dazzling flower display at their camp. Bed after bed of bright-hued annuals plume themselves midst the stately birch and close-cropped lawns. All soil for the flower beds had to be brought in. A pair of curling stones flank the walk at the dock end. They have



From the lake the Keast camp, almost completely a do-it-yourself project, offers an attractive invitation. On the right is a view of the breezeway.

travelled across Canada many times, Gord said, and were given to him by a retired CPR employee, Mr. King, the late Waverley Tyers' father-in-law.

Situated about 10 feet above lake level and protected from the north and back by a high hill, the Keast camp would appear to be perfectly located. The grounds are neatly terraced, the beach clean as a hound's tooth, the house immaculate, and keeping things that way gives this couple a great deal of pleasure. Gord does a bit of fishing and boating but would just as soon putter around the camp.

When they lock up in the late fall, Gord told the Triangle, everything is left ready for use in the spring. During the winter they ski into camp occasionally and as soon as the road is passable in spring, they are there.

Looking at this fine camp it is hard to imagine changes or improvements but Gord says they are always doing something to it. "We enjoy it that way," he said. "My wife is the supervisor, she knows what she wants and I get a kick out of doing it."

It's a nice life these Keasts have each summer, and deep in their appreciation of it is the satisfaction that comes with accomplishment.

## Many Distinctions To R. C. McQuire

A distinguished career was cut short in December by the death of R. C. McQuire, manager of Inco's nickel refinery at Port Colborne.

He had been in the employ of the Company since 1929. He was born at Webbwood.

During his third, final and post-graduate years at Queens he conducted research on copper, cobalt and nickel. It was in connection with this research

work that he was sent by Professor Kirkpatrick to the Missouri Cobalt Co. in Southern Missouri as chemist and metallurgist. Two years later he returned to Canada as superintendent of the nickel electrolytic department of British-American Nickel Co. at Deschenes, Que., under R. L. Peek. During his last three years with this company the late Mr. McQuire was general superintendent of the plant. He returned to the United States and engaged in metallurgical and chemical work for five years.

In 1927 he returned to Canada and did chemical and metallurgical work for British Metals Corporation and went to Noranda in 1928 to help start the roasting department. He came to Port Colborne with International Nickel Co. in 1929 in the calcining and sintering department and was named assistant superintendent of that department in January, 1930, and superintendent in June the same year. He was appointed works superintendent in September, 1937, and assistant to the general superintendent in January,



R. C. McQuire

## Pleasant Christmas Visit at Hospital



R. H. Waddington, general manager, and F. Benard, assistant general manager, visited Copper Cliff hospital on Christmas morning to extend Inco's greetings and good wishes to the patients and staff. Here Mr. Waddington gets a cheery reception from Frank Milligan, who retired on Inco pension in 1953 from Creighton mine after 28 years of service; he is the father of Mrs. Bob Burford of Murray mine. On the left is Miss Allegra Walker, superintendent of nurses.



Members of the hospital staff on duty Christmas morning who accompanied the visitors on their pleasant rounds included nurses Marie Mulligan, Barb Smith, Noreen Scheuer, Linda Matthews, and Elaine Ettinger; hidden, second from the right, is Lorraine Marsh.

1939. His appointment as manager of the refinery came on the retirement of H. W. Walter in 1946.

Most recent of his many professional distinctions was the co-authoring, with L. S. Renzoni and W. V. Barker, of a paper on the new Inco process for the direct electrorefining of nickel matte. The paper was presented at the annual meeting of the A.I.M.E. in New York in February, 1958.

The late Mr. McQuire was a member of the Canadian Institute of Mining and Metallurgy; member of the Professional Engineers' Association of Ontario; professional member of the American Institute of Mining and Metallurgy; a member of First Presbyterian Church; director of Port Colborne General Hospital; member and past president of Port Colborne Lions Club.

### Safeguards Food

Equipment and utensils which come in contact with food in commercial canneries and quick freezing plants are frequently made of nickel-containing alloys because these metals are rust-proof, sanitary, easy to clean and resist the corrosive action of food acids.

## Ernie Bray a Happy Coniston Pensioner

"I've got a good reliable pension coming in every month and I haven't a care in the world," said Coniston's Ernie Bray as he proceeded to enjoy life as an Inco pensioner. For young fellows Ernie has this advice: "Stick with Inco, you'll never be sorry."

A member of a well known Inco-Mond-Canadian Copper Company family Ernie had more than 36 years of service. He first started with the Canadian Copper Com-



pany in the locomotive shop back in 1913. He has worked almost exclusively with locos, hoists and cranes. He was a locomotive crane engineer for many years at Coniston prior to his retirement.

Ernie joined the army in 1915 and came to Inco after his discharge in 1918. When the plant at Copper Cliff closed down in 1921 he got a job with the Mond at Coniston.

Ernie intends remaining in Coniston where he thoroughly enjoys the daily sessions of cards and arguments at the club with Sid Smith, Rene Lemieux, Bruno Commachio and other Coniston pensioners.

Ernie's wife died in 1951. Of his three sons Carmen has over 24 years and Harold 18 years' service with the Company at Coniston. His son Roy works for McKim township. All three are in mechanical work. They have presented Ernie with four grandchildren.

Thoroughly enjoying his leisure Ernie finds the days pass all too quickly. He has a few short trips planned for later but he frankly admits he would be perfectly happy if he never left Coniston. Present indications are that he won't be away very long or very often.

## Clay Modelling New Hobby of Aldo Palla

Take one lump of fire clay, several wooden matches, a familiar face and—presto! If you are Aldo Palla, a miniature bust is produced in a couple of hours.

Aldo first started toying around with clay a couple of years ago while working on the converters at Copper Cliff smelter. He began making rough figures, usually of animals or Santa Claus. Before long he was sculpting very realistic Santas. Then at home he tried his hand at familiar faces in the plant and came up with some very creditable work.



The two heads pictured here Aldo made from memory and are of Pete Dozzi of the carpenter shop, complete with pipe, and Dave Nairn of the shops office. The Nairn head took about two hours, Dozzi a little longer.

Aldo says he hasn't done anything of this sort previously and as for inheriting his talent, the only member of his family with any artistic skill that he can recall was an uncle in Italy who carved stone.

Aldo works as a mechanical laborer at Copper Cliff and has been with the Company since 1951.



## Dramatic Turns

(Continued from Page 2)

sumption by fields in 1958 is estimated as follows: stainless steels, 28%; engineering alloy steels, 16%; nickel specialty alloys, 16%; foundry products 15%; electroplating, 14%; copper and aluminum base alloys, 6%; and miscellaneous, 5%. These figures show that the steel industries continued to be the largest consumers of nickel.

"The stainless steels accounted for the largest use of nickel by the steel industries in 1958. A highly versatile series of alloys, which are resistant to corrosion and heat, they provide great utility and attractiveness for many consumer items, as well as engineering and architectural characteristics, suitable to meet the requirements of defense, transportation and industrial machinery and equipment in this age of supersonic speed and atomic energy. During 1958 the total production of stainless steel dropped substantially, but the percentage of the nickel-containing grades showed some increase relative to the total. In the United Kingdom, Sweden and other European countries, production capacity for stainless steel was increased. With a plentiful supply of nickel assured for future production, it is expected that the use of nickel - containing stainless steels will continue to increase in all fields of application, particularly in those which for a period have remained either dormant or incompletely developed. Some of these fields which are receiving the greatest attention from steel producers are household products, automotive functional trim, and architectural applications including curtain-wall construction, all of which show great development progress and potentials.

"In the United States 1958 consumption of primary nickel in engineering alloy steels increased in the face of a reduced rate of production for the steel industry as a whole. In the United Kingdom and Europe, steelmakers used the period to reduce excessive inventories, make full use of available scrap and proceed with new alloy developments. Free availability of nickel has made it possible for alloy steel consumers to return to the higher nickel-containing types for established applications such as in automobiles, trucks, tractors, aircraft, military equipment, farm machinery and road building and transportation equipment. An example of the use of nickel alloys in transportation is in the modernization program of the British Railways where nickel-chromium case-hardening alloy steel is being employed for diesel locomotive roller bearings. An ultra high-strength nickel-containing alloy steel is being used in increasing quantities for landing gear components of new jet transport aircraft, as well as in sheet form for various parts of missiles. The most important new applications were those involving heat-treated high-strength structural plates and shapes containing up to about 3 per cent

## Third Straight Title for Creighton



When president Sam Rothschild presented the Moneil trophy to playing coach Bill Kasepichuk last fall, it was the third straight Nickel Belt Baseball League championship for Creighton Indians. After finishing second in the regular schedule they went on to trim Garson Greyhounds in the finals. On the left in the picture is Frank Hreljac, pitcher, and on the right Jack Howe, the veteran Creighton catcher. Jack's southpaw brother Tommy staged a great comeback to win the league's most-valuable-player award.

nickel for bridges, pressure vessels and hulls for naval vessels. Alloy steels with up to 3½ per cent nickel are being specified by engineers as materials for the construction of equipment for low temperature service, and where this condition is exceptionally arduous there is great interest in a steel containing 9 per cent nickel developed by International Nickel for this use.

"Nickel, nickel-copper alloys, nickel-chromium alloys, and the wide range of established nickel-base non-ferrous alloys have continued to be specified by engineers where stress and corrosive environments impose severe service conditions. The high-nickel precipitation-hardened and other related alloys provide the strongest cast and wrought compositions commercially available for such highly stressed items as turbo-jet rotor blades for operation at elevated temperatures, and these alloys are specified for most of the first stage jet engine turbine blades. In the more advanced propulsion systems, high-nickel alloys are especially well suited to resist the corrosive action of the new boron-containing high energy fuels. The first so-called manned satellite, the 'X-15' built by North American Aviation, represents the first use of a heat-resisting alloy as fabricated sheet metal skin capable of withstanding the weakening effect of aerodynamic heating. 'Inconel X' nickel-chromium alloy was chosen as the most suitable material for the body of this space ship.

"The new commercial jet aircraft are important users of nickel alloys — the engines, for instance, use at least three times as much nickel as piston engines. It is estimated that a typical large jetliner employs about two tons or more of nickel in various alloys, the engines accounting for approximately 1½ tons, the balance being em-

ployed in electrical equipment, structural members, firewalls and other components. Nickel alloys are also being used for honeycomb structure of high-speed air vehicles.

"Complementary to aircraft developments, there has been substantial progress in the development of small gas turbines for both transport and stationary uses. These smaller units make use of the wrought nickel-chromium alloys as well as other high-nickel cast alloys. Extensive use of nickel and nickel alloys is made in the power plants of atomic-powered submarines and such use of these materials is expected to be extended to surface vessels and stationary power plants. Parallel to the development of atomic power there is going on intensified development of steam power plants operating at higher temperatures and pressures with the end result of increasing efficiency. Such plants would involve many components made of nickel-containing materials. The higher the temperatures and pressures go, the greater is the potential for nickel in the power field.

"Austenitic nickel cast irons, long established in industry for high-temperature service such as in diesel engine components and for service under corrosive conditions in the chemical processing industry, are now available in the ductile form with much greater strength and toughness. The new ductile types of these special irons are broadening the market and finding usefulness in industry as a supplement to the heat and corrosion-resistant steels used heretofore. There has been an increased use of abrasion-resisting nickel-chromium cast irons for grinding and crushing equipment in plants handling ores, cement, coal and coke, especially in the United Kingdom, Germany and Scandinavia. New techniques in casting and heat-treating grinding balls

made of these alloys show promise of wider adoption of these cast irons for this application in the cement and mining industries. The use of nickel as a magnesium carrier in the manufacture of ductile iron showed an increase during the year, despite the fact that general foundry activity was hampered by the general business recession.

"In the United Kingdom the use of nickel for electroplating showed an increase as users once again became able to take advantage of the free availability of nickel. Automotive producers in the United States have increased the thickness of the nickel plating underlying the chromium, thus insuring the quality plate necessary to secure long-lasting bright finish for automotive trim. In industrial applications important advances included the use of relatively thick nickel deposits on processing and transportation equipment to prevent product contamination, and electroforming of such special products as hypersonic wind tunnel nozzles, grids, screens and special moulds. Another application indicating potential growth is the bright nickel plating of aluminum products. In applications where the inherent light weight of aluminum is of advantage but a protective surface to resist atmospheric corrosion and tarnishing is necessary, nickel-chromium plating provides a lasting, bright and pleasing appearance.

"Heat exchanger applications continued to be the major market for cupro-nickel (copper-nickel) alloys containing from 10 to 30 per cent nickel. The nickel silvers, a group of copper-nickel-zinc alloys containing up to 18 per cent nickel, remained as the preferred base metal for high quality silver-plated articles such as tableware. These alloys are also used in top quality slide fasteners and keys.

"There has been sustained progress in the use of nickel-containing high-tensile aluminum bronze for large marine propellers, with such propellers having been installed on some of the largest ocean liners. This alloy has opened a new market for propellers in the small-boat field. Nickel-aluminum bronzes, in both cast and wrought forms, are finding increasing use by European firms operating seaboard oil refineries and process plants, being employed with particular advantage for valve and pump components, condenser floating heads and tube sheets.

"The 1958 consumption of chemical nickel, including that for catalysts, ceramics and nickel salts, was substantially reduced from 1957 as a result of curtailed business activity. A nickel catalyst, essentially calcium-nickel-phosphate, has played an important part in the expanded European petrochemical production of one variety of synthetic rubber.

"A traditional use for nickel is coinage, and during the year consumption in this application rose by 50 per cent. A quaternary coinage alloy was developed at the Mexican Mint, and nickel alloyed coinage returned to Argentina for all denominations and to Colombia for some denominations. Canada continues to use pure nickel for





Walter Borland

Aline Passi

John Clark

Jacklyn Gladstone

Richard Adam

Helen Soucy

John McCaig

John Myher

## Eight Outstanding Students Receive Inco Scholarships

Scholarships have been awarded to eight sons and daughters of Company employees in the Sudbury district, Port Colborne and Toronto by The International Nickel Company of Canada, Limited it was announced in September.

They are: Aline Passi, 74 St. Brandon Street; Richard Adam, 19 Highway 17; John Myher, 19 Bancroft Drive, all of Sudbury; Jacklyn Gladstone, 35 Finland Street, and Walter J. Borland, 48 Power Street, of Copper Cliff; Helen L. Soucy, 31 Claire Ave., and John F. Clark, 68 Erie Street, of Port Colborne; and John D.

its five-cent piece. In Europe, established nickel and cupro-nickel (copper-nickel alloy) coinages continue and new cupro-nickel coinage was introduced in Spain. Cupro-nickel has also been adopted for new coinage issues in Ghana and Nigeria.

"A good potential market, dependent on both product and market development, is the nickel-cadmium storage battery. Taking advantage of a nickel-carbonyl powder specially developed for the purpose by International Nickel, various battery manufacturers are now expanding their facilities to develop and enlarge this market."

### Nickel Outlook

In his concluding remarks, Dr. Thompson said: "Consumption of nickel in recent months has shown an improvement over the low levels touched earlier in the year, and it is expected that this situation will continue into 1959."

"The nickel industry is entering into a period of vigorous competition. During the past period of nickel shortage, producers of competitive materials have naturally taken advantage of the fact that large quantities of nickel were required for defence production and were also put into government stockpile. As a result substantial inroads were made into traditional civilian markets for nickel. Now that nickel supplies are plentiful, both for defence and civilian purposes, the nickel industry must recapture these markets and create new uses for nickel-containing products."

"We are confident that the research and sales programs of International Nickel and the other nickel producers will result in a steady upward trend in consumption with substantial benefits to the nickel producers as well as to nickel consumers."

McCaig, 4 Crenson Drive, Bloor-dale, Etobicoke.

The scholarships are awarded each year to sons or daughters of Inco employees and permit free choice of institution and field of study. Students are chosen by an independent committee of Canadian educators. In addition, the Company awards 18 new scholarships annually to students of engineering, geology, geophysics, mathematics, metallurgy, mining and physics.

Each scholarship provides the student annually with the cost of tuition and fees, plus \$300 allowance for books and portion of living expenses. In addition, there is a cost-of-education supplement to the university of \$500.

Aline Passi graduated from Sudbury High School in June, 1958, and has enrolled in the Faculty of Arts, University of Toronto, where she is specializing in Modern History. She is the daughter of Mrs. C. R. Hughes and the late Zero Passi, an Inco pensioner, who was yard foreman at Frood mine prior to his retirement.

Richard Adam attended the University of Sudbury to obtain the equivalent of Grade 13. He is continuing his studies at the University, working for his B.A. in Classics. He is the son of Alfred Adam who is employed in the mechanical department at the Copper Cliff reduction works.

John Myher graduated last year from Nickel District Collegiate Institute, and is studying Honors Chemistry at Queen's University, Kingston. He is the son of Joseph Myher, carpenter at Copper Cliff reduction works, and grandson of John Myher, an Inco pensioner.

Jacklyn Gladstone graduated from Copper Cliff High School in 1958 and is studying Secretarial Science at the University of Western Ontario. Her father is Jack Gladstone, converter foreman at the Copper Cliff reduction works.

Walter Borland has enrolled in Engineering Physics at the University of Toronto. A graduate in June, 1958 from Copper Cliff High School, he is the son of Harold Borland, analytical chemist in the research department, Copper Cliff.

Helen Soucy graduated from Port Colborne High School in 1951, following which she had an outstanding career with the Royal Canadian Air Force and in business. She has enrolled at the University of Toronto to study Mathematics and Physics. Her father is employed as a stationary

engineer at Inco's Port Colborne refinery.

John Clark, graduated from Port Colborne High School in June, 1958, and is enrolled at Queen's University, Kingston, in the Faculty of Applied Science for Engineering. He is the son of the late John Clark, Inco pensioner, who was a foreman in the sinter department of the Port Colborne refinery at the time of his retirement.

Graduated from Burnhamthorpe Collegiate Institute in June, 1958, John McCaig will study Engineering Business at the University of Toronto. He is the son of Donald G. McCaig, assistant secretary and chief accountant of Alloy Metal Sales Limited, Toronto, Inco sales subsidiary who resides at 4 Crenson Drive, Bloor-dale, Etobicoke.

## A Kind Letter

An Inco pensioner who had a fine record at Frood mine, Tommy Linton, writes from Sault Ste. Marie to advise us of a change in his address. He adds the following remarks, much appreciated by the producers of this news-mag: "I would be sorry to miss my copies of the Triangle. It is a strong holding link between pensioners and Company, and one I look for each month. It keeps us in touch with progress and we hear occasionally of old shopmates which recalls to us things long past. My sincere thanks for the cheer already given and many blessings for the future."

Confucius probably say: "Who say I say all the things I say?"

## Creighton Miner Proud Pappy of Stork Derby Winner, Janine Sartor



First absolutely brand new newcomer to greet the New Year in the Sudbury district was Pretty Janine Sartor, latest addition to the happy Carl Sartor family of Lively. Janine, a 7-pound 1-ounce dimpled charmer, made her auspicious debut at Sudbury General Hospital at 12:09 a.m. January 1, with Lively's Dr. J. H. Marleau in attendance.

Janine's arrival heralded a swing in the balance of power at the Sartor household in favour of the ladies. Until then it was a draw between two boys, Richard, 8, and

Tony, 3, and two girls, Anna, 6, and Patti, 5.

Janine's feat of being first to arrive on the Sudbury district scene in 1959 brought her quite a galaxy of gifts from the Sudbury Star Stork Derby, in addition to a flood of congratulatory messages from friends and neighbours.

Her daddy is employed at Creighton mine and has been with Inco since 1947.

Picture shows Carl and his wife with Janine; on the right is Dr. Marleau.

# Structural Steel for Smelter Shows on Skyline at Thompson



The tremendous progress that has been made at Inco's huge nickel project at Thompson, in northern Manitoba, is partly shown in this fine panoramic view. Beside the 500-foot chimney, completed last year, the steel work for the smelter shows against the skyline. To the right, partly hidden by the cloud of steam, is the compressor building and beyond it, in one compact unit, are the concentrator, ore bins, and headframe.

The mine office is to the right of the headframe. Across the centre of the picture from the left are the shops building, garage and fire hall, warehouse, and general changehouse. In the foreground are the employees' temporary sleeping quarters, the office building and, on the right, the temporary Hudson's Bay Co. store.

A shaft for mine development was finished at Thompson, in December, 1957, and sinking of the

production shaft to over 2,000 feet was completed in 1958. Lateral work from the development shaft was started immediately upon completion of sinking, and the two shafts are now connected at depths.

A townsite has been planned for approximately 8,000 people and the first 60 houses are already occupied.

At Kelsey, 53 miles northeast of

the Inco plant, the Manitoba Hydro-Electric Board is building a dam and power plant on Grand Rapid of the Nelson River to provide power to the Inco mines and plants.

Up to 2,000 men were employed on the Inco project in 1958. Initial production is scheduled to commence in 1960, with the plant reaching the rated capacity of 75 million pounds of nickel per year in January, 1961.

## Inco Announces Nickel Refining Appointments

The International Nickel Company of Canada, Limited, announced the following appointments, effective January 19:

**W. J. Freeman**, manager, nickel refining division, Port Colborne;

**W. J. Cook**, to be in charge of refining operations in the Company's Manitoba division;

**J. H. Walter** and **J. H. Tuck**, assistant managers, nickel refining division, Port Colborne.

Joining the Company at its Bayonne, N.J., refinery in October, 1955, Wm. J. Freeman was transferred to the new Port Colborne plant in January, 1959, upon his discharge from the United States Army. Starting as superintendent of the Orford department, he served in various supervisory posts and became assistant manager in 1954. He succeeds the late R. C. McQuire as manager. He is married and has one son and one daughter. His father, the late W. J. Freeman, Sr., was an Inco pioneer, coming from Bayonne to the Port Colborne refinery where he was works superintendent at the time of his retirement on service pension in 1932.

A graduate in chemical engineering of the University of Toronto, Wilfred J. Cook joined



W. J. Freeman

W. J. Cook

Inco at Port Colborne in 1935, and the following year became assistant superintendent of the calcining and sinter department. He was appointed assistant manager in 1954. Production of nickel from the huge new Inco development at Thompson, Manitoba where he will be in charge of refining operations, is scheduled to commence in 1960. He is married, has a son and a daughter.

Mr. Cook will temporarily make his office at Copper Cliff in order to continue to assist in the engineering design of that portion of the Thompson, Manitoba, project for which he will be responsible.

Born on Staten Island, N.Y., James H. Walter, a graduate of Dartmouth University, started to work with Inco at Port Colborne in 1935, becoming assistant superintendent of the electrolytic department. On his return in May, 1946, from service in the United States Navy in World War II, he

was made assistant to the superintendent, and in January, 1954, assistant to the manager. He is married and has two daughters. His father, H. W. Walters, commenced service with Inco at Bayonne, 50 years ago, and was general manager at the Port Colborne plant when he retired on pension in 1946.

Born in Port Colborne, J. Howard Tuck was a summer em-



J. H. Tuck

J. H. Walter

ployee at the Inco refinery for three years during his University career at Queens, from which he graduated in mechanical engineering. He joined the Company in April, 1936, and 10 years later became superintendent of the electrolytic department. He was appointed assistant to the manager in July, 1956. He is married and has one son and one daughter.

Gordon O. Machum has been appointed assistant to the manager of the nickel refining division,

Port Colborne. At present attached to the Company's copper refining division at Copper Cliff, he will transfer to Port Colborne in the near future.

## Creighton Warms

(Continued from Page 7)

on that side of the coil, across the top header, and down through the 420 tubes in the other three sections to the return side of the bottom header. The cooled water discharges through the return pipe line to the top of the water heating tower. The velocity in the tubes is 5 ft. per second; thus the water makes one pass through the tubes in two seconds, giving a total time of four seconds in the air heater tubes per circuit. The air resistance across the heater, 0.8 inches of water, is overcome by the intake fan.

To prevent freezing in the coil tubes in the event of pump failure, the intake fan and the pump motors are wired so that the power to the fan is cut off when the pump stops. Both the supply and return pipe lines are sloped downwards towards the pump so the water can drain quickly from the coil through the pump to the sump, and there is a by pass with check valve from the discharge line to the supply line to drain the return side of the system. Two vacuum breaker valves above the top header permit quick drainage from the coil when the pump stops.