INCO TRIANGLE

VOLUME 6 COPPER CLIFF, ONTARIO, FEBRUARY, 1947 NUMBER 11

Allegiance to Canada Sworn In Ceremonies

"I swear that I will be faithful and bear true allegiance to His Majesty King George the Sixth, his heirs and successors, according to law, and that I will faithfully observe the laws of Canada and fulfill my duties as a Canadian citizen. So help me God."

Repeating these solemn words 24 Sudbury District men, representing eight different nationalities, became Canadian citizens at a ceremony in the Sudbury courthouse on January 13. Eleven of the candidates picked to take part in the historic proceedings were Inco employees.

Hon. Paul Martin, Canada's health minister, who as secretary of state piloted the Canadian Citizenship Act through the House of Commons, addressed the 24 new citizens and the gathering which packed the courthouse. "Behind this act," he said, "is a desire to unite all Canadians from coast to coast, whatever their language or origin may be."

"Nationhood is not built by power alone. It is the integrity and character of a people that lays the foundations for nationhood, and those are qualities that Canadians possess. This fact is recognized throughout the world."

"You must carry your share of the responsibility in building a greater Canada, with all the talent and means that you possess."

An Impressive Ceremony

Royal Canadian Mounted Police, Boy Scouts, Girl Guides, members of the judiciary and the legal profession in their court robes, the clergy, members of the city council, and representatives of various organizations and industries, were present for the impressive ceremony which signalized in Sudbury the passing of the Canadian Citizenship Act. Similar declarations of allegiance were made in other leading cities of the country.

Proud of their distinction were the 11 Inco men who happened to be selected as citizenship candidates for the Sudbury ceremony. Here are thumbnail biographical sketches of them:

Dmytro Dobrowolski, Copper Cliff smelter: born in Poland 1907. Came to Canada 1928. Worked on Western Canada farms and with the C.P.R. until he joined Inco in 1943. Married but has not heard from his wife in Poland since early in the war and fears she was killed.

Mike Goga, Copper Cliff smelter: born in Czecho-Slovakia 1904. Came to Canada 1927. Farmed near Winnipeg until 1935 when he came to Sudbury and joined Inco. Married 1939 and has one daughter. Ardent gardener and plans to operate fruit farm after retirement.

TAKE CANADIAN OATH OF ALLEGIANCE

A Canadian Citizenship certificate is presented by Mrs. Wallace Smith (top) on behalf of the I.O.D.E. to Mike Goga, of Copper Cliff smelter, one of the 24 Sudbury District men selected to take part in the citizenship ceremony at the courthouse on Jan. 13. Also a recipient of a certificate was Dmytro Dobrowolski, one of Mike's fellow smelter workers. More of the candidates swearing the oath of allegiance are seen in the bottom photo. Eight nationalities were represented in the group of 24, of whom 11 were Inco men.

Paul Zariczny, Copper Cliff smelter: born in Poland 1902. Came to Canada 1928 and was employed briefly by Mond Nickel Co. Started at Copper Cliff in 1931. Married in Poland in 1924, has one son.

Roman Wolorchuk, Refinery: born in Poland 1905, member of Polish army for three years. Came to Canada 1930. Farmed and worked in gold mine. Joined Inco 1934. Married in 1940 and has two children. Has nephew, Clarence, also employed at Refinery.

On Normandy Beach-Head

Mike Merenic, Refinery: born 1904 in Czecho-Slovakia; came to Canada 1908. Held various jobs until he joined Inco in 1941. Landed on Normandy beach-head with Czech forces attached to Canadian army. Has wife and one son in Czecho-Slovakia, to join him in Sudbury.

Onni Ranta, Garson: born in Finland and came to Canada as a boy in 1926. Started with Inco 1941. Maintenance electrician. Married, has two sons.

Hjalmar Stavang, mechanical engineering dept., Copper Cliff: born in Norway 1901, came to Canada in 1930 to join Inco. Married in 1930 and has daughter Margaret (talented pianist) and son Henrik.

Christian Jorgenson, Creighton: born in Denmark 1899, came to Canada 1927. Farmed, worked in lumber camps and factories until he joined Inco in 1934. Married, has two sons and one daughter.

John Kusnierczyk, Frood: born in Poland 1903, came to Canada 1926. Farmed in Alberta and Saskatchewan until joining Inco in 1929. Married, has two sons.

Isak Lagerbom, Frood: born in Finland 1897, came to Canada 1923. Worked for Mond Nickel Co. Started with Inco 1930. Married, has one daughter whose son was killed in the Second Great War.

Jack Rantanen, Frood: born in Finland 1907, came to Canada 1929 and started with Inco the same year after brief employment at Rouyn. Married, has one daughter. Has unusual artistic ability.

INCO TRIANGLE

Published for all employees of The International Nickel Company of Canada, Limited.
Don M. Dunbar, Editor
EDITORIAL OFFICE COPPER CLIFF, ONT.
VOLUME 6 FEBRUARY, 1947 NUMBER 11

Sincere Thanks For Yuletide Remembrance

DESPITE the span of time and distance which separates them from their old associations, Inco pensioners retain a lively interest in the Company's progress and the activities of its employees. This was evident in the letters which reached I. J. Simcox, general assistant to the vice-president, in reply to Yuletide greetings he sent them on behalf of President Stanley and Vice-President Beattie.

"Always Interested"

"I wish to thank you most sincerely for your friendly, warm, and sincere wishes for Christmas and the New Year on behalf of Inco," wrote Victor Tardif of Aylmer, P.Q. "It is indeed most thoughtful of you all to remember me. I'm always most interested in the Company and its employees, the changes, progress, etc., as reported in the Triangle. I was always most satisfied and happy to work to the best of my ability for the Inco. I also wish to thank you for the Christmas bonus of $25.00."

S. F. Mills of Smith's Falls said the greetings expressed in Mr. Simcox's letter were heartily reciprocated by himself.

"I would like Mr. Stanley and Mr. Beattie to know how much I appreciate their kind consideration and generous treatment of retired employees," wrote J. M. Regan from Ottawa.

"On behalf of my wife and myself I wish to express deepest thanks to the Company and yourself for your thoughtfulness and generosity. Here's wishing you and yours the very best of health, happiness, and prosperity in the coming year." That was the good word from Andy Walker of Coniston.

George Hillyard wrote from Toronto: "I received your Christmas Bonus cheque for $25.00 today. I would appreciate it very much if you would convey my sincere thanks to Mr. Stanley and Mr. Beattie for the cheque and all their good wishes for my welfare. I am very pleased to see the friendly spirit that exists between the Company and their employees."

Bert Is Getting Better

From Pefferlaw, Ont., Mrs. Bert Mullett expressed the thanks and good wishes of herself and her husband. Bert, she says, has been on the sick list for six months but his old cronies will be glad to learn that his health is now showing steady improvement.

"It is a fine gesture on the part of the International Nickel Company to remember its pensioned employees as it does," wrote Billy Chaulk of Sudbury.

"Your good wishes are returned with interest compounded," wrote E. A. Collins. "I am enjoying my retirement although I find it rather strange at this time of year not to be making the round of visits to the pensioners which I am sure will give you as much pleasure as it did me for many years. Your letter and the bonus cheque are evidence of the continued kindly interest which the Company has always taken in the old employees."

"Salt of the Earth"

From Toronto came this message from Duncan MacKinnon: "I wish I could express in words my appreciation of the interest taken by Inco in the welfare of their retired employees. It makes me feel that I am still a member of that great organization and brings back to me many happy memories. I wish I could impress on every Inco employee the security which lies ahead of him if he does his part. Please give my best wishes to all my friends in the North — the men I worked for and the men I worked with; they to me are the salt of the earth."

"I wish to thank you for your kindness and thoughtfulness in sending me the Yuletide message, also the Christmas bonus, which came as a pleasant surprise," said Mr. and Mrs. N. Wyszynski of Grimsby, Ont. "Allow us to wish you all a very happy New Year."

Port Colborne Pensioners

Similar messages of appreciation were received by retired employees from the nickel refinery at Port Colborne, who wrote to Supt. R. C. McQuire in appreciation of his letter and bonus cheque enclosure.

A. A. Stubbins of Welland, in expressing his thanks and good wishes, wrote, "I am sure that all those on pension like myself feel better for the recognition by the Company of our past service."

Mrs. H. Kern wrote from Hamilton: "Many thanks for the cheque for $25.00 which I received before Christmas. I have been on the sick list for almost six months and this cheque certainly helped out for Christmas." Mrs. Kern said that her husband has also been quite ill. Their many friends will hope for a speedy return of health to both of them.

"I did appreciate being included in this Christmas gift to your active employees, and feel sure I am voicing the appreciation of all pensioners," said George Craig. Please convey to Mr. Stanley and Mr. Beattie my thanks for their kindly wishes."

"Good Old Merry Xmas"

Thomas Saville of Ridgeway sent his thanks and greetings, and said, "I can assure you that the bonus cheque was a very pleasant surprise and certainly made for a good old Merry Christmas."

To Mr. Beattie came this message from H. W. Walter of Port Colborne: "I received a very nice letter from "Mac" McQuire, with a Christmas bonus cheque which was a surprise and a great thrill, the second thrill of the year since my retirement. The bonus to the pensioners was a very generous and kindly thought, and I am sure very much appreciated by all."

AT PORT COLBORNE'S RIFLE CLUB

More than making up in enthusiasm what it lacks in numbers, the rifle group at the Inco Recreation Club in Port Colborne carries on a steady program of activity at the range in the basement of the club. A recent evening's shoot found these members on hand: top picture, comparing scores, "Scotty" Davidson, Jack Byng, and Rae Wilcox; bottom pic, a quartet sights on the targets, Betty Davidson, Ed Mitchell Bill Crabbe, and Lloyd Huffman.

APPOINTMENT ANNOUNCED

H. J. French has been appointed assistant vice-president of The International Nickel Company of Canada Limited, Robert C. Stanley, chairman and president, announced Jan. 21. Mr. French was formerly assistant manager of the company's development and research division.

Associated with International Nickel since 1929, he was on loan during the war to the U.S. government, where, among other important posts, he was chief of the metallurgical branch of the War Production Board's steel division. He is well known in Canadian and United States metallurgical circles. Past president of the American Society for Metals, he is also active in other technical groups.

Presentations Made to Matti Sirka on His Retirement

After more than 37 years as a fitter in Copper Cliff smelter a man has made himself a flock of friends, particularly if he is as good-natured, dependable, and efficient as Matti Sirka. So when the word went up and down the converter aisle, and along the reverbs, and through the Orford building that Matti was retiring at last, expressions of friendship and goodwill were heard on all sides.

The fellows on his own shift got together and presented him with some fishing tackle, and the fitters in the Orford building gave him a smoker's set. With both gifts went best wishes to Matti and his good wife for comfort and happiness in retirement.

The group pictured above are the Orford fitters, along with Master Mechanic Bill Ripley and others of the smelter mechanical department supervision. In the back row, left to right, are R. Taylor, J. McTaggart, W. J. Ripley, Matti Sirka, Henry Latinville, A. Pakkala, H. Hyland, H. Patterson, S. Fraser, S. Curley, and E. Oja. In the front row are Len Wellock, C. Desanti, T. Bubba, A. McCann, E. Severin, W. Zaroski, R. Williams.

Born in Finland, Matti Sirka came out to the New World early in 1909, settling first in the United States but after a few months moving on to join the mechanical department at Copper Cliff. He served the Company faithfully and well, and has an enviable reputation for mechanical ingenuity. Many times and oft, when there was a ticklish repair job to be done the call went out, "Where's Matti?"

Matti will continue to reside in his own home on Finland St., Copper Cliff. He has two sons with Inco, Arvo, a mining engineer at Creighton, and Toisti, of the locomotive shop at the Cliff. His son-in-law, R. Lahti, is employed in the carpenter shop.

Any of his old fellow-workers who would like to drop in for a chat will get a royal welcome at Matti's place, but if they want to see him during the summer months they'd better head for his fishing headquarters on Lake Penage because you can bet your last acid shell that's where he'll be.

GEORGE'S $42 GRIN

One of those grins that don't wear off easily here adorns the countenance of George Miscevich, who recently stuck his thumb into the Suggestion Plan pie at Port Colborne and pulled out a $42.00 plum.

George suggested that a screen be hung in No. 4 furnace pit in the anode building to prevent shotted slag from being carried by the force of the water to the south end of the pit instead of dropping in the slag tray. The labor saving in cleaning the pit, as a result of his idea, is substantial.

George is a familiar and popular figure in the anode building, where he has worked for 21 years. He has one son, named after him, who is studying metallurgy at the University of Toronto, and a daughter, Jean, who is married and resides in Gary, Indiana.

NATURALLY

"Did he take his troubles like a man?"

"Exactly. He blamed his wife for everything."

SAFETY ALPHABET

Always
Be
Careful.
Don't
Ever
Forget, the
Greater the
Hurry, the more
Injuries result.
Just try to
Keep busy;
Let your
Mind be on your job.
Neglect
Often leads to
Permanent disability.
Quit making excuses;
Results
Speak for
Themselves.
Use your head, it's
Very valuable.
When at work
X-ercise due care
Your injuries will drop to
Zero.

CHRISTMAS MESSAGES

"Greetings to you and your staff; may the New Year bring success," was the Christmas message to Inco people of the Sudbury District from President R. C. Stanley.

Other Yuletide greetings were received by Vice-President Beattie, on behalf of the employees, from Sir William Griffiths, chairman and managing director of the Mond Nickel Co., London; Dr. John F. Thompson, executive vice president of Inco, New York; L. H. Cooper, assistant to Sir William Griffiths; R. M. Brown, supt. of the Huntington, W. Va., works; R. C. McQuire, supt. at Port Colborne; A. B. Yates, Caracas, Venezuela; C. E. Macdonald, Toronto office.

Softball and Football Lineups Are Honored

GARSON FETES CHAMPIONSHIP SPORTS TEAMS

Garson Mine Athletic Association staged a gala night at the Grand Union Hotel, Wanapitae, to honor its football team, which had a great year in Nickel Belt competition, and also the winning team in its shift softball schedule, the Mills lineup.

After making short work of a sumptuous spread of chicken and spaghetti, with pie for a chaser, the boys assembled in the upstairs room at the call of George Secker, who proved to be a genial master of ceremonies.

Presentation of the Todd Trophy was made to Ernie Mills, manager of the winning softball team, by Supt. Foster Todd, as shown in the first photo of the accompanying layout. In his speech of acceptance Ernie stressed the importance of recreation in the community to take the edge off the day's work and refresh a man in body and spirit. Miniature cups were also presented to each man on the winning team: H. Rorison, M. Hyrtsak, G. Eschuk, A. McDonald, J. Cull, T. Bryce, M. Currie, O. DellaVedova, P. Slywchuk, D. Ramsay, E. Mills, V. Kreko.

The brigade emerged champs after a gruelling five-game series against MacIver's team. Third lineup in the successful league was from Surface.

Captain Ollie Matson received the trophies for the Garson football team, the Anderson Cup for the league championship and the McCrea Cup for the Charity series, proceeds of which go to the injured players fund. In Photo No. 2 Ollie is seen quaffing from the Anderson trophy in traditional football fashion. In No. 3 are seen Peter Fenton, president of the Sudbury District Football Association, who made the presentation, and Sid Gemmell, manager of the Garson team, who gave a brief resume of the season. In No. 4 contents of the cup having sunk to a low ebb, Bob McCauley solves the refreshment problem by dipping in with his individual trophy, to the amusement of his mates.

Out of 14 games played during the season the Garson squad won 11. They were victorious in all their league engagements. High scorer was Taffy Davis, who booted home no less than 30 goals.

Members of the team: F. Engblom, H. Rorison, T. Armstrong, J. Grassam, A. Bendetti, W. Armstrong, O. Matson, M. McMaster, V. Maki, G. Young, T. Perala, A. Thorburn, J. Davis, J. McCauley, A. Muir E. Gascon, S. D. Gemmell (mgr.), J. McCauley (asst. mgr.), B. Spencer, trainer.

SUNRISE, STACKS, AND SMOKE AT COPPER CLIFF

"Stacks at Sunrise" is the title of this unusual picture made by Kenneth S. Clarke at Copper Cliff. Rays of the rising sun on the billowing smoke from the smelter chimneys, and the design added by the tailings line trestle, make a striking photographic ensemble.

Longer Rounds Achieved by Inco's Research, Mining Institute is Told

Interesting research into the most efficient methods of driving underground development headings was described in a paper presented to the recent annual meeting of the Canadian Institute of Mining and Metallurgy. Prepared by the staff of Inco's mines department, the paper was given by T. M. Gaetz, assistant general superintendent of mines.

"Investigation of Long Rounds in Development Headings" was the title of the report, which reviewed tests carried out over the last two years at Murray Mine under the supervision of Supt. J. B. Fyfe and General Foreman W. Vanannen.

Get Average of 9.35 Feet

The tests have shown that, by drilling oversize holes in the rock alongside those charged with dynamite, a much longer round can be blasted, with less explosive than is required in the standard practice. An average round of 9.35 feet was attained by this means, as compared to 6.58 feet using the standard method.

The new system employs one standard diameter hole and two 2¼-inch holes, instead of five to nine standard diameter holes. Two stages of blasting are required. Using the same cut pattern, but increasing the length of steel to 14 feet, the best average advance per round todate is 12.38 feet for 16 rounds.

Also of keen interest to the Mining Institute members were details of experiments carried out at Creighton Mine under Mr. Gaetz when he was superintendent there. By diamond-drilling a hole four to six inches in diameter in the centre of the cut, it was possible to advance as much as 16 feet in a single round. General use of this method, however, must await development of an economical means of drilling the big centre hole.

Photo above shows a typical drill set-up in a development heading at Murray Mine. Jerry Geddes and Steve Podvarac are members of the drill crew.

Fight Rust With Rust

Another Inco contribution to the Mining Institute convention was a paper by H. J. Butterill, of the Company's development and research section at Toronto. He told the gathering that metallurgists are fighting rust with rust and winning the battle.

Ordinary rust on standard structural steel, being porous, loose and partially soluble, offers no protection to the metal underneath. But the addition of small amounts of alloying substances, such as copper, nickel and chromium, produces an even, dense and almost insoluble film of rust that acts as a protective coating in most atmospheric conditions, he said.

These new rust-resistant steels are being used in mining, railroading and heavy industry, and Mr. Butterill said advances in corrosion control have opened a whole new field of possible production economics. He urged Canadian engineers to test the new techniques and materials under Canadian conditions.

JOE CHARLAND HAS RETIRED

A veteran who has seen extensive service on three Inco fronts, mining, smelting, and nickel refining, Joseph Charland retired on January 31 after being with the Company since 1905. He had been electrical superintendent at the Port Colborne plant since 1927.

He and Mrs. Charland plan to make their home in Toronto where his chief hobby will be keeping in touch with developments in the electrical world.

Started Work at 15

Born in Drummondville, P.Q., on Jan. 21, 1882, Joseph Agultor Charland was the son of a steam engineer who subsequently went into railroading. Installation of the town's first electric lights gave Joe his first job and started him in his life's work. He was 15 years old when the construction foreman transported him to the dizzy heights of adolescent bliss by making him an assistant lineman, fourth class.

When he was 18 the lure of adventure ensnared him and he signed up with the Third Royal Canadian Regiment. His dreams of thrilling army life in distant lands were short-lived, however; he was cooped up on garrison duty at Halifax, and after a year of that he returned to simple civilian life with nary a pang of regret.

In 1901 Joe went to the Soo as an electrician's helper with Algoma Steel, and by 1905, when he left for Copper Cliff, he was a full-fledged electrician.

Bill Fleet was electrical superintendent when Joe commenced his long career with the nickel industry. During his first winter the substation was constructed at Copper Cliff to handle power from the High Falls generating plant, which was to swing into operation the following spring.

Electrical installations in the new shaft and surface buildings took Joe to Crean Hill early in 1907. The next fall he was posted to Creighton for a few months. Then he returned to the smelter as a maintenance electrician.

In 1911 he was loaned to Dome Mine to install a small electric plant. The work was commenced in May and was almost completed on July 11 when a bush fire swept the property, destroying all buildings and equipment. It was not until the following June that the plant was replaced and Joe was free to return to Copper Cliff. In the spring of 1913 he became general foreman and assistant to J. T. Watson, electrical superintendent. His transfer to Port Colborne as electrical superintendent of the nickel refinery came in 1927.

Married at Victoria Mine

He was married in 1907 in the little church at Victoria Mine to Miss Gracia Gauy of Crean Hill, Fr. LaBelle performing the ceremony. They have one son, George, of the electrical department at Copper Cliff. A daughter, Ellen, died in infancy.

JOSEPH CHARLAND

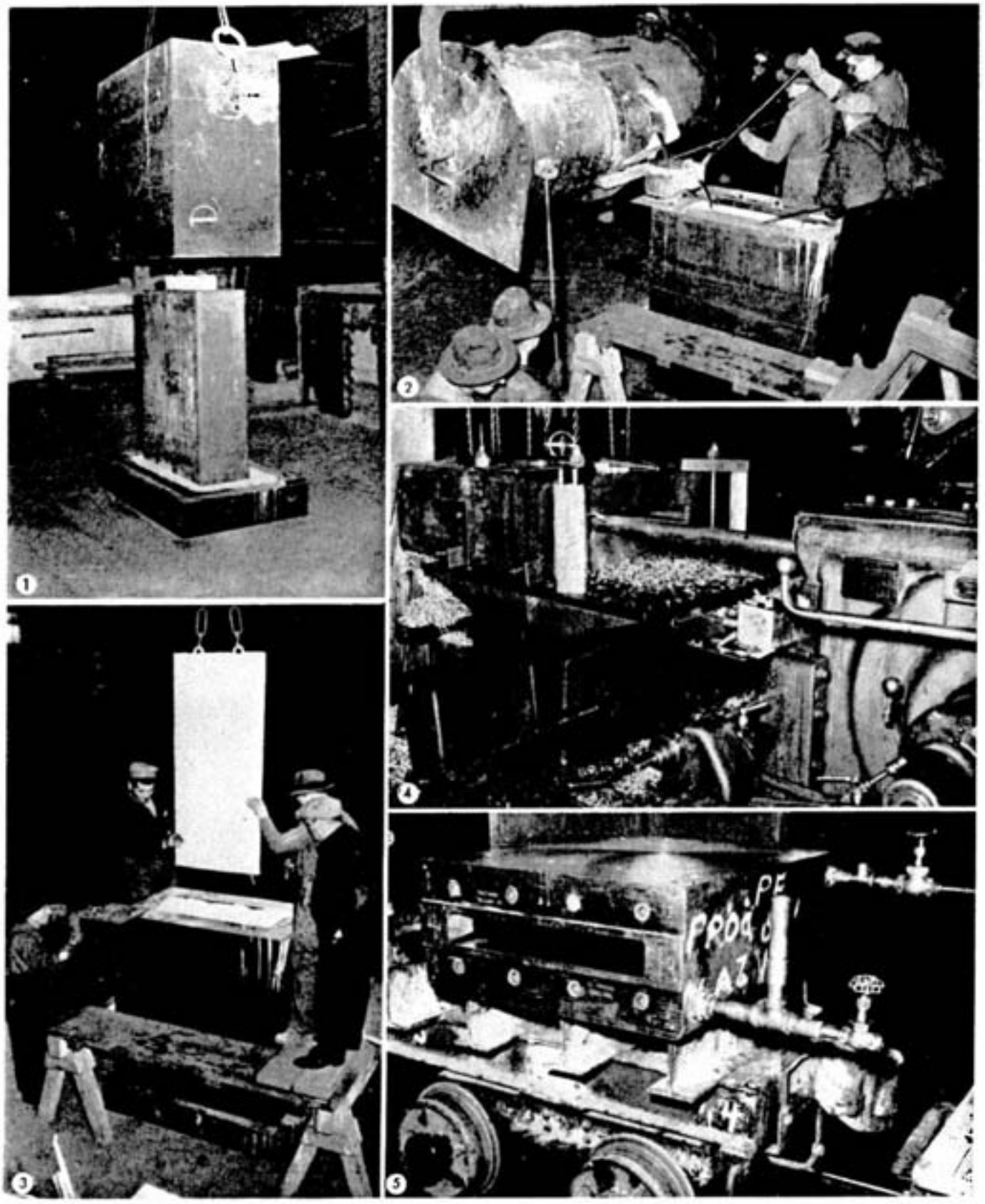
Hunting and fishing were Joe's favorite sports when he lived at the Cliff. He was noted as a rifle shot, and won many prizes in Niagara District competitions. In recent years he has become an ardent lawn bowling fan.

Best wishes for many years of contentment are extended to Joe and Mrs. Charland from their host of friends in Inco.

CONSIDERATE

A Scotsman and his wife walked many dusty miles to the county fair, the wife lugging the heavy basket containing their lunch. But her husband was not wholly inconsiderate. Once they were inside the gates he said:

"Ye'd best let me carry the basket now, Mary. We might get separated in the crowd."



Don't Fail to Attend the Big Winter Carnival!

FEB. 6-7: DOMINION AMATEUR SPEED-SKATING CHAMPIONSHIPS

FEB. 8-9: ONTARIO SKI CHAMPIONSHIPS

Fabrication of Water-Cooled Copper Moulds

(PICTURES ON OPPOSITE PAGE)

Water-cooled copper moulds of patented design are used at the Copper Refinery for the production of vertically cast shapes which form a major part of the plant output.

Copper shapes of all types are generally produced in copper moulds. The conventional horizontal shapes are cast in solid moulds cooled by means of external sprays. The vertical castings, which have essentially parallel sides, are poured in moulds having drilled passages through which cooling water is circulated under carefully controlled conditions. These moulds are fixed on the casting wheel and connect with a water distribution header by means of flexible lines. The header in turn is connected to a circulation system comprising surge tank, heat exchanger, pump, and means for maintaining automatically the desired cooling water temperature.

How Moulds Are Made

The fabrication of water-cooled copper moulds represents the cooperative effort and skill of several units of the Refinery organization.

In Photo No. 1 of the layout on the opposite page, Archie Beaulieu, Mike Stelmakowitch, Pete Leblanc and Foundry Foreman Henry Limoge are seen assembling the mother mould on the floor at the foundry. This is composed of a heavy cast copper base plate, copper top section with cored cavity to correspond with the outer dimension of the desired mould blank, and preformed baked sand core which is being centered in the mother mould.

Photo No. 2 shows the mould blank being poured from a holding furnace. Molten copper is tapped from one of the electric arc furnaces to this portable unit for transfer to the foundry. After conditioning the metal by "blowing" or oxidizing, and "poling" to proper oxygen content, the blank is cast. In this view Archie Beaulieu, Frank Palakovic, Ernie Desjardins, Pete Leblanc, Tony Vendramin and Henry Limoge are performing the pouring operation.

In Photo No. 3 the 6600 lb. cast copper mould blank is shown after stripping the top section of the mother mould. While still hot at this stage the blank is quenched in a water bosh. Water absorbed by the porous sand core is rapidly transformed to steam due to the heat remaining in the blank, and the sand is forcibly and effectively blown from the cavity.

Machining and Testing

The cooled blank is then dispatched to the machine shop for necessary machining. The cast section is first cut to required length and two sides and the ends are squared in the boring mill and planer. A milling operation follows to prepare for the finish machining of the cored cake cavity. This operation, performed in the shaper, is shown in photo No. 4. Cooling water circulation holes are next drilled longitudinally to connect with transverse headers drilled in the top and bottom sections of the moulds. The ends of these holes are threaded and after insertion of plugs the mould is subjected to a hydrostatic test as in photo No. 5.

Following this test, if the mould is found to be sound and free of leaks, it is equipped with a bale and bottom door before installation on the casting wheel.

The mould shown in this series has a finished weight of 4,350 lbs. and will be used for the production of 1000-lb. vertically cast

ADAM GOT RIGHT DOWN TO BUSINESS

TREASURER Adam Watson's good Scottish heart was hitting a happy clip as the boys gathered around to pay their membership fees in the new Copper Cliff Rod and Gun Club. Grant Benjafield (overcoat and scarf) is ready with his dollar; on his left is Clarence Buck, secretary, and behind him (pipe) is Paul Queneau, president. Billy Ripley, standing to the right behind Mr. Buck, is vice president. The duck on the table was used in a clever demonstration of retrieving by P. E. Queneau's year-old Chesapeake.

EXPECT 200 MEMBERS IN NEW ROD AND GUN CLUB AT CLIFF

There was an enthusiastic turnout of 65 Copper Cliff sportsmen at the organization meeting of Copper Cliff Rod and Gun Club, held in Memorial Community Hall, and prospects point to a membership roster of 200.

Objectives endorsed by the meeting included affiliation with the Northern Ontario Fish and Game Protective Association, to promote and assist in the preparation and enforcement of game laws in the area, and to co-operate closely with the local game overseers and forestry officials.

Good fellowship and sportsmanship in hunting and fishing, the study of wild life lore, and the conservation and propagation of fish and game in the area, are other primary objectives of the new club. Every effort will be made to instill in the people of the district, particularly the youth, the importance of maintaining the wild life heritage.

Complete records of hunting and fishing activities of the club will be made available to the members.

All male residents 16 years and over are eligible for membership, at a fee of $1.00 per year. Meetings will be held monthly for which speakers and other special features will be arranged.

Activities of the club will include organization of rifle and skeet shooting, with private ranges for each. The Copper Cliff Marksmen, long-established group of target-shooting devotees, has thrown in its lot with the Rod and Gun Club.

Officers elected at the first meeting were: P. E. Queneau, president; W. J. Ripley, vice president; C. H. Buck, secretary; A. Watson, treasurer.

DOES YOUR MIND FALL INTO THE "HOLEY" GROUP?

Only civilized man has pockets! And what a wonderful thing they are.

But a pocket with holes isn't worth much.

Your mind is a pocket in which to put thoughts, ideas, impressions, purposes, and all sorts of good things. But a mind full of holes is not worth much. Lots of good things are put into them, but they don't stay there. You'll never be a good thinker, nor a very wise person, until you patch the holes in your mind's pockets.

Forgetting is one of the holes, lack of attention another, lack of purpose a third, allowing yourself to get confused, another. How many other holes can you think of?

A pocket containing holes seldom contains anything else.

GOOD PLACE TO MEET

At the end of a sermon in a Scottish church an ardent prohibitionist was permitted by the entirely anti-prohibitionist parson to say a few words on his pet subject.

"Brethren," he said, "if I had all the whiskey, brandy and champagne in the world, I would fling the whole of it into the Clyde."

He sat down, and in the pause that followed the parson rose.

"We shall conclude," he said, "by singing hymn 157: 'Shall We Gather at the River?'"

It Was a Merry Christmas

Kiddies large, kiddies small, kiddies short and kiddies tall, kiddies with neat plaited braids and kiddies with untamable cowlicks, kiddies who were too shy to speak to Santa and kiddies who greeted him like a long-lost brother—in fact, all kinds of kiddies—were very much in evidence at another Inco Christmas.

The pictures on these pages tell, to some extent, the story of those hectic and happy hours when the pure unadulterated magic of Christmas was unfolded to the eyes of thousands of young ones.

Santa, bless his good old heart, put in an appearance at every one of the entertainments arranged by committees at the Inco plants. How the old boy manages to cover all these engagements is beyond us. Certainly he must have brought his elfin barber along with him, because at some places his big white beard was so much smoother than it was at other places. And certainly he must have had his elfin tailor along with him, because the crease in his red trousers was often sharper at one party than at another. What an amazing person he is, that Santa!

But without all the hard work done by his fellow-conspirators, Santa could never handle his assignment. And so all the boys and girls who attended the Christmas entertainments arranged by committees at the various Inco plants should remember that Santa has his helpers, thank goodness.

And to all those good fellows who helped parcel peanuts, and wrap presents, and cook hot dogs, and otherwise make another Christmas a living memory for a host of kiddies, congratulations on a big job well done. May the spirit of Santa Claus live long in your hearts!


LEVACK


REFINERY


REFINERY


LEVACK


LEVACK


REFINERY

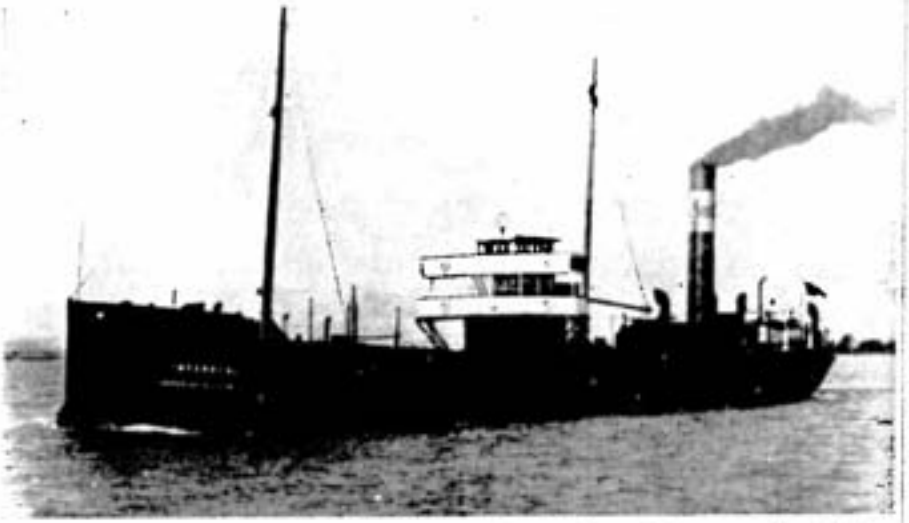

CREIGHTO


CREIGHTON


FROOD


FROOD

Familiar Visitor at Port Colborne



Deep-laden, the Imperial tanker Imperoyal plies the Great Lakes to supply petroleum products to such industries as Inco's big nickel refinery at Port Colborne. During the four-month freezeup of the Welland Canal, storage tanks at the plant, and tankers tied up for the winter in the canal, hold sufficient fuel oil reserve to carry the refinery through until navigation is resumed in April.

TRADITION OF SERVICE BEHIND IMPERIAL OIL'S LAKE FLEET

COLD pre-dawn rain dimmed loading lights, drummed the decks and streamed from the tanker's scuppers as the order "Cast off" came from the bridge and the ship swung out into the St. Clair River. Her cargo was fuel oil for the International Nickel Company's big refinery at Port Colborne, and she had 28 hours' steaming ahead of her on the 267-mile voyage from Sarnia.

The rain eased slightly at dawn, as the ship followed the river into Lake St. Clair, and she rolled in a beam sea whipped up by a south-easter. Three hours later Windsor was sliding by her port beam while Detroit's factories smoked to starboard.

Rough Trip Ahead

As the quartermaster brought her into Lake Erie, darkening skies and a falling barometer presaged a rough trip down the lake's length. The wind backed into the east and snowy squalls blinded the lookout as the tanker shouldered her way to Point Pelee through the thickening November night.

The deep-laden tanker's midships disappeared now with every wave which broke on her bows and tumbled aft in spray, while heavier rollers sent solid water cascading over her forecastle.

Dead ahead, a snow squall seemed to darken and thicken, then a big grain carrier loomed out of the night, her running lights suddenly bright above the black bulk of her hull. Whistles shrilled as both helmsmen kicked their wheels hard over and the ships heeled as their rudders took effect. The big freighter winked a red eye at the tanker as her port running light disappeared into the darkness astern.

Midnight found the tanker east of Pointe aux Pins and with first light the gale showed anger only in weakening puffs, but the seas still ran high. At mid-day the crew could move forward and aft along the tank tops without being drenched by spray, and speed increased as the seas and head wind calmed. Long Point was reached and passed and at mid-day the tanker nosed into her berth at Port Colborne.

Lines snaked ashore and minutes later the ship's pumps were delivering 1,800 barrels an hour to Inco's big fuel tank.

Minor Casualties

A bent stanchion, smashed crockery, spilled coffee and a very seasick embryo seaman were the only casualties of the trip, for Imperial tankers in making oil deliveries on the Great Lakes have to take what comes from the weather, as their sisters on the ocean do when the Atlantic and the Pacific get rough.

The ship's name doesn't matter. It might have been any one of Imperial's lake tankers —the Acadialite, Imperoyal, Iocolite, Sarnolite, Simcoltie, Talaralite or Windsolite. All are well known in Port Colborne.

Imperial's ocean-going tanker fleet — the largest under Canadian registry — also has a part in supplying central Canadian industry with fuel and lubricants. In addition to the crude oil cargoes which the ships deliver to Halifax, Montreal and Vancouver, they land some in New Jersey which finds its way, by pipe line, to Sarnia refinery.

The sea-going tankers load crude at ports in Colombia, Venezuela, Aruba, Peru, the U.S. Gulf Coast and California. Their cargoes are vital to Canada, for the Dominion is the world's second largest per capita oil consumer and yet produces only 15% of the crude needed.

Heavy War Losses

Imperial's sea fleet suffered grieviously in World War II, losing four ships by enemy action. The Canadolite was captured by a German raider in 1941 and later destroyed by Allied bombs at Bordeaux, where the Nazis had sailed her. The Victolite, torn by a torpedo, slipped to death off the eastern United States coast with 43 of her crew in 1942. The Montrolite was lost with half her men in the same month and later that year the Calgarolite was sunk by a U-boat in the Caribbean Sea, but the crew made land in the ship's lifeboats.

Two chartered ships, the Joseph Seep and James McGee, were also lost—both by magnetic mines—and the Nipiwan Park was torpedoed. This Canadian-built tanker was torpedoed off Halifax in December, 1944, and broke in two. The forward half sank, but the after section was saved and rebuilt at Pictou, N.S., into a whole ship. The new Nipiwan Park went back into service in December, 1946.

Imperial's lake fleet also saw war service. The Iocolite, Royalite, Sarnolite, Imperoyal and Talaralite were used in coastal trade to keep Maritime and Newfoundland military bases and essential civilian users supplied with petroleum products. Built for smoother lake service, the small tankers had rough handling by the stormy Atlantic.

These ocean and lake tankers, together with pipe lines and railway tank cars, help make up Canada's oil supplies and through their combined efforts keep the nation's transport, homes and industries fed with vital oil.

Back at Port Colborne, International Nickel's big tank was full. Down on the jetty, hoses were uncoupled, lines cast off, and the tanker's engine room telegraph clanged as the pointer swung to "slow ahead." The ship moved out of the harbour, her task of supplying fuel ended — for this trip.

Inco's Supply Automatic

The nickel refinery's fuel supply is automatic, for International Nickel has given Imperial a blanket order to keep the tank supplied. An Imperial man from Welland gauges the tank periodically and sends his readings to the Ontario sales office at Leaside. There the reading is checked and if fuel is needed Imperial's marine department is called in.

The marine men, with tanker movements at their finger-tips, order the fuel from Sarnia refinery, specify which tanker is available to carry it, and whether a whole cargo or compartment load will satisfy Inco's tank. Leaside is informed of the delivery date and they notify their customer. After delivery, the tank is gauged again to determine the gallonage pumped in.

Barrelled lubricating oils and greases which keep the Port Colborne refinery running smoothly are delivered by truck from Imperial's warehouse at Welland. Here land transport takes over from the restless tankers to deliver oil in whatever form required — be it candles for Christmas, gas for synthetic rubber, the stuff which keeps a jet 'plane aloft or — fuel oil for International Nickel.

SUSAN McGRUTHER

Pride and joy in the home of Dr. and Mrs. W. B. McGruther at Creighton is their daughter Susan, aged 18 months.

SOUND EFFECTS

A columnist, writing in one of the country's religious papers, said: "This reminds me of the clergyman who, finding the task of making two sermons a week too much for him, made one and preached it on Sunday morning with his teeth out and again on Sunday evening with them in."

Farewell Party for Popular Coniston Couple

A popular Coniston couple who have gone to make their home in Detroit were honored by a group of their friends at a farewell party in St. Michael's parish hall at Coniston. Mr. and Mrs. Nick Chuey, who had been active in community work, were the leave-taking citizens.

After a light luncheon was enjoyed, the master of ceremonies, John Bilowus, voiced the regret of the gathering at the departure of Mr. and Mrs. Chuey. Others who spoke in the same vein were Rev. Fr. Pelich and George Baby of Sudbury, Mrs. J. Bilowus, and John Pachota. A chest of silver and a purse of money were presented to guests of honor.

Nick Chuey had been an employee of Inco for 12 years. During the war Mrs. Chuey also took her place on the production line in the plant.

In the first of the accompanying photographs Mrs. Chuey is seen with fellow-members of the Coniston Ukrainian Catholic women's organization, of which she was a valued member. In the front row, left to right, are Mrs. Kirsta, Mrs. Deneka, Mrs. Curlock, Mrs. Chwok, Mrs. Melnyk, Mrs. Chuey, Mrs. Bilowus, Mrs. Storzuk, Mrs. Pachota, Mrs. Werstiuk, Mrs. Cobra, and Mrs. Chez. In the back row: Mrs. Shelegay, Mrs. Weloski, Mrs. Doskotch, Mrs. Behun, Mrs. Christie of Capreol, Mrs. Danyluk, Mrs. Worbec, Mrs. Petryna, and Mrs. Meslinski.

In the other picture are the head table group, Fr. Pelech, John Bilowus, Mr. and Mrs. Chuey, John Pachota, and George Baby.

Dancing concluded the evening's program.

HOW IS YOUR BRAIN-POWER?

We've had a letter from Santa Claus. It says he liked the cookies and milk at our house Christmas Eve, and even took a nibble at the fruit cake although it's murder to his figure. But, he says, PLEASE, no more puzzles in the Christmas issue of the Triangle.

It seems the old boy lost a full half-hour while he was at our place, answering the telephone. Every time he dug into his pack to lay out a gift the phone would ring, and there'd be another puzzle fan with the right answer. He got so mixed up and excited that he almost forgot to leave any presents at all, which is probably the reason there was no nice new Buick sitting out front when we came down in the morning.

Anyhow, the response from the last puzzle hit a brand new high. By mail, phone, courier and carrier pigeon the results came rolling in. First under the wire was Clarence Harrison, the personnel director, who quoth, in effect:

This problem can be solved by simple deduction, it being unnecessary to resort to the trail and error method. It is apparent, for instance, that inasmuch as two figures are brought down from the dividend to complete the last partial remainder, the fourth figure in the quotient must be zero. It is also readily seen that the first figure in the divisor must be more than 1, as anything more than this would result in a four-place figure when multiplied by 7, while in the problem only three places thus result. Working in this manner, all 40 figures in this problem can be solved with a little intensive work. It should come out like this:

124 1212833 16 97809

Well, that's what the man Clarence said. For those of you who got it wrong or who, like us, just sat and stared at it until you burst out crying and reached for the cyanide, too bad, too bad.

Among the right people in this monthly parade of wits was Dr. R. B. Harris of Port Perry, who as an ex-Inco medico is used to figuring out all sorts of things. Charlie Platt of Creighton worked the whole thing out on paper, step by step, and then slapped this heading over it: "How to Keep Sober on Xmas Day," which we thought was rather good. Willard Ramsey wrote that in the process of solving the problem he had to pull out a few hairs, which he could ill afford to lose. Alf Blair of the Concentrator Lab phoned in an answer, heard it was wrong, took another crack at the riddle, and was right.

Among the others who were "on the beam": Ted Orendorff of Coniston, Howard Houser of Port Colborne, Lionel Roy and Tom Crowe of the Copper Refinery, Frank Truskoski of Creighton, Andy Johnstone of Mines Engineering, Walter Paul of Mechanical Engineering (who complained that the time limit was too long), Wib Job of the Control Lab, Fernand Dionne and Frank Southern of Frood, and, as the society reporter of the Sudbury Star is wont to say, many others.

Now for our February puzzler. We warn you, it's definitely a toughie. Marquis of Queensbury rules do not apply. It was submitted by that old instigator of mental meanies, Frank Lowe of Port Colborne, Nuff sed?

Okay, now: There is a coupe automobile that can be seen almost daily on the streets of busy Milwaukee, Wisc. On the back of this coupe in large plain print is the following sign: "Be careful, a blind man is driving this car." How can this be possible?

RIDE 'EM COWBOY!

Young woman (in photo studio): "I'd like this enlarged."

Clerk: "Would you like it mounted?"

Young woman: "Oh yes—he'll look nice on a horse."

Johnny Juryczak's Inco Club Orchestra Scoring Big Hit

When a main bout develops a very severe attack of cancellation the day before the fights are to take place, it's bad enough, but when a club steward has a New Year's Dance staring him in the face and no orchestra to make with the sweet and sour, comrades, it's a crisis. That's what happened to Vern Tupling at the Inco Employees recreation hub in Sudbury. Music arrangements went haywire only a few hours before the guys and gals were due to knock the dust off the cocktail shakers and say howdy to little '47.

Somewhere between a fret and fit, but keeping a clear head and a steady hand, Vern dialled Johnny Juryczak, the Open Pit maestro. Bearded John was sympathetic, and allowed as how he might be able to round up a band. Which he did.

Johnny Juryczak and his Inco Club Orchestra made a smooth debut at the New Year's gallop. They've played to a couple of carbaret parties at the big club since, and that large floor has by no means resembled the streets of Edinburgh on a tag day. In fact the boys are drawing steadily increasing crowds and have become a "names" band almost overnight — nice names, we mean.

One reason for their success may be the way they work at their assignment. They rehearre frequently, hard, and long hours.

The picture shows Johnny's tuneful tribe: front row, left to right, Crissie Nemus (the girl can really sing), Alf Favretto, Herb Duval, Ilio Tramontini, Sammy Cundari, Freddie Cooper; back, Johnny Juryczak (that's the fellow we're talking about), Vic Chatelaine (without a peer on the ivories, whether it's corny or classy), Leo Ouellette, George Fleming, Rolly Cooper, and Stan Curley. Post of Librarian and Head Needler of the Maestro is held by Wally McIntosh, personnel man at Open Pit. Seven of the players are Inco men.

GABE ON THE JOB

Two colored brothers were driving a car on a country highway, when suddenly the driver slammed on his brakes and stopped the car while a fast train barely missed their front fenders. The other darkey said: "Boy, why for you blow dat horn jes as dis cah stops?"

The driver said: "Boy, dat warn't mah hown—h't wuz Gabriel's."

"How did Mike die?"

"He was a window-washer and stepped back to admire his work."

COPPER CLIFF MAN GRANDSON OF "WITCH OF PLUM HOLLOW"

WHEN Roy Barnes, dean of the file room at Copper Cliff, steps out of Inco service and retires on pension, he'll probably buy himself a crystal ball, a turban with a big ruby in the front of it, and a pair of red silk pantaloons. Then, selecting a quiet nook to which the world can beat a path without too much difficulty, he'll hang out his shingle as a sorcerer.

Not that Roy has any yen to wind up his days by being boiled in oil, or burned at the stake, or even locked away in a dark dungeon, but witchcraft is in his blood, that's all. His grandmother was the famous Mother Barnes, the Witch of Plum Hollow.

Down in the Ottawa Valley they'll tell you about Mother Barnes, and the little whitewashed log cabin where, in the attic up under the eaves, she read secrets of the past and future in tea leaves. Rich and poor, learned and illiterate, politicians and pedlars, love-lorn maidens and dames in crinolines — all came to the Witch of Plum Hollow. Her fame spread throughout the continent.

Fled to America

Of Spanish gypsy stock, the seventh daughter of a seventh daughter, Elizabeth Martin was born in Ireland in 1794. When she was 18 her father arranged a marriage for her, against her wishes, with a friend of his, a man of his own age. But when the day of the wedding arrived, Elizabeth had fled the country with the man of her choice, Robert Harrison. They came to America in a sailing vessel, the crossing taking six weeks. They settled in New York and two years later her husband died. She remarried, becoming Mrs. David Barnes, and moved to Canada, settling at Plum Hollow, 15 miles south of Smiths Falls. A shoemaker who didn't stick to his last, David Barnes drifted away when their children were still small, and it was during his absence of several years that his wife turned her great gift of divination to practical use.

At first she acquired a local reputation for finding lost articles, and stories of her powers are numerous. Once a farmer lost two calves. He went to Mother Barnes, who told him that the calves were dead on the edge of a certain pasture, but that the hides were drying over a beam in Mr. Blank's barn. It was only too true. On another occasion a bank clerk could not balance his ledger, and came to her. "You will find that a 3 in one column should be a 54," she told him, and he went back to his books and found that she was right.

Exposed A Murderer

Probably the episode that made her famous was her exposure of a murderer. In the early sixties there came to the district two Englishmen named Doxtater and Hunter. One day the latter disappeared, and after a time Doxtater gave out the information that he had drowned in an accident. He even directed the search for the body, which he

GIFTED PENMAN

Well known for his skill with brush and pen, Roy Barnes is seen here putting the finishing touches to an illuminated text of the life of Mother Barnes, the famous Witch of Plum Hollow, of whom he is a grandson.

had hidden in the waters of Lake Charleson, pinned beneath a fallen tree. The search having proved unsuccessful, a party of farmers consulted Mother Barnes. "You have come here regarding the death of a man," was her startling statement as they climbed the rickety stairs to her attic room. Then she told them to look under a certain tree lying in the lake. They did so, and subsequently Doxtater paid the penalty for the murder.

As her grandchildren remember her, Mother Barnes was a small woman, both short and slender, and had flashing dark eyes and slim hands with long tapered fingers. She wore a dark dress with a cape or shawl, and her fee was 25 cents or frequently she would take dried apples or tea or other commodities in payment.

Many stories could be told of the magic associated with her name, but it is difficult to distinguish between fact and legend. However, it is said of her although the appellation of "Witch of Plum Hollow" may appear somewhat sinister, it is belied by her life of good deeds and Christian kindness, so that her name is revered and honored in the community in which she lived.

She died in 1886 at the age of 92 or 93, and her last resting place is in the northwest corner of the cemetery at Sheldon's where three sons and several grandchildren are also buried.

One of her sons was Samuel, born in 1838. He married Agnes Chalmers and they settled in Smiths Falls, where 10 children were born to them. Of these the youngest was Roy C. Barnes, who has been a resident of Copper Cliff since September, 1910.

BADMINTON BOOMING AT CREIGHTON CLUB

Badminton is booming at Creighton Employees Club this season. In a recent Sunday afternoon tournament a total of 18 players took part, 8 in the A section and 10 in the B. Winners of the A prize were Lina Flora and Bob McAndrew, and of the B award Mrs. McMahon and E. DiFilippo. Pictured here are some of the competitors: back row, left to right, Bob McAndrew, Mrs. Staples, G. Gonnella, Lina Flora, Mary Grottoli, and L. Vagnini; front row, Ev Staples, Mrs. McMahon, Doris Zanier, E. DiFilippo, G. Rymer.

A Fellow Hates to Part with a Leg, Somehow, He Says

The bird came sailing over the net, a high defensive shot deep to the baseline. Swiftly Richie Gallagher was under it, waiting for it, poised for the smash. His racquet flashed, there was the sharp whack as the strings took the impact squarely, and the point was put away for a kill.

Anybody who saw Richie cover the badminton court to get under that shot and

play it to perfection would hardly guess that 12 months ago the doctors said probably the best thing to do with his left leg was to amputate it. Thereby hangs a tale, wound around the grit of a slim, wiry guy who wouldn't give up.

Stoker on the Matane

Born in Copper Cliff in 1917, son of a diamond driller who retired last fall after 15 years with Smith & Travers, Richie Gallagher started with Inco in 1935 in the mechanical department at Copper Cliff. He had switched to the electrical department when, in August of 1942, he enlisted in the navy. He trained in Toronto at H.M.C.S. York, and in Halifax at H.M.C.S. Stadacona, then returned to Toronto for a two-month commando course. Finally, at Montreal, he picked up his ship, the frigate Matane. He was a stoker, 1st class.

The Matane put to sea, pitched into action in the North Atlantic and the English Channel chasing subs. It was exciting, Richie says, and successful too. The captain commanding the pack of submarine chasers was decorated in behalf of his men.

On July 17, after D-Day, the Matane was off Brest when Nazi planes attacked her. When action stations sounded, Richie, who was off duty, sped to his post in the engine room. A salvo of bombs struck the frigate, blasting the side out of the engine room. Richie fell, badly wounded in the left side, both arm and leg. The sea water revived him and somehow he crawled up a ladder to safety. One of his mates, he learned later, was drowned as the water flooded the engine room.

A seemingly endless hospital siege commenced for Richie. First in England and then in Canada, at one hospital after another, doctors did their level best with his shattered leg. His score sheet shows he had a total of 22 casts on the limb, each cast representing an operation in which the surgeons probed for shrapnel or broken bone. That's 22 operations.

He Had His Choice

At last, when it seemed as if there were no alternative, the doctors said to Richie that probably the best thing to do was amputate. Then the long, painful ordeal would be ended. They told him, of course, that he had his choice. He could have the leg off and start over with an artificial, or he could go home and go to work on the apparently hopeless job of making those knife-weary muscles pick up their old tricks.

Richie thought it over. A fellow hates to part with a leg, somehow, he says. So he started in with the physio-therapy. He got so he could write a text book on it. He took the exercises, and he took them again. He took them a hundred times. He put his mind to the business of making that kicker behave. Then it started to behave.

When he was released from hospital in Toronto last May he went to Hamilton and took a six-month electrical course. When he wasn't studying jolts he was studying jerks. In September he came back to work, transferred to Open Pit.

From Cast to Work Shoes

He had graduated, in heart-aching stages, from a cast to a crutch to a cane to a pair of work shoes. He was probably the happiest guy in the whole world.

People who were glad to see Richie back on his feet included a nice girl called Lill, who married him in June of 1941, a boy called Dick who is 5½, and a cute young one by the name of Sharon who is 3½.

Funny thing about the whole business, says Richie as he twirls a badminton racquet in his fingers, is that the only time he's really bothered by the leg is after it's been inactive for any length of time. In the mornings, for instance, or if he sits down for a spell like it took to dig this story out of him. Otherwise he can patrol his beat at the Pit, or play his beloved badminton, or do anything as long as he's on the move.

Well, whatever Richie does, in work or play, he's a leg ahead of the game. And he's earned it.

COPPER CLIFF

Wm. W. Ziniuk (R.C.A.F.)

FROOD

Maurice Bulsson (Army), Edmund Hickey (Navy).

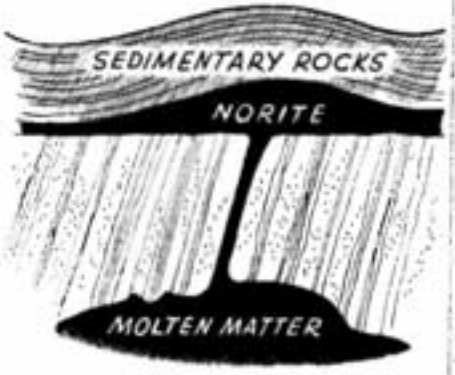
OPEN PIT

Lloyd H. Kennedy (Army).

The Romance Of Nickel

In the bleak belt of rocky country which lies to the north of the city of Sudbury, some of the world's richest mineral deposits have been discovered during the past sixty years. How did they get there? It was during one of those periods, ages ago, when the earth's outer crust twisted and buckled and was shaken by volcanic disturbances, and mountains were formed.

During that period, a mass of molten rock deep down inside the earth came under terrific pressure, and was forced towards the earth's surface where there happened to be a line of weakness in the earth's crust. As this molten rock was pushed upwards, it came in contact with the under side of thick layers of sedimentary rocks and spread out, forming a large, oval-shaped mass that gradually began to cool and harden into solid crystalline rock known as norite.



The pressure inside the earth continued. The earth's crust twisted and folded again. A second mass of molten rock, this time of a granite type, was pushed towards the earth's surface. It forced its way into the cracks and crushed areas of the rocks, particularly along the margins of the norite. There it formed irregular masses and dikes and began to cool and harden into granite. Some time during this period the norite mass was caught in the gigantic vise of a major fold in the earth's crust and was folded and bellied downward, and the overlying sediments were forced downward into the centre of the bowl.

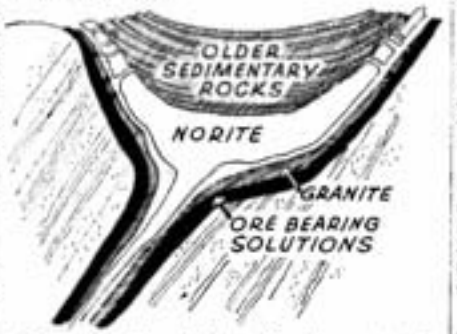
While great earth forces continued to twist and bend the rocks, a third mass of hot material was forced towards the earth's surface. Apparently it was composed of hot chemical solutions and gases under enormous pressures. These were forced into the cracks and crushed areas along the margins of the norite and the granite masses, and into clefts in the nearby rocks.

These solutions carried the copper and nickel and other important elements which were deposited in the crevices and in the nearby rocks. Thus the ore bodies containing these metals came into being under a deep cover of volcanic and sedimentary rocks.

As the ages passed and the great disturbances of that particular period subsided, nature went to work to tear down that which she had so laboriously and fantastically fashioned. Great volumes of rock material were gradually worn away by the rain, wind and ice, and as these rocks disappeared the norite, granite and the ore bodies came to light. The great oval-shaped outcrop of norite, with the sediments within and the ore bodies at the outer margins and along the zones where the rocks had previously been cracked and crushed, has been named the Sudbury Basin.

The surface, as man sees it today, is just that part which happens to be exposed at this time by the erosional processes. Study of this surface makes one wonder what might have existed above and been carried away, and what now exists below.

Thus have geologists after years of study of this surface and the mines in this locality constructed the theory regarding the formation of the great ore bodies of nickel, copper and other metals.



Can it be that Divine Providence, in the beginning of things, pointed a finger at this spot on the spinning globe and said, "Here must rich stores of nickel be hidden away; so that, as the great plan is unfolded down through the ages, this metal may be brought to light to play a deciding part in the affairs of men that are to be?"

Early History of Nickel

Although used in natural alloys even in ancient times, nickel was unknown as an element until 1751, when its discovery came about in the following way:

Miners in Saxony, several years before, had attempted to smelt some newly-discovered ores

which had the appearance of copper ore. But the metal they obtained was not copper—it was a white metal so hard and tough it could not be hammered into useful articles, and so was useless to them. Believing Old Nick had cast a spell over their ores, the superstitious miners called the metal "Kupfer-Nickel," meaning "Old Nick's Copper."

In the years that followed, similar ores were encountered in various places, and among mining men "Kupfer-Nickel" was the name invariably used for the hard, white metal these ores produced.

A Swedish scientist named Cronstedt spent five years experimenting with ores of this kind and came to the conclusion that kupfer-nickel contained a metal previously unknown to man. He called his new metal "Nickel."

But the influence of this unknown metal had been felt even back in the dawn of history. It is believed that ancient oriental peoples learned at an early date to make useful implements out of meteorites. The tradition that the swords of the great warriors of old in China, Persia and Northern Europe were "Heaven-sent" seems to indicate that they were made from meteorites which fell from the heavens. The unusual keenness of their blades was probably due to the toughening effect of nickel in the iron—nickel and iron frequently occur together in metallic meteorites.

Beautiful boxes and candlesticks made of a white metal called "paktong" made in China since ancient days by adding zinc to what we now know to have been nickel-copper ores,

were brought to Europe by the East India Company in the seventeenth century.

Five years after Cronstedt discovered nickel, another Swedish scientist, von Engestrom found that "paktong" contained copper, nickel and zinc. Soon similar alloys were being produced in Europe and were known as German silver and later as nickel silver.

When electro-plating was introduced in England in 1844, articles made of German silver and plated with silver became popular in place of the more expensive Sheffield plate. Silver plated articles today are still shaped from nickel-silver, then electro-plated with silver.

Belgium introduced coins of a nickel-copper alloy in 1860. Switzerland issued pure nickel coins in 1881, and in the years to come one country after another followed suit. In 1939, over one hundred countries had coinage containing nickel. Nickel plating was developed on a commercial basis about 1870. And for many years nickel plating, coinage and nickel silver for silver-plated ware remained the three chief uses for the small quantities of nickel being produced in the world.

Nickel deposits were developed in Norway after 1840. Then nickel mines were opened up in the island of New Caledonia in the South Seas about 1877, and these remained the chief source of supply till the latter part of the nineteenth century.

Discovery of Sudbury Ore

Meanwhile the hand of destiny was drawing closer to the great store of nickel locked in the rocks on the other side of the world. Columbus discovered America in 1492. French coureurs de bois pushed their way up the Great Lakes. Colonists settled in Eastern Canada, in British Columbia and a few scattered districts on the Prairies. There was talk of Confederation. So that Canada might stretch from sea to sea, Sir John A. Macdonald's government promised to build a

transcontinental railway to bring British Columbia into Confederation. As this railway was being blasted through the rocky wilderness north of Georgian Bay, workmen uncovered a

corner of a great ore body deposited there ages before.

Soon prospectors flocked into the Sudbury district to stake what looked like rich copper claims, for at that time no one dreamed that this deposit contained nickel. But to develop a mine in Canada's pre-Cambrian rocks requires years of effort and large sums of money. It was not easy to raise money to develop a copper mine. Moreover there was no copper refinery in Canada.

Beginning of the Canadian Nickel Industry

That was the way matters stood when Samuel J. Ritchie came on the scene. Ritchie, a man of great driving force and persuasive power, had been trying to develop iron ore deposits in Hastings County, Ontario, and had built a railroad from there to the port of Trenton on Lake Ontario. Eventually he found that these iron ores could not be developed profitably, and the railroad's chief source of revenue disappeared.

The newly discovered Sudbury ores seemed to Ritchie to be a good way to provide a new source of revenue for his railroad. With ore reported to run more than seven per cent copper, he would extend the line to Sudbury, or hook it up with the C.P.R. Yes, this little mining camp away back in the wilderness would one day be a great thriving industrial centre.

So it wasn't long before Ritchie had purchased the most promising claims in the Sudbury district, and organized the Canadian Copper Company to develop them.

R. M. Thompson, when still a young man, had become manager of the Orford Copper and Nickel Company, a company organized in Quebec to operate mines near the village of Orford in that province. Finding it difficult to sell the matte (or partially refined metal), at a profit in Swansea, Wales, where the nearest suitable smelting facilities were then available, the company built its own smelter at Bayonne, New Jersey, where there was a promising market for copper in the heart of the growing industrial region of the United States.

Soon copper ores began coming in for refining from new mines in the east and in the west. Ritchie, too, up in Sudbury, looked around for a refinery to handle his ore. He made an agreement with Thompson to ship one hundred thousand tons of copper ore to the Orford smelter.

Mining Begins at Sudbury

So in 1886 mining operations were begun near Sudbury. At that time no one had the slightest conception of the important part these mines were to play in the life of Canada and in its export trade throughout the world. But even at that early period, Sir John A. Macdonald, premier of Canada, accompanied by Lady Macdonald, Sir Charles Tupper, and Canada's two great railroad pioneers, George Stephens (later Lord Mountstephen) and Sir William Van Horne, paid a visit to the little mining settlement. These were men who foresaw that Canada's future greatness lay in the development of her railroads, her mineral wealth, her timber and her agriculture. They were ready to encourage anyone who would invest money in the development of Canada's natural resources.

Nickel Makes Trouble Again

When the first batch of metal from the Sudbury ore poured from the furnace down in the New Jersey refinery, Thompson knew he was in for trouble. You couldn't sell that kind of metal to copper customers. He had an analysis made. It contained nickel . . . and nickel was still the trouble maker among metals as it had been to the miners of Saxony more than a century before. Ritchie with his mines at Sudbury seemed likely to be ruined.

In the face of this disheartening news, most men would have thrown up their hands in despair. Thompson set himself resolutely to the task of solving the nickel-copper separation problem. Ritchie refused to be downcast. Nickel, he discovered, was selling at a dollar a pound, almost ten times the current price of copper. But world production was only a thousand tons a year. His mines could produce twice that much. He must find new uses for nickel besides plating, coinage and nickel silver.

Nickel Steel Proves Itself

So Ritchie set himself to the task of finding new uses for those large quantities of nickel he knew his mines could produce. He even wrote to Krupp the German gun maker to try to interest him in nickel steel. Krupp replied that the small quantities of nickel available in the world did not warrant experimental work in this direction.

But experimental work had been going on in France and England. The Canadian government had faith in the future of the nickel mines, and Sir Charles Tupper accompanied Ritchie to Europe to try to interest European industrialists in Canadian Nickel.

In 1889 James Riley in Glasgow issued a report of experiments he had conducted with nickel steel. Ritchie brought this report to the attention of the United States navy and a series of tests was arranged. When eight-inch armour-piercing shells were fired at short range at two pieces of armour plate, the nickel steel plate proved definitely superior to the plain steel plate.

Now the great navies of the world began to take a keen interest in nickel steel. The United States navy asked Thompson to supply a large tonnage of nickel which he at that time had no way of producing. Inside of a few months he did succeed in making a red oxide of iron and nickel. While this was acceptable to the navy the refining costs were equal to or greater than the price he was being paid.

Discovery of The Orford Process

So Thompson began experimental work to try to discover a better and more economical method of nickel-copper separation than the wet processes then in use. Finally someone suggested trying sodium sulphate, since he had seen this material used in copper refining in Scotland.

Accordingly, some sodium sulphate was added to the partially refined nickel-copper ore in the furnace. When the molten material was poured into pots, allowed to cool, and dumped out on the floor, it was found that something unusual had happened. There was a distinct difference between the top and bottom parts of the cones of metal, and these could be broken clean apart with a sledge hammer. The bottom was a bright sulphide which proved to be mostly nickel sulphide. The top was mostly copper sulphide. And that was the beginning of the Orford Process of nickel-copper separation—one of the standard processes in use today.

Threat of European Control

Meanwhile the very existence of the Canadian Nickel industry was threatened from another direction. Mines had been opened up at great expense. A smelter was built at Copper Cliff near Sudbury in 1887. A large new market seemed to be opening up for nickel. But now, with success almost within its grasp, Ritchie's company found itself almost at the end of its financial resources.

The other companies which had carried on mining and smelting operations in the Sudbury district had all folded up. The Canadian Copper Company alone remained.

Now too, the makers of armament were looking for new sources of nickel for the world's navies. Krupps of Germany, whom Ritchie had tried to interest in nickel years before, and the Rothschilds of France, were both trying to get control of the Canadian Nickel deposits. It was a big temptation now to sell out at a profit.

Ritchie put the matter squarely to his associates. They felt the same way about it as he did. They weren't going to sell out to outside interests if they could help it. Sir John A. Macdonald and Sir Charles Tupper also used their influence to keep control of the nickel interests on this side of the ocean.

Finally, by pledging their personal fortunes, Ritchie and his business partners were able to borrow about $250,000 from the banks to put the Canadian Nickel industry on its feet.

Further Growth

From now on production from the Canadian mines increased steadily. In 1887 the whole world had produced only about two thousand tons of nickel, most of which came from New Caledonia. By 1902 Canadian production alone was more than five thousand tons.

It was at this time that the Canadian Copper Company at Copper Cliff and the Orford Copper Company in New Jersey, which had become dependent on one another, united as The International Nickel Company.

Operations were steadily expanded as the demand for nickel . . . largely for armaments . . . continued to grow. By 1914 Canadian production had reached about 23,750 tons a year, while New Caledonia was producing about a third as much.

World War I.

As the war of 1914-18 progressed, the demand became urgent for stronger, tougher nickel steels for artillery and battleships and scores of wartime uses. The Canadian nickel mines and plants pushed their production to new peaks and nickel ingots were rushed to the steel mills and munition plants in Canada, England and France. Thus did Canadian nickel strengthen the sinews of the Allied Nations in the first world war.

In 1916 the building of a great new electrolytic refinery was begun at Port Colborne, Ontario, and with its completion in 1918, facilities for producing nickel from ore to finished product in Canada were available.

(To Be Continued Next Issue)

Levack Man $10.00 Winner

A striking winter scene wins this month's $10.00 award in the Triangle's "Picture of the Month" Contest.

The picture was submitted by Archie Taylor, hoistman at Levack Mine, and portrays the small bridge on the road leading into Levack.

Honorable mention and a $1.00 cash award goes to Denis Thyne of Copper Cliff smelter for his snap of two huskie dogs, taken at North West River, Labrador. The two pups were watching a fishing boat tie up to a dock at the time Denis made the snap, alert for a chance to pick up a few scraps of fish (the dogs, we mean). Denis is a specialist in sleight-of-hand tricks, as was reported in the Triangle some months ago; he doesn't do badly with a camera either.

The other $1.00 award for honorable mention is picked off by Mrs. E. V. Nelson, whose husband is a well-known Open Pit Inconite. Her picture shows her daughter Ellena, and her cousin Florina Wismer, in a happy summer holiday setting on the Vermillion River. Unusually good reproduction is seen in the ripples on the water.

Judge of the contest was Max Phillips, manager of the Regent Theatre, Sudbury. Next month's adjudicator will be Max's cinema associate, Jack Kurk, manager of the Grand Theatre.

GOGGLES OKAY BY HIM

Scarcer than hen's teeth are workers who like wearing safety goggles because they look so nice and feel so comfortable. But every now and then those same safety goggles are worth their weight in gold to some employee who owes his precious eyesight to wearing them.

Bill Burgess, machinist's helper at Port Colborne Refinery, is one man who'll speak up strongly in favor of the much-maligned goggles. Last month, while he was engaged in knocking caked sulphides off a dragline in the sinter building, a chip flew up and cracked the glass in his goggles. Without them he would certainly have suffered a serious if not permanent injury.

In the above photo Burgess is showing the shattered eye-savers to Safety Engineer Len Hobbs. An Inconite since 1942, Bill saw service in the navy during the war. His brother Jim works in No. 3 Building.

SUDBURY WOLVES AHEAD

The playoff pot is rapidly coming to a boil in Nickel Belt senior hockey, and it looks as if the brew will more than satisfy the cash customers.

Sudbury Wolves, coached by "Red" Stuart, cinched top spot in the league standing on Jan. 23 when they turned back Copper Cliff Redmen 4-3 in a thrilling match. Redmen led 2-0 until midway in the second frame, when Wolves finally got a marker. Tatter McClellan was the scoring hero of the night, banging home all three of the Redmen goals on passes from Yacker Flynn.

Further indication of a hot fight in the playdowns was the battle between Sudbury Legion and Redmen on Jan. 27. Trailing 6-3 at the end of the middle period, and apparently a soundly beaten team, the Legion turned on terrific pressure in the final stanza and won 7-6.

PRINTED IN CANADA