

Provincial Intermediate "A" baseball honors are what Creighton Cubs are eyeing as Triangle goes to press. After a thrilling series with Coniston Buzzers, the Cubs lifted the 1937 Nickel Belt championship and the Monel Cup. Here they are: standing, left to right, Bill Tennant, Stu Smith, Joe Muldoon, Jack Rountree, Frank Young, Babe Marchildon; seated, left to right, Mac McGowan, Bill Valin, Barney Barnett, Vic Jacques, Charlie Cerre, Guy Perciante, Ginney Bertulli.

Creighton Cubs Copped '37 Baseball Championship

So the Monel Cup is following Barney Barnett around.

Last year Barney was manager of Frood's ball club, and piloted them to the Nickel Belt championship. This year he switched over to Creighton, dived into a season's campaigning, and came up last month with the historic tankard once again beside him.

Barney is no arm-chair general. As a matter of fact it was his rousing triple in the ninth inning that broke up the final series with Coniston Buzzers and paved the way for Creighton's Cubs to gain championship laurels.

THRILLING SERIES

They'll talk about that last game for most of the winter, will the hot stove league. After nine tight, scoreless innings, sparkling with double plays, superb fielding, and the season's best pitching duel in which "Babe" Marchildon opposed "Slim" Johnston, Barnett walloped his big-money triple. Then

Vic Jacques smashed a healthy home-run and the game was in the bag.

To reach the finals Coniston had eliminated Frood in another hard-fought series. One of those never-say-die lineups, the Buzzers gave Creighton all they could handle in the showdown, and can be proud of their record. And Cubs have nothing to stick their heads in the sand about, either. Splendidly coached and smooth-working, they were a credit to themselves and their adroit little manager. As we go to press they are awaiting final arrangements of a championship series with Strathroy, which, if it develops before snowshoe time, should be a pipe for Creighton.

In the Intermediate "B" finals Copper Cliff was nosed out by Sudbury Pirates. In the juvenile division Copper Cliff absorbed an 18-3 defeat from Galt, but it must be said in fairness to the northern boys that they were playing only their fifth game of

the season while the Galt lads had 34 engagements under their belts.

STRONG SUDBURY TEAM

Nickel Belt softball showdowns saw Copper Cliff eliminate ORCO and Cochrane-Dunlop take out Frood. Copper Cliff lost to the smart Hardware squad in the final series, 3 games to 1, but not before a Cliff twirler, Bill Thornton, entered the Hall of Fame with a one-hit game.

On the Royal Trading League softball front, Garson picked off championship laurels, trimming Copper Cliff Cebas three straight. Garson failed to hold the pace when it came to the inter-league playoffs for the Fowler Cup, however, and lost out to Cochrane-Dunlop.

ORCO TAKES TROPHY

J. W. Gemmell's new Inter-Plant Softball Championship Trophy, put up this year for competition, is held by ORCO's Mechanical Department team, whose photo appears on another page of this issue.

The ORCO club defeated Frood's inter-level league winners 17-10 in a match halted by darkness, after seven and a half innings. The Froodians had eliminated Creighton and ORCO had taken the measure of Copper Cliff.

D. BUTCHART BIDS GOODBYE

Dave Butchart is going back home to the heather.

He sails November 5th on the Duchess of Richmond, bound for the old house he left in Carnoustie almost 40 years ago when he sailed away to seek his fortune. Now he returns there to make his headquarters in retirement.

After a while, when he has resigned himself to leisure, he will probably go and visit Lord Weir in Glasgow. And later he will travel to London and look up Lord Riverdale, and Pam, and Cooper, and Fred Heck at Simpson's—and dozens of old cronies. Many of them will be seeing him again for the first time in a quarter of a century, but from their memories floods of hearty reminiscences will well up the moment they set eyes on him.

BACK TO THE CLIFF?

Then, maybe, he'll visit his old haunts in South Africa. And after that, unless we're very much mistaken, he'll bob up in Copper Cliff again to see what's been going on since he left. After which, having checked the situation thoroughly, and having taken a casual scout around to see if perchance the smelters department has temporarily laid aside any equipment which might quietly be pressed into service at the mines, he will start the travel cycle over again.

David Butchart, Master Mechanic of Mines, officially is through with his rope fleet angles and his safety factors on November 1st, at the age of 65. His service with INCO dates back to 1914.

He was born at Bridgend, near Dundee, Scotland, October 16th, 1872, son of Alexander Butchart and Maria Rattray. His father was manager of the Dundee Bleach Works. He attended St. Andrew's Sessional School until he was 14, when he entered a five-year apprenticeship with W. B. Thompson, Dundee, in marine engineering.

WENT TO SOUTH AFRICA

Completing his apprenticeship, he went to sea for a short time, and then served with several engineering and shipbuilding firms in Dundee and Greenock. At 27 the wanderlust seized him, and he commenced a restless search for knowledge and experience, sailing for Johannesburg, South Africa. He had no job waiting for him when he arrived, but it wasn't long until he was at work, and from then until 1913 he was connected with a total of seven leading South African mining operations, taking two years out for volunteer service in the South African War. By the time he had reached his fourth post, in 1905, he was resident mechanical engineer, and it was in this capacity that he received the remainder of his South African experience. His biggest assignment there, he thinks, was supervising installation of the equipment for the New Modderfontein Gold Mining Co., at Roodepoort. That job included assembling and erecting a 65-foot diameter tailings wheel.

In 1913 he came to Northern Ontario and for one year was Master Mechanic at the Dome. The following year he arrived at Copper Cliff. Like many of those positions of responsibility with INCO, who have wandered in numerous widespread fields before coming here, he found full contentment in the magnitude and variety of the work and settled down for good.

WAS FOOTBALL STAR

As a young man in Scotland he played football with such well-known crack clubs as



David Butchart's retirement breaks up a familiar team in the INCO organization. Of his driver, Bob Mossie, who has chauffeured him to and from Company plants every afternoon for years, the retiring Master Mechanic of Mines says, "He is one of the finest and most trustworthy men anyone could ever have at the wheel of a car. My only request of him was never to stop the car on a railway crossing when a train was coming. I am glad to state that he obeyed my instructions."

Dundee, Greenock Morton, and Millwall Athletic. He was a half-back, and a good one; when Jimmy Seed of London's famous Charlton Athletic Club comes to Canada, one of the first things he wants to know when the boat docks is, "How's Davey Butchart?" After he came to Copper Cliff he took up tennis, and spent many a gruelling evening trying to master John L. Agnew's chop stroke and E. A. Collins' criticisms.

He was married in London in 1907 to Agnita Katinka Birkland, who passed away four years later. Of their two sons, one, Douglas, now resides in Glasgow, and is an employee of Henry Wiggin & Son, one of INCO's English subsidiaries. The other, David, was killed in an electrical department accident near Copper Cliff some years ago.

FETED ON DEPARTURE

At two largely attended functions the men of INCO said farewell to him. From New York came Fred Bernhard, patriarchal for all his youth, to bestow the blessing of the Company's veterans. From Port Colborne came George Craig, to add the tribute of an old friend and admirer. From Toronto came J. W. Rawlins and Chuck Macdonald, also to join with many of the honored guest's local associates in words of appreciation. He was presented with an engraved gold watch, a travelling case, and an album of photographs. "You men think I'm leaving here with a light heart," he said in reply. "Well, I'm not. It's a hard thing for me to do—to go away from all of you."

His friends are legion. His dry wit and his caustic scorn for inaccuracy are legend. "Whatever you do, be thorough," he says, with a rumbling roll of the r's.

He leaves a big job thoroughly done. In his 24 years with INCO his machines have hoisted nearly 40,000,000 tons of ore and rock from the Company's mines. And they have handled almost 17,000,000 man-trips without a hoisting fatality.

PLENTY PEP IN PUCKSTERS

With November 1st as the likely date for the opening game of the Charity Series, and rumours a-flying concerning the possible affiliation of the Nickel Belt Hockey League with the N.O.H.A., the puck season gets underway.

Three powerful clubs will be drawn from INCO ranks this winter,—Frood, Creighton, and an amalgamation of Coniston, ORCO, and Copper Cliff which will take the ice under the composite name Conreco.

In the meantime Alex Singbush has officially opened the season with a one-stitch cut over his eye. Singbush will be a potent defence factor with Conreco Aces, as also will be Verdel Price of Coniston. Many a deep sigh was heaved when Price settled rumours by sticking with Conreco instead of accepting a very cordial invitation from Cornwall.

Frood's major loss was the departure of Murph Chamberlain to Connie Smythe's Maple Leaf camp, but the world champs have added some smart new material, including Johnny McIntyre and Verne Johnston of last season's British Consols, and Jimmy Thompson, ex-Pittsburgh Pirate. And Burke and Shillington are no dogs, either.

Bill Regan probably won't perform with Creighton, but he'll be getting in some effective coaching. His newcomers include Dobson, a defence man from Gravenhurst and Midland; Nuboit, a winger from Saskatoon; Squee Allen of last year's western champion North Battleford Beavers; Boyd, Weyburn goalkeeper; Sergeant, gaspise custodian for Earlsclourt Royals in England last year.



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

EDITORIAL OFFICE COPPER CLIFF, ONT.
Don M. Dunbar, Editor

VOL. 2, No. 1

OCTOBER 1937

OPPORTUNITY

Self-explanatory is the following letter which has been forwarded to all INCO's hourly-rate employees:

"The Company has received numerous requests from different groups of employees, including the Welfare Associations, indicating that they desire the protection of a Group Non - occupational Accident and Sickness Insurance, assuring them of an income during periods when it is necessary to lay off work on account of illness or non-occupational accidents which are not compensable by Workmen's Compensation.

"In studying the various schemes that are available we have kept in mind the benefits that have been established in the Company's Retirement System and also the Group Life Scheme through which every employee may purchase \$2,500 Life Insurance at a very low rate of premium.

"I am very pleased to announce that the Board of Directors has decided to contribute approximately 50 per cent. of the monthly premium for the scheme of Non-occupational Accident and Sickness Insurance which has been selected as being the most suitable for our employees. The benefits are briefly as follows: \$15.00 per week for a period of thirteen weeks for any one accident or illness. An employee may receive benefits for two or more illnesses or accidents during any single year. Benefits are payable from the day of an accident or after the third day of illness. The employee's contribution is 75c per month, or \$9.00 per year.

"During the next few days a booklet giving full details of this scheme will be placed on your Employment Card and it is hoped that every employee will avail himself of this opportunity for protection during periods when he is unable to work. It will be necessary to have an enrollment of 75 per cent. of the employees before the scheme can become operative.

Yours truly,
D. MacASKILL."

Here is a splendid scheme which will have the hearty endorsement of INCO employees. Like the Retirement System and the Group Life Insurance plan, the Accident and Sickness Insurance plan is a measure by which the Company seeks to create economic security for its employees and their families. INCO'S financial contribution to the scheme will be a considerable one, another indication of the sincere interest it takes in the welfare of those who work for it. INCOites will do well to take full advantage of this opportunity.

ONE YEAR OLD

With Dick O'Connor and Dave Butchart going away, and the hockey season warming up, and the Monel Cup chasing Barney Barnett all over the place, perhaps the occasion has been crowded a bit into the background, but you know, of course, that Triangle has had a birthday.

With this issue your newspaper enters its second year of publication.

When we are twenty-five years old, or



While it was as amateurs that they won the coveted award, those who triumphed in the final contest of the series staged in Stanley Stadium during the summer turned out to be full-fledged professionals when it came to enjoying the prize trip to the Canadian National Exhibition at Toronto. Entertainment arranged for them by INCO's Toronto office left nothing to be desired, and the entire party were warm in their appreciation of the hospitality of Manager C. E. Macdonald. Triangle's photograph shows the group in front of the International Nickel Company exhibit at the Exhibition: Front row, left to right, "Uncle Ezra" Farrell, Miss Naomi Perras, Miss Lorraine Black, Miss Helen Martel, Miss Ruth Friskin, Miss Marie Black, Aldege Leblanc; back row, left to right, Nick Haggerty, Orville Cooney, Bill McCartney, Sidney Dunn, Carl Mozler, Bob Gegear. Three other members of the party were not present, Ron Gervais, Matt Taus, and Fred Dolci. INCO General Athletic Committee sponsored the series and trip.

maybe even when we are ten, we will issue a big anniversary edition to celebrate the event. In the meantime, we've a request to make of each and all our readers.

Send us news of yourselves or your INCO friends. Whether it's a story for the regular columns, or else a little item we can turn over to Joe the Dry Man, tell us about it.

Help us to strengthen the ties that bind what we frankly believe is the finest cross-section of Canadian citizenship in the Dominion.

WILL HONOR 79 VETERANS

INCO's Quarter Century Club, composed of employees who have completed 25 or more years of credited service with the Company, will shortly welcome 79 new members.

Arrangements are now being made for the presentation of the coveted Quarter Century Club buttons to a long list of veterans, many of whom have been eligible for membership for some time.

Otto Toivanen, of Copper Cliff, with 34 years of service to his credit, heads the list, which includes the following:

Copper Cliff: J. Crossgrove, Thos. Hall, R. A. O'Connor, H. C. Sinclair, R. C. Barnes, R. L. Brattie, R. M. Coleman, W. E. Gillespie, Dr. R. B. Harris, P. F. McDonald, D. MacASKILL, D. J. McKinnon, J. R. O'Donnell, J. F. Robertson, W. T. Waterbury, Wm. Balmforth, A. J. Bray, W. W. Chapman, R. C. Crouse, G. M. Ferguson, A. McIntyre, T. Montgomery, R. Richardson, J. K. Work-

man, F. Dubery, G. Ceppetelli, A. Brooks, J. Burgess, J. Myher, C. Leonarduzzi, W. Dopson, C. Heale, A. Death, N. Morrison, F. Faddick, G. Hildebrandt, V. Cecchetto, Wm. Chaulk, G. Lee, John Pakkala, J. C. Henry, A. Walmsley, E. Stoddart, A. Bryson, A. E. Burford.

Coniston: N. LaFrance, E. T. Austin, J. MacMullen, Fred Stevenson, L. Durette, G. Battistuzzi, G. Baggio, J. Barazzuol, M. LeClair, E. McKerrol, E. LeClair, E. B. Geoffrey, P. Petryna.

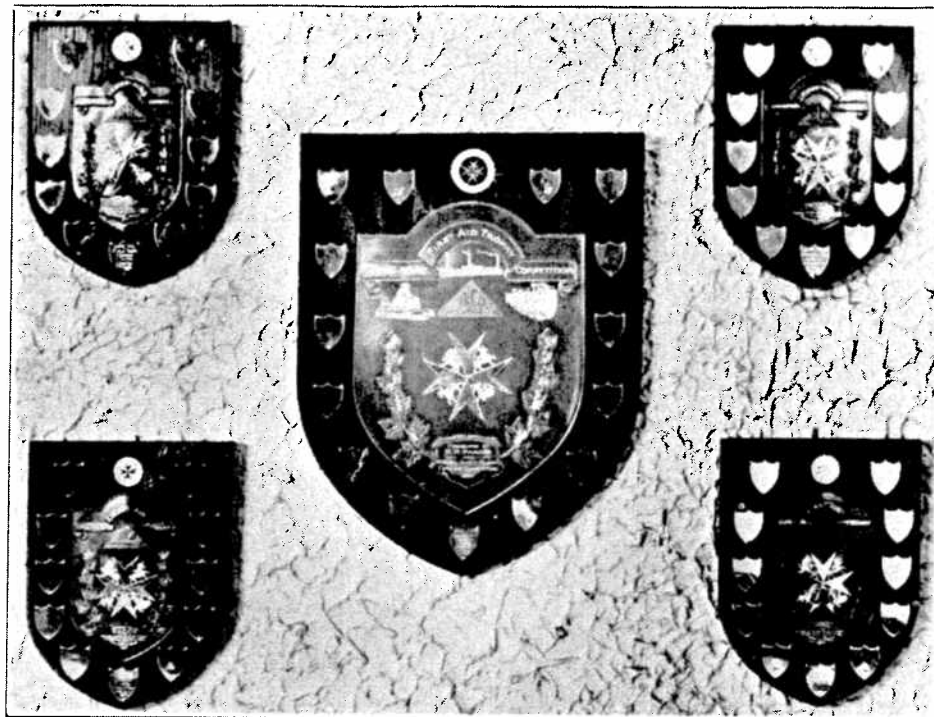
Frood: A. F. Brock, F. J. Eager, J. M. Regan, Steve Yawney, T. Linton, A. E. McAllister, O. Rintala, W. G. McKerrow, W. T. Elliott, J. Edgecumbe, S. Webster, O. Yarvi.

Creighton: J. Behenna, J. Yrjola.
High Falls: George Hartman, W. Parker.
F. C. Allgeier, New York; George Hilliard, Nairn; A. Bealer, School; J. W. Brown, Levack.

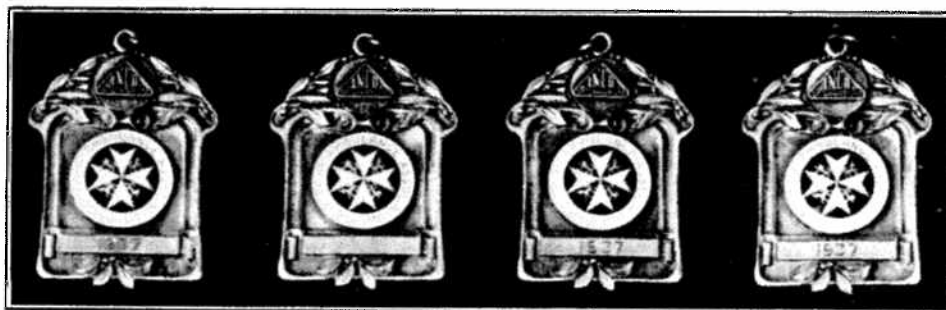
FIVE NOW ON PENSION

Five of these are now enjoying the comfort and security afforded them by the Company's retirement system: J. Crossgrove, Thos. Hall, N. LaFrance, R. A. O'Connor and H. C. Sinclair. The remainder are still in active service.

Mr. O'Connor was the most recent addition to the list of Company's pensioners. His service dated from June 1, 1911, and he retired on October 1, at the age of 67. Coming from Peterborough, he was an armature winder in the Company's electrical department throughout his service. He has built himself a home back in Peterborough, and plans to spend the years of his retirement in residence there. A group of his fellow employees staged a farewell party in his honor, and many expressions of regret were heard at his departure. He was presented with an engraved gold watch, along with the sincere wishes of everyone present that his retirement will be a long and happy one.



Keeping pace with the steadily increasing interest in First Aid work shown by INCO employees, these new shields have been presented for annual competition. The large trophy in the centre was donated by General Superintendent R. D. Parker for the Inter-Plant championship, and is held by Copper Cliff. The smaller shields were donated by Mines Superintendent H. J. Mutz and Smelters Superintendent P. F. McDonald, and are for the Inter-Department championships at Coniston, Creighton, Frood, and Copper Cliff.



Each member of the winning team in the Parker Shield contest receives one of these medals for his permanent possession. Personnel of the Copper Cliff squad which won the trophy for the first time after its presentation was: E. Lawson, captain; T. Gladstone, W. McNeice, and G. Guthrie.

INCO STARS GOLF WINNERS

INCO ranks were well represented in the lists of those achieving golfing distinction during the closing season.

Danny Stack, of Coniston, the ex-Westerner who still holds records for several sporty courses on the prairies and the Pacific Coast, turned in a hot summer at the royal and ancient game. He literally burned up the Sudbury Golf Club layout in late August in the Seagram invitation tournament to cop top honors, and later came within striking distance of Northern Ontario championship laurels at Timmins, only to have the edge wear off his game in the finals. He was eliminated 4 and 2 by Johnny Poupore, the defending champion. He was medallist in the qualifying round, and assisted his club to win the team prize on the first day's play.

Charlie Langlois, of Frood, also made a

great bid in the Timmins tourney, forcing Poupore to come from behind three times in their semi-final match before he bowed 4 and 3. Charlie annexed the Idylwyde Golf and Country Club championship again this year.

Don Cowcill of ORCO, and Bob McAndrew of Frood, were two other INCOites who figured in Idylwyde awards this year, Don lifting the Acme Timber Company trophy and Bob the J. L. Agnew Cup.

Among the ladies, Mrs. James Pass carried Eileen Carrick, of Sault Ste. Marie, to the 16th hole in the Northern Ontario finals before acknowledging defeat. Mrs. Pass also won the Idylwyde ladies' championship and was runner-up for the Willys-Knight trophy and the Robert Stanley trophy, which was won by Mrs. H. J. Mutz. Miss Jane Eager, of Frood, captured the junior championship prize.

Pure platinum can be drawn into wire having a diameter of only one one-hundred thousandth of an inch. Two troy ounces of platinum would in this way yield enough wire to circle the globe at the equator.

CHAMPIONS GET SHIELDS

Delayed through the inability of the silversmiths to make delivery on account of the pressure of Coronation assignments, the handsome new shields donated for First Aid Competition at INCO plants were finally presented at a very enjoyable dinner tendered the winning teams at the Copper Cliff Club. About 45 were present.

To the Copper Cliff team General Superintendent R. D. Parker presented the trophy he offered for the Inter-Plant championship, and in doing so heartily congratulated members of the winning team, coaches, doctors, and all who had taken an interest in First Aid work at INCO plants. He had been much impressed, he said, with the knowledge and high standard of First Aid work displayed by all teams taking part in the contest, and was gratified to know that this very important feature of industrial welfare was receiving such keen attention within the Company.

INVALUABLE TRAINING

He felt certain that the training received was of value not only because it enabled a man to give assistance to a fellow employee if the need arose while at work, but also because he could carry it into his private life and perhaps on some occasion render an invaluable service to a friend or loved one.

Tom Gladstone accepted the Parker Shield on behalf of the Copper Cliff team, other members of which were: E. Lawson (captain), W. McNeice, and G. Guthrie. Each man received a medal.

Shields were also presented by Mines Superintendent H. J. Mutz and Smelters Supt. P. F. McDonald to the teams carrying off the annual Inter-Department championships at Coniston, Creighton, Frood, and Copper Cliff.

INTER-DEPT. WINNERS

The Frood Shield was accepted by Colin Couzens on behalf of the 12 to 8 Shift team of George Andrew, James McCoy and Lee Sliter. For Creighton's inter-department champions, the No. 3 Shaft surface team, H. Stephenson received the shield, the other members being H. Pascoe, G. Carpenter, and V. Lesjac. Coniston smelter's winning team was from the electrical department, and was composed of R. Duncan, W. McKee, L. Sabourin, and W. Evershed, the latter accepting the shield. The Copper Cliff inter-department winners were from the converter building—T. Cornthwaite, W. Trotter, E. Lawson, and T. Gladstone.

Chairman for the occasion, G. S. Jarrett, General Safety Engineer, extended to the winning teams and to all First Aid workers the congratulations and appreciation of his department.

He took the opportunity to call attention to the First Aid manual prepared by Bert Debnay and Fred Ribout, of the Frood First Aid staff, an elaborate and very valuable piece of work.

EXPECT ORCO TO ENTER

Looking forward to another successful year of First Aid work, Mr. Jarrett announced the probability that ORCO employees would take part in the contests in the future.

Pure nickel coins minted by Switzerland in 1881 are still in active circulation and show little sign of wear.

Frood's Field Day Now Established Annual Event

Frood:—Although the majority of them had no previous experience with such big-scale entertainment, members of the Frood Mine Welfare and Athletic Association made a spectacular success of their first annual field day at Athletic Park. As if the myriad details of organization and management were not sufficient, rain and chilly weather hobbled up on the morn of the big event to add more wrinkles to the furrowed brows of the promoters. Along in the afternoon the weather warmed up, however, and the day closed under ideal conditions.

Largely attended, Frood's Field Day definitely picked itself a permanent spot on the district's sports calendar. The crowd was obviously well pleased with the standard and variety of diversion, and will undoubtedly be back next year in even bigger droves.

The only disappointment of the day was the failure of opposition to show up for Dan Close's Froodian tug-o-war huskies. "All dressed up and no place to go" were Dan's musclemen, who arrived in their black sweaters looking like a chorus of Man Mountain Deans, but had to spend the day pulling taffy for want of human freight to haul.

Frood's squad walloped Cochrane-Dunlop's holiday-depleted lineup 17-4 in the softball exhibition which launched the proceedings, and its baseball brigade put up a sparkling little before bowing 5-6 to Barney Barnett's Creighton Cubs, ultimate Monel Cup winners.

Sharing the spotlight with softball on the morning program, was the track and field meet under the chairmanship of George Walla, who made himself some sort of a "playing manager" by picking off first place in each of the heaving contests he entered—discus, javelin and shot-put. Not so proficient at throwing the weights around, Bill Neva, another Frood standard-bearer, nevertheless demonstrated that he can hustle his own avoirdupois from here to there when he walked away with the 1500-metre canter. Bill got so far ahead that he looked as if he were running in some other race. Photo shows the three winners in the event; centre is Bill Neva; left is Nick Dixon of Sudbury

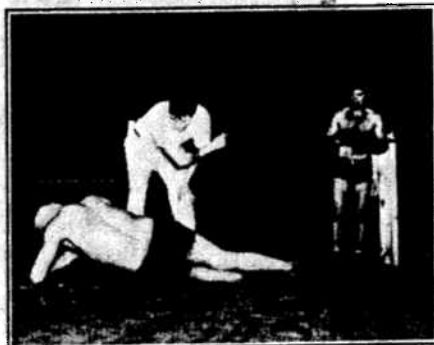


High School and right is John Autio of the Alerts

MR. DOOLEY GOES TO TOWN

There was lots of action crammed into the boxing and wrestling card at night, and

the capacity crowd loved it. Feature scrap on the boxing bill pitted Dooley "The Wildcat" Boivin of Frood, against Johnny Ross, a good Ottawa boy. Mr. Dooley went in there and spotted Mr. Johnny no less than 24 pounds, the weights being 150 to 174, but flesh isn't everything. Boivin dropped Ross several times before he finally tucked him under the covers with a Sunday punch in the fourth. Photo shows the recumbent



Ross taking his 10-second snooze while Boivin stands back holding his gloved right hand, perhaps because he broke it when he administered the coup de smash. The shot gives a good idea of the difference in the men's sizes.

Another highlight was the wrestling go in which Dolph Beaudry, the prancing policeman from Frood, made short work of Wilcat Petafor, of Guelph. Beaudry hopped up the performance for the delighted crowd by punctuating his business-like two-fall triumph with little interludes in which he demonstrated the heart-rendering agony of a professional wrestler in the throes of distortion. In these displays Beaudry managed to put almost as many twists in his face as he did in Petafor's anatomy.

In the prize draw which was conducted at the conclusion of the program by Superintendent F. J. Eager, G. Villemere, of Levack, proved to be the winner of the grand award, a Ford V8.

Figure Skaters Expect Big Season

Copper Cliff:—"The best season yet" is what members of Copper Cliff Skating Club are expecting as they bring out their trusty blades and prepare to twist themselves into figure-eights.

Officers elected for the year are as follows: Honorary president, E. A. Collins; president, S. Macfarlane; vice-president, Dr. C. Ross Ferguson; secretary-treasurer, Wm. Icopson; directors, R. C. Barnes, Miss L. Stevens, Mrs. S. A. Crandall, Miss Elizabeth Winckler; ladies' advisory committee, Mrs. C. C. Chapman, Mrs. R. Bell, Miss Ethel McIntyre.

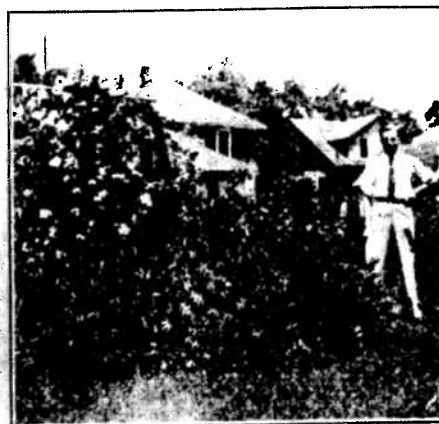
While a definite arrangement has not been made, it is expected that Gordon Thompson will once again act as Club professional.

One of the new developments in boat design is the use of a special type of monel for non-skid floor plates.

Have Lovely Home Grounds

Pride in home surroundings is a conspicuous feature among INCO employees at Port Colborne, and gardens have never been more carefully planned or beautifully kept than during the closing summer.

Alex McNay is seen standing in the lovely



grounds of his home at 163 Princess St., although the photographer didn't happen to arrive when Alex had his hoe in hand and was busy rooting out unwelcome weeds. Another colorful garden was that of J. F.



Ross at 55 Adelaide St., where a profusion of blooms greeted the eye. And who could



resist this sylvan glade beside the home of Col. R. F. Baker, 190 Clare Ave?

MINING

Past and Present

Fifth of a Series of Articles by
K. V. Lindell, Copper Cliff

In the last issue of The Triangle we followed the movement of the ore at Frood Mine from underground to the point where it was dumped into the rockhouse ore bin by an automatic skip dump in the No. 3 shaft headframe. Theoretically the miner's concern over the ore ends at this point as it starts on its journey through the mechanical separation process called "ore dressing." However, as it is customary at practically all mines to give the ore some treatment before it is sent to the mill or smelter, and as this is usually a source of curiosity even to the miners themselves, a brief description of the process will not be amiss here.

A diagrammatic sketch accompanies this article showing the relation of the underground ore-passes, rotary car tippie, crusher station, loading station, ore skip, shaft and the surface rockhouse, shaft collar house and the hoist house. The underground workings were described in our last article.

UTILIZE GRAVITY FLOW

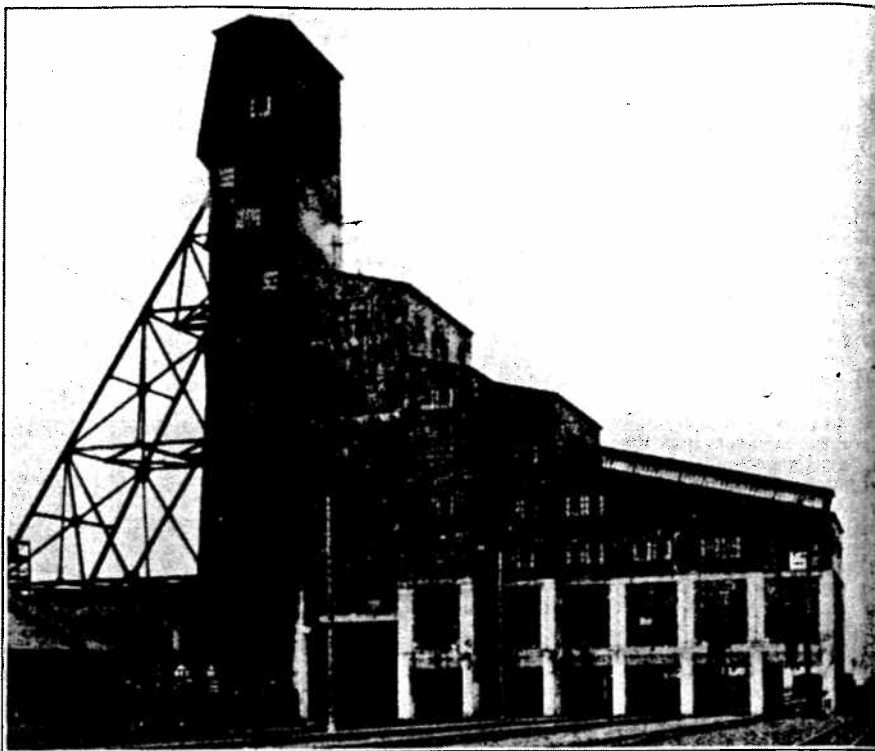
The headframe towers 176 ft. high over the shaft, and houses the rope sheaves in the pent house. The height is required in order to utilize gravity flow of the ore through the rockhouse as much as possible. Even with this height the ore must once be returned from the bottom floor of the rockhouse to the fourth floor for another trip down. The rockhouse joins the headframe on the west side of the shaft, being built up on concrete and steel pillars to permit loading from the ore bins on the lower floor of the rockhouse directly into the railway cars. The collarhouse joins the headframe on the east side of the shaft and encloses the lower part of the headframe, providing weather protection for the men who handle the supplies in and out of the shaft.

The hoist house is 380 ft. long, 60 ft. wide, and 36 ft. high from the floor to the roof trusses. It houses the three hoists serving the No. 3 shaft, one operating the ore skips, one operating the cages for handling men and supplies, and the third operating the auxiliary cage for servicing the levels during the shift. The five large air compressors are also housed in this building.

TROMMEL SCREENS

In the cut-out section of the headframe shown in the diagrammatic sketch, the skip may be seen dumping into the ore bin at the top of the rockhouse. As previously mentioned, it is here that the ore dressing processes begin. From the bins the ore is fed into a pair of revolving cylindrical trommel screens 4 ft. in diameter and 8 feet long, lined with screen plates having holes $5\frac{1}{2}$ in. in diameter, the trommel being set at a slight incline. As the trommel revolves, the ore, which had been crushed to 6 in. underground, works through its length. That part of the ore which measures less than 5 in. in diameter drops through the holes in the screen plates, the larger pieces being discharged at the lower end of the trommel on to a conveyor belt. The scrap wood and steel from the mine is picked off from the conveyor belt by men standing beside it, the scrap being sent down chutes to the scrap wood bin.

The ore falls from the belt into a chute

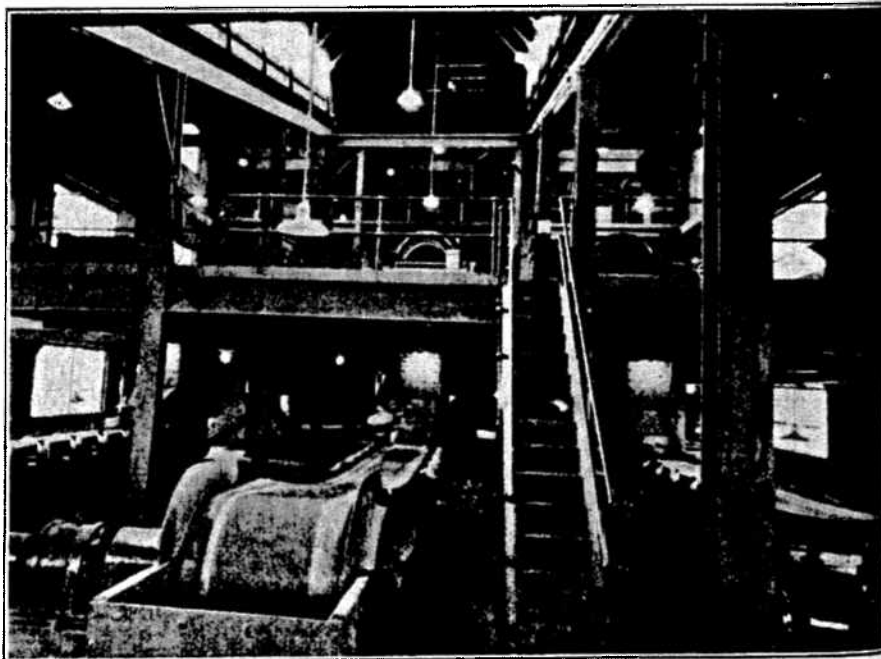


View of the No. 3 Shaft headframe and rockhouse at Frood. The various classes of ore are dumped into railway cars through chutes located above the six loading tracks.

and feeds to a jaw crusher which crushes this oversize to $2\frac{1}{2}$ inches in one direction. This crushed product passes to a conveyor belt on which is already loaded the ore which fell through the holes in the trommel and did not require crushing. The process up to this point has taken the ore down to the bottom floor of the rockhouse, so it is now necessary to convey it back to an upper

floor for redistribution for further processing.

Conveyor belts take the ore up to the top of the distributing bins on the fourth floor, where an automatic tripper distributes it evenly the full length of the bins. Hoppers on the bottom of the bins feed the ore to a set of three trommels similar to the first two we have mentioned, but with holes in



View in the rockhouse at No. 3 Shaft, Frood, showing the three distributing bins which feed to the cylindrical trommel screens immediately below them on the upper floor, and the picking belts from which employees remove ore relatively high in sulphides and low in silica, for direct smelting. The remainder of the ore is discharged direct from the picking belts into a store bin beneath, from which it is loaded into railway cars for shipment.

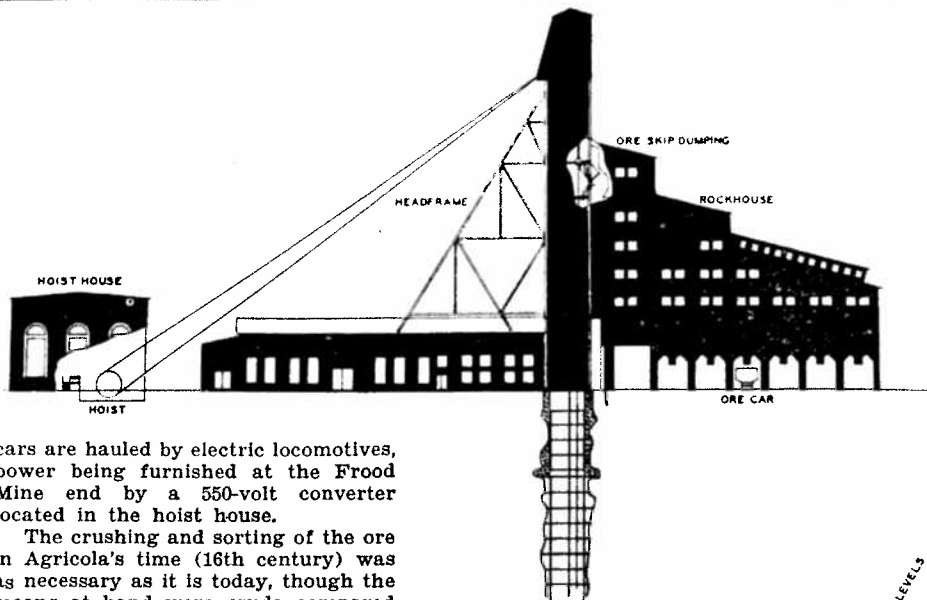
the screen plate 1½ in. in diameter. The hoppers and trommels may be seen on the upper floor of the rockhouse in one of the accompanying photographs. The undersize from these trommels falls directly in the fines bin, for shipment to the Copper Cliff concentrator. The oversize feeds on to a short conveyor belt shown immediately below the trommel opening, which has a magnetized pulley at the discharge end.

SORTING MAGNETIC ORE

That part of the ore which contains sufficient pyrrhotite mineral to be magnetic and is also low enough in silica to be suitable for direct smelting in the blast furnaces, is deflected by the magnetic pulley sufficiently that by means of a baffle plate below, two products can be made. The magnetic ore falls into the magnetic ore bins for shipment to the blast furnaces. The other product is relatively higher in silica and requires concentration, but, still contains some massive sulphide ore not deflected by the magnetic pulley. This siliceous ore is therefore passed on to a conveyor belt operating at a low enough speed to permit hand sorting of the sulphides not magnetic. This hand-picked ore is also low in silica and suitable for direct smelting. The balance of the ore drops off from the conveyor belt into the siliceous ore bins and is then shipped to the concentrator.

The ore storage bins are circular steel bins with a hopper bottom and chutes to control the flow of the ore directly into the railway cars spotted underneath. Loading is facilitated by a system of standard gauge tracks to the north and to the south of the rockhouse as shown in the photograph of the rockhouse and headframe. The tracks on the north side are built on a steep grade carrying through the rockhouse chutes to permit the running of the empty cars by gravity to the chutes for loading and then to the storage tracks on the south side. Over 90 railway cars a day are being handled through this rockhouse alone. The balance of the ore comes from the No. 4 rockhouse which makes but one product,—a concentrator feed.

From the storage tracks the ore is taken care of by Ab Elliott and his Transportation Department, who deliver it to the concentrator at Copper Cliff crushing plant or start it on its way to Coniston, as required. The



cars are hauled by electric locomotives, power being furnished at the Frood Mine end by a 550-volt converter located in the hoist house.

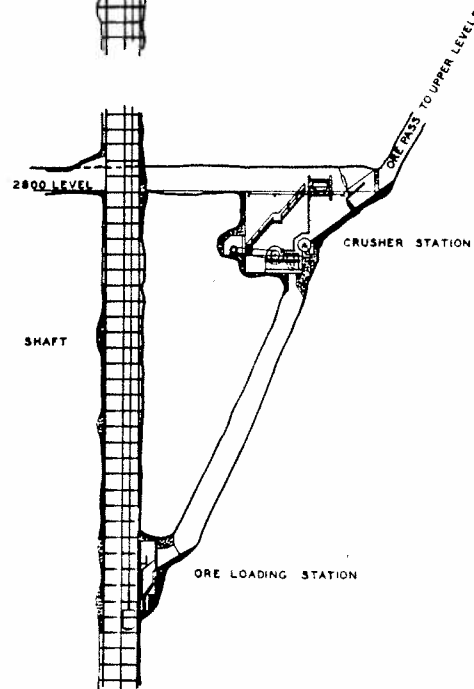
The crushing and sorting of the ore in Agricola's time (16th century) was as necessary as it is today, though the means at hand were crude compared to the mechanical devices just described. Not as many men are now required to perform the same work as before mechanization, but the treatment by machinery has made it possible to handle material which before had to be discarded as waste because the labor required to make a separation resulted in prohibitive costs.

THE ANCIENT WAY

In Book VIII of "De Re Metallica," Agricola describes for us the usual practice in handling metalliferous ores after mining. "Experienced miners, when they dig ore," he tells us, "sort the metalliferous material from the earth, stones, and solidified juices before it is taken from the shafts and tunnels, and they put the valuable metal in trays and the waste into buckets. But if some miner who is inexperienced in mining matters has omitted to do this, or even if some experienced miner, compelled by some unavoidable necessity, has been unable to do so, as soon as the material which has been dug out has been removed from the mine, all of it should be examined, and that part of the ore which is rich in metal sorted from that part of it which is devoid of metal, whether such part be earth, or solidified juices, or stones. To smelt waste together with an ore involves a loss, for some expenditure is thrown away, seeing that out of earth and stones only empty and useless slags are melted out, and further, the solidified juices also impede the smelting of the metal and cause loss. The rock which lies contiguous to rich ore should also be broken into small pieces, crushed, and washed, lest any mineral should be lost. When, either through ignorance or carelessness, the miners while excavating have mixed ore with earth or broken rock, the work of sorting the crude metal or best ore is done not only by men, but also by boys and women. They throw mixed material on a long table, beside which they sit for almost the whole day, and they sort out the ore; when it has been sorted out, they collect it in trays, and when collected they throw it into tubs, which are carried to the works in which the ores are smelted."

MANUAL CRUSHING

In many cases this treatment before smelting was sufficient. Various ores of course required different treatment and it was necessary in many instances to crush the large pieces of discarded material to



Cross-section through No. 3 Shaft, Frood, showing: (a) the ore pass, through which the ore mined on the upper levels flows to the crusher just below 2800 level; (b) the rotary tippie which dumps 2800 level ore to the crusher bin; (c) the crusher, located immediately below the bin; (d) the ore-loading station; (e) a skip in the shaft ready for loading; (f) the headframe, with a skip in dumping position; (g) the rockhouse; (h) the hoisthouse and collarhouse.

make certain that no mineral was lost, as already mentioned by Agricola. This was done by placing the waste material on a large flat stone work bench and breaking it with a hammer, the only then known crusher. The broken material was then again sorted to obtain all the mineral.

The fundamental ore dressing practices of the past still remain with us today and the recovery of the metal from most ores still depends on the fineness of crushing—the finer the dissemination of the ore throughout the rock, the finer the crushing required to liberate the metal. The fineness to which products are now crushed far exceeds anything performed in the time of Agricola, which is another reason for greater metal recovery now than then.



A busy corner at Copper Cliff Employees' Benefit Association picnic, showing some of the high class entries in the pie-eating contest. The young lady on the left is obviously an exponent of the Double Intake System for Quick Pie-Eating, a revolutionary new method first introduced in this district at the Frood Employees' picnic. The pie-gulper not only chews, but also inhales, and the speed thus attained is little short of amazing.

Creighton Picnic Draws Attendance of Over 3000

Creighton:—When the weatherman turned on the tears and did his best to drown out Creighton Mine Welfare Association's dance and frolic last July, the lads who travel the inclined shaft just moved their show indoors and made a big success of it. Thus outfoxed, the old boy called quits and produced perfect weather for the Creighton picnic held at Morrison's farm, McCharles Lake, about 13 miles from Sudbury on the Soo highway.

There must have been about 3,000 people in the crowd which turned out to enjoy thoroughly the excellent program arranged for them by the Association's up-and-doing executive. President Don Vicary, maestro of the affair, drew co-operation from all members, and had at his right hand Secretary Vic Tremblay, Sports Director Sid Seymour, Chief Hotdogger Bob Pascoe, and Hugh Simpson.

PACKED WINNING WALLOP

A highlight of the day was the boys' pole and bag fight, won by Elmer Johnson (right) of Creighton, when he whacked John Svec



of Sudbury, from the precarious perch in the final tilt. A long list of entrants turned up for the novelty, necessitating several elimination rounds, and the crowd drew some rollicking laughs from the antics of the youths as they whaled each other with their hay-loaded weapons.

Races and other novelty events for old and young rounded out the day's entertainment, each event drawing a full quota of aspirants.

PAL FAINTED, BILL RESCUED

Port Colborne:—James William Smith, better known as Bill to his mates in INCO's Port Colborne refinery, where he has an enviable reputation as "mechanic-extra-ordinaire," was born in Welland County just outside Port Colborne on July 12, 1882, son of a carpenter.

He soon learned how to hustle for his slice of this world's favors because he had six brothers.

WITH STANDARD OIL

He went to school in Port Colborne and then in Buffalo. When he was 13 or 14 he landed his first job, messenger boy for the Standard Oil Co., on its Leamington con-

struction work. By the time he was 16 he had become a full-fledged driller and the wanderlust which goes with his trade had filtered into his blood. Until he was 19 he stuck with Standard Oil, roaming the Pennsylvania fields on various contracts. Then he got into the storage tank construction end of the business, and covered a good deal of the United States doing that. Structural steel work finally won him



over, and this was his trade until the War broke out. Bridge building was his usual occupation as a structural steel worker, and he was on both the upper and lower Niagara jobs. He worked on the government elevator at Port Colborne. In 1900 he helped put up the huge electric tower in Buffalo which advertised the Pan American Exposition, and two years later was on the job when it was taken down and re-erected in Chicago. This was the highest assignment he ever had—365 feet into the blue.

HUMAN ELEVATOR

Scrambling around girders up in the sky doesn't bother him a bit. But he wouldn't want to go down a mine, thanks just the same.

Just one hair-raising experience he recalls in connection with the higher places. The 350-foot stack at the Port Colborne refinery was almost completed, and one Saturday afternoon, when the construction crew had laid off for the week-end, Bill and a friend of his who tipped the scales at 200 pounds decided to get to the top and enjoy the excellent view of the surrounding countryside. The elevator wasn't working, so they climbed the scaffolding.

They were okay going up, but when Bill's friend reached the top and looked around, the height got him. He fainted. Bill was close by and grabbed him. After considerable shaking he came to, but that was far from the end of the story because the fellow was too frightened to climb down again. Eventually Bill, half-carrying and half-piloting, was able to get his 200-pound pal back to terra firma, but the trip took three hours and was just about as nerve-wracking and physically exhausting a journey as James William can imagine anybody undertaking.

During the War, Bill went to work in the shipyards, driving rivets in freighters for the British government. In 1922 he joined

INCO's force at Port Colborne. Once the wanderlust wore off and he got settled down to his job, he was mighty glad to be "rooted" at last, and says he is a completely satisfied employee.

SON WITH INCO

He was married in 1910 to Miss Lulu Cross, and they have a family of five. Their eldest son, Harry, is also an INCO employee, and works in the cooper shop. He was the lad in the foreground of a photo in a previous issue of Triangle, showing staves being placed in the setting-up form, first step in barrel-making.

Cadets Took Toronto Trip

Totalling 67, all ranks, Copper Cliff Highland Cadet Corps were INCO's ambassadors of goodwill on a trip to the Canadian National Exhibition and to Niagara Falls.

In Toronto the unit made a great hit, drawing much favorable comment from the press for their smart appearance and soldierly bearing. They were quartered at the Armouries.

Marching to the City Hall, they were welcomed officially by His Worship Mayor Robbins, who is seen on the right in Triangle's photograph. Cadet Captain Orville Hickey



placed a wreath on the memorial cenotaph. Sergeant-Major Young, of Toronto, well known in Copper Cliff, accompanied the unit and also placed a wreath on the cenotaph, the day being the 21st anniversary of the death of his father, who was killed in the Great War.

The De Lasalle band paraded the Cadets to the City Hall and also out to the Exhibition, where they gave a brief performance.

Something new for most of the boys was the trip to Niagara Falls, made by boat. Stewards and chefs looked on in frank amazement as the youths, who had eaten their dinner just before embarking, promptly descended on the boat's lunch counter and tucked away tremendous quantities of grub.

At Niagara the Corps was met by Col. Vandersluy, and marched past an inspection party consisting of school principals of the town and district. During a banquet the Corps commander, Capt. R. C. Barnes, was presented by Sergt.-Major Young with a piano clock, and Sergt.-Major Dopson received a cigaret lighter.

Returning to Copper Cliff thoroughly satisfied with their outing, the boys lost no time in expressing their sincere appreciation to INCO for providing them with the trip.

C.C.A.A. FIGHTERS SHOW UP WELL IN HECTIC FIST FIESTA

Copper Cliff:—The value of Copper Cliff Athletic Association's efforts to promote physical training was clearly demonstrated at the Northern Ontario Amateur Boxing championships staged in Stanley Stadium. No less than six of the eight title winners were fighting under C.C.A.A. colors and had for months been polishing up their ringcraft at the muscle farm which George Black and Hughie Craig operate for the C.C.A.A. in Memorial Community Hall.

Out of the 26 bouts staged in two nights of leather-trading, the following fighters emerged as champions in their respective classes: 112-lb., Eric Tiplady, C.C.A.A.; 118-lb., Cecil Fielding, C.C.A.A.; 126-lb., Freddie O'Hagan, Sudbury; 135-lb., Carman Fielding, C.C.A.A.; 147-lb., "Squink" Falcioni, C.C.A.A.; 160-lb., Jackie Harrison, C.C.A.A.; 175-lb., Jack Lown, Coniston; heavyweight, Primo Condotti, C.C.A.A.

Tiplady coasted to his win in the paper-weight division when his finalist opponent, R. Como, of Sudbury, pulled up lame in the right fist shortly after the bout got underway. Cecil Fielding was far too clever for Theriault, one of a group of game Chapleau kids who will be heard from when they have picked up a little more ring experience.

FIELDING'S GAME EFFORT

Fighting his third scrap in one evening, Carman Fielding was obviously tired as he picked up the torch for the final bout in the 126-lb. class. He had previously scored a technical K.O., over Fred Welsh in an elimination fight in this class, and had also given away considerable weight to go into the 135-lb. division and decision tough little Mike Miller, another C.C.A.A. mitt-tosser. In the 126-lb. titular tilt he faced hard-swinging young Freddie O'Hagan, of Sudbury, a give-and-take scrapper who shows real promise. Fielding started slowly but finished strong and had his opponent badly bewildered when the final gong sounded, but the judges gave the nod to O'Hagan for his point-lead in the early stages of what was a rousing struggle.

It took "Squink" Falcioni all his time to stave off the last-round drive of Alex Sanguino, also from the C.C.A.A. stable, but he satisfied the adjudicators that it was his verdict. Not in the best of condition but game to the core, Dave More, of Regina, took a solid pasting in his 160-lb. final against

Jackie Harrison, and there was no doubt which way the verdict should go.

When Jack Lown, of Coniston, went down under a foul blow in the fourth round of the 175-lb. showdown, the man who delivered the punch felt almost as badly about it as the man who lay writhing on the mat. Doing his best to carry the scrap to the clever, hard-hitting Lown, Paul Matvinko, of Creighton, obviously had the best of intentions when he let go the right which slipped low and cost him any further chance at the laurels. Only 18, in beautiful condition, and well-trained, Lown was the most promising prospect to take part in the fights, and might go a long way if he tends to his mitting.

There just wasn't anybody to stand up to Primo "Da Preem" Condotti, the C.C.A.A.'s bruising heavyweight hope. In an elimination bout "Da Preem" flattened A. Griffin, of Creighton, who claimed a foul which was disallowed by the judges. In the final the big fellow had to be satisfied with a little love feast with his buddy, Charlie Martolini, who was willing to make a show of it but not a massacre. And who could blame him?

Excellently handled, the business went chckety-click throughout. Attendances were a huge disappointment, but now that the C.C.A.A. has broken the ground there is every possibility that the event may be built up into an annual assault of widespread popularity.

Horseshoes Flying at ORCO

ORCO:—The horseshoe craze has hit the Refinery with a bang, and along with it has come a generous avalanche of trophies for various department and plant competitions.

The R. H. Waddington trophy is being sought by department doubles representatives, and J. C. Bischoff has donated a cup for plant singles competition. A. Welblund, R. Hewgill, N. Arbour, and G. Shute have also come to the fore with donations of trophies for various departments.

Triangle is indebted to Ross Lowe for shots of some of the barnyard golfers in action. Here's Larry O'Brien just pitching

their department also come G. MacDougall and M. Shamley in the doubles event. Nonchalantly puffing a gasper, Punch McDougall takes careful aim, with his



Mechanical Dept. partner beside him. Two office stalwarts also caught the camera's



eye, Cece Keegan and Pete Nazar. Other doubles' teams in the thick of the fray are: Selenium Plant, Bill Taylor and J. Chornopyski; Tankhouse, E. Steadman and O. Sauri; Silver Refinery, C. Marshall and A. Reissner; Acid Plant, L. Bentley and J. Price; Casting Dept., G. Ferri and J. McLaughlin; Yard and Transportation, H. Thornton and M. Chomyshyn; Drill Room, E. Whiting and J. Lawrie.

Port Colborne: Wearing INCO A. A. colors, Alex McMurchie of Port Colborne won the three-mile race at the Canadian National Exhibition from a classy field of Ontario and United States runners.

Smokers and dances will be regular features of Frood Mine Welfare Association's program for its members this winter. Two of these events have already been staged in the Polish Hall, and have been thoroughly enjoyed.

Port Colborne: The INCO A. A.'s Labor Day swimming meet, staged this year for the first time, drew a big crowd and provided some first-class holiday entertainment.

In the events for INCO A. A. members, the competition between Ray Borland, Bob Smith, and George McCarthy had the crowd on edge. Borland took first in the 100-yard swim, Smith first in the 50-yard, and McCarthy first in the half-mile.

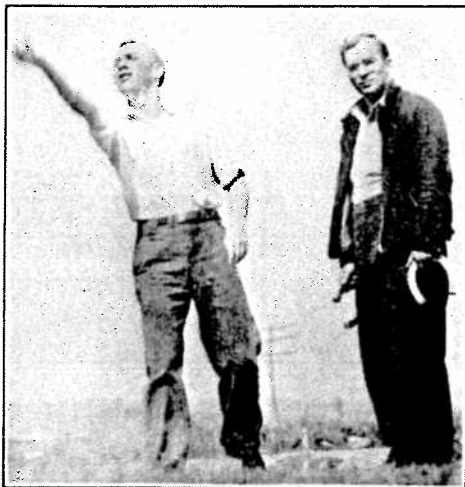
Many Enter Bridge Series

The second semi-annual competition for the E. A. Collins Rose Bowl Trophy, emblematic of Inter-Plant supremacy at bridge, is being staged at Memorial Community Hall, Copper Cliff.

Ten teams are entered, two more than in last spring's tournament when Bob Bell's smelter lineup emerged winners. Teams taking part are: Frood No. 1 and No. 2; Creighton No. 1 and No. 2; Levack, Refinery, Smelter, General Office, Copper Cliff Ladies, and Outlaws.

In addition to the Collins Trophy, cash prizes are awarded the couples with the five highest scores at each evening of play, as follows: 1st, \$8.00; 2nd, \$4.00; 3rd, 4th and 5th, \$2.00 each.

Each team consists of 12 players, and the lineup aggregating the most points after three evenings of play will hold the trophy until next spring.



a ringer while Bill Toleck stands in readiness. They're Lab performers, and from

NICKEL . . . AND ITS USES

NICKEL IN AVIATION

Were it not for Nickel Alloys, aviation would never have said good-bye to Darius Green and his Flying Machine

They've got to be light and they've got to be strong. Probably no mechanism in the world today is engineered to a finer point of perfection, requires such careful selection of materials, or involves so much skill in workmanship as does the modern airplane.

The world is literally riding on air with more than a third of a million miles of commercial flying routes and in excess of 50,000 flying machines of all types including military planes in 24 different countries.

What makes air travel today among the safest forms of transportation with the lowest accident rate per passenger mile, facing a future that not even a Jules Verne might have envisaged in his most imaginative mood?

NICKEL HAS DONE IT

Nickel and nickel alloy steels! For it is not too much to say that without benefit of the strength, lightness, toughness, resistance to corrosion and half a dozen other factors which nickel alloys lend to the manufacture of the airplane, aeronautical development, as we understand it today, would not be far removed from the "Darius Green and his flying machine" stage.

The triumph of the modern airplane has been in the overcoming of great technical difficulties and the production of a superior thing in which materials of construction play the leading role.

It takes more than a bit of doing to lift 25,000 pounds, or nearly 12 tons of materials into the air, which is the gross load of the average commercial airplane. The stresses and strains, the terrific pull of the gravitational force, the high-speed of travel, require safety factors in construction

far in excess of vehicles used in land transportation. In fact, an airplane built to carry a gross load of 25,000 pounds must be designed for six times that weight, or 150,000 pounds. Hence, what aeronautical engineers speak of as the strength-to-weight ratio is the all important thing in airplane manufacture. Performance depends on weight, safety on strength.

EVERY OUNCE COUNTS

The almost unbelievable progress that has been made in aircraft motor design is well illustrated by the fact that the original Wright engine weighed 21 pounds per horsepower while today radial type air cooled power plants weigh but a fraction over one pound per horsepower. This is a striking illustration of the importance of the power-to-weight ratio so essential to aircraft development. Every pound that goes into aircraft construction affects the fuel carrying capacity and thereby the cruising radius. Every pound of unnecessary weight means less speed. And in the matter of cost, transport aircraft are being built today at prices from \$70,000 to \$100,000 each, which represents about \$4.00 per pound. The aeronautical engineer must produce the greatest possible value per pound and extract the maximum of performance from every pound of material used.

It is not strange, therefore, that an enormous amount of research and ingenuity of design has been occupied with the problem of new materials and their efficient application in the airplane. Unlike many types of heavy engineering where an ample factor of safety may be provided by

increasing the size or weight of parts, the thin construction of the airplane requires materials allowing the maximum stress without failure or buckling.

FOUR VITAL REQUISITES

To grasp the full significance of what nickel alloys have meant in the development of air transportation, one should understand that an airplane must possess four vital requisites; (1) extremely low weight-to-strength ratio, upon which depends (a) speed (b) cruising radius or the ability to stay in the air longer (c) economy in fuel and efficient power or the power-to-weight ratio. (2) High tensile strength of vital parts to withstand strains and shocks. (3) Extreme toughness and elasticity to obviate sudden fractures. (4) Resistance to corrosion.

Without the metallurgical study that has gone into airplane design, the brilliant achievements of the past decade in aeronautics would never have been possible. Alloys, and especially alloys of nickel, are more responsible for the rapid evolution of air transport than any other single factor contributing to its spectacular advancement. Thus, nickel rides the air waves, and in this age of alloys is doing its bit to make the airplane lighter, stronger, safer more reliable.

ENGLAND A LEADER

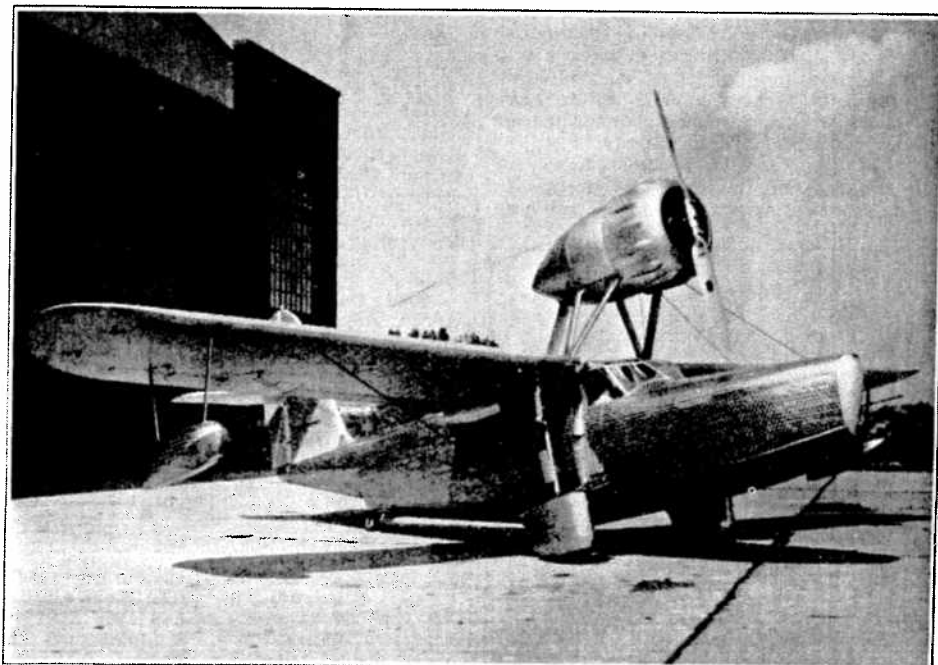
Originally adopted for the stressed parts of the engine, a logical and natural development of the successful use of nickel alloys in the automotive field, the use of nickel steel is growing rapidly in popularity as the substance "par excellence" for body parts, fuselage, wings, struts, etc. Greater progress in this respect is noted in the design of British, French and German machines, English designers being especially conspicuous in their use of alloy steels in preference to other materials such as wood, aluminum and un-alloyed metals.

The United States as a whole has lagged in the adoption of light alloy steels for parts outside the engine, yet claims credit for the first commercial purpose stainless steel airplane, the famous "Seabird," built by Fleetwings, Inc., after the fashion of the new streamlined locomotives and taking its cue from the remarkable performance records hung up by these steel horses of the rails.

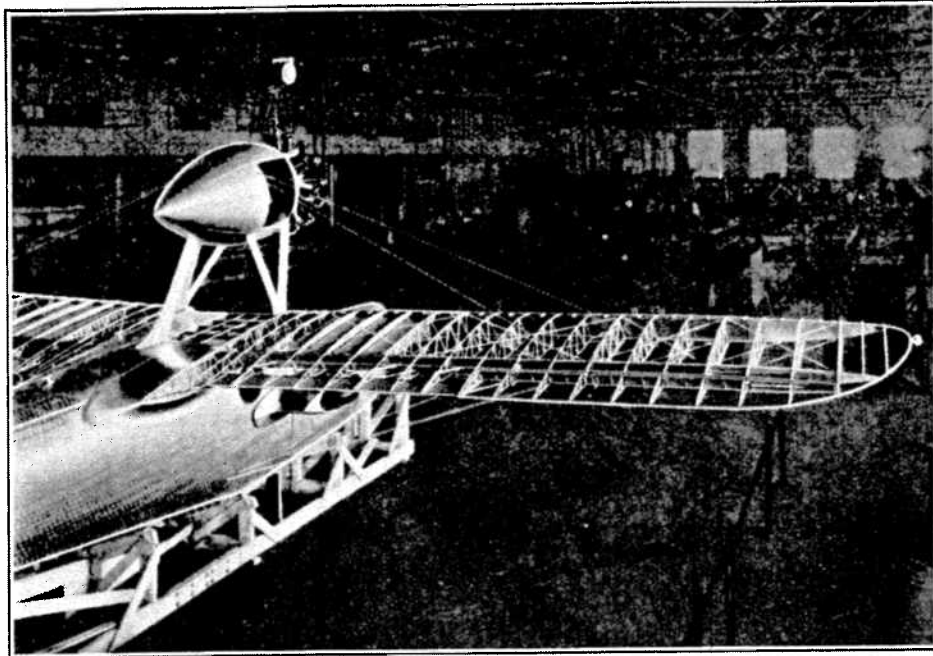
Here is the forerunner of the widest use of nickel steels in airplane manufacture, for by the use of "shotwelded" stainless steel (8% nickel, 18% chromium) the entire body of the plane is virtually one piece. While all-metal planes are not in themselves new, this construction has heretofore necessitated fastening sections together with rivets which in turn, by their projecting edges, interfered seriously with the slippage of the plane through the air. Technicians call this the "drag" and it is a factor of no little importance in efficient airplane performance. Rivets have also had a tendency to weaken the plane structure on account of the holes which must be made in the fabricated metal covering.

WELDING ADVANTAGE

The ability to weld stainless steel without impairing the physical characteristics of the metal or effecting its mechanical properties, points the way to an immense enlargement of its field in airplane construction. In fact, in the case of the "Seabird" mentioned, its builders say that it has made possible an amphibian plane lighter in weight than any other plane of comparable size and that it is more fully streamlined than any other water plane. The "Seabird" indeed weighs from 100 to 200 pounds less than even a land plane of comparable capacity. The outstanding advantages of nickel steel alloys and the resultant high levels of performance which have followed the adoption of such materials, are giving



Here's a striking illustration of nickel's contribution to aviation. "Seabird," shown above, is the first commercial-purpose steel airplane made by Fleetwings, Inc., Bristol, Pa. Stainless steel is a nickel-alloy steel containing 8 per cent. nickel. This amphibian is the first completely engineered stainless steel aircraft to make its appearance, and presages the extensive use of nickel steel in airplane parts other than the engine.



"Seabird" under construction. Stainless steel is used almost 100 per cent., being found in the hull, landing gear, fuselage, structural braces, fuel tanks, wing fittings, etc. The completed machine empty weighs 2,285 lbs. It has a speed of more than 150 miles per hour.

plane manufacturers the world over something to think about.

Aeronautics have definitely passed the stage of being an experimental science and is rushing headlong into an era of direct competition with other forms of transportation, so that it may soon vie with other older methods of transport, such as the automobile, as one of the most promising users of nickel. Consider, for example, the nickel alloys which are already standard materials for the general run of British built airplanes.

NICKEL IN 100 PARTS

There are upwards of 100 different parts which are made from nickel steel alloys, involving as many as a dozen varieties of alloys ranging from 1% to 8% nickel content, and comprising at least six different types of steel. In every sense of the word, the modern airplane, like the modern automobile, runs with the aid of nickel.

In the airplane engine alone, there are no less than 50 parts which depend on nickel. Here the most important are: crankshafts, connecting rods, camshafts, piston pins, valves, rocker arms, timing gears, oil pump drive gears, water pump drive gears and propeller hub flanges. Elsewhere in the delicate mechanism of the flying machine are found nickel steel for wing and tail spars, ribs and struts, fuselage frames, bolts, nuts, pins, sockets, tubing, machined fittings, plates, control wires and dozens of others too numerous to mention.

Some of these parts must be designed to withstand maximum stresses up to 220,000 pounds to the square inch, many encounter stresses of 100,000 pounds or 45 long tons per square inch. The nickel chromium steels largely used in airplane construction combine resistance to such high stress with unusual resistance to corrosion, a factor of very great importance considering the weather conditions through which airplanes are forced to travel. Another nickel alloy, Inconel, is proving satisfactory for exhaust stacks and collector rings which are part of the radial type aircraft engine, and K-Monel is being tried out for streamline wire. Pure nickel also finds wide usage for spark plug electrodes.

Supplementing the better known types of

nickel alloy steels, Monel is also finding increasing use in the aeronautical industry. The high ductility, strength, rigidity, corrosion-resistance, corrosion-fatigue, endurance and impact values of this non-ferrous alloy make its application in the airplane structure extremely promising, particularly in seaplanes.

The United States Navy has recently built two all-Monel pontoons for use in tropical waters. Such floats are closely comparable in weight to similar floats of duralumin, but require no protective surfacing. Monel gasoline tanks of both the pressure and the gravity types have also proven successful. In Australia, Monel wheels including rims, spokes and hubs are used quite widely, while Monel strip has been successful as sheathing on the leading edge of wooden propellers.

Hardly a month goes by that does not witness some new record in aeronautical achievement, which may be attributed directly or indirectly to the value of nickel products entering into modern airplane construction. In a very real sense, it may be said that the heart of this fast growing industry lies in the mines of Ontario where the men and women of The International Nickel Company of Canada, Limited, are contributing every day to the success of a new means of transport, with a future that one hardly dares to predict.

Link by link the air routes of the world are being expanded. At the end of last year they hit a high mark of 311,000 miles, which is approximately equal to the total railroad mileage of the world outside of the United States. The approximate air mileages of leading countries are as follows: United Kingdom and the British Empire possessions, 64,000; United States, 60,000; Belgium, 19,800; France, 36,000; Germany, 27,300; Holland, 17,400; Italy, 14,100.

RECORDS SHORT-LIVED

Speed and distance records are no sooner made than broken, so rapid is the progress of aeronautics. International records for early this year established 440.7 miles per hour as the world's highest speed in airplane travel, hung up by Italy; greatest non-stop distance, 6,262 miles, made by Russia;

altitude, 50,000 feet, Great Britain. Safety in airplane travel, measured by American statistics, shows a high point reached in 1935 with more than 20,000,000 passenger miles flown per passenger fatality.

The trend to nickel alloy steels in aircraft construction is a natural evolution of the whole science of aerodynamics. In the early days, flight was the foremost consideration—get 'em to fly, let the cost and other considerations be what they might. Then came production and, in the early days of airplane manufacture, improvements in design. New discoveries and inventions trod upon each others' heels so rapidly that a plane could never wear out. It simply became obsolete before it had a chance to see real service.

Now the industry is entering a period where types have been fairly well standardized and a long and useful life is a matter of prime importance. Economy has therefore become a matter of grave consideration, especially as commercial airplanes are becoming larger. But in aircraft construction, as in general engineering, a clear distinction must be drawn between low cost and cheapness. Cheapness is poor economy because it is generally coupled with poor quality and that spells danger with a capital "D".

Nickel steels, Monel and Inconel therefore point to true economy and contribute the essential element of safety, the "sine qua non" of successful aircraft design.

"Steve" Got Some Big Ones

Copper Cliff:—Silver salmon fishing, just off the Washington shore across from Victoria, was the highlight of a holiday jaunt to the Pacific coast by Walter Stephen, of Copper Cliff concentrator. He and his brother were out only an hour to land the catch with which Walter modestly poses in



the accompanying photograph. The big fellow he's holding toward you so invitingly weighed 10 lbs., put up a thrilling fight, and was food fit for a couple of kings.

Other features of Walter's trip, on which he was accompanied by his young daughter Nancy, were chasing a black bear along a Cascade Mountain trail with his car, and riding the Denver Zephyr from Denver to Chicago. This new streamlined comet of the rails does the 1,015 miles at an average of 53 miles per hour, making only two stops

The Reverb. Furnaces

Copper Cliff's reverberatory furnaces make what is probably an outstanding contribution to Northern Ontario's scenic splendours because they produce the slag which cascades down the dump and bathes the night sky in softly beautiful pastels for the delight of the tourists.

Worthwhile accomplishment as that may be from a Board of Trade point of view, it is nevertheless not quite the purpose for which the reverbs are operated.

There are seven of these long brick furnaces in the smelter, five producing matte for the nickel converters and two turning out matte for the copper converters. Each one is 110 feet long by 24 feet wide, inside dimensions, and is of special brick construction to withstand the intense heat and corrosion of the process which goes on inside it night and day, week in and week out. Since operation of the nickel and the copper reverbs is essentially the same, Triangle will confine this description to one of the nickel furnaces.

IT'S A HARD LIFE

Ore from the mine runs into some very unceremonious treatment in its long trek from skip to cathode. Its age-long slumber underground is rudely shattered by inquisitive drills and thunderous blasts. Crushers squash and crumble it. Rod mills grind it to a pulp, flotation machines drown it, and roasters shove it down from hearth to hearth until it's plenty hot under the collar. But it begins to get really uncomfortable when it's dumped into the 2600-degree bath inside a reverberatory furnace. That's a pretty tough spot for dumb, harmless sulphides.

Like red hot dust and just below its melting point after its trip over the 10 hearths of a roasting furnace where water and a great deal of its sulphur has been

driven off, the nickel-copper concentrate from the concentrator, now in the form of a calcine, is delivered by gravity through pipes to the reverberatory department. It arrives at the head of drag conveyors, the steel paddles of which operate in dustproof housings and run along both sides of the top of the reverb furnace. At a maximum rate of about 1300 tons a day, the calcine drops into the reverb through fettling pipes, which are six-inch tubes spaced three feet apart and connecting the conveyor with the interior of the furnace.

Inside the reverb is roaring, blinding flame. The calcine piles along both sides of the furnace and slowly melts in the terrific heat, running into the bath of molten sulphides which boils three feet deep in the V-shaped trough they form along the bottom of the furnace.

HOW SLAG IS FORMED

Then this feature of the smelting process begins to get in its real work. The calcine contains a large percentage of iron oxide, and it's up to the reverb to remove much of this impurity. So when the calcine is fettled into the reverb, it has been mixed with about 15 per cent. of sand to 82 per cent. of concentrate. The silica contained in the sand does the trick. The iron oxide unites with the silica to form iron silicate, or slag. Lighter than the molten nickel-copper sulphides, the slag floats to the top of the bath.

At one end of the furnace, just below the surface of the bath, is a small hole through which the slag is skimmed off almost continuously. On a cement platform outside the furnace stands the skimmer with his long iron bar, watching that the skimming hole does not clog up, that no nickel-copper values escape with the slag,



Herbert G. Fales, of INCO's New York office, hustles about the country in his own Lockheed-Vega airplane. Recently he made a trip to Sudbury, landing at the Larchwood field just four and a half hours after he left New York. The ship has a cruising speed of 175 miles per hour. Accompanying Mr. Fales was Fred A. Ward, of London, England, chief engineer of the Mond Nickel Co., and they were welcomed at the landing field by R. D. Parker, general superintendent, and A. H. Cooper, customs collector. In the photo, left to right: Mr. Fales, Mr. Parker, Mr. Cooper, Mr. Ward.

and that the slag is running freely down the water-cooled launder, or chute, which feeds it into a slag pot on the tracks below.

The only interruption to the steady stream of slag from the furnace is when the pot below has received its load of 20 tons and another one must be pulled into position. Then the skimmer "buds up" the slag hole temporarily with a plug of clay, which is easily broken away when another slag pot is in place and skimming is to be resumed. The slag train is usually made up of 12 pots, and when these are filled they are hauled out to the slag dump, usually about every half hour.

TAPPING THE MATTE

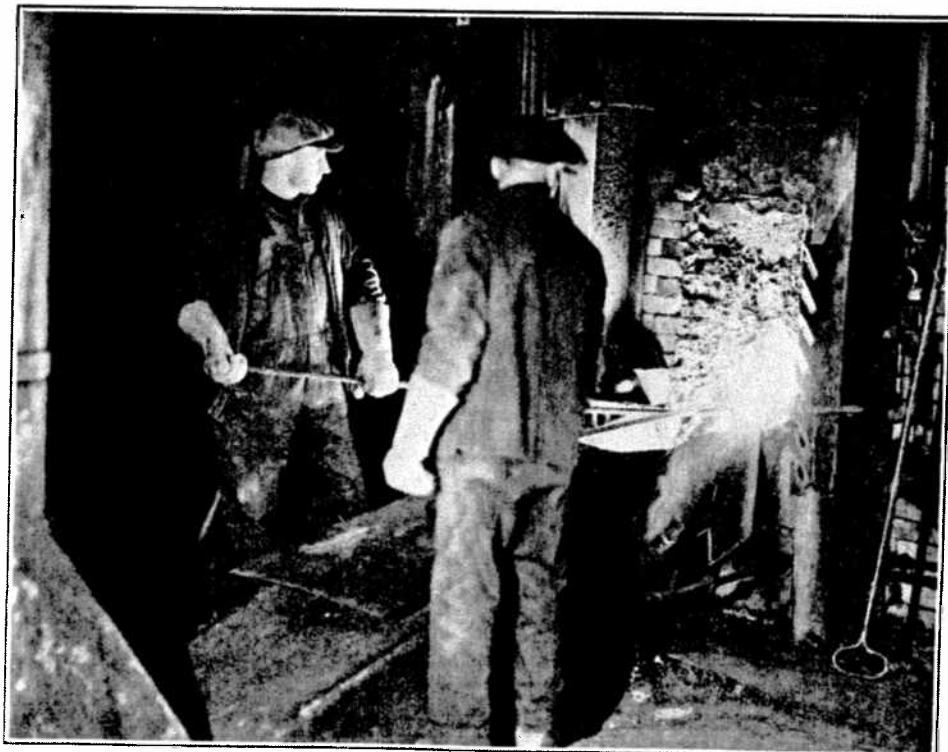
In the lower part of the bath the molten nickel-copper iron sulphides, now a grade of matte suitable for the next step in the smelting process, are ready for transfer whenever the converters require them. From 12 to 15 times each eight-hour shift, matte is tapped from the reverb, through a hole in the side wall of the furnace 17 feet from the skimming end. A heavy dull red, it flows down a covered clay-lined chute or launder into a matte ladle which is spotted on the transfer track in a tunnel below the end of the launder and parallel with the furnace. The tapper, like the slag-skimmer, stands ready to keep the tapping hole clear and matte running steadily.

Its capacity 185 cubic feet, the big steel matte ladle has been lined with two or three coatings of frozen converter slag to protect it from the action which would take place immediately if the matte were to come in contact with it. Although it is made of four-inch steel, the stream of matte would consume it like sugar in tea if the slag were not there to protect it.

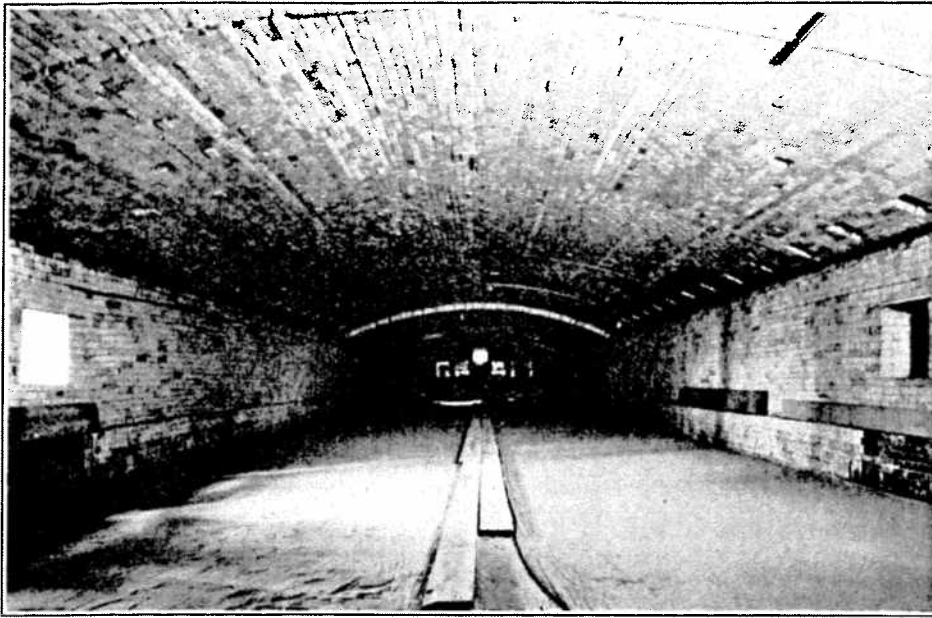
FED TO CONVERTER

When it is filled, the matte ladle is hauled through the tunnel to the converter aisle, and one of the powerful overhead cranes picks it up with ponderous ease, swings it carefully into position above the fiery throat of a converter, and nonchalantly pours the 12 tons of molten sulphides into the seething belly of that thirsty monster. So once again a reverb has "delivered the goods."

Matte ladles are also used when it comes time to skim slag from the converter, into which sand is also introduced to lure away



Skimming slag on No. 1 nickel reverberatory furnace in Copper Cliff Smelter are Pat McLaughlin (left) and Mike Patrino. They have just removed the plug of clay which has stemmed up the slag hole while another empty slag pot has been spotted in position on the tracks below their skimming platform. The slag flows down the chute, or launder, into the pot, and the hood carries away gas.



Here's an interesting and unusual view—the inside of one of the reverberatory furnaces at Copper Cliff smelter, where the heat is turned on the calcines in no uncertain manner. The holes through which the calcines are fettled into the furnace are seen along both sides of the roof. The photo was taken from the skimming end of the furnace.

the balance of the iron impurity from the sulphides. Converter slag, coming from a more advanced stage of the smelting process, contains nickel-copper values which can be recovered, so it is fed back into the reverb through a launder in the end opposite to where skimming is done.

150 TONS PER DAY

Fuel for the reverb is powdered coal, crushed in the coal plant and blown through pipes to an 80-ton bin above the furnace, from which screw conveyors carry it down to be picked up by fan air and blown into the furnace with its four burners. A reverb requires for each day's operation about 150 tons of coal, which comes from Nova Scotia.

Smoke and gas from the reverb enter a furnace flue which is connected with a main header flue feeding to the big brick stack. In order to eliminate the gas as much as possible from the matte and slag as they are being taken from the furnace, large hoods are hung over the matte ladle and over the slag launder above the slag pot. These hoods are connected to the reverberatory header flue, and have greatly improved working conditions in the reverberatory department.

In three of the reverbs the waste heat is used to accomplish another important purpose besides converting calcines into sulphide soup à la silicate. On the flues of the first, second, and third nickel reverbs are bypasses which allow the waste heat to be used for heating boilers, two of them 750 horsepower and one 1150 horsepower, which furnish steam to all buildings in the Copper Cliff plant. The latest customer for reverb waste heat is the new research laboratory next to the general office, into which a pipe line has been run from the boilers.

Seven men man a reverb. The tapper draws off the matte; the skimmer draws off the slag. The roof man cleans off any spillage of calcines around the fettling pipes, helps the tapper, and operates the conveyor which pulls the matte ladle through the transfer tunnel into the converter aisle. Two fettlers control the flow of calcines into the furnace by operating small gates located just above the fettling pipes. Two converter slag men keep their slag chute clean and assist the craneman in returning converter slag to the reverb.

OLD-TIMERS STRUT STUFF

Port Colborne:—Old Timers of Port Colborne baseball donned a variety of uniforms, part uniforms and makeshift baseball costumes one September evening to launch their attack at Elgin field on the Port Colborne Sailors of 1937 and showed the Tars of today that they could still hit and field, run and slide. Some of the old timers were puffing and panting as they ran the bases and one or two began to look for a substitute runner about the time they reached second base, but they provided four and one-half innings of real fun and entertainment before accepting a 14 to 10 defeat.

Some of the Old Timers scheduled to participate in the game failed to appear, but the majority of them were there and cut some fine figures around the bases. Robert A. "Nipper" Wilson, at one time a prominent member of Sailor teams, appeared in an old but still intact uniform bearing the words "All Stars" on the shirt, and he provided much of the spark and pepper for the infield. His attempt to pull the hidden ball trick on Wilf. Thompson at first base, created a riot of laughter. Thompson, however, caught Nipper in the act of concealing the ball. Bill Freeman, who used to cover a lot of ground around first base for the Sailors, was again on the initial sack. He made one of the feature plays of the game when he made a stab at Kopinak's line drive over first base, looked around the ground vainly for the ball and discovered it deep in the pocket of his loosely laced first baseman's mitt. He also speared off a couple of fast ground balls back of second base while playing that sack for a while.

MORE OLD TIMERS

Others of the Old Timers who appeared were Harold Parker who covered third base effectively, Mervin D. Steele who looked after shortstop assignment, Oliver Sales who shared the pitching with "Dinny" Mahagen, another veteran, and Vin Teal, a junior from Ridgeway. Teal pitched the greater part of

the game for the Old Timers and showed some very effective southpaw hurling. Raymond Wilson, Bill Reichman and "Pop" Herrick were others who completed the Old Timers' list with "Bob" Winn, regular Sailor catcher, doing the receiving for them.

"Smoky" Comy, on the mound for the Sailors, did not treat the Old Timers too roughly, except when Herrick or Winn came to bat. Then he bore down but Herrick, who played with the Sailors this season and managed them most of the time, connected for three singles. Parker, Reichman, Raymond Wilson, Steele and Winn were others to get a hit for the sake of Old Times.

The Tars had a couple of Old Timers with them, including "Hank" Brennan and Clare O'Connor, the latter president of the Sailor Club this season. Others in the lineup included Runions, Leslie, Upper, Kopinak, Haun, Thompson, Kozar and Comy. They played some fancy ball in the field, making remarkable throws the proverbial miles over each others heads and generally enjoyed themselves when errors were desired rather than forbidden.

Electrolytic's Picnic Big Success

Port Colborne:—The Electrolytic Department picnic held at Steele's Bush west of town was an outstanding success. Races, tug-o-war, and a softball game rounded out a day of real enjoyment, and some of the boys had lunch.

In the tug-o-war the Pachuca team was disqualified when one of the judges found their end of the rope tied around a tree.

The softball game was the standout of the day. Wilf Thompson's Wildcats tied the score 23-all in the last of the seventh, had three men on bases, and looked like winners when the milk truck arrived and Art Blue's "Wimpies" claimed a foul for interference.



West Bay, Lake Penage, yielded this 9½-lb. trout last month to top off a summer's good fishing for C. C. Chapman, Copper Cliff. And his business manager, young daughter Claire, was right on deck to see that he didn't throw it back in the lake or give it away to the Indians.

PUNCHING OUT

with

JOE the DRY MAN



¶ When he started out with the INCO amateur party for Toronto, Aldege Leblanc, of Whitefish, aged 13, whose dad works in the Copper Cliff smelter, was making his first real trip away from home. The big chartered bus was an hour late when it reached Toronto, and it whisked him downtown to the hotel faster than Aldege, who was busy at the window, would have wished. Then he was hustled into his hotel room and hustled out again, almost before he had time to test the bedsprings or take a quick look through the bureau drawers to see if the last occupant had by any chance left anything. After that there was a speedy ride out to the Old Mill, where Aldege was hard pressed to divide his moments between a big dinner, a gallery of old etchings, and a stroll through the dining room to see what the rest of the people looked like. And finally there was another quick trip in the bus, a bustling walk through the crowds, and Aldege found himself in a front seat of the huge Exhibition grandstand, right out under the stars. Before him the brilliant Empire Onward pageant was unfolding; far over to the left the ferris wheels were whirling their bright lights against the black backdrop of night, above the blaze and clamor of the midway. For ten minutes Aldege sat as straight as a poker in his seat, his head swivelling from side to side like the governor on a steam engine, as he tried to catch up with events. But things had come too fast for him. The excitement was

getting him down. Suddenly he relaxed, leaned back, ran his hand through his unruly pompadour, and gazed up into the cool starlit evening. "Gosh," he sighed, "it's hot in here."

* * * *

¶ Some of these students who come up from the universities to spend the summer working in INCO plants get very much attached to their temporary jobs. One of them actually had a hard time tearing himself away when he was due to head back to the halls of learning. He was working at Creighton. He bought his ticket to Ottawa, checked his suitcase, drew out his summer's money, and was driven to the station by a friend who owned a car. At Rumford he was put off the train for having no ticket, no money, no baggage—no nothing. He thumbed a ride back to Creighton, discovered that his billfold had slipped out of his pocket onto the seat of his friend's car, and so started out once again to escape Creighton's charms. He made it the second time.

* * * *

¶ George Wesley, out at Frood, owns a motorcycle which obeys the stern voice and iron hand of its master, but is liable to kick up its heels when mounted by a stranger, as Eldred Dickie discovered to his chagrin. With something of an old cowboy swagger about him, Dickie one evening strode up to Wesley and suggested a ride. George acquiesced. The first three attempts were nipped in the bud when the brute's engine

stalled, but not so the fourth. Dickie flipped and twirled every gadget within reach, there was a terrific roar, and the monster with one mighty leap cleared the street, its rider still heroically in the seat. Again the flipping of gadgets, again the beast's outraged roar, and this time it crashed head-on into a parked car. Now grimly determined to conquer the dragon or perish in the attempt, St. George once more yanked on the gadgets, zipped into space, narrowly averted a second collision with the parked car, performed several breath-taking gyrations, and finally wound up in the middle of the road with a hammerlock and mudguard-held on his panting victim. It took Wesley, Art Cummings and Ed Baker to separate them. The Bronco Kid quietly went back to being secretary of the Welfare Association.

* * * *

¶ Jerry Smith, Frood's intrepid canoeist, has apparently taken up exploring in his spare time. Unlike Frank Buck, Gordon Sinclair, and other great explorers, however, he fails to report his discoveries. Consequently he makes the rest of the lads wondah where he spends his time.

* * * *

¶ A much-coveted distinction was won by Lieut. Carl Wilson, who received the Arthurs sword from Col. Dr. R. H. Arthurs, after being judged the most efficient officer during the past year in the Sudbury detachment of the Sault Ste. Marie-Sudbury regiment. The presentation was made at a banquet attended by 109 members of the Sudbury unit. Formerly at ORCO, Carl has for some time been in INCO's employment office at Sudbury. He takes his soldiering seriously, and the Arthurs award came as the result of diligent study and training.

* * * *

¶ An interesting visitor in Coniston recently was Mrs. E. J. Walli, whose husband is manager of Eldorado Gold Mine on Echo Bay. Mrs. Walli was visiting her parents, Mr. and Mrs. H. Pelletier.

* * * *

¶ Boy, page Robert Ripley! There's a quaint impression abroad in certain distant sections of the country that the only things which grow in Copper Cliff are the smelter and the slag dump. People who think that's so, and even the famous "Rip" himself, should have seen a healthy Easter lily blooming happily in a Copper Cliff lady's garden on October 4.

* * * *

¶ What a break for a Scotch pappy! When little Joan Elaine arrived at the John Shedden home in Port Colborne, and everything was fine, her dad went back to his work without a worry. His job is in the carpenter shop (NO SMOKING), and cigars were banned.

* * * *

¶ Back from a vacation trip to England and France, Jim Walter of Port Colborne, sadly admitted he liked London better than Paris. Better brush up on your French, Jim.

* * * *

¶ Leaving for London, where he will play hockey this winter with the Earls Court Rangers, Emmet "Red" Reynolds was presented with a Gladstone bag by his fellow workmen at the Port Colborne plant. Making the presentation, Jack Warren, foreman painter, expressed everybody's feelings when he wished this popular athlete Godspeed and good luck. "Red" will be sorely missed by Port Colborne Sailors in the approaching season.

* * * *

¶ To A. L. Winckler of Copper Cliff, there was something rather familiar about one of the photographs accompanying the High Falls article in the last issue of Triangle. It showed a log jam on the Spanish River back in 1908. After "A.L." had read the



After a season of hot inter-department competition at ORCO, the Mechanical Department team finally emerged 1937 winners of the F. Benard Trophy for the Plant Championship. Ross Lowe's camera caught the champs, as follows: Back row, left to right, H. Kurtz, J. Seymour, A. Tupling, L. Deighton, W. Baird, G. Renaud, H. McDougall, M. Shoveller; centre row, J. Ramsay, C. Burlingham, E. Bedard, P. Boluk; front row, W. Gerrish, P. Coulombe, T. Quigg; not present, H. Currie, H. Coyne, W. Atkinson.

underline and got his memory clicking, he realized that he had walked across that very log jam on a Sunday afternoon's hike with W. D. "Bill" Fleet, former electrical superintendent for the Company.

* * *

¶ Orchids to Tom Gladstone, the First Aid man at the Copper Cliff Benefit Association picnic, who noticed a young lad in distress in a remote section of Ramsay Lake during the picnic and rushed in fully clothed to the rescue. At the time of the incident all lifesavers were keeping their eyes on the large number of bathers in the opposite section of the bay. The Association compensated Tom for the damage to his clothing, but could not hope to repay the debt they owed him for averting a possible tragedy.

* * *

¶ R. Pascoe Jr., emerged as junior champion of Creighton Tennis Club when he defeated Harry Simms in a hard-fought final, 6-4, 4-6, 10-8. A total of 24 entries took part in the tourney, which was one of the most successful features of the Creighton Club's season.

* * *

¶ Tom Crowther, Copper Cliff First Aid man and coach of the championship team in the Parker Shield Contest this year, took no chances at his marriage on August 31. He selected as one of the ushers a fellow First Aider, W. D. Yorke-Hardy, who was on deck with the smelling salts in case the excitement proved too much for Thomas and he faltered on the "I do." Another of the ushers was Craig Pelletier, Copper Cliff Safety Engineer, who was commissioned to keep a sharp eye for shaky steps, old shoes, flying confetti, and other hazards of the matrimonial operation.

* * *

¶ George Robb, Port Colborne iron worker, played his first and last game of soccer this summer. Performing at centre-half for the INCO team in the district league, he received a nasty cut on the shin-bone which required several stitches and laid him up for five weeks.

* * *

¶ After living for 18 years on the east side of Welland Canal, Jim Emburgh, of Port Colborne sample department, has finally succumbed and moved over to Delhi St., on the west side, to be closer to the ball park.

* * *

¶ The No. 1 water adventure of the season is reported by an usually reliable corres-



A section of the happy crowd which attended the first annual General Office picnic, held at Dewdrop Inn, Long Lake. Softball for ladies and men, horseshoe pitching under the energetic management of C. O. Maddock, canoe tilting, dinner, and various novelty contests filled out the program. Coming events cast their shadows before them in the results of some of the contests, notably the rolling pin heave. Watermelon eating and soda biscuit munching races brought to light an old-time champion in Tod Lee, who emerged from retirement to teach the youngsters a trick or two.

pondent as happening to Dr. Ken McLean, while he was driving his boat near his camp in Whitefish Bay. Normally a putt-putt of sane and sensible habits, Ken's outboard motor suddenly slipped off the boat into the water, and headed for points west. With his customary deftness of mind and movement, Ken clung boldly to the handle, hopped into the drink, and followed in its wake. In a second or two he clamped a scissors hold on the propeller shaft, opened the throttle, and headed for shore. Indian guides of the region, when interviewed, admitted it was quite a sight to see that 12 h.p. Johnson kicking the Doc around among the islands with just his head out of water. Eventually he beached his sea horse, and promptly issued a statement strongly advocating stream-lined bodies.

* * *

¶ Nothing but the deepest sympathy could be felt for the Creighton cop who sat down to one of his favorite steaks one Saturday evening, tucked his bib into his collar, seized fork and blade, and carved off the first succulent bite only to discover that he had lost his false teeth. It took some high-class sleuthing and sherlocking to recover them, and by that time the steak was as cold as a fish's kiss.

* * *

¶ The ORCO softball season wound up in a blaze of glory with the Mechanical Department nosing out the Office-Lab for the F. Benard Trophy. A highlight of the season was the benefit game for H. Currie, during which an All-Star Plant League team tackled the ORCO Nickel Belt entry and came within a run of handing them a defeat. A shaky start spoiled their chances of slipping over a fast one on Mike Chomyshyn's gang, something they would have enjoyed very much, to put it mildly.

* * *

¶ Ab Conick of Frood, hit a high spot during the summer's softballing by completing two parts of that ball-player's dream, a triple play. His team was playing against Capreol, and Ab, on first base, took Horreck's line drive in the ninth inning, stepped on the sack to catch Baker napping, and then whipped the pill to second to get Napier off the bag for the third putout. Frood won 9-5.

* * *

¶ A group of Port Colborne employees have written Triangle asking that their appreci-

ation be expressed once more for the annual week's holiday with pay provided by the Company. Similar requests come from employees at Levack and Coniston.

* * *

¶ At Port Colborne the tennis marathon between Boyce "Steam Engine" Sherk and Jack "Blacksnake" Wegerich was finally completed after 108 sets, each player taking 54. Look to your laurels, Mr. Budge. Findlay Lymburner and Nipper Wilson were too good for those old stalwarts of the courts, Bill Freeman and Harry Roe, winning 6-3, 6-4. "Balls too heavy" was Roe's alibi. "Lack of practice," said Bill. "Oh yeah?" said Lymburner and Wilson.

* * *

¶ Roy Longfellow's team of Eleanor Hambley, Joe Boulet, and John Frenette, won first money in the annual Thanksgiving bowling tournament at the Copper Cliff Club, defeating the John Hogan lineup. Vic Gladman's squad of Mrs. R. A. Elliott, Annie Hyland, and Ab Elliott, conquered the Jack Cole team in the finals of the consolation event.

* * *

¶ Dauntless Dan Cupid has been getting in a good bit of his sly work in the INCO forces lately, and seems to have concentrated particularly on Creighton and ORCO. Recent "I Do's" at Creighton include: Glen Campbell and Elizabeth Van Allen at Copper Cliff on September 11; Ron Silver and Muriel Rumball at Sudbury on September 11; John Missler and Irene Miron at Sudbury on August 7; George Russell and Rose Marie Berg at St. Paul, Minn., on September 22; Desmond Smythe and Mary McGinn at Copper Cliff on September 24; Thomas Dasovich and Barbara Cuncic at Creighton on August 29; George Jeffs and Louise Skelton at St. Catharines on August 14. Some results of the "love bug's" ORCO spree: M. Valeriot and Gladys Lachance, at Toronto; Rene Bourgeault and B. Bannon, at Sudbury; H. Lupuis and Loretta Chaput, at Espanola; Don Wilson and Vera Ironside, at Kingston; Thomas Crowther and Edith Thomas, at Copper Cliff.

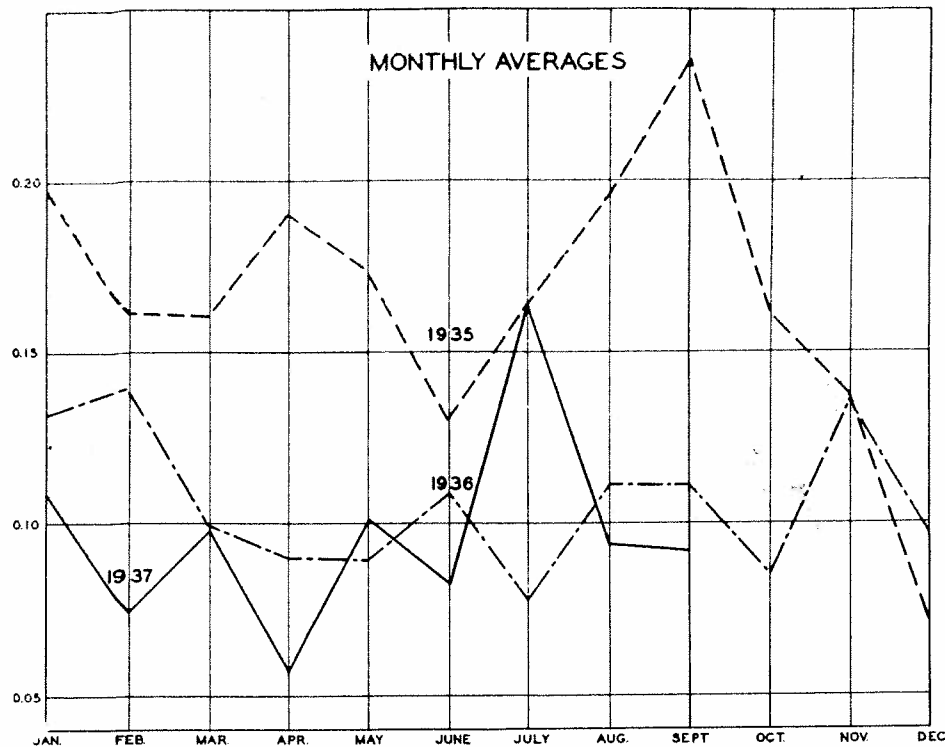
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¶ Members of the C.C.A.A. Physical Culture Club give plenty of credit to the interest and enthusiasm of J. W. Garrow, when they realize how successful their organization has

(Continued on Page 16)



In Toronto with the INCO amateur party, little Helen Martel of Copper Cliff took time off to inspect the attractive display of Moncl-trimmed kitchen equipment at the C.N.E., and placed smiling approval on this electric range modernized by metal from the Company her daddy works for.



After climbing to .164 in July, the Mining and Smelting Division's frequency of accidents-per-1000-shifts-worked levelled off again in August to .094, and slightly bettered this figure in September with .092. As the chart indicates, in only two months of this year has the average not been lower than for the corresponding months of 1936, and of course every month of 1937 is better than 1935, despite the fact that the total number of men employed is much increased. Co-operation of every employee does the trick.

JOE THE DRY MAN

(Continued From Page 15)

become. Just the same, though, they wonder how much longer he is going to put off his exhibition match with Harry Kinch, a battle that's been brewing for several months.

¶ Congratulations to Phil "Ponzo" Davidson, of Port Colborne, on winning the hard-fought-for Century Golf Trophy, defeating Earl Stock in the finals, 2 and 1.

¶ The photograph of the primitive hoisting method used in mining in Agricola's time, which illustrated Karl Lindell's article in the last Triangle, refreshed memories for John Livingstone, of Copper Cliff, reminding him of tales his grandmother told him of when she herself worked in the coal mines of his native Ayrshire 100 years ago. Coal was mined and loaded into wicker baskets or "creels" for transportation to surface, the hoisting being accomplished after the same fashion as it was done in the 16th century time of Agricola. Jock regularly sends his copy of Triangle to his eldest son Walter, who lives in Ayrshire.

¶ When the race for boys under six years of age was announced at the ORCO picnic, one proud pappy pushed his son forward with a "Go to it, son; get in there and win!" The lad hung back. "But I can't," he said. "What do you mean, you can't?" queried the puzzled dad. "Well," the boy replied, "I'm over eight." Somewhat disconcerted, the father turned away, muttering, "Gosh, I've got so many I can't remember their ages."

¶ John and Arnold Crandall, Copper Cliff, vacationed in New York and were standing one morning in Times Square just watching the crowds go by. Who should come along but another Copper Cliff couple, Dr. and Mrs. J. A. Munroe. The odds must have been about ten million to one against such a

meeting, which leads us to the brand new and startling discovery that it's a small world after all.

¶ Mighty tough luck for a group of INCO men was the blaze which completely destroyed their cottage on McCrea Island in Lake Ramsay last month. Bruce Allen, Frank Taylor, Mac Forsyth, Don McMinn and Ed McGill all lost most of their belongings in the fire, the cause of which was undetermined. Bruce Allen, the popular secretary of the Copper Cliff Employees' Benefit Association, was working night shift the week of the blaze, and was asleep in his upstairs room when it broke out. He escaped in night attire, head and arms singed, and was lucky to get out with his life. Jim Thomas, who had come up from North Bay the day before and was visiting the cottage for a short time before going to work at Copper Cliff, also lost two suitcases of clothes and some cash.

¶ Al Cave, formerly of Copper Cliff and Garson and now a provincial Mines Inspector with headquarters at Kenora, writes that he's thoroughly enjoying his new job. He covers most of his territory by airplane, and takes over the pilot's seat every chance he gets. He already has 25 hours of flying to his credit, but has yet to land or take off himself. Old soccer opponents of Al's, rise to remark that he'll probably be able to land okay, but they doubt if he'll ever be able to get up in the air without help.

¶ The Coniston Band celebrated its first birthday in September. Originally a group of six members, it now has 35 musicians in its ranks, the majority of whom learned to play their instruments after they joined up. We doubt if there is another musical organization on the continent with a more spectacular record of progress for the first 12 months of its organization, and once again doff the editorial skylpiece to Leader Dan Totino and his men. The committee behind the band, also deserving of great credit, is composed of: E. T. Austin, president; F. Parker, vice-president; Paul Hughll, secre-

tary-treasurer; Tony Desautels, supervisor; F. G. Murphy.

¶ In their first year of competition in organized softball, Garson's team picked off the championship of the Royal Trading League, a record deserving of hearty congratulations. A rollicking dance was staged to celebrate the occasion, and individual shields were presented by the president of the league to the Garson lineup: T. Hamill, manager; Fred Hunt, A. Morin, Jimmy Pett, C. Savard, J. Kerr, S. Clancy, H. Dean, J. Galamberti, G. Rosenplot, J. Stein, S. Charbanik, A. Fyfe, F. Anderson, P. Dziver.

¶ The coveted Fielder's Glove, awarded annually by the Nickel Belt Baseball Association to the player who rolls up the best batting average during the season's regular schedule, went this year to Eddie Dunn, the larruping Coniston boy. His mark was .403. Vic Jacque, of Creighton, and E. McIvor, of Frood, secured better averages but were not qualified for the award because they had not taken part in the required two-thirds of their teams' games.

Ray Scott in Canoe Marathon

Copper Cliff:—In the Copper Cliff concentrator they use about 3,000 gallons of fresh water a minute, so you'd think that in his spare time Ray Scott would want to play around with grape nuts or shredded wheat, or something else a little drier than the old aqua pura.

Like the taxi driver who takes his family for a ride on his holiday, however, Ray heads straight for water when he gets his day off



from blowing bubbles in the flotation cells.

Along with Commodore Bill Beaton of the Sudbury Canoe Club, Ray entered the senior tandem race at the Canadian National Exhibition. This event is known as the Canadian Canoe Marathon, and the course was laid around the breakwater on the Exhibition waterfront for a distance of 12 miles.

There were 44 entries, coming from as far west as Winnipeg, and it was a gruelling grind. Ray and the Commodore placed sixth, and deserve a big hand for so noteworthy an effort.

Each shift at Frood is developing an old-time band, and organization of a large orchestra is underway, indicating that the boys have gone musical in a big way. Paul Koster, the orchestra leader, promises a repertoire of dance music that will take all the edge off Lombardo.