Two Years Required to Complete Job

The generation of electric power for operation of the various branches of the Calumet and Hecla Consolidated Copper Company is centered at two localities—at the Ahmeek mill and at Lake Linden. The total power consumed by the Company is 22,000 kw., and equipment is in order to bring this load up to 24,000 kw.

Lake Linden Plant

The first electric power plant at Lake Linden consisted of two engine-driven generators of 1,000 kw., 446-volt capacity each. These machines were installed in 1903, and the power generated was used to operate some of the stamp mill machinery.

An addition was made to this plant in 1907 when three engine-driven generators were installed, each rated at 2,000 kw. at 11,250 volts. This permitted the expansion of electric power to the Calumet district. At that time a new boiler plant was built to provide steam for the twenty-eight steam stamps at the Lake Linden mill, as well as for the increased electrical system. This boiler plant, still in operation, contains twenty-four Babcock and Wilcox boilers, each rated at 20,000 pounds of steam per hour. They are equipped with over-fed Ronney stokers and generate steam at 180 pounds, and equipment is in order to bring this load up to 24,000 kw.

The general adoption of electric power for operation of the various branches of the Calumet and Hecla Consolidated Copper Company has been developed to a degree where it was deemed advisable to install a low-pressure unit to utilize the exhaust steam from the stamp mills and generate electric power as a by-product. A 7,500 kw. mixed pressure turbine was designed to take all of the available exhaust steam from the stamps at 1-pound gauge pressure. This machine could also operate at 170 pounds steam pressure, or a combination of both. With all twenty-eight heads operating, the turbine was capable of generating approximately 4,000 kw. from the exhaust steam alone, and this resulted in a very cheap unit cost of power.

This No. 1 unit went into service in 1913 and was so satisfactory that a second unit, No. 2 turbine, rated at 10,000 kw., was installed in 1916. This, too, was a mixed pressure turbine and was originally used as a stand-by unit.

The present equipment in the Lake Linden plant consists of Nos. 1, 2, and 3 turbines having generating capacities of 7,500 kw., 10,000 kw., and 2,000 kw., respectively, or a total of 19,500 kw. There is also a 1,250 kw. turbine in the Still House.

Ahmeek Plant

In 1916 a 2,000 kw. mixed pressure turbine, similar to the Lake Linden units, was installed at the Ahmeek mill. This new setup of boilers and turbine units was designed to utilize the low-pressure exhaust steam from the Ahmeek mill stamps. The power from these units was tied in with the general power system.

In 1921 it was necessary to replace the old Ahmeek mill motors, and in order to provide for the increasing demand for additional electrical capacity for mine and plant operations, it was sectioned to install three high-pressure oiler units, each capable of generating 9,000 pounds of steam per hour at 410 pounds pressure and 400 degrees temperature, a high-pressure turbo-generator, rated at 7,500 kw., was installed in a new building and a 1,250 kw. pressure reducing turbine was installed in the pump house to reduce the steam pressure from 410 pounds to 170 pounds for steam stamp operations. With the present setup of boilers and turbines, the power necessary for the operation of the mills passes first through the 7,500 kw. high-pressure steam turbine and the exhaust steam from the stamps passes through the 2,000 kw. mixed pressure turbine.

The No. 3, 7,500 kw. unit receives steam at 410 lbs. and operates condensing.

The Ahmeek plant is an efficient plant. No. 3 turbine carries a load of about 8,000 kw. continuously at a coal consumption of about 1.2 pounds per kw. No. 7 unit averages about 1,000 kw., and No. 6 unit about 2,500 kw. when the mill is in operation. Since these latter two units operate on process steam, the unit cost is very low.

Modernization of Lake Linden Power Plant Is Approved by Directors

The Ahmeek power plant consists of Nos. 6, 7, and 8 turbines with ratings of 2,000 kw., 2,000 kw., and 2,000 kw., respectively.

The Ahmeek Power Plant Is Approved by Directors

Top: 2,000 Kw. Turbine No. 6 at Ahmeek Mill. Generates power from the stamp mill exhaust at 2 lbs. gauge in 29 vacuum. Bottom: 1,250 Kw. Turbine No. 7 at Ahmeek Mill. Generates power from steam at 410 lbs. admission to 170 lbs. exhaust.

Fighting the Common Cold

Medical science is getting some telling lies against the common cold, which holds the dubious distinction of being the No. 1 nuisance among human ills. Not that this pestiferous ailment has been entirely whipped, for the Medical Profession isn't ready to make any such claim. But Doctors of Medicine are working now on three methods for preventing colds, with encouraging results. These are the use of germicidal ultraviolet light to kill airborne germs, glycol vapor and an army-developed oil emulsifying agent known as T-31. The latter is used in treating doors, walls, blankets, linens, etc.

Research work so far has been concentrated in schools, factories, barracks, and other places where numbers of persons gather. Results show striking reductions in the number of colds and you'll probably read more about the outcome of these experiments. When we realize that odds account for 32 per cent of all house calls by Doctors of Medicine, we appreciate the importance of this research work. In the meantime, however, the best advice for everyone is to continue to take every reasonable precaution to avoid colds. For they strike the strong as well as the weak. If you should "catch cold," stay home as much as possible. Bed rest is still the best treatment and it will prevent spread of your cold among others. Don't treat a cold lightly. It is often the welcome mat at the door of the house of Pneumonia.

NEW DRILL BITS ARE PLACED IN USE HERE

Work in the drill-bit plant for the manufacture of detachable drill bits has been completed, and these bits are now being used on a modest scale in the Centennial underground. The plant where the bits are manufactured is located at Calumet.

This type of bit has been in use for the past several months on a small scale. The bit, known as the Liddicoat bit, was manufactured by the Thompson Products Ltd., in St. Catharines, Ontario, Canada. The imported bits were used here experimentally, and are found to be most practical for underground drilling operations.

The six machines which are using these bits at the Centennial operations are using Liddicoat bits exclusively. Those in charge of the manufacturing of this new piece of equipment are continuing experimentation which ultimately will result in a perfect detachable drill bit.

Married Forty Years

Mr. and Mrs. Matt Kastelic of Calumet celebrated their 40th wedding anniversary on February 7th. Mr. Kastelic is employed at Centennial mine at present, and has worked for over 35 years for Calumet and Hecla. They are the parents of 10 children. One son, Rudolph, is employed at Kennecott.

Harmony?

A group of singers from No. 3 Ahmeek and Ahmeek Mine at a safety party.

WANTED

Every employee in every shop, plant, department and mine, make the month of April without a compensable accident. All it takes is just a little more safety effort on the part of everyone.

To buy—a 60-pound bow string for a bow and arrow set—by "Dane" Lagina of the Ahmeek Mill Boiler Plant.

To buy—a canoe—by "Jake" Alt. A large spool of heavy black thread—by Frank Stanzel, Calumet office junior.

To buy—second-hand records—by Stanley Richards of the Lake Linden Boiler Plant, who resides on Arrow Street, Yellow Jacket.

Pictures like the one of "Gues Who?" that appeared in the February issue of the News-Views.

Preamble to the Charter of the United Nation

Editor's Note: Very few of us, believe, have read the charter of the United Nations. The meat of it is contained in the preamble. We are happy to reproduce its important message here.

We, The People of the United Nations, Determined . . . to save succeeding generations from the scourge of war, which twice in our lifetime has brought untold sorrow to mankind; and . . . to reaffirm faith in fundamental human rights, in the dignity and worth of the human person, in the equal rights of men and women and of nations large and small; and . . . to establish conditions under which justice and respect for the obligations arising from treaties and other sources of international law can be maintained, and . . . to promote social progress and better standards of life in larger freedom.

And for these Ends . . . .

To practice tolerance and live together in peace with one another as good neighbors, and . . . to halt our strength to maintain international peace and security, and . . . to live in peace, by the acceptance of principles and the institution of methods, that armed force shall not be used, save in the common interest, and . . . to employ international machinery for the promotion of the economic and social advancement of all peoples.

Have Resolved to Combine Our Efforts to Accomplish These Aims

Accordingly, our respective governments, through representatives assembled in the City of San Francisco, who have entitled their full powers found to be in good and due form, have agreed to the present Charter of the United Nations and do hereby establish an international organization to be known as the United Nations.
MODERNIZATION OF LAKE LINDEN POWER
PLANT IS APPROVED BY DIRECTORS

(Continued from Page 1)

7, and 8 turbines, having generating capacities of 2,000 kw., 1,250 kw., and 7,500 kw., respectively; or a total generating capacity of 16,250 kw. The generating capacity of the Lake Linden and Ahmeek plants is therefore 21,250 kw.

For a period of twenty years while the stamp mills were in operation, the cost of generating power at the Lake Linden plant was most satisfactory, but as the rock tonnage from the conglomerate lode diminished and was finally cut off entirely, the cost of power from this plant, operating at 218 pounds pressure, became excessive. Present coal consumption per kw. is in excess of 2 pounds.

The cost of coal is the largest factor in the cost of generating power, and since the price of coal has advanced from $2.70 per ton delivered to the boiler house at Lake Linden in 1910 to a cost of $7.23 per ton at the present time, it becomes imperative to supply Lake Linden with a more efficient plant. It was therefore decided to call in a firm of outside consulting engineers to make a survey and analysis of the entire power plant situation. The Chicago firm of Vern H. Alden Company, Consulting Engineers, after an investigation covering a period of three months, showed that a saving of approximately $550,000 per year on operating cost could be effected by making the following changes:

By the installation of a pulverized-coal-fired boiler to be erected in the south end of the Lake Linden power plant. This boiler is rated at 180,000 pounds of steam per hour at 850 pounds pressure and 825 degrees temperature. It will have a capacity to turn steam for our present operations, the proposed new turbine, and have available steam for the Calumet mill should additional milling facilities, over and above present facilities, be required.

The electrical equipment will consist of a 7,500 kw. non-condensing turbine operating at 850 pounds and exhausting at 170 pounds. This turbine, operating at 2,400 r.p.m., will drive through a reducing gear a 6,000 kw., 13,800-volt generator and auxiliary drivers. The exhaust from this topping turbine will flow to either No. 1 or No. 2 turbine units. It is estimated that this combination will produce power at a coal consumption of slightly less than one pound per kw. In addition to the new equipment, No. 3 and No. 2 turbine units. It is estimated that this combination will produce power at a coal consumption of slightly less than one pound per kw.

To thank Paul Herman of the Ahmeek Mill for his safety suggestion.

To thank Charles Hanner of the Ahmeek Mill for his suggestion regarding the News-Views.

To thank Fred Thompson and Frederick Phillips for his suggestion.

To thank Paul Herman of the Ahmeek Mill for his suggestion regarding the News-Views.

To thank Fred Thompson and Frederick Phillips for his suggestion.

We Wish

"Dick" Rezzo of the Lake Linden Reclamation Blacksmith Shop would tell why he does not believe in rules and way he believes if there are rules there should be exceptions.

To thank Vern Kostick of Yellow Jacket for the fine compliment she paid the News-Views.

We had a picture of Emil "Porter" Plante at the Tamarack Reclamation making all the trouble on the Lake Linden bowling alleys recently.

To thank Ed., Erect of Ahmeek Mine for the fine things he said about the last home of the News-Views.

To thank Raymond Mayotte of the Ahmeek Mill for his safety suggestion.

To thank Charles Hanner of the Ahmeek Mill for his suggestion regarding the News-Views.

To thank Garfield Maynard of No. 2 Ahmeek for the fine compliment he paid the News-Views.

"Jack" Bryan of the Calumet Construction Department would tell the Ahmeek boys what he means by "skuddling."

We could see James "Luther Burbank" Gray's colored photographs of his last summer's garden, "Jimmy" is employed at the Calumet Machine Shop, and resides on School Street.

Ahmeek Mine "College" Boys

These men have been taking a course of instruction and getting practical experience on how to become miners.
Winter's Mantle Brings Added Beau
beauty to Copper Country Landscape
**BOWLING**

POST SEASON GAMES
ARE BEING ROLLED

Although the C. & H. Bowling League wound up its affairs for the current season on February 14, when the Smelter capped the championship and possession of the Klopes, trophy, some of the teams are still active.

Alloew, confident that they could "take" the championship, challenged the Smelter to a match. Smelter won two out of three. Still not convinced.

Alloew asked for a return match to be rolled on their home alley at the Whitehouse to which the Smelter agreed. The match was set for March 23rd.

The office team split into two groups for a match, with the general office gang bowling against the supply office boys. Captain Bill Yee was hard pressed to round up a team as some of his stalwarts were already out of condition, and he was forced to call on veteran Wilbur Nicholas for help. Wilbur, after a shaky start, rapidly regained his oldtime form and was going great guns as the match ended. However, Supply walked off with three of the four games.

There has been some sentiment expressed in favor of a longer schedule for next season. This can be arranged easily, one method being to plan for two legs instead of the usual one. However, the decision is in the hands of the members and they until next fall to decide.

Officers of the League voice their thanks to the team captains and individual team members for the fine cooperation and splendid sportsmanship shown throughout the season.

It is hoped that next season will be even more successful with an increased number of teams enrolled in the League.

<table>
<thead>
<tr>
<th>INDIVIDUAL AVERAGES OF COLUMBUS &amp; HECLA BOWLERS</th>
<th>Ave. Games</th>
</tr>
</thead>
<tbody>
<tr>
<td>J. Manus 146 25</td>
<td>16</td>
</tr>
<tr>
<td>R. Holler 140 23</td>
<td>15</td>
</tr>
<tr>
<td>G. Hammerberg 172 27</td>
<td>16</td>
</tr>
<tr>
<td>W. Draversick 146 9</td>
<td>16</td>
</tr>
<tr>
<td>D. Yeo-Vachman 147 37</td>
<td>16</td>
</tr>
<tr>
<td>J. Faust 145 27</td>
<td>16</td>
</tr>
</tbody>
</table>

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**Smelter Team, 1941 C. & H. Bowling Champions**

| L. Niu 139 12 | 16 |
| J. Peters 137 12 | 16 |
| M. Kajakja 157 24 | 16 |
| J. Pascoo 157 24 | 16 |
| A. Hambley 142 16 | 16 |
| W. Sincock 151 3 | 16 |
| W. Radier 119 7 | 16 |
| G. Poison 117 18 | 16 |
| J. Brill 114 19 | 16 |
| D. Mohlin 113 3 | 16 |
| R. Mayette 105 2 | 16 |

**CALUMET & HECLA FUEL BILL IS NO SMALL ITEM**

A score of Great Lakes coal boats, and works of railroad, freight and tank cars were required to handle the Calumet and Hecla purchases of various fuels during the past year. Some idea of the enormity of these purchases may be gleaned from the following figures: 190,000 tons of coal were delivered to the Company's docks on Torch Lake by lake steamships.

Over 1,200 tons of coke breeze also were unloaded at the dock.

Over 728,000 pounds of coke were delivered in 13 railroad cars.

Nineteen carloads of charcoal totaled 511,000 pounds.

Thirty-eight tank cars were required to deliver 250,000 gallons of fuel oil and 6 tank cars to supply the Company with 66,000 gallons of gasoline.

We know a gentleman who divorced his wife because she was getting indifferent—getting in different men's arms.

**Bowling League Board of Governors**

- Harry Bonnetti, League Secretary
- Irving Sincock, President
- Rody Heilner, Bill Yee, Assistant Secretary

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Ahmeek Mine Surface Team, Second Place Winners

<table>
<thead>
<tr>
<th>Name</th>
<th>Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>Carl Bobele, Captain</td>
<td>Ernie Orchard, Wes. Seighman, Russ. Williams, Rich Davesiti, George Thomsen.</td>
</tr>
</tbody>
</table>

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**MICHIGAN Motorizing**

"Colder tonight and warmer tomorrow followed by freezing temperatures and snow Zurriez." Heads like a typical March day in Michigan, doesn't it?

That's what makes it a tremendous time for Motoring. Here in Michigan we have been fortunate for years in having fine highways, well maintained. Day or night highway workers are on the job during every storm to make driving safe and restore normal conditions as quickly as possible.

However, those alternate thaws and freezing are hard for even an efficient highway department to keep up with and sometimes, when we have just become accustomed to dry pavement, we find ourselves on slippery ice.

And how many of us have had the unpleasant experience of running into a snowstorm on our return trip after dark, following a balmy Sunday afternoon's drive to another city?

"This brings up a cardinal point of safety to keep in mind:"

"Always keep your car under control and never drive faster than conditions warrant."

It may take you a few minutes longer to get back, but you WILL get back and under your own power if you follow this rule of safety.
To the Editor:

Calumet and Hecla News-Views:

Our beautiful Keweenaw has been stricken with a disease which has affected our pine trees. This disease is known as White Pine Blister Rust. This blight in the country begins as a fungus disease destructive to five needled white pine trees. The commonly called cultivated black currant spreads White Pine Blister Rust. The European black currant is a part plant for White Pine Blister Rust. In 1946, an accident was on September 5, 1930.

The collar of the shaft.

The depth of 7,043 feet. This would have been

Department saw this the pictures of the skaters in the February issue of the News-Views have said that he would be ice skating next year.

Clarence Grisly of the Smelter, who resides in Calumet, said the only reason he works is to wear out his old clothes.

"Jim" Waara of Ahmeeek Mine, who resides in Mohawk, said he is only 63 years old, challenges anybody regardless of size, weight or age to a 15-yard dash to be held on July 4th.

Fred "Swede" Matson of Ahmeeek Mine is an expert on raising chickens.

Joe Kline of the Calumet Motive Power said that when it comes to hockey, Gordon Finch sure knows the rule.

Arvid "Finn Chief" Hansen of Ahmeeek Mine was seen throwing snow balls on Fifth Street in Calumet.

Good safety records depend on you. Francis Fife; of the Lake Linden Reclamation said, "If you enjoy outdoor life then you are in condition to enjoy the winter in Lake Linden."

Ed. Peterman of Ahmeeek Mine develops quite an interest in skating, especially fancy skating, this past winter. He also served as an instructor in skating, giving lessons to his niece and nephew.

Joe Lundeck, Calumet office yardman, said he left a recent safety party at 10 o'clock and went right home.

Jack Stephens of the Ahmeeek Mill Power Plant was carrying a cap at the Lake Linden-Calumet High School basketball game.

Frank Brul of the Tamarack Reclamation recently built a hay rack that will hold 3 tons of hay.

ANSWER TO "GUESS WHO" (On Page 3)

Waite Wilmer as he appeared in 1914 when he won the amateur middle weight boxing championship of the State of Wisconsin and Northern Michigan at a tournament held in Milwaukee. Waite is now 63 years old.

Waite Wilmer, 63 years; John Kline, 25 years; Joseph Waara, 25 years; Gorden Finch, 26 years; William Lehto, 25 years; Peter Lukomich, 15 years; Clyde Pfeifer, 15 years; Louis Ueman, 15 years.

390 Years of Safety

Members of Brownie of the Calumet Girl Scouts, Troops 3 and 10, ready to leave on a sleigh ride party. Looks as though some of the "young men" would like to join the party.

Girl Scouts Enjoy Sleigh Ride Party

To the Editors:

My News-Views come this week and speaking of it to a friend, now our every man, who worked in No. 11 shaft about 1906, and learned I came from up there so we chat over the old locations and now he was the News-Views sent him.

I think your story of the railroad was especially interesting. I started there in 1887 and Mr. Childs in 1894 to 1916 as Supt. He started as Hodman for Mr. Aquin who supervises from Calumet to Lake Linden for the railroad, after his return from the Civil War.

Thanks for the favor.

Yours truly,
O. D. Gardner

"Do You Know" Answers (On Page 3)

1. No. 3 Ahmeeek, which has an incline depth of 7,043 feet. This would be 4,547 feet vertically below the collar of the shaft.
2. 1,264,536 tons of rock were stamped at the Ahmeeek Mill in 1946.
3. On March 17, the employees of the Calumet Electrical Department had completed a safety record of 8,000 days. Their last compensable accident was on September 5, 1936.
4. At the Calumet Waterworks, pumping 24 hours, there are 2,750,996 gallons of water pumped, while at the Tamarack Waterworks pumping 16 hours a day, there are 312,960 gallons of water pumped.
5. According to the 1940 census figures, the population of Houghton County is 47,631.

Be Alert—Don’t Get Hurt.
**New Arrivals**

Mr. and Mrs. George Klips are the proud parents of a son born to them recently. George is employed at the Smelter Refinery.

A daughter was born, February 17, to Mr. and Mrs. Gerald Herbst. The father is a member of the Smelter force.

The Edward Suppola family has a new daughter, born February 24. Ed is employed underground at the Ahmeek mine.

Mr. and Mrs. Leo Fretter have a new daughter, born to them on February 24. Mr. Fretter is a trammer at the Centennial mine.

The new arrival at the home of Mr. and Mrs. Hillary Gohl is a girl. Hillary is employed at the Ahmeek Mill.

**Coming Events**

- **April 12**
  - Employees of the Tamark Reclamation

- **April 19**
  - Employees of the Tomasson Reclamation who could not attend the party of April 12. Employees of O. Heirman's and O. Jurema's shifts at Tamark plant.

- **April 24**
  - Oscar Karma, miner, going through chute, pole turned and he fell, twisting his leg on a rock on the level. Fracture of left fibula. Estimated lost time, three months. Foreman, W. Paul.

- **February 12**
  - Joseph Szuch, trammer. Going up in chute, a rock fell on his leg. Fracture of left tibia and fibula. Estimated lost time, four months. Foreman, O. Maynard.

**Installing the Drum of Seneca No. 2 Hoist**

**Installing the Drum of Seneca No. 2 Hoist**

**Important Roll in C. & H. Mining**

If all of the dynamite purchased by the Calumet and Hecla during the past year was exploded in a single blast, it might create a disturbance similar to the Atom Bomb blast at Bikini. Imagine, if you can, what would happen if 1,509,868 pounds of dynamite exploded in your neighborhood. Well, don't worry about it. It cannot happen. This million and a half pounds of explosives was handled without a single mishap.

This TONS of explosives was used in the underground operations of the mine to blast out the rock from which copper is recovered.

In order to detonate dynamite, blasting caps and fuse must be used. The Company purchased 589,966 of these caps during the year. Some of the caps were of the electrically fired type and the rest were fuse-type.

The remarkable of the blasting operations is further emphasized by the fact that Calumet and Hecla purchased two carloads of fuse during the year. Two carloads is a lot of fuse. In fact it is 4,560,000 feet of fuse, nearly 1,016 miles of fuse, enough to reach from Calumet to Chicago and back again.

**TIMBER FOR MINING IS PURCHASED LOCALLY**

Local lumbering companies sold Calumet and Hecla over 1,240,000 feet of mine timber during the past year. In addition to this the Company purchased 25 carloads of Fir totaling more than 700,000 feet. All of this lumber was used in connection with the Company's operations in this district.

**ENDORSES TAX INCREASE**

C. & H., the largest taxpayer in Houghton County, endorses the proposed tax increase of 3 mills for purchasing County snow removal equipment, to be voted on April 7. General Manager Wohlrab expressed the Company's support for the increase in a letter to the Board Commission.

**AHMECK BRIEFS**

At one of the picinic sessions sponsored by the Keweenaw Band, every Monday evening at the Ahmeek Mine Office, George Nordstrom dealt four fushes in different suits, to four men, in one hand. On another occasion Thomas Rappin held seven kings, incidentally the eight kings would have exact 800 points. For the benefit of those interested, a double flush in the same suit counts 1,500 points; 8 aces, 1,000 points; 8 kings two pairs; 8 Queens four pair; 8 Jacks 400 points.

William Simula, of the Ahmeek Machine Shop, went ice fishing at Jacobsville and returned with his usual luck, "no fish."

"Jack" Clayton Mugford, of the Ahmeek Mine Office, bowled 184 for three games in succession at Miller's alleys in Laurium.

Clarence Kristo, of the Ahmeek Machine Shop, spent a week in Detroit transacting business recently.

**C & H NEWS - VIEWS**

**MARCH, 1947**

**Calumet and Hecla Mill Boys, 1896.**