

MECHANICAL DEPARTMENT
ANNUAL REPORT
YEAR 1948

CLIFFS SHAFT MINE: (Continued)

On surface, the cooling water pump for compressors was connected to Lake Bancroft through a submerged suction pipe leading to new pump house located near west end of dry. With this new set up, no trouble has been experienced through lack of water. In May, all intercoolers and jackets were cleaned on compressors and Nos. 1 and 3 were equipped with new 5 step A-71 clearance valve regulators. On the hoists, new gear guards were added, the worn brake mechanism was replaced and B Shaft motor steel post brake band flange cracked and was replaced. It was found the cast iron counterweights in shaft were badly worn and these were replaced giving smoother hoist control. At the A shafthouse, the north door was enlarged to take a 12 ft. dia. sheave wheel. In the shops, a new Model SF-27 Ingersoll-Rand drill steel forging furnace with automatic control was installed. A steam line was extended to the shop from dry boiler as the old shop boiler was in poor condition. In March, the new carset drill bits were introduced in mine. Some repairs were needed in crusher building such as new picking belt, new No. 8 crusher shaft, complete with mantle and eccentric, and new drive belt.

A new 20 ton Bay City Cranemobile Model 180-T60 was purchased jointly with General Storehouse to speed up repairs at both locations.

HAWKINS MINE:

In the pit, the two stage 30" conveyor belt equipment from pit bottom to railroad track on surface was completed in the spring ready to start ore season on May 12th. A day was lost due to several large ore chunks blocking the discharge opening of pan conveyor crude ore bin and bending some front plates. The opening was enlarged and gave no more trouble. A Nylon-USTex conveyor belt made by U.S. Rubber Co. is being tried out on this installation. The plant was started with the belts open to the weather but it was planned to sheath them in. When the season closed, this work was started and by the end of the year, the sheathing was 80% completed. Total overall inclined belt length is 1,085 ft. with total vertical lift of 255 ft. - capacity 700 tons per hour - belt speed 550 ft./min.

At the shops, the three electric shovels were overhauled in the spring and gave no trouble for the season. In May, a new 54-B diesel shovel No. 66 was received and used for the rest of the season in the pit. The two diesel locomotives were rented to Holman and other mines during the spring but were returned when ore season started. A truck storage garage was completed adjacent to the shops and will be insulated and heated from the present heating system. Several car loads of scrap were shipped when the old steam shovels and most of the steam locomotives were cut up.

In the pit, it was necessary to start up the old compressor plant to operate air cylinders, etc. in the screening plant. A 4" air line was run from this plant to the shops to increase air supply there. When crude ore production stopped, the bridge over arterial highway was revamped to allow truck haulage from pit to stripping dumps during the winter.

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HAWKINS MINE: (Continued)

At the washing plant, several changes were necessary to improve efficiency. These changes started as soon as the plant shut down October 14th and will be made as the rest of equipment is overhauled ready for next year's operation.

The club house located near the mine office was converted into offices and the following men moved in:

J. A. Wivell - Foreman of Washing Plants
J. K. Young - Chief Electrician
H. P. Arnold - Mechanical Engineer
Ed. Shepard - Design Engineer
R. F. Barkla - District Master Mechanic
G. D. Guiliani - Truck Supervisor

HILL-TRUMBULL MINE:

At the washing plant, the hydrotator was dismantled as tests proved results were not satisfactory. A room was prepared at south end of plant and a battery of Humphrey Spirals concentrators installed. They operated all season. New bottoms were added to 66" Akins classifiers and a 78" Akins classifier installed in heavy density plant in the spring was returned to Western Knapp Co. for the Holman Mine plant after ore season closed. The 2000 G.P.M. duplex plunger Prescott pump belt driven by 100 HP motor was cut up for scrap and shipped in June. It was found that by using the same capacity centrifugal pumps, enough was saved in attendance to scrap the old plunger pump. The steel building housing this plunger pump was moved near the plant and is now used for storage.

In July, the ball mill broke down but was repaired and back in service by August 10th. The Pettibone-Mulliken tailings pumps proved much better than the rubber lined hydro-seal pump. Where two hydro-seal pumps in tandem were required, one Pettibone pump with a 325 HP motor carried the load.

Before the ore season started, No. 58 Shovel was overhauled at the shops and repairs were completed on No. 51 Shovel. Two electric locomotives and ten dump cars were also repaired. In July, a pinion on No. 51 Shovel broke and was replaced.

In the pit, the deep well drainage pump was removed, overhauled, and put back in service. A new Ingersoll-Rand horizontal centrifugal pump with capacity of 1000 G.P.M. against 370 ft. head was purchased to be used in pit. Some stripping was completed on the north side of pit in the fall, but there was no winter stripping program carried on.

HOLMAN-CLIFFS MINE:

Winter repairs were completed for the ore season which started April 29. The washing plant gave little trouble for the season, but results on Humphrey Spiral concentrators at the Hill-Trumbull Mine proved the same equipment was needed here and a battery was purchased in the fall to be installed ready for next year's operation. The fine ore plant in tailings basin was completed and operated for the season using No. 55 Shovel converted into a drag line. The season closed October 20th.

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HOLMAN-CLIFFS MINE: (Continued)

In the pit, it was necessary to shift the pump and sumps, but by October it was possible to install a sump on south side of pit at its lowest elevation and by using two dirty water centrifugal pumps in tandem, the water gave no more trouble. Two new shovels were received, a Marion 4½ yard No. 69 in August and a duplicate machine, No. 80, in November. These units have not been satisfactory due to poor welding and too light construction in vital locations. A new set of swing circle rails were needed under No. 69 in October. The old shovels required heavy repairs. A new caterpillar frame was added to No. 35, a hoist generator burned out on No. 32 and was shipped to Minneapolis for repairs. In the meantime, an M.G. set was rented from Butler Bros. to replace the burned out unit and the shovel operated until the repaired generator was returned. After ore season closed, shovel No. 35 was moved to south side of pit and No. 32 to north side to start stripping operations.

At the shops, the Layne and Bowler deep well pump rented to Bristol Mine until May was returned and stored. An 8 ton gantry crane was installed in round house to service the bull dozers. In May, five new 14 yd. Terra Cobra power scrapers equipped with Cummins engines were received and used on jobs here, at the Canisteo and at the Wanless Mines. Locomotives Nos. 102, 103, 105 and 106 will be cut up and shipped for scrap while Nos. 101 and 104 were transferred to the Hawkins Mine for emergency use. Two cars of relaying rail were shipped to the L. S. & I. Ry. at Marquette.

A contract was given to Western Knapp Co., Denver, Colorado, to build a heavy density plant near the washing plant and this has been progressing all year. It should be completed ready to operate next season.

LLOYD MINE:

Underground a winze hoist and counterweight were installed on 9th level in March, driven by a 200 HP motor from Princeton No. 2. This was formerly used as skip hoist at Wade Mine. A new pinion was installed to increase its speed from 163 to 315 F.P.M. A new wheel stand on manual brake was put on as the old one was badly cracked. Due to overwinds in May and July, it was necessary to replace the 5 ft. head sheaves whose rims were broken by cable Crosby Clips. On 5th level, the pole pump was overhauled in April. On the 9th level, a 250 G.P.M. 200 ft. head Ingersoll-Rand centrifugal pump and a 250 G.P.M. 160 ft. head Allis Chalmers were installed to lift the water to 5th level. A 25 HP Buffalo blower was moved from Princeton Mine to 9th level to improve ventilation.

On surface, the Sullivan compressor in engine house developed too much play and was overhauled in October. A 4" air line was run to the Morris Mine to purchase air if the Sullivan machine broke down.

During the year, William Wicklund, Master Mechanic, was pensioned and replaced by Ewart Larson who became ill and was replaced by Earl Stephens.

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MAAS MINE:

The new steel drum shell of skip hoist in engine house developed loose end spiders in February, but repairs could not be made without production loss until July when the mine shut down for a weeks vacation. At this time, the spiders were made tight, the old center spider added and new keys inserted in main shaft. The drum is now in good condition. In May, the south air compressor caught on fire due to lack of water in cooling jackets. The water system was revamped and the compressors put on city water instead of former mine water. This stopped the trouble. A 4" air line was run through the underground drift connecting Maas and Negaunee Mine and through this, Negaunee Mine can supply Maas Mine air or vice versa if compressor trouble develops on either end. A new 54-B electric shovel No. 67 was received in April and used for stock pile loading during shipping season. One steam shovel on caterpillar traction still operates here, but it is in poor condition and will have to be replaced in another year. After shipping closed in November, a generator was removed from the 54-B electric and shipped to Atkins Mine to be used in duplicate shovel there while an injured generator due to ore slide was shipped to Minneapolis for repairs.

New steel columns for a permanent trestle west of shaft were filled with concrete in September and the steel girders removed from Athens Mine caving trestle were used here to complete the installation. The shafthouse had many steel members replaced as the old ones were rusted beyond repair. The skip dumps were worn badly and had to be replaced.

Underground, a new 7½" x 12" Worthington horizontal duplex power pump was installed on 5th level in March to raise mine water to 3rd level. Its capacity is 460 G.P.M. against 350 ft. head. By June, the bronze cylinder liners wore out and were replaced in steel. This is driven by a 75 HP motor. The 11" x 12" Aldrich triplex pump on 6th level broke its cast iron discharge manifold and it was replaced with a welded steel one built in the Hard Ore Shops. To start the Canisteo Mine shipping season on time, a 250 HP 3600 R.P.M. motor was loaned from the 6 stage Gould pump on 5th level. This drove a new centrifugal pit pump whose motor was not delivered until October. The rented motor was returned in December.

To sink the winze shaft from 6th to 7th level, a Wellman 6' x 5' drum hoist is being overhauled in Hard Ore Shops. It was formerly used on 5th level when the shaft was sunk from 5th to 6th level.

MATHER MINE "A" SHAFT:

On surface, the top tram larry cars gave the most trouble and expense. They were kept operating most of the time, but when out of commission, the old 15 ton Euclid trucks replaced them, hauling on the ground. To improve repair conditions on top tram cars, the storage barn was enlarged and an overhead trolley hoist installed. In the fall, the three cars were overhauled with the cracked steel bases sent to Lake Shore at Marquette for welding and machining as they were too large for our shops.

Provision was made to stop freezing of cage road. The Walker Jamar Co., Duluth, was given contract in the spring to revamp the heating system, install three hot water tanks in shower room, remove hot water tank in boiler

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MATHER MINE "A" SHAFT: (Continued)

room and replace it with a 217 HP boiler and stoker. A 100,000 cu. ft. fan V belted to 100 HP motor was installed at shaft with heating coils to force hot air down cage compartment as required to eliminate ice conditions. The contract was completed by November and equipment is working O.K.

The skip fly wheel set 8" bearing burned out in July and again in August due to badly worn oil rings. New rings were installed and the bearing now runs cool. A post brake was added to cage hoist motor pinion shaft as an added safety feature. The pinion bearing shells on both cage and skip hoists were replaced and repaired due to the babbitt coming loose from the cast iron shell. Compressors Nos. 3 and 4 were erected and tested but have not been placed in operation.

Underground, the pump house on 6th level was completed, the 3 Worthington Horizontal Duplex Pumps installed, the discharge pipe and electrical wiring finished and pumps operating by November 1st. These 3 units are duplicates with 4 7/8" x 18" plungers rated 500 G.P.M. against 1080# head. The cast iron cross head shoes gave trouble and were replaced with bronze shoes. With white painted ceilings, a dark red band 48" from floor and plenty of illumination, this pump house has a very pleasing appearance. Steel doors were installed to isolate it from main drift. On 6th level, the new steel pocket and car dump were completed and placed in operation.

After shipping season, the 120-B shovel was overhauled and is now ready for next season's operation.

MATHER MINE "B" SHAFT:

When the year started, carset bits were introduced in the shaft and reduced time of drilling the round from 4 hrs. to 1½ hrs. In April, a second 400 HP motor complete with controls was added to the hoist, giving ample power to complete the sinking to 3000 ft. It was decided to test out a hydrocrane clam for shaft mucking and by July, the parts were on hand and tried out at "C" Shaft. On August 19th, this clam started in shaft and proved satisfactory. The vertical and horizontal cylinder type clams were tried and changes were made on each for faster operation. By October, the mechanical mucking had cut the time on hand mucking from 8 hrs. to 4 hrs. The aluminum tray used at bottom of shaft was increased in size from 1½ yd. to 2 yds. Experimenting continues as it is hoped a ½ yd. clam may be better than a 3/8 yd. unit for this work.

An order was placed for 2 - 100 G.P.M. 1880 ft. head centrifugal pumps with the expectation that the shaft water of 35 G.P.M. would increase when the slate formation was entered at 1820 ft. depth. No additional water developed so the old system of placing a pump every 400 ft. elevation in series was continued and no pump station was cut.

During July, an order was placed with MacDonald & Kaake Co. for erection of engine house with the hope it could be completed before cold weather. Delivery of structural steel delayed operations and when the year ended, the building was almost enclosed. A 35 ton second hand traveling crane rebuilt by Victor Browning Co. was received and set on engine house supporting rails and the cage hoist foundation completed.

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NEGAUNEE MINE:

As this mine is almost worked out, the only money spent was to keep the present equipment operating. In June, some steel work was necessary in shaft house and skip road. The Ingersoll-Rand compressor rotor had so many coils cut out due to temporary repairs that a complete overhaul was necessary in February. A 4" air line from this engine house to Athens Mine engine house was completed U.G. to assist in air supply while this compressor was out of commission. Work was completed and compressor back in operation in March.

A new 54-B electric shovel No. 68 was received in April. When stock pile loading was completed in October, this unit was moved to the Lloyd Mine to assist in stock pile loading there for the rest of the season.

Underground, the high speed Prescott pump gave very little trouble. Only one valve pot was replaced for the year.

In August, the north and south tram engines were overhauled ready for winter operation.

SARGENT MINE:

Due to failure of clear water pump in January, a spare was installed from Canisteo Mine. In the spring, the interior of engine house was cleaned and painted. Electric cap lamps replaced the old style carbide lamps in April. To protect the compressor, a thermal switch and thermometer were installed on discharge pipe. In June, a D-8 tractor cleaned up surface wash ready to start milling operations in the pit. The heating system was overhauled during the summer to be ready for winter operation. A second hand Differential top tram car was bought from M. A. Hanna Co. This was cleaned, painted and placed in good condition ready for winter stockpiling.

While the mine was closed for a few days in November, not only the compressor and motor were given a good cleaning, but new lightning arrestors and disconnect switches were installed in engine house.

SPIES-VIRGIL MINE:

When 200 G.P.M. additional water was struck on 6th level in March, the pumping situation underground looked serious and work was rushed to complete pump station at air shaft. To make conditions worse, a sleeping pump attendant allowed the belt to burn up on 6th level Aldrich pump. A spare, made up of 30" conveyor belt was secured from Mesabi Range and the Aldrich pump was running again in less than three days.

In May the 4th level pump station was completed and about 450 G.P.M. discharged through the air shaft. This relieved conditions so the Aldrich pump on 6th level can carry the mine load. On 8th level, the water ends on both Prescott triplex pumps were replaced and these units are now in good condition.

On surface a Lee oil fired unit heater having a capacity of 1,000,000 B.T.U. per hour and discharging 12,000 C.F.M. of air was set up near the shaft to eliminate ice conditions in the shaft.

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SPIES-VIRGIL MINE: (Continued)

On surface the size 7½ gyratory crusher in shaft house broke down in August. It was repaired with parts from a duplicate crusher at Gwinn. The following parts were replaced: wearing plates, dust collar, ring gear, pinion and bearings. Some trouble developed with stoker on heating boiler. The boiler house was changed and a second boiler salvaged from scrapped No. 6 steam shovel was installed with one stack serving both units through new breechings.

TILDEN MINE:

Before starting May 17th, the following repairs were needed on 42" crusher--a new eccentric on shaft, counter shaft bearings rebabbitted, and a new set lower concaves. After shutting down August 31st, six new diaphragm liners were installed. On the 10" crushers, a set of lower concaves were turned, eccentrics rebabbitted and a set of new counter shaft bearings installed.

In June, a new 9" blank bit was made up to use on test of a 9" tungsten carbide bit. Only two minutes operation was secured from the bit.

On the electric shovels the boom dipper sticks and dipper were repaired and new shipper shaft pinions and point sheaves installed on No. 46. Shovel No. 52 was equipped with new dipper.

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COMPARATIVE TABLES

<u>CLIFFS SHAFT MINE:</u> <u>YEAR</u>	<u>TONS ORE AND ROCK HOISTED</u>	<u>CU. FT. AIR USED</u>	<u>CUBIC FT. AIR PER TON HOISTED</u>	<u>GALLONS OF WATER PUMPED</u>	<u>G.P.M.</u>
1939	415,682	790,875,000	1,902	363,540,036	693
1940	573 487	1 053 990 000	1 837	362 590 686	686
1941	677 249	1 218 780 000	1 799	343 850 964	655
1942	733 970	1 223 325 000	1 666	339 185 356	643
1943	669 300	1 368 045 000	2 044	376 325 326	718
1944	614 214	1 459 890 000	2 376	448 361 410	851
1945	567 691	1 194 570 000	2 104	444 687 684	848
1946	415 426	968 670 000	2 331	397 294 033	751
1947	562 650	1 527 345 000	2 715	424 721 789	809
1948	603 745	1 607 625 000	2 663	382 905 017	726

ATHENS MINE:

1939	416 225	819 405 000	1 968	173 774 003	331
1940	526 456	1 196 505 000	2 272	185 418 833	351
1941	638 178	1 305 945 000	2 116	185 835 174	354
1942	699 590	1 351 440 000	1 931	204 533 558	387
1943	532 590	1 013 220 000	1 902	195 041 792	372
1944	443 576	900 765 000	2 030	162 835 951	308
1945	429 136	873 710 000	2 035	174 073 654	331
1946	376 417	745 605 000	1 990	168 139 933	317
1947	533 366	1 191 510 000	2 234	178 537 561	340
1948	527 876	1 183 970 000	2 243	169 128 786	320

MAAS MINE:

1939	528 389	1 005 165 000	1 902	726 916 014	1 386
1940	709 755	1 288 665 000	1 815	710 849 782	1 346
1941	849 963	1 646 145 000	1 936	595 239 587	1 135
1942	894 963	1 703 655 000	1 905	553 194 582	1 049
1943	782 074	1 916 100 000	2 450	575 868 620	1 098
1944	614 836	1 542 835 000	2 509	578 257 239	1 097
1945	572 652	1 205 145 000	2 104	555 380 166	1 058
1946	487 523	965 880 000	1 981	607 511 502	1 148
1947	721 051	1 506 960 000	2 090	571 767 866	1 090
1948	683 074	1 389 825 000	2 035	569 972 839	1 081

NEGAUNEE MINE:

1939	577 510	1 026 945 000	1 778	532 642 228	1 015
1940	890 598	1 296 675 000	1 455	377 169 929	714
1941	1 077 854	1 500 165 000	1 391	338 385 511	644
1942	1 128 737	1 432 260 000	1 268	345 945 101	656
1943	978 130	1 137 375 000	1 162	401 169 615	765
1944	760 871	1 165 140 000	1 531	375 706 897	713
1945	671 220	873 270 000	1 301	357 175 559	681
1946	418 232	542 025 000	1 295	360 778 626	682
1947	531 492	717 300 000	1 350	390 741 304	744
1948	386 215	743 625 000	1 925	402 657 133	757

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COMPARATIVE TABLES

<u>YEAR</u>	<u>TONS ORE AND ROCK HOISTED</u>	<u>CU. FT. AIR USED</u>	<u>CUBIC FT. AIR PER TON HOISTED</u>	<u>GALLONS OF WATER PUMPED</u>	<u>G.P.M.</u>
<u>CAMBRIA--JACKSON MINE:</u>					
*1943	155,513	216,657,000	1,393	123,714,000	431
1944	286 761	410 875 000	1 432	196 252 831	372
1945	319 222	386 626 500	1 211	190 159 826	362
1946	303 881	374 013 000	1 230	159 192 131	300
1947	548 027	628 515 000	1 147	190 950 934	363
1948	496 083	548 896 500	1 106	171 964 375	325

(*Mine operated by The Cleveland-Cliffs Iron Co. since June 1, 1943 and the above figures are for the last 7 months of the year only)

LLOYD MINE:

1939	323 639	273 042 000	843		
1940	487 287	398 308 500	839		
1941	572 778	534 456 000	933	40 031 200	91 (10 Mos)
1942	588 749	588 451 000	999	39 486 100	74
1943	531 260	525 280 500	988	65 024 800	124
1944	391 057	436 293 000	1 115	51 625 550	97
1945	334 117	419 088 500	1 254	59 943 400	114
1946	243 836	264 838 500	1 086	51 014 600	84
1947	262 395	254 470 500	970	69 182 000	131
1948	128 672	285 111 000	2 216	48 334 500	91

MATHER MINE "A" SHAFT:

1943	29 517	(First hoisting in September)			
1944	127 438	425 700 000	3 340	74 006 311	140
1945	258 028	378 600 000	1 467	134 384 517	256
1946	417 677	542 250 000	1 298	97 460 579	184
1947	817 145	1 144 800 000	1 401	133 005 294	253
1948	1 100 225	1 901 700 000	1 728	103 059 168	195

TILDEN MINE:

1939	170 276
1940	205 612
1941	302 943
1942	235 207
1943	139 991
1944	214 824
1945	197 476
1946	101 968
1947	168 669
1948	140 692

THE CLIFFS POWER & LIGHT CO.
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Sales of energy and the total amount generated and purchased during 1948 again exceeded that which had been required by our transmission system at any time previously. The total generated and purchased energy amounted to 117,189,620 Kwh which was an increase of approximately 5% over the previous high year of 1947. At the end of December, 1947, we had 36.7% of our water storage capacity filled which amounted to approximately 13,000,000 Kwh available before the spring breakup. By purchasing between 2 and 2½ million Kwh a month, we were able to supply our load demands until spring with the operation of a small amount of Diesel capacity.

Accompanying this increase in energy generated, purchased, and sold was an accompanying increase in gross revenues amounting to 4.8% over the previous year and the gross revenues were in excess of any that had been previously received by the company. In spite of this, however, the net profit for the year 1948 was only \$222,669.00 as compared with \$391,745.00 in 1947 and \$428,086.00 for the year 1941. This decrease in net profit was due to a combination of increased costs of operation due to rises in labor and material costs, coupled with the worst year for hydro production which has been experienced since 1925. During the year we generated a total of 67,435,200 Kwh by water power and 21,607,300 Kwh by Diesel power. Purchases amounted to 28,147,120 Kwh.

and exceedingly high cost of Diesel generation

At the beginning of the year 1948, the installation of the five Diesel engine units which were purchased during the summer of 1947 had progressed to the point that the foundations were installed, the engines were partially overhauled and material was on hand to complete the installation. The building for the power plant, however, was not received until the last few days of 1947 and the installation of this building was not made until early January. The actual installation of the engines and equipment was severely hampered by the fact that the entire ground within the building was penetrated by frost to a depth of 5 or 6 feet and it was necessary to construct the building, thaw out this ground, and install the engines under very adverse circumstances. The result was that the first Diesel engine did not go into operation until March 15 and it was not until May that the five units were in continuous operation.

Fortunately, we had a comparatively early thaw during 1948 and a very critical water situation was averted by increased stream flow beginning on March 20 and resulting in a considerable increase in production capacity of our hydro plants during the period before the Diesel engines were operating. Precipitation, however, for the months of January, February, and March had been such that the storage basins were less than half filled by the spring run-off. When the spring continued with very subnormal precipitation, it was realized that conditions were going to be extremely difficult during the year. A high point of stored water was reached in May at which time 51.5% of our storage capacity was filled. This water decreased during June and July so that on the first of August, there was only 33.9% of the capacity filled in spite of the fact that we had been generating approximately 2,000,000 Kwh a month by Diesel engine each month since May. It was obvious that unless a very decided change in the weather took place, it would be impossible for us to meet our fall and winter load demands.

Accordingly, early in August authorization was given for the purchase and installation of five additional Diesel engines with the understanding that this work was to be conducted as rapidly as possible with the hopes of having the equipment installed in time to relieve the fall and winter load conditions. The estimated cost of this installation was \$420,000.00. Orders for the engines, exact duplicates of those previously installed, and much of the equipment were placed in the early part of August and the first engines were installed and in operation in the early part of November. By the first of December, all five generating sets were installed and ready for operation. This installation made possible the meeting of our load demands during the winter of 1948-49.

Realizing that the cost of Diesel engine power production would be prohibitive and that because of the cancellation of our purchased power contract with the Wisconsin Michigan Power Company a source of energy beyond our hydro-electric production facilities would be necessary, the Board of Directors of The Cleveland-Cliffs Iron Company authorized the installation of a 7500 KW Steam Plant at an approximate cost of \$1,900,000.00 in a meeting held January 21. Steps were immediately taken and arrangements were made with the Stone & Webster Engineering Corporation for the design and construction of this power plant as well as the location of the site, source of cooling water, etc. During the remainder of the year, Stone & Webster Engineering Corp. completed approximately 55% of the engineering in regard to the Steam Power Plant and orders for practically all of the major equipment entering into the construction of the plant had been placed. During the fall, a certain amount of clearing and grading and about 50% of the foundations for the building were installed. However, it was anticipated that no work would be done during the winter and that construction would again be started the first of April of 1949. The present schedule for the power plant anticipates its being in commercial operation by the first of January, 1950. This plant, which is to be located immediately south of the present Diesel Electric Station, is designed originally for one 7500 KW steam turbine unit to be built by the General Electric Company and one spreader stoker fired boiler to be built by the Riley Boiler Company. The plans are made in such a manner as to accommodate the installation of two additional units, one of 7500 KW and one of 10,000 KW to be installed immediately east of this first unit whenever the additional capacity is necessary. Coal storage is to be on that part of the Brownstone property lying northeast of the new warehouse constructed by The Cleveland-Cliffs Iron Company this year and water is to be obtained from Lake Angeline which has been filling up after the abandonment of the Holmes Mine.

On March 3, No. 1 Generator at the McClure Plant burned out at 7:00 A. M. It was necessary to shut this unit down and completely rewind it. New coils were obtained, using glass insulation and the unit was rewound and put back in service before the end of the month. This is the first machine that we have had rewound with glass insulation and we were very pleased with the looks of the work at the time that it was installed. It will be interesting to note the type of service which is obtained from this generator.

Realizing that the installation of Diesel and steam generating equipment coupled with the high cost of operation and maintenance during the coming years would result in a substantial decrease in the profits earned by our company, it was recognized that immediate steps must be taken to change certain rates. Our company realized that the service which was being rendered to certain other utility organizations and to the Inland Lime & Stone Company were unjustifiably low and were actually below the future cost of production and distribution of this energy as well as below the price at which power was being sold to other comparable customers in the mining and industrial fields. The installation of

the steam generating station was authorized by The Cleveland-Cliffs Iron Company Board of Directors predicated on figures submitted to them of revenues which would be derived if the rates for those customers and utilities, which have in the past received preferential rates, were charged the same amounts as were being charged to the mining and large industrial users. Accordingly, in the early part of the year, negotiations were entered into for revising the rates under which the Michigan Gas & Electric Company, the Wisconsin Michigan Power Company, the Inland Lime & Stone Company and Republic Township were to be served. At various times during the year these contract negotiations were conducted, resulting in the placing of Republic Township on the same rate as was effective for the mining and other industries on April 1, 1948. The Wisconsin Michigan Power Company executed new contracts for both of its purchase points, which contracts were to become effective in March of 1949. The Inland Lime & Stone Company executed a new contract at an increased rate to be effective on January 1, 1949, and an agreement was reached with the Michigan Gas & Electric Company for a new contract to be effective January 1, 1949. This left only the contract with the City of Negaunee unnegotiated at the end of the year and it is anticipated that a revised contract with this customer will be completed early in 1949. In November, revised schedules for Wholesale Power Rate Schedule W.P.-1, Wholesale Power Rate for Limestone Quarries and Process Plants Schedule W.P.-2, and the Wholesale Power Rate - Small Industry Schedule W.P.-3 were sent to our Lansing attorney, Mr. Plummer Snyder, together with withdrawals of Wholesale Off-Peak Power Rate Schedule W.P.-4 and Wholesale Excess Capacity Limited Rate Schedule W.P.-5, and together with a revised Terms and Conditions as to Rural Line Extensions, with instructions to present these revisions in our rate schedules to the Michigan Public Service Commission for approval. These schedules had not been definitely filed with the Public Service Commission at the beginning of the year, but it is anticipated that early in 1949 this filing will be completed and hearings will be held to lead to the approval of the suggested revisions.

Due to the extremely low water which existed in the Hoist Dam in the latter part of 1948, it was considered advisable to proceed with the repairs of the upstream face of that dam as rapidly as possible in order to take advantage of the ability to work on that portion of the dam during the early fall and winter. Accordingly, authorization for an expenditure of \$45,000.00, which was later increased to \$55,000.00, was obtained and a contract was entered into with the Intrusion-Prepakt Company to conduct this work. A considerable portion of the work had been done up until January 1 and a plan was mapped out for the continuation of the work during the remainder of the winter and it is anticipated that both the upstream face of the dam and the top portion of it will be repaired some time during the summer of 1949. Work actually started on these repairs on September 1, 1948.

During September, a Supplemental Agreement with the United Steelworkers of America (CIO) was entered into which extended the agreement then in existence from July 15, 1949 to July 15, 1950, and in consideration of this extension of the contract, the wage increases which had been previously granted by the iron mining companies was extended to the employees of The Cliffs Power & Light Company and a modification was made in the type of Check-Off Authorization Cards which authorized an increase in the deduction for monthly dues from \$1.50 per month to \$2.00 per month.

During 1947, authorization had been given for the construction of a 33 KV line from the Humboldt Substation to the Champion Mine at Champion which was being dewatered and reopened by the North Range Mining Company. This line

was completed early in 1948 and during the summer, the contract was entered into with the Wisconsin Michigan Power Company for the moving of the sub-station serving that company from Humboldt to Champion. In the new location, the substation facilities and transformers were to be furnished by the customer. This change of location of this substation was made in the latter part of the summer and service is now being rendered to the Michigamme and Champion area through the Wisconsin Michigan Power Company's substation located in Champion.

At the end of 1947, there were several construction projects which had been previously authorized but which had not been completed due to delays in receipt of materials necessary for the construction. Among those which were completed during 1948 was the installation of a 60 cell control battery at the Brownstone Substation, the installation of voltage regulators at Republic, Gwinn, AuTrain, and Seney, and the change of the Munising Wood Products Company substation in Marquette to a capacity of 1500 KVA by the installation of three 500 KVA transformers. Several projects were still open at the end of 1948 including the installation of new switchboard facilities at the Maas Mine Substation and the installation of new transformers at the McClure Power Plant. It is anticipated that these projects will be completed early in 1949.

Our experience with the operation of the Diesel engines during the period between May and the end of the year indicated to us that we were having an excessive amount of difficulties with these engines which were resulting in excessive maintenance costs. Negotiations were entered into with the General Motors Diesel Engine Division in Cleveland for the purpose of obtaining from them expert advice on possible alterations in installation or operating procedures which, it is hoped, will materially reduce the number of failures of this equipment in the future.

THE CLIFFS POWER & LIGHT COMPANY

STATISTICAL DATA - 1948

	<u>McCLURE</u>	<u>CARP</u>	<u>HOIST</u>	<u>AuTRAIN</u>	<u>REPUBLIC</u>	<u>ESCANABA</u>	<u>TOTAL HYDRO</u>	<u>DIESEL</u>	<u>TOTAL GENERATED</u>	<u>PURCHASED</u>	<u>TOTAL GEN. AND PURCH.</u>
Jan.	3,674,000	1,188,000	1,246,000	242,500	76,900	224,000	6,651,400		6,651,400	2,125,760	8,777,160
Feb.	3 592 000	951 000	1 180 000	247 500	58 100	164 000	6 192 600		6 192 600	2 524 080	8 716 680
Mar.	2 693 000	1 542 000	821 000	251 800	44 100	159 000	5 510 900	165 400	5 676 300	3 377 480	9 053 780
Apr.	2 756 000	2 085 000	902 000	736 600	227 000	933 000	7 639 600	231 400	7 871 000	1 593 680	9 464 680
May	3 580 000	1 323 000	1 168 000	822 500	311 800	961 000	8 166 300	295 600	8 461 900	2 006 680	10 468 580
June	2 944 000	1 001 000	1 001 000	458 000	157 100	278 000	5 839 100	2 072 800	7 911 900	2 213 760	10 125 660
July	3 373 000	1 121 000	1 079 000	395 000	88 900	211 000	6 267 900	2 089 900	8 357 800	1 870 120	10 227 920
Aug.	2 726 000	1 116 000	874 000	303 400	46 100	169 000	5 234 500	2 859 800	8 094 300	2 242 160	10 336 460
Sept.	2 177 000	1 357 000	739 000	194 400	27 500	160 000	4 654 900	2 766 800	7 421 700	2 678 040	10 099 740
Oct.	1 917 000	1 394 000	597 000	179 100	10 600	126 000	4 223 700	2 927 700	7 151 400	2 862 680	10 014 080
Nov.	1 877 000	1 198 000	563 000	170 400	12 100	251 000	4 071 500	3 425 500	7 497 000	2 485 120	9 982 120
Dec.	<u>1 206 000</u>	<u>851 000</u>	<u>381 000</u>	<u>170 900</u>	<u>48 900</u>	<u>325 000</u>	<u>2 982 800</u>	<u>4 772 400</u>	<u>7 755 200</u>	<u>2 167 560</u>	<u>9 922 760</u>
	32,515,000	15,127,000	10,551,000	4,172,100	1,109,100	3,961,000	67,435,200	21,607,300	89,042,500	28,147,120	117,189,620

THE CLIFFS POWER & LIGHT COMPANY

STATISTICAL DATA - 1948

	<u>TOTAL GEN. AND PURCH.</u>	<u>STATION USE</u>	<u>DELIVERED TO LINES</u>	<u>KWH SOLD</u>	<u>TRANSMISSION LOSSES</u>	
					<u>KWH</u>	<u>%</u>
Jan.	8,777,160	20,060	8,757,100	7,964,788	792,312	9.04
Feb.	8 716 680	18 490	8 698 190	7 923 734	774 456	8.63
Mar.	9 053 780	18 840	9 034 940	8 356 967	677 973	7.50
Apr.	9 464 680	16 470	9 448 210	9 014 343	433 867	4.59
May	10 468 580	18 490	10 450 090	9 680 549	769 541	7.36
June	10 125 660	15 540	10 110 120	9 298 213	811 907	8.03
July	10 227 920	16 620	10 211 300	9 337 429	873 871	8.55
Aug.	10 336 460	15 480	10 320 980	9 303 952	1 017 028	9.85
Sept.	10 099 740	23 530	10 076 210	9 194 800	881 410	8.74
Oct.	10 014 080	20 380	9 993 700	9 200 108	793 592	7.90
Nov.	9 982 120	53 730	9 928 390	9 236 606	691 784	6.97
Dec.	<u>9 922 760</u>	<u>39 280</u>	<u>9 883 480</u>	<u>8 797 293</u>	<u>1 086 187</u>	<u>10.98</u>
	117,189,620	276,910	116,912,710	107,308,782	9,603,928	8.18

THE CLIFFS POWER & LIGHT CO.
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STATISTICAL DATA: - 1948

Month	- Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec
Precipitation	- 1.65	0.90	1.51	2.92	0.87	1.80	3.33	2.43	1.05	1.31	4.09	1.01
Total precipitation at Ishpeming during 1948 - 22.87" (1.91 ft.)												
Average	"	"	Marquette	- 32/80" (46 year record)								

CARP RIVER PLANT:

Drainage area above intake dam													66.66 sq. miles
Cubic feet precipitation in 1948													3,549,494,615
Kilowatt hours generated in 1948													15 127 000
Cubic feet water utilized (90 cu. ft. - 1 Kwh)													1 361 430 000
" " " in Carp storage basin Dec. 22, 1947													521 848 000
" " " " " " " " Dec. 22, 1948													83 147 000
" " " taken from storage in 1948													438 701 000
Total run-off for year 1948 (Cubic feet)													922 729 000
Run-off per sq. mile of drainage area (Cubic feet)													13 842 319
Second-feet of run-off													0.4377
	<u>1913</u>	<u>1914</u>	<u>1915</u>	<u>1916</u>	<u>1917</u>	<u>1918</u>	<u>1919</u>	<u>1920</u>	<u>1921</u>	<u>1922</u>	<u>1923</u>	<u>1924</u>	<u>1925</u>
Total Precip.	30.11	26.53	38.40	36.83	25.46	31.05	29.50	27.40	30.38	33.67	21.90	22.95	20.71
Sec.ft. run-off	1.03	0.67	0.93	1.29	0.70	0.79	0.83	0.73	0.68	1.06	0.59	0.50	0.25
	<u>1926</u>	<u>1927</u>	<u>1928</u>	<u>1929</u>	<u>1930</u>	<u>1931</u>	<u>1932</u>	<u>1933</u>	<u>1934</u>	<u>1935</u>	<u>1936</u>	<u>1937</u>	<u>1938</u>
Total Precip.	35.69	29.86	36.06	32.28	23.14	36.70	31.20	32.72	32.87	27.10	30.23	30.10	35.32
Sec.ft. run-off	0.85	0.98	1.11	0.67	1.10	0.83	1.13	1.14	1.00	0.79	0.89	0.86	1.33
	<u>1939</u>	<u>1940</u>	<u>1941</u>	<u>1942</u>	<u>1943</u>	<u>1944</u>	<u>1945</u>	<u>1946</u>	<u>1947</u>	<u>1948</u>			
Total Precip.	33.58	30.34	32.20	34.26	32.04	32.77	30.81	26.12	32.88	22.87			
Sec.ft. run-off	1.47	1.05	0.83	0.84	1.17	0.70	0.81	0.56	0.88	0.44			

McCLURE PLANT:

Drainage area above intake dam													140.52 sq. miles
Cubic feet precipitation in 1948 (Hoist Plant-28.81"-2.41')													9,441,109,370
Kilowatt hours generated at McClure Plant in 1948													32 515 000
Cubic feet water utilized (125 cu. ft. - 1 Kwh)													4 064 375 000
" " " wasted over intake dam													0
" " " in Hoist storage basin Dec. 22, 1947													1 184 548 000
" " " " " " " " Dec. 22, 1948													592 714 000
" " " taken from Hoist storage in 1948													591 834 000
" " " in Silver Lake Dec. 22, 1947													0
" " " " " " " " Dec. 22, 1948													0
" " " taken from Silver Lake in 1948													0
Total run-off for year 1948 (Cubic feet)													3 472 541 000
Run-off per sq. mile of drainage area (Cubic feet)													24 712 076
Second-feet of run-off													0.7815
	<u>1921</u>	<u>1922</u>	<u>1923</u>	<u>1924</u>	<u>1925</u>	<u>1926</u>	<u>1927</u>	<u>1928</u>	<u>1929</u>	<u>1930</u>	<u>1931</u>	<u>1932</u>	<u>1933</u>
Total Precip.	35.10	42.03	26.60	30.49	24.06	43.95	35.51	43.80	38.75	30.81	37.02	32.54	35.07
Sec.ft. run-off	1.02	1.54	0.85	0.92	0.52	1.52	1.80	2.22	1.36	1.45	1.10	1.23	1.30
	<u>1934</u>	<u>1935</u>	<u>1936</u>	<u>1937</u>	<u>1938</u>	<u>1939</u>	<u>1940</u>	<u>1941</u>	<u>1942</u>	<u>1943</u>	<u>1944</u>	<u>1945</u>	<u>1946</u>
Total Precip.	35.02	29.96	32.16	38.18	40.93	41.22	36.59	38.15	40.20	35.64	37.62	37.94	31.91
Sec.ft. run-off	1.16	0.90	1.05	1.19	1.75	1.69	1.47	1.28	1.15	1.43	1.17	1.36	0.86
	<u>1947</u>	<u>1948</u>											
Total Precip.	37.27	28.81											
Sec.ft. run-off	1.22	0.78											

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SUBSTATION TRANSFORMERS:

Substation transformers installed as of December 31, 1948.

<u>66,000/2300 Volts</u>	<u>Phase</u>	<u>No.</u>	<u>K.V.A.</u>	<u>Total K.V.A.</u>	
Munising Substation	1	6	500	3,000	
Seney "	1	1	25	25	
Inland #1 "	1	3	500	1 500	
Inland #2 "	1	3	667	<u>2 001</u>	6,526 KVA
<u>2300/66,000 Volts</u>					
AuTrain Substation	1	3	333-1/3	<u>1 000</u>	1 000
<u>33,000/66,000 Volts</u>					
Gwinn Substation	1	3	1 250	<u>3 750</u>	3 750
<u>33,000/6600 Volts</u>					
Princeton Substation	1	1	37½	<u>37½</u>	37½
<u>33,000/2300 Volts</u>					
Cliffs Shaft Substation	1	3	500	1 500	
Gwinn "	1	3	75	225	
Morris-Lloyd "	1	3	590	1 770	
Cambria-Jackson "	1	3	400	1 200	
" (Temporary Mather "B")	1	2	625	1 250	
Maas Substation	1	6	590	3 540	
Brownstone Substation	1	3	625	1 875	
Volunteer "	1	1	625	625	
" "	1	1	400	400	
Greenwood "	1	2	400	800	
Princeton "	1	1	25	25	
Tilden "	1	3	150	450	
Palmer Rural " (3 subs.)	1	4	15	60	
Negaunee-Athens "	1	3	1 000	3 000	
Mather "A" "	1	3	590	1 770	
Champion Mine "	3	1	1 250	<u>1 250</u>	19 740
<u>2300/33,000 Volts</u>					
Republic Substation	1	3	250	750	
Hoist Plant "	3	1	2 500	2 500	
" " "	1	3	667	2 000	
" " "	1	3	200	600	
Escanaba Plant "	1	3	500	1 500	
McClure Plant "	3	1	5 000	5 000	
Carp Plant "	1	3	1 900	5 700	
Diesel Plant "	3	1	5 000	5 000	
" " "	1	3	2 000	<u>6 000</u>	29 050
<u>12,000/2300 Volts</u>					
Green School	1	1	15	15	
McClure Plant (Furnace Lines)	3	2	1 250	2 500	
AuTrain Substation	1	3	185	555	
Chatham "	1	3	50	150	
Eben "	1	1	25	25	
Rumley "	1	1	25	25	
Inland #1 " (Rented from Wis. Mich.)	1	3	75	<u>225</u>	3 495

THE CLIFFS POWER & LIGHT CO.
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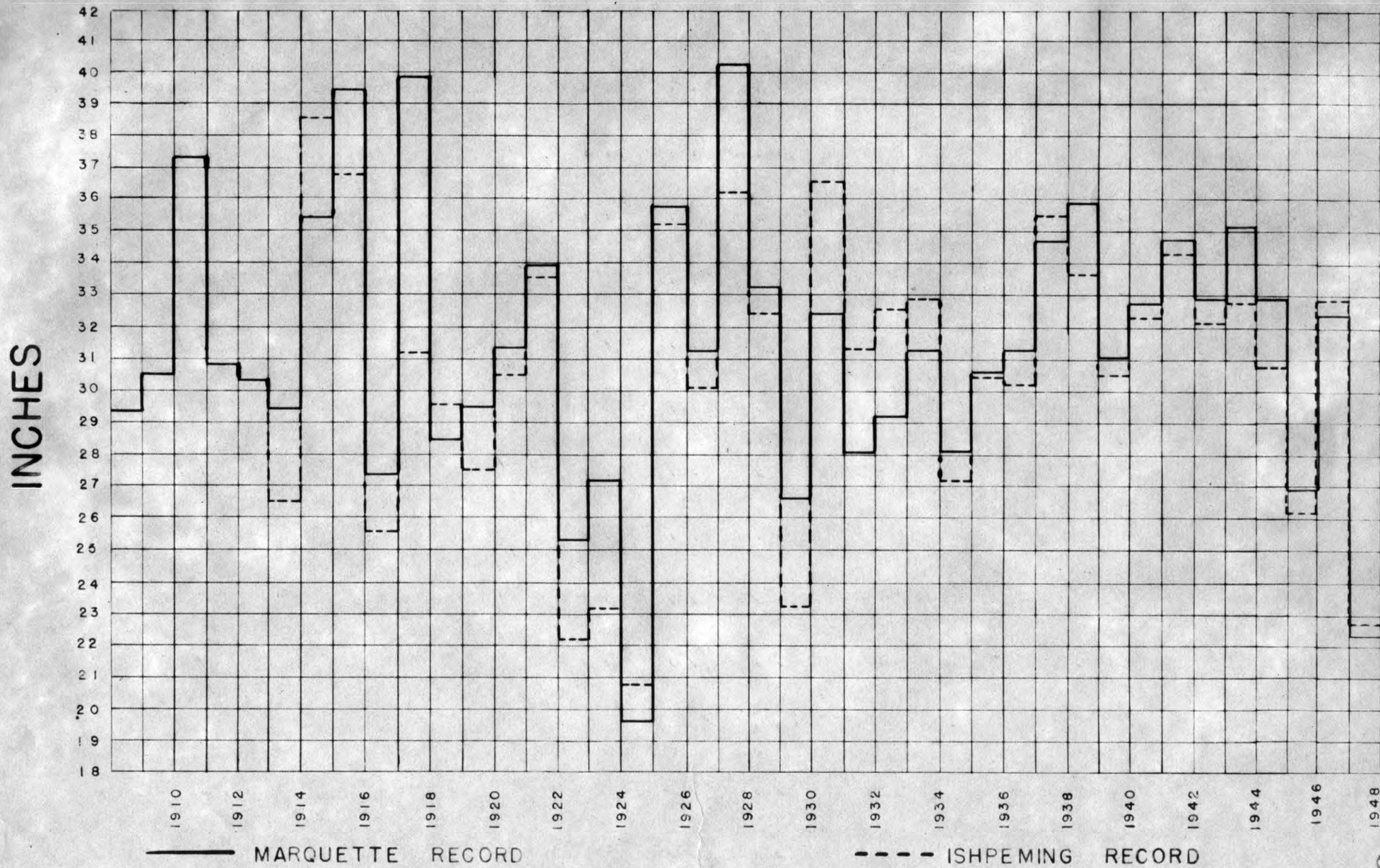
SUBSTATION TRANSFORMERS: (Continued)

	<u>Phase</u>	<u>No.</u>	<u>K.V.A.</u>	<u>Brought Fwd. Total K.V.A.</u>	63,598½
<u>12,000/440 Volts</u>					
Piqua Substation	1	3	500	<u>1,500</u>	1 500
<u>6600/2300 Volts</u>					
Rumley Substation	1	1	15	15	
Inland #1 "	1	3	25	75	
Blaney Park "	1	2	25	50	
" " "	1	1	15	15	
Sundell "	1	1	15	15	
Gwinn "	1	1	185	185	
Little Lake "	1	1	50	50	
AuTrain Lake	1	1	50	50	
Princeton	1	1	50	<u>50</u>	505
<u>6600/115-230 Volts</u>					
Furnace Substation (Lighting)	1	1	1½	<u>1½</u>	1½
<u>2300/460-230 Volts</u>					
Interstate Laboratory Sub.	1	3	100	<u>100</u>	<u>100</u>
Grand Total					65,705 KVA

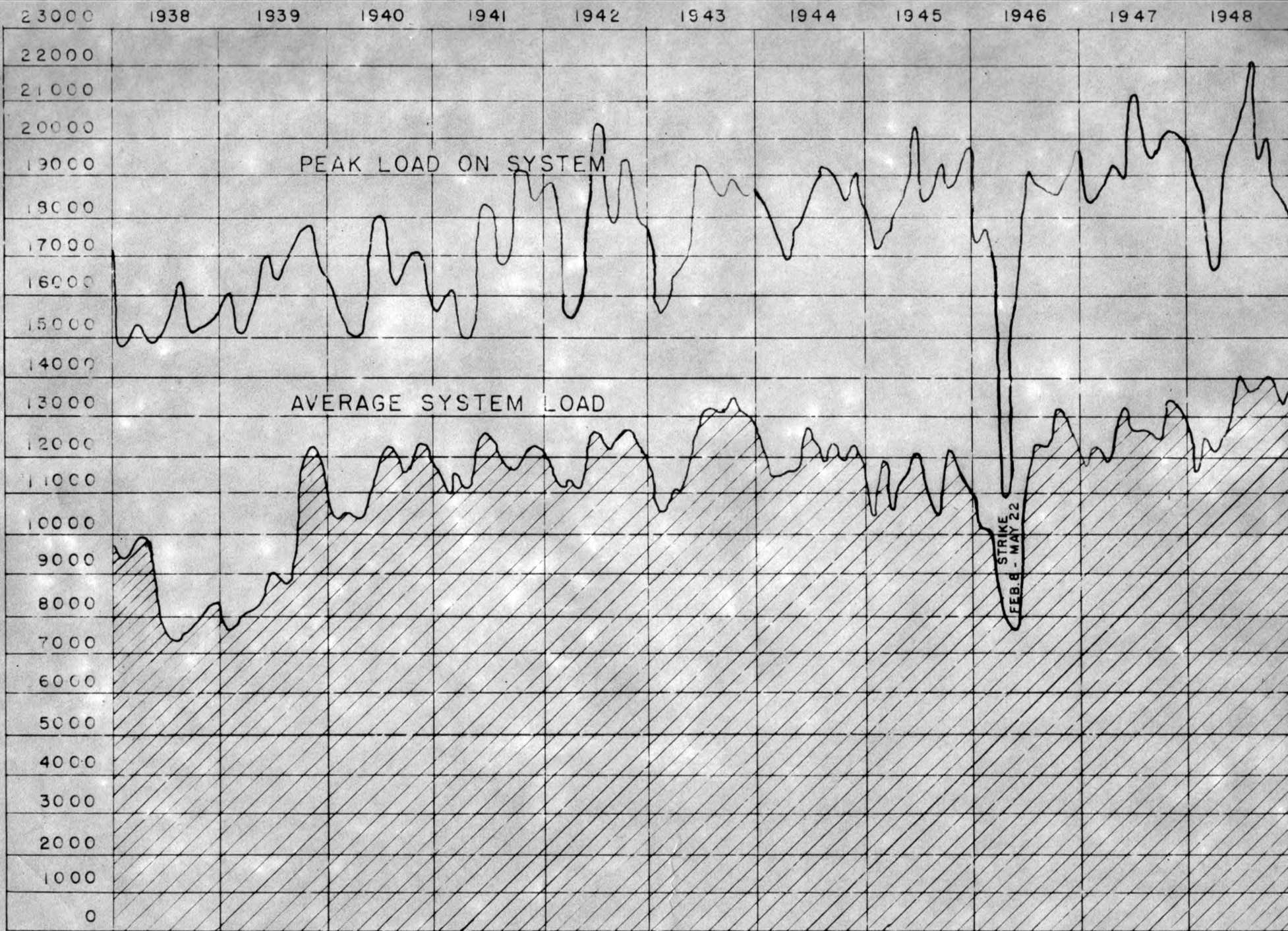
DISTRIBUTION TRANSFORMERS:

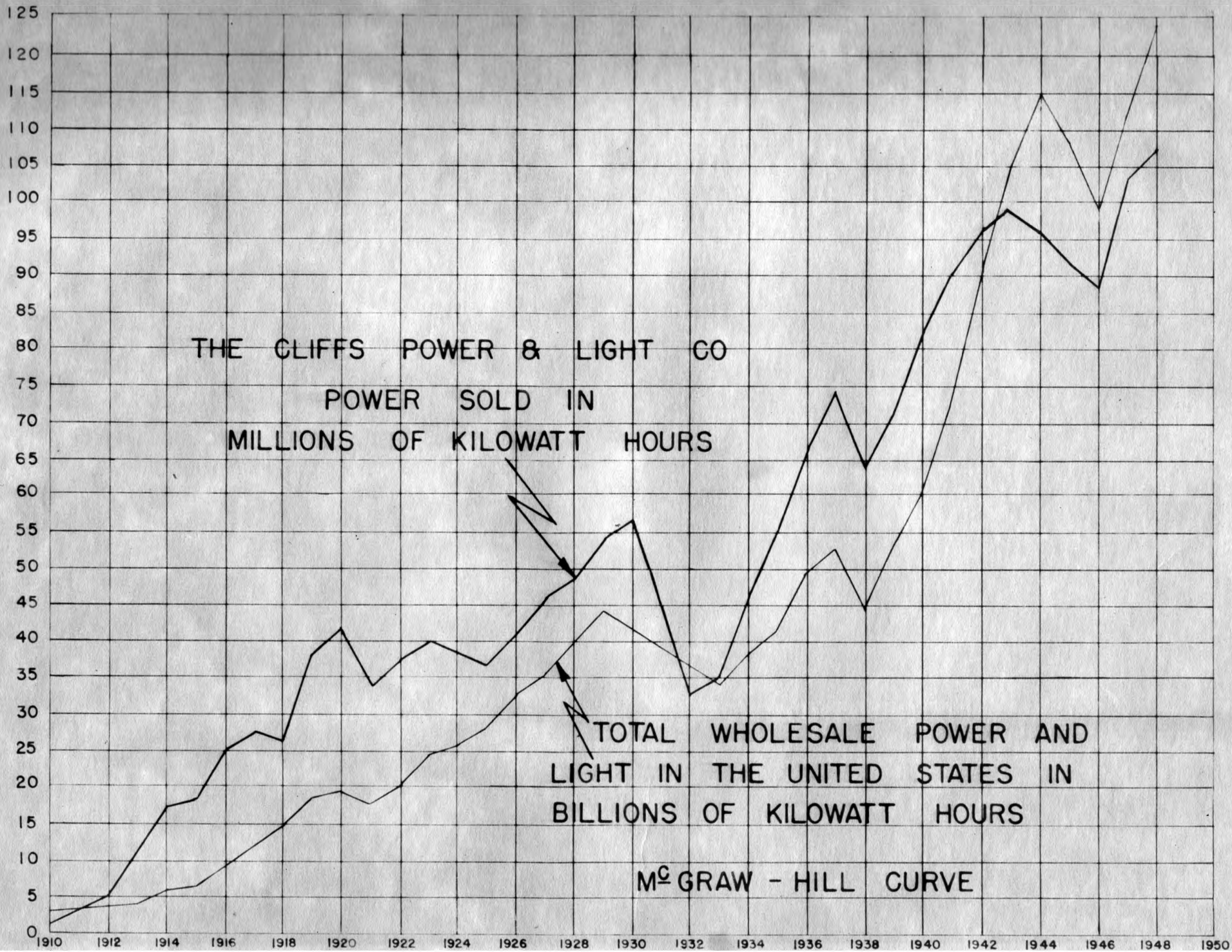
	<u>Number</u>	<u>Capacity</u>
Total at first of year	548	3,131 KVA
" purchased during year	85	798
" installed " "	39	262
" sold " "	18	123
" at close of year	615	3 806 KVA
In stock at close of year	143	956 KVA
" service at " " "	434	2 471
C.P.&L.Co. Plants & Auxiliaries	<u>38</u>	<u>379</u>
	615	3,806 KVA

PRECIPITATION BY YEARS

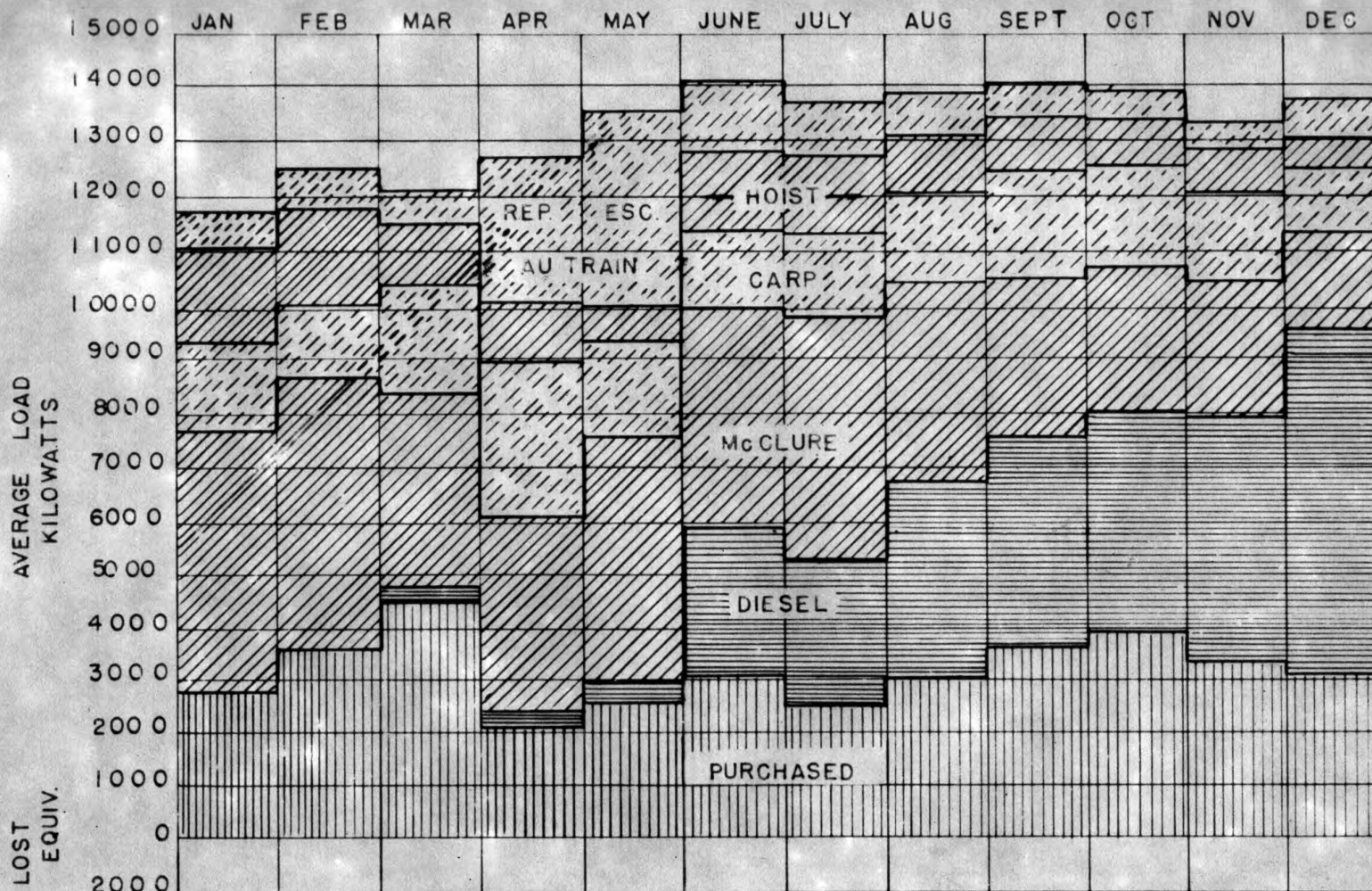


KILOWATTS





1948



Category	Percentage
Mc CLURE	27.75%
DIESEL	18.44%
CARP	12.91%
HOIST	9.00%
AU TRAIN	3.55%
ESCANABA	3.38%
REPUBLIC	.95%
PURCHASED	24.02%

WELFARE DEPT. ANNUAL REPORT YEAR 1948

The usual functions of the Welfare Department were carried on in regular fashion during the year 1948. These functions include matters which concern the welfare of employees, relief, human interests, insurance, compensation, problems of personnel, public relations, retirements, donations, special direct relief problems, police and plant protection, publication of the company's house organ, the "Orbit", matters dealing with civic and community affairs, public health problems, safety, the administration of the Ishpeming Hospital, social security, and many other matters which are referred to the department for consideration and processing. It has been necessary, because of the number of returned veterans being employed, to give some attention to post-war problems which particularly concern the returned veteran.

Each year we include a statement in the record regarding the Welfare Department and it is here again recorded that this department was formerly known as the Pension Department and for many years Mr. W. H. Moulton, who retired on July 1, 1938, headed the department with the title of Secretary. Mr. Moulton passed away in January of 1944. In July of 1938 the name of the department was changed from the Pension Department to the Welfare Department and Walter F. Gries became the head of the department with the title of Superintendent.

We wish to record at the outset that this department has had the excellent cooperation of the Safety Department under the leadership of Mr. A. J. Stromquist, Director, and Captain H. F. Rogers, Assistant Director. We believe that the cooperative association of the two departments has resulted in considerable benefit to the company and its employees.

We are very grateful to Mr. Walter E. Johnson who has been in charge of the Compensation Department for many years and whose loyal and faithful service and cooperation means a great deal to the proper functioning of this department. Mr. Lowell C. Holmgren has assumed the responsibility of carrying out most of the details in connection with our group insurance and hospitalization plan. In addition he has charge of all the payrolls of the department. We are pleased to report that Mr. Holmgren has, by previous experience and by full cooperation, made it possible for the plan to get underway and it is functioning smoothly and effectively. We wish to commend Mr. Holmgren for the fine manner in which he is handling his duties. It should also be recorded that Miss Marilyn Holmgren has accepted a secretarial position in the office of Mr. Johnson and Mr. Holmgren.

We wish to record also our appreciation of the cooperation of Mr. Robert J. Veale, our Chief of Police, who works under the supervision of the Superintendent of the Welfare Department. Mr. Veale makes contacts with the head of the department almost daily and matters governing police supervision and plant protection are discussed continually.

WELFARE DEPT. ANNUAL REPORT YEAR 1948

Miss Mary C. Ryan, who served for a great many years as receptionist and filing clerk was retired because of illness in October of 1948. We wish to express our appreciation for the long and faithful service rendered by Miss Ryan. Mrs. Emily Nicholas Kivisto, who served as secretary to the Superintendent in this department, left her position in June of 1948. Mrs. Kivisto was married and has established a home in Ishpeming. We wish to record here our appreciation also upon the fine service and helpful cooperation which we received at all times in carrying on the work of this department during the time Mrs. Kivisto served as secretary.

For the past several months we are endeavoring to carry on the work of the department, that is the work formerly done by Miss Ryan and Mrs. Kivisto, by employing one person who acts as secretary to the Superintendent and receptionist. This position is now held by Miss Shirley Holmgren who formerly worked in the compensation office in the same department. Miss Holmgren is familiar with the office procedure and it appears that we shall be able to carry on without additional services, except in times of emergencies or during the summer months when vacations are taken. We wish also to express our deep appreciation for the service which Miss Holmgren is giving the department and the fine manner in which she is carrying on the work, particularly since she is doing all of the work formerly done by Miss Ryan and Mrs. Kivisto.

The personnel of the Welfare Department is made up of the following people:

- Walter F. Gries, Superintendent
- Miss Shirley Holmgren, Secretary to the Superintendent and Receptionist
- Walter E. Johnson, Compensation Agent
- Lowell C. Holmgren, Assistant to Mr. Johnson and in charge of Group Insurance Plan
- Miss Marilyn Holmgren, Clerk and Stenographer, Compensation and Insurance Division
- Robert J. Veale, Chief of Police

11.

a. WORKMEN'S COMPENSATION

The direct work of the Compensation Department has been taken care of by Mr. Walter E. Johnson as has been the plan since 1926.

Following are the cases of those men who required some special attention during the year.

ARNE W. KASKI - MATHER "A" MINE

This case was reviewed in the 1947 report. During that year the case had been heard and the Deputy Commissioner had ruled in our favor. During 1948, Mrs. Kaski appealed to the full board and they upheld the decision of the Deputy Commissioner and again ruled in our favor. As no appeal was taken to the Supreme Court by Mrs. Kaski, the case is now closed.

EMIL HALME - PRINCETON MINE - ACC. REPT. NO. 213

Mr. Halme was injured on December 29, 1943 when he was caught by a fall of ground while working as a miner. He sustained a depressed skull fracture, a fracture of the scapula, a fracture of the 3rd and 4th ribs, a fracture of the right leg and numerous bruises and contusions. He remained in the Ishpeming Hospital for some time until he was able to be moved to the Mayo Clinic to receive treatment for the skull fracture. About a year after the occurrence of the accident, Mr. Halme consulted Dr. Erickson, who had attended him at the time of the injury, and this time his complaint was a stomach condition. The family demanded, rather than requested, that he be sent again to the Mayo Clinic, but it was our position that the possible malignant stomach condition suspected by Dr. Erickson was not the result of his injury. He subsequently went to the Mayo Clinic at his own expense and it was there that his case was diagnosed as carcinoma of the stomach and a portion of the stomach was removed. Halme died on April 18, 1947 and in May of 1948 Mrs. Halme and on behalf of herself and two minor children filed a claim for compensation alleging that the injuries which Emil Halme sustained on December 29, 1943 caused his death. She engaged an attorney to file her claim and the case was set for hearing on July 26, 1948 and again on December 20, 1948, but on both occasions the hearings were canceled by her attorney. However, they have not dropped the case and it will undoubtedly be scheduled for hearing sometime in 1949. It is our position that the injuries did not cause the carcinoma of the stomach which caused his death and we will also raise the point that her claim was not seasonably made.

DOMINIC BARBIERE - PRINCETON MINE

Barbiere was injured on October 9, 1943 when he was struck on the back and right leg by some ore which fell from the side of the drift. He sustained a comminuted fracture of the tibia and fibula of the right leg and a compressed fracture of the first lumbar vertebra. He was treated at the Ishpeming Hospital for some time and later went to the Mayo Clinic for additional treatment. We realized that Barbiere would never again do heavy work and it was suggested that he take some type of vocational training so as to fit him for some occupation that he could perform and he finally decided to take up the profession of barbering. He has completed the course and his apprenticeship and is now operating his own shop in Gwinn. He still has

WELFARE DEPT. ANNUAL REPORT YEAR 1948

11.
a. WORKMEN'S COMPENSATION (Continued)

DOMINIC BARBIERE - PRINCETON MINE - (Continued)

difficulty with his back and at times is unable to work so that there is still some partial disability and the case will undoubtedly be settled on the basis of a partial lump sum payment.

ERNEST AYOTTE - CLIFFS-SHAFT MINE - ACC. REPT. NO. 1198

Ayotte was injured on March 22, 1947 by a chunk of ore which fell from the back, struck the top of the dirt pile and glanced off hitting him on the right shoulder. His principal injuries consisted of a fracture of the right clavicle and right scapula. At the time of the injury, he was 66 years of age. He has not worked since the date of the injury, his claim being that he is unable to raise his right arm above the shoulder and there is considerable limitation of motion. At the present time a settlement on a partial basis is under consideration.

ABRAHAM AUVINEN - CAMBRIA-JACKSON MINE - ACC. REPT. NO. 26

Auvinen was injured on April 27, 1945 when he was struck on the back by a piece of ore which fell from the side of the drift and glanced from the timber. He was hospitalized for a few weeks and then returned to his home. He had the usual symptoms following a back injury except that there were no signs of a fracture of any of the vertebra or vertebral processes. He was unable to rest in bed and found more comfort while lying on the floor. Subsequently, he developed blackouts which would last for several minutes at times and others would be just momentarily. Early in 1947, he developed a stomach condition and finally went to the Mayo Clinic at his own expense where an operation on the colon was performed. Mr. Auvinen is now nearly 70 years of age and of course will never again be employed by us. The stomach condition was not the result of the accident and he was so told at the Mayo Clinic. The general infirmities developed by a man of that age plus the injury to his back leaves us in a position of either paying the full compensation during the statutory period or agreeing on some settlement which would be mutually satisfactory. We have adopted the latter course and this case will undoubtedly be closed by the payment of some settlement early in 1949.

PASQUALE MENI - LLOYD MINE

Mr. Meni was disabled on March 11, 1948 by bronchopneumonia and was hospitalized for a period of eleven days from March 18 to March 29, 1948. He later developed a cardiac condition which again necessitated hospitalization from May 2 to June 15th. During the period of this disability he was paid benefits under the group insurance plan. On May 21, 1948, we were advised by Michael F. DeFant, an attorney, that he had been retained by Mr. Meni and that his claim was that the disabling condition was due to silicosis. Mr. DeFant was advised that we would resist any silicotic claim as the record indicated that Meni's condition was due to cardiac decompensation. In October of 1948, a settlement was reached whereby we agreed to pay Mr. Meni \$50.00 per month through March of 1949. He becomes 65 years of age on April 7, 1949 at which time he will be eligible for social security and in addition the \$20.00 per month retirement allowance which is given by the Company. In addition, he was allowed \$200.00 medical expense and \$150.00 for attorney's fees.

WELFARE DEPT. ANNUAL REPORT YEAR 1948

11.
a. WORKMEN'S COMPENSATION (Continued)

LUMP SUM SETTLEMENTS

Settlements on a partial disability basis were made in the following cases during 1948.

Eugene Jetty	Cambria Jackson Mine	Back injury	\$2,500.00
Alexander Arzuffi	Princeton Mine	Back injury	3,200.00
Battista Armatti	Princeton Mine	Back injury	2,500.00
James Ondrasek	Holman Cliffs Mine	Partial loss of use of leg	840.00

WELFARE DEPT. ANNUAL REPORT YEAR 1948

11. a. WORKMEN'S COMPENSATION (Continued)

FATALITIES

The following fatalities occurred in 1948:

LEONARD HELLIER
Age 30

Cambria Jackson Mine
Occurred December 10, 1948
Struck on left leg by falling
ore. Died of shock on December 22
while leg was being amputated
Dependent widow and three children
Compensation - 400 weeks at \$25.00
Funeral expense

\$10,000.00
300.00
\$10,300.00

WILLIS LAFOREST
Age 23

Mather "A" Mine
Occurred January 14, 1948
Derailed motor fell into loading
trench carrying him with it
Dependent widow and one child
Compensation - 400 weeks at \$21.00
Funeral expense

\$8,400.00
300.00
\$8,700.00

RUDOLPH SAARI
Age 29

Mather "B" Mine
Occurred February 6, 1948
Struck on head by hammer which fell
from collar of shaft
Dependent widow and two children
Compensation - 400 weeks at \$23.00
Funeral expense

\$9,200.00
300.00
\$9,500.00

WELFARE DEPT. ANNUAL REPORT YEAR 1948

11.

a. WORKMEN'S COMPENSATION (Continued)

Following is a list of the more serious cases other than fatalities which occurred in 1948:

<u>Mine and Report No.</u>	<u>Name</u>	<u>Nature of Injury</u>	<u>Compensation Paid to 12-31-48</u>
Athens 524	Andrew Nord	Fracture both bones left forearm.	\$168.00*
Cliffs Shaft 1219	Leonard Pizzioli	Fracture both bones right forearm.	878.50
Cliffs Shaft 1224	Raymond Bennetts	Fracture and amputation of left little toe.	374.50
Cliffs Shaft 1225	Nestor Aho	Fracture of 8th dorsal vertebra.	595.00
General Storehouse 68	Gordon Cornish	Fracture of both heel bones.	756.00*
Meas 689	Hugo Ammesmaki	Fracture both sides of lower jaw.	301.00
Lloyd 883	Elias Pennala	Amputation left leg just above knee.	462.00*
Negaunee 814	Donald A. Kangas	Comminuted fracture both bones left lower leg.	658.00
Mather "A" 62	Ellsworth LaBeau	Amputation little finger and 1st phalange of ring finger left hand.	525.00
Mather "A" 72	Vito Roti	Comminuted fracture right scapula.	231.00
Mather "A" 88	John McVannel	Amputation first phalanx, middle finger right hand.	315.00
Mather "A" 92	Thomas Collins	Fractured both bones left lower leg.	21.00*
Spies 170	John Wojner	Fractures of jaw, cheek bone and right arm.	210.00*
Tilden 16	Russell Drake	Fracture right wrist. Brain concussion.	168.00*
Cambria Jackson 65	Walter Prusi	Fracture left clavicle.	472.50

WELFARE DEPT. ANNUAL REPORT YEAR 1948

11. a. WORKMEN'S COMPENSATION (Continued)

<u>Mine and Report No.</u>	<u>Name</u>	<u>Nature of Injury</u>	<u>Compensation Paid to 12-31-48</u>
Cambria Jackson 71	Russell Anderson	Dislocation left shoulder.	\$248.50
Agnew 4	Paval Lulich	Fracture right heel bone.	758.79*
Agnew 9	Fred McBride	Amputation left leg above knee.	270.00*
Hawkins 4	John E. Satovich	Amputation first phalange of right index finger.	481.95
Hawkins 5	Steve Latkovich	Fractured three toes, left foot.	603.00
Sargent 5	Jack Koski	Crushing injury to right thigh.	350.40*
Sargent 6	Andrew Hutari	Dislocation right shoulder.	275.20*
Hill Trumbull 124	Frank Hill	Severe burns arms, hands and face.	378.00*
Holman Cliffs 58	Tom Knudson	Amputation first phalange, third finger right hand.	302.40
Canisteco 41	John Riley	Crushing injury to chest.	409.50

*Payments still being made.

ANNUAL REPORT - 1948
STATEMENT OF COMPENSATION PAYMENTS FROM
JANUARY 1, 1948 TO DECEMBER 31, 1948

	Average No. of Employees	No. of Fatal Accs.	No. of			Actual Comp. Paid in 1948	1941	1942	1943	1944	1945	1946	1947	1948	Estimated Compensation Still Pending	Medical & Special Expense	Fatal Cases Pending	Accidents Cases Pending	O. D. Cases Pending
			Non-fatal Accidents																
Cambria Jackson	208	1	15	15	36			1,092.00		714.00			4,089.50	1,956.50	19,780.00	2,683.95	2	2	
Cliffs Shaft	453		15	18	69			936.00	136.00	1,092.00	630.00		4,530.00	2,387.00	19,810.00	4,424.52	2	7	
General Storehouse & Shops	150			3	19											1,390.50			
Ishpeming Hospital				1	5									21.47					
Ishpeming Office	162																		
Lloyd	114		5	7	34		936.00	1,404.00	2,288.00					1,284.50	18,367.00	1,455.00	2	4	1
Maas	377		15	26	109	936.00			1,092.00	2,951.29	121.92	2,739.50		1,141.00	24,589.00	4,345.91	3	2	1
Princeton							3,225.92	840.00	2,500.00	1,999.86					5,102.66	212.61	3	3	1
Spies	120		2	2	35			988.00						210.00	2,830.00	823.00	1	1	
Tilden	17		1	1	2									168.00	84.00	154.50	1	1	
Miscellaneous	17				3											157.50			
Unc. Const. E&A CCL43 Sec. 4 Hole 39	27			1										756.00	336.00	512.97		1	
Cleveland Roll																243.00			
Cliffs Power & Light Company	76				4											687.00			
Negaunee	215		7	14	44	112.32	252.00	2,808.00	776.50	1,092.00	2,184.00	269.50		3,083.50	25,295.20	2,112.50	1	7	5
Mather "A"	567	1	36	52	229				1,092.00					4,411.32	20,636.13	5,144.00	3	6	1
Mather "B"	90	1	2	6	15									1,578.50	8,310.00	844.25	1	1	
Athens	343		13	32	87		444.30				3,376.30	381.50		889.00	13,029.44	3,457.05		2	3
Total - Michigan Mines	2,936	3	112	177	691	1,048.32	4,858.22	8,068.00	7,884.50	7,849.15	6,312.22	14,412.43	17,886.79	158,169.43	30,468.26	15	36	13	
Hibbing Office	53				3										320.50				
Hibbing - Miscellaneous	30														178.50				
Agnew	92		10	15	114							270.00		1,694.57	5,910.21	2,415.73		2	
Canisteo	182		5	7	94						72.00	1,133.60		738.00	1,837.30	1,019.00		1	
Hawkins	130		4	4	39									1,192.95	162.00	1,019.00		1	
Hill Trumbull	163		5	11	60						208.00	166.50		657.00	1,350.00	1,596.05		1	
Holman Cliffs	255		6	11	102				881.92		2,472.00	201.96		861.30	5,455.09	1,718.50	1	1	
Sargent	112		7	19	123									895.60	1,472.40	889.95		2	
Atkins	51				11							112.00			452.00	712.57		1	
Total - Minnesota Mines	1,068		37	67	546				881.92		2,752.00	1,884.06	6,039.42	14,801.70	10,688.10	1	8		
Total - All Mines	4,004	3	149	244	1,237	1,048.32	4,858.22	8,068.00	8,766.42	7,849.15	9,064.22	16,296.49	23,926.21	172,971.13	41,156.36	16	44	13	

WELFARE DEPT. ANNUAL REPORT YEAR 1948

11.
a. WORKMEN'S COMPENSATION (Continued)

ANNUAL STATEMENT OF COMPENSATION PAYMENTS
FROM JANUARY 1st, 1948 to DECEMBER 31st, 1948

Compensation paid on 1948 cases	23,926.21	
Estimated compensation still pending	172,971.13	
Cost of medical and hospital service, also special expense	<u>41,156.36</u>	238,053.70
Less pending for years 1941 to 1947 inclusive	101,315.52	
Less medical and special expense on accidents occurring prior to January 1, 1948	<u>2,090.41</u>	103,405.93
		<u>134,647.77</u>
Less compensation paid on 1948 occupational disease cases	2,541.00	
Estimated compensation still pending on 1948 occupational disease cases	<u>27,879.00</u>	
		<u>30,420.00</u>
Estimated cost of 1948 accidents		<u>104,227.77</u>
Percentage of payrolls		.00739
Percentage of payrolls including Occup. Dis. cases		.00955
Number of fatal accidents		3
Number of compensable accidents		149
Number of lost-time accidents - non-compensable		244
Number of slight accidents		1,237

The following occupational disease cases occurred during 1948. The cost of these cases is included in the regular compensation costs, but for statistical purposes they are not included in the accident table.

Number of deaths	0
Number of disability cases	7

During 1948 a total of \$10,016.00 was paid on occupational disease cases, and it is estimated that it will cost \$44,481.00 to complete payments on the thirteen cases still active on December 31, 1948. Of these, two originated in 1945, four in 1946, and seven in 1948.

WELFARE DEPT. ANNUAL REPORT YEAR 1948

11. a. WORKMEN'S COMPENSATION (Continued)

Compensation Payments including Medical and Special Expense

<u>Year</u>	<u>C.C.I. Co.</u>	<u>Negaunee Mine Co.</u>	<u>Athens Ir. Mng. Co.</u>	<u>Cliffs Pr. & Light Co.</u>	<u>Mesaba-Cl. Mng. Co.</u>	<u>CCI Co, Opt. Agt, Atkins</u>	<u>Miscellaneous Companies</u>	<u>TOTAL</u>
1912								
to	1,267,881.08	176,241.25	114,086.35	13,638.92	79,040.23		10,282.71	1,661,170.54
1938								
1939	39,532.53	7,183.99	6,838.49	855.50	4,110.34			58,520.85
1940	38,659.10	9,720.57	6,754.69	642.50	5,281.16			61,058.02
1941	37,451.05	12,085.67	12,376.95	1,238.50	5,501.05			68,553.22
1942	38,471.33	19,984.64	10,755.90	1,575.25	6,820.97			77,708.09
1943	53,607.70	17,270.60	8,993.40	1,715.25	9,337.43			90,924.38
1944	66,219.66	21,147.85	11,489.34	1,594.75	6,325.95			106,777.55
1945	85,558.58	32,400.22	7,152.70	1,468.50	5,630.00			132,210.00
1946	84,009.42	25,391.20	5,373.63	1,528.50	7,693.03	174.50		124,170.28
1947	76,355.69	28,582.02	14,540.71	1,153.75	9,186.43	1,353.77		131,172.37
1948	<u>73,727.12</u>	<u>28,162.82</u>	<u>8,548.15</u>	<u>687.00</u>	<u>9,083.73</u>	<u>824.57</u>		<u>121,033.39</u>
	1,861,473.26	378,170.83	206,910.31	26,098.42	148,010.32	2,352.84	10,282.71	2,633,298.69

Detail of Miscellaneous Companies:

Holman-Cliffs Mining Company	2,131.39
Canistee-Cliffs Mining Company	2,768.69
Alexandria Mine	<u>5,382.63</u>
	<u>10,282.71</u>

WELFARE DEPT. ANNUAL REPORT YEAR 1948

11.

c. GROUP INSURANCE

The following statement shows the amount of claims paid under the group insurance and hospitalization plan during the first year of its operation. These figures cover the thirteen month period ending on September 30, 1948, the contract providing that the period from September 1, 1947 through September 30, 1948 be considered the first policy year and that each policy year thereafter shall commence on the first day of October.

	<u>Hospitalization</u>	<u>Death Claims</u>	<u>Health & Accident</u>	<u>Total</u>
Cambria Jackson	6,859.69	2,835.25	2,500.00	12,194.94
Cliffs Shaft	10,757.13	5,749.66	11,875.00	28,381.79
Cleveland Roll	457.85			457.85
General Roll	3,949.06	1,065.56		5,014.62
General Storehouse & Shops	3,068.62	1,168.55	5,000.00	9,237.17
Ishpeming Hospital	1,619.04	1,443.99		3,063.03
Lloyd	4,661.91	3,316.08	5,000.00	12,977.99
Maas	11,626.96	5,294.46	9,375.00	26,296.42
Miscellaneous	543.98	363.43		907.41
Spies	1,445.47	739.42	3,750.00	5,934.89
Tilden	43.00	57.14		100.14
Princeton			2,500.00	2,500.00
Inactive			8,250.00	8,250.00
Total - C. C. I. CO.	45,032.71	22,033.54	48,250.00	115,316.25
Negaunee	7,459.60	4,816.67		12,276.27
Mather "A"	12,434.38	6,092.03	2,500.00	21,026.41
Mather "B"	1,953.05	679.98	12,500.00	15,133.03
Total - Negaunee Mine Co.	21,847.03	11,588.68	15,000.00	48,435.71
Athens Iron Mining Co.	9,489.10	4,484.98	7,500.00	21,474.08
Cliffs Power & Light Co.	320.28	288.57		608.85
TOTAL - Michigan District	76,689.12	38,395.77	70,750.00	185,834.89

A total of 811 hospitalization claims were paid, 445 persons drew disability benefits and 38 death claims were paid.

WELFARE DEPT. ANNUAL REPORT YEAR 1948

11.

c. GROUP INSURANCE (Continued)

The following death claims were paid during the policy year ending August 31, 1948.

<u>Name</u>	<u>Mine</u>	<u>Date of Death</u>	<u>Amount of Insurance</u>
Edward Cote	Athens Mine	4-23-48	2500.00
Thomas A. Wills	Athens Mine	5-28-48	2500.00
Jacob Raihi	Athens Mine	7-7-48	2500.00
Fred Larson	Cliffs Shaft Mine	1-10-48	2500.00
Dominic Nardi	Cliffs Shaft Mine	1-23-48	2500.00
Alfred Hendrickson	Cliffs Shaft Mine	6-28-48	2500.00
Frank Suomi	Cliffs Shaft Mine	8-21-48	2500.00
Fred Rice	Cambria Jackson Mine	6-7-48	2500.00
Agner G. Blomquist	Princeton Mine	9-8-47	2500.00
Paul E. Amell	General Storehouse	6-6-48	2500.00
Edwin C. Dawe	General Storehouse	7-31-48	2500.00
Gust A. Erickson	Lloyd Mine	7-30-48	2500.00
Richard Larson	Lloyd Mine	8-22-48	2500.00
Oliver R. Hill	Maas Mine	10-16-47	2500.00
Sam Jacobson	Maas Mine	10-31-47	2500.00
Charles Brander	Maas Mine	3-6-48	2500.00
Jafet Servia	Maas Mine	5-10-48	1875.00
John A. Hanson	Spies Mine	11-19-47	1250.00
Arvid Upperstrom	Spies Mine	8-16-48	2500.00
Willis J. LaForest	Mather "A" Mine	1-14-48	2500.00
Reino Wertanen	Mather "B" Mine	10-26-47	5000.00
Rudolph Seari	Mather "B" Mine	2-6-48	5000.00
William F. Fountain	Mather "B" Mine	7-3-48	2500.00
Matt E. Mattson	Inactive	10-4-47	500.00
John H. VanBrocklin	Inactive	10-8-47	500.00
Charles Stephens	Inactive	11-11-47	500.00
Alonzo H. Tillson	Inactive	2-24-48	750.00
Joseph H. Montcalm	Inactive	2-29-48	500.00
Emanuel Stephens	Inactive	2-9-48	750.00
Konstu Saastamoinen	Inactive	3-27-48	750.00
Dominic Tasson	Inactive	2-26-48	500.00
Nicholas Kratz	Inactive	3-7-48	500.00
Joseph Yopic	Inactive	4-28-48	500.00
John Freethy	Inactive	6-12-48	750.00
Sydney Haines	Inactive	6-20-48	750.00
Chris Stone	Inactive	8-27-48	500.00
Jacob H. Hakka	Inactive	9-29-48	750.00

WELFARE DEPT. ANNUAL REPORT YEAR 1948

11.

c. GROUP INSURANCE (Continued)

The employees, who so elected, of the Michigan properties of the Cleveland-Cliffs Iron Company and associated companies were covered during the year by group life, disability, and hospitalization and surgical expense policies written by the Aetna Life Insurance Company of Hartford, Connecticut under policies 14,440, GS-14,440, and H-14,440. These policies became effective September 1, 1947. For the purpose of record it is mentioned that a resume of these policies is included in the annual report for 1947.

The monthly computation of total premium costs is included in the self-administering phase of this plan. On September 1, 1947 the following scale was used for this computation:

Life	- 1.15 per month per \$1,000.00
Disability	- .060 per month per \$1.00
Hospitalization Insurance:	
Employee Daily Benefits	- .156 per month per \$1.00
Employee Surgical Fee Benefits	- .40 per month per employee
Dependents' Daily Benefits	- .35 per month per \$1.00
Dependents' Surgical Fee Benefits	- 1.55 per month per employee

Under the October 1st renewal action for these policies the following scale was received for computation of premiums costs for the year beginning October 1, 1947:

Life	- .95 per month per \$1,000.00
Disability	- .057 per month per \$1.00
Hospitalization Insurance:	
Employee Daily Benefits	- .156 per month per \$1.00
Employee Surgical Fee Benefits	- .40 per month per employee
Dependents' Daily Benefits	- .35 per month per \$1.00
Dependents' Surgical Fee Benefits	- 1.55 per month per employee

For the year beginning October 1, 1948 the following scale will govern computations of premium costs:

Life	- .97 per month per \$1,000.00
Disability	- .057 per month per \$1.00
Hospitalization Insurance:	
Employee Daily Benefits	- .156 per month per \$1.00
Employee Surgical Fee Benefits	- .40 per month per employee
Dependents' Daily Benefits	- .35 per month per \$1.00
Dependents' Surgical Fee Benefits	- 1.55 per month per employee

These premium schedules are furnished by the Aetna Company and are based partially on an Insuring Year of Birth report submitted to them annually just prior to the October 1st renewal date. This report shows the total number of employees and their total life coverage by insuring year of birth.

WELFARE DEPT. ANNUAL REPORT YEAR 1948

23.

a. PENSION SYSTEM

The pension system which went into effect on January 1, 1909 completed the fortieth year of its operation in 1948.

No changes in the rates of pensions were made during the year 1948. On January 1, 1933 the pension payments were reduced fifty per cent, those under \$20.00 remaining the same and those over \$20.00 having a minimum rate of \$20.00. There have been no additions to the pension rolls since January 1, 1932.

There were two deaths on the Mining Department pension roll during the year.

<u>No.</u>	<u>Name</u>	<u>Pension Began</u>	<u>Date of Death</u>
150	Joseph Kurtti	9/1/1921	8/11/1948
161	Charles Malmgren	5/1/1923	3/30/1948

Number of deaths during year 1948	2
Number of pensions in force January 1, 1948	17
Number of pensions in force December 31, 1948	15

Average annual pension for 1948	\$225.92
Average annual pension for 1947	\$218.77

Mr. John A. Johnson continued as the only pensioner on the Holmes Mine pension payroll during the year, and he receives \$240.00 annually. The Holmes Mine Department is included in the above tabulation.

WELFARE DEPT. ANNUAL REPORT YEAR 1948

23.

a. PENSION SYSTEM (Continued)

The table below shows pension payments for the Mining Department and Holmes Mine Department combined for the years 1908 through 1948.

<u>Year</u>	<u>Old Age</u>	<u>Widows and Orphans</u>	<u>Total</u>
1908			
thru	710,992.56	22,547.00	733,539.56
1938			
1939	16,544.14	0.00	16,544.14
1940	14,237.87	0.00	14,237.87
1941	14,276.76	0.00	14,276.76
1942	11,632.15	0.00	11,632.15
1943	10,246.66	0.00	10,246.66
1944	8,485.25	0.00	8,485.25
1945	7,446.32	0.00	7,446.32
1946	5,648.60	0.00	5,648.60
1947	4,156.68	0.00	4,156.68
1948	<u>3,840.68</u>	<u>0.00</u>	<u>3,840.68</u>
	805,707.67	22,547.00	828,254.67

Includes payment of \$2,500.00 made by the Cleveland office in 1930.

WELFARE DEPT. ANNUAL REPORT YEAR 1948

23.

a. PENSION SYSTEM (Continued)Republic Mine Department

There were two pensioners on the roll for this Department at the beginning of the year - Frank Vierela and Gust Windahl. Windahl died on December 25, 1948 and was dropped from the roll as the year closed. The average annual pension was \$257.52.

The table below shows the pension payments made over this roll for the years 1920 through 1948.

<u>Year</u>	<u>Amount</u>
1920	
thru	136,280.16
1938	
1939	1,868.88
1940	1,868.88
1941	1,741.92
1942	1,488.00
1943	1,285.00
1944	995.04
1945	995.04
1946	856.04
1947	715.04
1948	<u>515.04</u>
	148,609.05

WELFARE DEPT. ANNUAL REPORT YEAR 1948

23.

a. PENSION SYSTEM (Continued)Furnace Department

Mr. John Ollila, the only pensioner on this roll, died March 19, 1948. With his death this payroll becomes inactive, and no further payments will be made over it. Mr. Ollila received a total of \$55.95 prior to his death.

The table below shows the pension payments made over this roll for the year 1910 through 1948.

<u>Year</u>	<u>Old Age</u>	<u>Widows and Orphans</u>	<u>Total</u>
1910			
thru	59,229.72	900.00	60,129.72
1938			
1939	1,374.96		1,374.96
1940	1,158.78		1,158.78
1941	926.72		926.72
1942	846.72		846.72
1943	687.17		687.17
1944	303.80		303.80
1945	223.80		223.80
1946	223.80		223.80
1947	223.80		223.80
1948	<u>55.95</u>	<u> </u>	<u>55.95</u>
	65,255.22	900.00	66,155.22

WELFARE DEPT. ANNUAL REPORT YEAR 1948

- 23.
- a. PENSION SYSTEM (Continued)

Land Department

Erick Johnson continued as the only pensioner on the Land Department pension payroll during the year. He is paid \$240.00 annually.

The table below shows the pension payments made over this roll for the years 1927 through 1948.

<u>Year</u>	<u>Amount</u>
1927	
thru	3,356.88
1938	
1939	240.00
1940	240.00
1941	240.00
1942	240.00
1943	240.00
1944	240.00
1945	240.00
1946	240.00
1947	240.00
1948	<u>240.00</u>
	5,756.88

WELFARE DEPT. ANNUAL REPORT YEAR 1948

23.

b. REPUBLIC MINE FUNDS

Every year it is recorded in the annual report of this department that the 1930 annual report carries a full statement of Sick Benefit Relief and Fatal Accident Funds of the closed Republic Mine. The unused balances which remained in these funds have now been all expended. In our report for 1942 we carry an outline of the use which was made of these funds.

Dr. Paul Van Riper, who has his home and office at Champion, continues to take care of our employees in the Champion-Republic district. He uses the building at Republic, formerly used as a hospital and now established as a health center for the district, as his office when he holds office hours at Republic. Dr. Van Riper is paid on the basis of the number of employees who live in his district.

The Republic Hospital Building, which is used as the health center, is now under the control of Republic Township. The township and the school district provide certain funds for the maintenance of the building so that they may have some type of health service in the community.

A registered nurse, a married person, lives in the hospital building in the portion which has been turned over for living quarters. This nurse is on call in case of emergencies.

c. SUSPENSE FUNDS

The annual report for the year 1918 carries a complete statement of the payments made from the Suspense Funds from February 1, 1912, at which time the Michigan Compensation Law went into effect. Reference to these funds is made in the annual report each year so that it may always be convenient to determine where to look for the final report on the Suspense Funds.

WELFARE DEPT. ANNUAL REPORT YEAR 1948

23.

d. VISITING NURSES

Our visiting nurses continued their usual services throughout the year 1948. These services, particularly since we have had fewer doctors, have been especially necessary to the employees and their families. Each nurse presents a monthly report showing activities during the month. The type of service which our industrial nurses render is a very fine example of social medical service extended to employees and helps develop good public relations. We are fortunate in having industrial nurses who have been with us a long time. They are experienced and tactful people. Their work during the past year was especially heavy, as indicated by their reports. We wish to express our appreciation for the fine work which has been conducted throughout the years by our industrial nursing staff.

The out-patient work carried on by our industrial nurses is a very important part of our medical plan. The industrial nurses are not charged to the medical plan but are charged against the operation of the Welfare Department. It is felt that this part of our services to our employees is highly appreciated.

The work of the visiting nurses was started in Ishpeming on May 1, 1908 and in Negaunee on September 8, 1912. These services were also available in Gwinn from September 1, 1910 until October 1, 1927 when the Gwinn mines were closed.

During 1948 the following nurses were employed:

- Ishpeming - Miss Myrtle V. Welander
- Negaunee - Miss Ina E. Atkin
- Iron River- Miss Laura N. Fisk (part time)

WELFARE DEPT. ANNUAL REPORT YEAR 1948

23. d. VISITING NURSES (Continued)

Following is the report of the Ishpeming visiting nurse for the year 1948:

Total number of patients cared for during year	776
Total number of new cases cared for during year	536
Total number of visits to patients	4167
Number of families visited for the first time	68
Number of social calls	41
Number died	2

Classification of new cases for the year:

Number of adults	202	Male	27	Female	175
Number of children	344	Male	158	Female	186

Nationalities of new cases for the year:

American	399	Italian	28
English	21	Norwegian	5
Finnish	54	Swedish	13
French	16		

Diseases and number of new cases:

Appendicitis	2	Injury	15
Arthritis	1	Kidney Trouble	3
Asthma	4	Leukemia	3
Baby Welfare	3	Measles	12
Bowel Trouble	11	Mumps	50
Brain Tumor	1	Obstetrical	22
Bronchitis	2	Paralysis	3
Burns	4	Phlebitis	2
Carcinoma	5	Pleurisy	2
Cervical Adenitis	5	Pneumonia	4
Chicken Pox	17	Post Operative	27
Cold	68	Pre-natal	8
Colic	4	Quinsy	3
Diabetes	1	Rash	1
Dysentery	3	Rheumatism	4
Epistaxis	1	Scarlet Fever	3
Heart Trouble	11	Stomach Trouble	19
Hives	3	Tonsilitis	94
Hypertension	2	Typhoid Fever	6
Infants, new born	24	Unclassified	13
Infections	46	Undiagnosed	25
Influenza	3		

Visiting Nurse: Miss Myrtle V. Welander

WELFARE DEPARTMENT

WELFARE DEPT. ANNUAL REPORT YEAR 1948

23.

d. VISITING NURSES: (Continued)

Following is the report of the Negaunee visiting nurse for the year 1948:

Total number of patients cared for during year	1176
Number of new cases cared for during year	555
Total number of visits to patients	4344
Number of families visited for the first time	24
Number of social calls	561
Number died	7

Classification of new cases for the year:

Number of adults	268	Male	82	Female	186
Number of children	271	Male	120	Female	151

Nationalities of new cases for the year:

American	277	Italian	40
Finnish	224	Norwegian	3
French	2	Swedish	10

Diseases and number of new cases:

Anemia	3	Infants, newborn	42
Appendicitis	18	Influenza	34
Arthritis	1	Injury	60
Asthma	5	Kidney Trouble	2
Bowel Trouble	6	Laryngitis	1
Bronchitis	8	Lumbago	3
Burns	3	Mal-nutrition	59
Cerademitis	2	Measles	6
Chicken Pox	7	Mumps	7
Cholecystitis	9	Neuralgia	1
Cold	23	Obstetrical	2
Colic	1	Otitis Media	1
Croup	1	Pneumonia	8
Cyst	2	Polio	1
Cystitis	2	Post Operative	75
Dermatitis	1	Pregnancy	38
Diabetes	2	Rheumatic Fever	1
Eczema	1	Rupture	3
Enteritis	3	Scarlet Fever	1
Gastro-intestinal	8	Senility	1
Gen. Deb.	2	Sore Eyes	6
Grippe	1	Sprains	7
Heart Trouble	3	Stomach Trouble	11
Herpes Zoster	1	Tonsillitis	46
Hives	1	Trench Mouth	1
Hypotension	1	Unclassified	10
		Undiagnosed	3
		Var. Ulcer	1

WELFARE DEPARTMENT

Visiting Nurse: Miss Ina E. Atkin

WELFARE DEPT. ANNUAL REPORT YEAR 1948

23.

d. VISITING NURSES: (CONTINUED)

NUMBER OF PATIENTS ATTENDED AND CALLS MADE

	<u>No. of Patients</u>	<u>No. of New Cases</u>	<u>Male Adult</u>	<u>Female Adult</u>	<u>Male Children</u>	<u>Female Children</u>
Ishpeming	776	536	27	175	158	186
Negaunee	1176	555	82	186	120	151

	<u>Total No. Visits</u>	<u>Number died</u>	<u>Social Calls</u>	<u>Families visited for the first time</u>
Ishpeming	4167	2	41	68
Negaunee	4344	7	561	24

NATIONALITIES OF NEW CASES

	<u>American</u>	<u>English</u>	<u>Finnish</u>	<u>French</u>	<u>Greek</u>	<u>Italian</u>
Ishpeming	399	21	54	16	-	28
Negaunee	277	-	224	2	-	40

	<u>Norwegian</u>	<u>Swedish</u>
Ishpeming	5	13
Negaunee	3	10

WELFARE DEPT. ANNUAL REPORT YEAR 1948

23.

f. NORTH LAKE CLUB

Each year we have included a report on the clubhouse at the North Lake Location. This clubhouse was maintained with the cooperation of the Inland Steel Company. It served the community for all kinds of community activities until June 30, 1946, at which time it was deemed advisable to close the building.

A group of young men in the North Lake district, known as the Tri-F Club, have been permitted to use a portion of the building for a clubroom. They provide their own light and heat and carry on a program to suit their own needs. As far as we know, there is no thought of re-opening the clubhouse as a community center.

g. GWINN ASSOCIATION

On July 15, 1946 the Gwinn Association Clubhouse was transferred to the Board of Education at Gwinn. The Clubhouse continues to serve the community in the usual public educational, recreational and social services.

23.
h. ISHPEMING Y.M.C.A. BUILDING

For the past few years we have continued to mention the Ishpeming Y.M.C.A. building in our annual reports. Very little in addition to what has been reported in previous years can be added. The Ishpeming Industrial Association has been interested in re-opening the building as a sort of community center.

The need for the re-opening of the Y.M.C.A. is still somewhat doubtful. Certainly there should be some type of program definitely organized on a community needs basis before the building is re-opened. In other words, if the right kind of program can be organized in the community, undoubtedly the Y.M.C.A. building can be used to advantage. It seems unnecessary to open the building merely for the sake of having a community building. The re-opening should depend entirely upon a well-organized and planned program.

During the past several months there has been considerable discussion in the press and amongst the people of Ishpeming regarding the further use of the Y.M.C.A. Currently, an effort is being made with some degree of success to turn the building over to the National Guard for an armory. The present mayor of Ishpeming, however, because of some pressure upon him, is making an effort to re-establish the building as a community center. The present argument is largely over the cost of operation.

WELFARE DEPT. ANNUAL REPORT YEAR 1948

23.

1. SAFETY WORK

Under the direction of Mr. A. J. Stromquist, Safety Director, the Central Safety Committee held monthly meetings during 1948. Mr. Stromquist submits brief reviews of all accidents previous to the meetings and a general discussion is had at the meetings and a study is made of the possibility of preventing like accidents in the future. Each accident is then classified. Meetings were held on the following dates in 1948:

January 12	July 9
February 9	August 19
March 9	September 9
April 5	October 7
May 10	November 4
June 7	December 9

The safety meetings are held on the third floor of the main building. The meetings generally last two or three hours and every effort is made to get a clear picture of the accident. The discussion is recorded and minutes are prepared and sent out to the members of the committee.

The following are members of the Central Safety Committee:

Mr. H. O. Moulton, Chairman
 C. J. Stakel
 C. W. Allen
 Carl Brewer
 Walter F. Gries
 A. J. Stromquist
 W. E. Johnson
 H. F. Rogers
 J. D. Preston
 L. C. Moore
 E. D. Cory
 Grover Holt
 F. J. Haller
 Onnie Marjama
 S. W. Sundeen
 W. R. Atkins
 John Trosvig
 J. S. Westwater
 Curtis Sundeen
 H. W. Sundberg
 Dr. George McL. Waldie
 Captain Richard Cattran
 Richard Schaal
 Lowell C. Holmgren
 Adolph Kauppila

23.

j. HOSPITALS AND MEDICAL SERVICE

The Superintendent of the Welfare Department serves in the capacity of Administrator of the Ishpeming Hospital and maintains almost daily contact with the hospital and the Negaunee Dispensary. He also serves on the Board of Trustees of the General Hospital of the Iron River District and contacts are made with that hospital at regular intervals. Throughout the year the Ishpeming Hospital Advisory Administrative Committee has continued to meet on the second Tuesday of each month and the following men make up the committee: Mr. C. W. Allen, Manager; Mr. J. S. McNabb, Chief Clerk; Mr. Walter F. Gries, Superintendent, Welfare Department; Mr. Ray Satterley, Superintendent, Inland Steel Company; Mr. Joseph Cameron, Manager, Hercules Power Company; Mr. Harry Peterson, Superintendent, Jones & Laughlin Ore Company. The meetings are also attended by Dr. A. W. Erickson, Chief of Staff, and Mrs. Miriam Thomas, R.N., Superintendent of the Hospital.

Our visits to the Gwinn District are less frequent since the closing of the Princeton Mine. Occasionally, however, we contact some of our employees in the district who may have special problems. We also keep in contact with Dr. S. J. Green who takes care of the medical needs of our employees in the Gwinn Area.

For the purpose of the record we note here that in June of 1946 the monthly medical fee for employees who subscribe to our medical plan was raised from \$1.50 per month to \$2.00 per month. The \$2.00 per month rate is still in force.

Dr. R. A. Burke of Negaunee remains a member of our medical staff and he has the special assignment of taking care of the employees of the Cambria Jackson Mine. However, many of the Cambria Jackson employees prefer to go to Dr. Mudge or Dr. Paine for medical attention and the need for Dr. Burke's services is not as great as it was formerly. In fact, it has been suggested that we consider the possibility of dispensing with Dr. Burke's services if and when a re-organization of our present plan is undertaken.

ISHPEMING HOSPITAL

A review of the reports for the year will indicate that the Ishpeming Hospital had a very busy year. The hospital continues to maintain its high standard and has again been granted membership in the American Hospital Association and in the American College of Surgeons. Most of the time the full capacity of the hospital is in use.

Our staff of nurses, while fewer in number than in the pre-war years, continues to be a well-balanced staff and we are fortunate that many of the local married nurses continue to work full time at the hospital.

Each year it has been mentioned in this report that the people of this community and the surrounding communities do not fully appreciate the real service which is rendered by the Ishpeming Hospital. The hospital is without a

WELFARE DEPT. ANNUAL REPORT YEAR 1948

23.

j. HOSPITAL AND MEDICAL SERVICE (Continued)

doubt the greatest asset from a community standpoint in the whole area. The hospital, while owned, operated and maintained entirely by the Cleveland Cliffs Iron Company with the assistance of the cooperating and coordinating companies in the district, is being called upon more each year because of the fact that people are becoming more hospital conscious year by year. The community does not in any way contribute to the hospital. That is, there are no special funds coming from any groups or any individuals in the support of the hospital. The lack of appreciation of the hospital on the part of people in this area is not a conscious thought at all but over the years the people of the community have come to think of the Cleveland Cliffs Iron Company as providing hospital facilities somewhat in the nature of a contribution to the general welfare and health of the entire community. There is no question but the hospital does bring much good will to the company although this good will is not very often expressed by local people who take the hospital too much for granted.

During the year there was discussion again of the possibility of re-organization of the administration of the hospital. Various plans have been studied and some definite conclusions have been reached. The Superintendent of the Welfare Department, as Administrator of the hospital, feels very definitely that control of the hospital should be kept by the company. It has often been pointed out that the services which are rendered in connection with compensation and injury cases are of such importance to the company that it should always be in position to guide and control these particular important phases of the company's work. The hospital could be re-organized as a non-profit institution which would dissolve the necessity for paying the Michigan State Sales Tax. The medical staff should be completely disengaged from the company payroll and they should no longer be in any way direct employees of the company. The program which has been established on the Mesaba Range would undoubtedly work very well in this district. It is interesting to note that last year the company-owned hospital at Wakefield, Michigan was turned over to a Sisterhood and the companies have completely withdrawn from the administration and operation of a hospital. Presently the Board of Trustees of the General Hospital Company of the Iron River District is considering the possibility of disposing of their hospital to a Catholic Sisterhood.

It is felt that the monthly meetings of the Ishpeming Hospital Advisory Administrative Committee has served a good purpose since several of the executives of our company and coordinating companies have come to know something of the problems which arise in the operating of a hospital business. This committee has been interested and very loyal to the needs of the hospital. We express here our sincere appreciation for their continued loyalty and support in the problems which we meet in operating a hospital. The hospital has really become a big business.

A survey of the 1948 deficit and the reasons for it was undertaken by the Administrator of the hospital. The report has been submitted to Mr. C. J. Stakel, General Manager.

WELFARE DEPT. ANNUAL REPORT YEAR 1948

23.

j. HOSPITALS AND MEDICAL SERVICE (Continued)

The staff of the Ishpeming Hospital during the year 1948 was made up of the following:

Dr. A. W. Erickson, Chief of Staff
 Dr. R. G. Williams
 Dr. R. G. Jaedecke

The staff at the Negaunee Dispensary is made up of the following:

Dr. W. A. Mudge
 Dr. R. L. Paine

In the Gwinn District Dr. S. J. Green continues to serve.

Dr. R. A. Burke who conducts his own hospital in Negaunee serves our Cambria Jackson employees by agreement. Dr. Burke is paid \$1.50 per man per month for each of the Cambria Jackson employees for medical and we also supplement this with \$1.00 per man per month to assist Dr. Burke in caring for accidents and injuries and in the maintenance of his own hospital.

We feel that our first obligation is to our people at the hospital and we provide for the care of our employees by reserving two beds at all times for accidents and injuries regardless of what other conditions may be. At present we list our hospital as having a capacity of 52 beds and 24 bassinets. We have, of course, a closed medical staff, a complete nursing staff and we engage only graduate nurses. We also have a trained and experienced anesthetist, a surgical nurse with special training, two laboratory technicians and one x-ray technician as well as a well-organized business staff. The business staff has been increased due to the fact that so many people now carry group hospitalization and since we have a group hospitalization program now for our own employees this phase alone requires almost the full time services of one clerk.

The hospital is very well equipped for a hospital of its size. I think it can be safely said that the equipment at the Ishpeming Hospital, including such equipment as x-ray apparatus, laboratory facilities, surgical equipment, operating room equipment, laundry and dietitian department equipment, compares very favorably with any hospital of our size. We are, as of this year, well equipped in our maternity wards and obstetrical department.

The emergency room on the first floor probably has greater use than any other department of the hospital. Here most of the minor injuries, slight injuries and treatments are cared for. It is estimated that at least 35 to 40 people are taken care of in this department every day.

WELFARE DEPT. ANNUAL REPORT YEAR 1948

23.

j. HOSPITALS AND MEDICAL SERVICE (Continued)

The Welfare Department, as a department of the company, and the Administrator of the hospital wish to record here their appreciation to the participating companies in the district, to the Hospital Advisory Committee, and to the employees at the hospital for their continued loyalty and cooperation.

A special report is attached to this general report, giving considerable information regarding the operation of the Ishpeming Hospital for the year 1948.

WELFARE DEPT. ANNUAL REPORT YEAR 1948

23.

j. HOSPITALS AND MEDICAL SERVICE (Continued)

GOVERNING BOARD

- A. C. Brown, President
- E. B. Greene, Chairman, Board of Directors
- C. J. Stakel, General Manager
- C. W. Allen, Manager of Michigan Mines

ADVISORY COMMITTEE

- C. W. Allen
- J. S. McNabb
- W. F. Gries, Secretary and Chairman
- J. C. Cameron
- R. D. Satterley
- H. S. Peterson

ACTIVE MEDICAL STAFF

- | | |
|---------------------------------|-------------------------|
| A. W. Erickson, M.D., President | George Mc. Waldie, M.D. |
| W. A. Mudge, M.D. | R.G. Williams, M.D. |
| R. G. Jaedecke, M.D. | S.J. Green, M.D. |
| | R.L. Paine, M.D. |

COURTESY STAFF

- P. Van Riper, M.D.
- I. Sicotte, M.D.
- F. O. Paull, M.D.

CONSULTING STAFF

- A. W. Erickson, M. D.

DEPARTMENTS

- | | |
|------------------------------|--------------------------|
| Laboratory and Roentgenology | Anesthesia |
| A. W. Erickson, M.D. | A. W. Erickson, M.D. |
| Gwinn Dispensary | Histories |
| S. J. Green, M.D. | A. W. Erickson, M. D. |
| Negaunee Dispensary | Industrial Hygiene |
| W. A. Mudge, M.D. | George McL. Waldie, M.D. |
| R. L. Paine, M.D. | |

Walter F. Gries, Administrator

WELFARE DEPT. ANNUAL REPORT YEAR 194823. J. HOSPITALS AND MEDICAL SERVICE (Continued)ISHPEMING HOSPITAL
STATISTICAL REPORT FOR THE YEAR 1948

Number of patients remaining in the hospital at the beginning of year		48
Number of adult patients admitted		1291
Number of child patients admitted		133
Number of births	(outside 1)	360
Total new patients for year		<u>1784</u>
Total of all patients during year		<u>1832</u>
Number of deaths		76
Number discharged during year		<u>1711</u>
Total number leaving hospital		<u>1787</u>
Number of patients remaining in the hospital at the end of year		45
Classification of new cases:		
Newborn	(outside 1)	360
Surgical		624
Medical		409
Obstetrical		<u>391</u>
Total		1784
Number of operations:		
Major		233
Minor		414
Circumcisions		<u>169</u>
Total		816
Emergency Room Operations		457
Number of patient days:		
Newborn		2598
Other		<u>17598</u>
Total		<u>20196</u> 20196
Average number of patients per day		55
Number of meals for patients		53794
Number of meals for nurses, superintendent and dietitian		11221
Number of meals for physicians and guests		128
Number of meals for help		<u>15150</u>
Total		<u>80293</u>
Average stay per patient		11.02

WELFARE DEPT. ANNUAL REPORT YEAR 1948

23.

j. HOSPITALS AND MEDICAL SERVICE (Continued)

DEATHS FOR 1948 CLASSIFIED BY DISEASE

Arteriosclerotic Heart Disease.....	1
Carcinoma, Breast.....	1
Carcinoma, Left Ovary.....	1
Carcinoma, Sigmoid.....	1
Carcinoma, Sigmoid Colon.....	1
Carcinoma, Stomach.....	2
Carcinoma, Uterus.....	3
Cardiac Failure.....	5
Cardio Respiratory Failure.....	4
Cardio Vascular Failure.....	3
Cardio Vascular Renal Disease.....	1
Cerebral Hemorrhage.....	5
Cerebral Vascular Accident.....	6
Compound Fracture, Left Arm.....	1
Diabetes Mellitus.....	1
Gun Shot Wound.....	1
Hemorrhage, Internal.....	3
Hypertensive Heart Disease.....	1
Hypertension.....	1
Mesenteric Thrombosis.....	2
Myocarditis.....	2
Nephritis.....	2
Peritonitis.....	1
Premature Birth.....	5
Pulmonary Atelectasis.....	1
Pulmonary Embolism.....	1
Sarcoma, synovial sheath, left knee.....	1
Skull Fracture.....	2
Stillborn.....	15
Uremia.....	2

Total 76

WELFARE DEPT. ANNUAL REPORT YEAR 1948

23. j. HOSPITALS AND MEDICAL SERVICE (Continued)

DEATHS DURING THE YEAR 1948

Surgical.....	4
Medical.....	41
Gynecological.....	0
Traumatic.....	9
Newborn.....	7
Stillborn.....	<u>15</u>
Total	76

Deaths under 48 hours.....	25
Deaths over 48 hours.....	36
Stillborn.....	7

TRAUMATIC DEATHS

<u>Month</u>	<u>No.</u>	<u>Case No.</u>	<u>Patient</u>	<u>Age</u>	<u>Diagnosis</u>
January	2	30194	Lowell Stenglein	36	Gun shot wound, left chest.
		30233	Matt Ilomaki	53	Compound fracture of the skull.
February	0				
March	1	30538	Charles Olson	60	Traumatic shock, crushed left chest, internal hemorrhage.
April	2	30674	Alphonse LeSage	81	Trochanteric fracture, left femur; anterior sclerosis; terminal pneumonia.
		30413	Mrs. Anna Noren	73	Fracture, right femur
May	0				
June	1	30966	Paul Amel	31	Cerebral laceration; depressed skull fracture; subarachnoid hemorrhage.
July	1	31212	August Roman	61	Multiple small bowel lacerations.
August	1	31357	Wilfred LeMay	59	Compound fracture, left arm.
September	0				
October	1	31458	Gust Vinge	75	Fracture, left hip; fracture, left arm. Severe arteriosclerosis. Arteriosclerotic cardio renal disease. Urethritis and cystitis.
November	0				
December	0				

WELFARE DEPT. ANNUAL REPORT YEAR 1948

23. j. HOSPITALS AND MEDICAL SERVICE (Continued)

LABORATORY REPORT FOR 1948

Blood Chemistry.....	1071
Blood Type or Match.....	160
Bleeding Time.....	267
Cultures.....	24
Coagulation Time.....	267
Differential Count.....	3997
Feces.....	74
Gastric Analysis.....	11
Glucose Tolerance.....	14
Hemoglobin.....	4365
Icteric Index.....	233
Miscellaneous.....	513
Pathological Specimens.....	283
Red Cell Count.....	4029
Sedimentation.....	765
Smears.....	307
Special Blood Exams.....	57
Spinal Fluid.....	19
Sputum.....	80
Urinalysis.....	6758
Vena Punctures.....	2934
White Blood Count.....	4528
Transfusions.....	83
RH Factor.....	227
Bromsulfalein Test.....	9
P.S.P. Test.....	16
Blood Thiocyanate.....	34
Glactose Tolerance.....	2
Billiary Drainage.....	<u>2</u>
Total	31129

FRACTURE CASES DURING 1948

Cleveland Cliffs Iron Company.....	49
Inland Steel Company.....	6
Outside Patients.....	<u>169</u>
Total	224

WELFARE DEPT. ANNUAL REPORT YEAR 194823. j. HOSPITALS AND MEDICAL SERVICE (Continued)X-RAY REPORT FOR 1948

Extremities.....	1086
Shoulders.....	110
Spine.....	170
Ribs.....	90
Skull.....	48
I.V. Pyelogram.....	15
Kidney.....	18
Pelvis.....	82
Stomach Series.....	114
Fluoroscope.....	5
Foreign Body.....	28
Colon.....	50
Mastoid.....	1
Abdomen.....	19
Chest and Heart.....	454
Jaw.....	19
Sinuses.....	1
E.K.G.....	200
Fetus.....	67
Gall Bladder.....	149
Nasal Bones.....	7
Sternum.....	9
Ret. Pyelogram.....	1
Rectal Injection with Lipodal..	1
Ret. Cholangiogram.....	3

Total	2747
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No. of Out Patients	2258
No. of In Patients	489

Total	2747
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WELFARE DEPT. ANNUAL REPORT YEAR 1948

23. j1 HOSPITALS AND MEDICAL SERVICE (Continued)

DIETARY REPORT--ISHPEMING HOSPITAL--YEAR 1948

Patient Meals.....	53794
Doctors, Nurses, Employees, Visitors.....	26499
Total Meals for the Year.....	80293
Formulas	359

Special Diet--Patient Days:

Diabetic.....	692
Selective.....	702
Salt Free.....	495
Fat Free.....	52
Bland Low Residue.....	33
Cardiac.....	11
High Caloric.....	113
Low Fat.....	302
Low Salt.....	98
Ulcer.....	6
Modified Sippy.....	17
Reduction.....	43
Salt and Sodium Free.....	13
Low Salt, Low Fat.....	13
Salt Free, Low Sodium.....	116
Low Residue.....	28
Fat Free, High Caloric.....	21
700 Calories.....	46
Bland.....	89
Initial Ulcer.....	98
Sippy.....	23
1400 Calorie Neutral.....	9
Final Ulcer.....	17
1200 Calories.....	51
High Carbohydrate.....	17
Salt Free Diabetic.....	202
High Protein.....	76
Sodium Free.....	28
High Protein, High Carbohydrate, Low Fat.....	18
900 Calories.....	30
Low Fat, High Carbohydrate.....	35
Dry.....	1
Neutral.....	12
Low Fat Selective.....	13
Low Salt, Low Fat Diabetic.....	9
1000 Calories.....	25
Salt Free, 1000 Calories.....	30
Ulcerative Colitis.....	18
1500 Calories.....	2
Low Sodium.....	3

Total Special Diet Patient Days.....	3607
Total Special Diet Meals.....	10821

WELFARE DEPT. ANNUAL REPORT YEAR 1948

23.

j. HOSPITALS AND MEDICAL SERVICE (Continued)

SURGERY --- 1948
Classified by Operation

Abortion, Therapeutic (D&C).....1	Insertion, Kirschner Wire.....2
Adenoidectomy.....1	Insertion, Steinman Pin.....3
Adhesions, freeing.....2	Ligation, Fallopian Tubes.....9
Amputation.....9	Ligation, Vas Deferens.....1
Amputation, Cervix.....1	Mastectomy.....4
Appendectomy.....112	Myomectomy.....1
Biopsy.....21	Nephrectomy.....1
Blood Transfusion.....1	Oophorectomy.....24
Bunionectomy.....4	Open Reduction.....3
Cast.....25	Orchidectomy.....5
Cauterization.....18	Perineorrhaphy.....2
Cesarean Section.....6	Plastic.....2
Cholecystectomy.....12	Post-Operative Hemorrhage Control..1
Cholecystotomy.....1	Proctocystoplasty.....3
Circumcision.....178	Proctoscopic Examination.....5
Closed Reduction.....30	Prostatectomy.....7
Colostomy.....1	Rectocele, Repair.....4
Common Duct Drainage.....2	Removal, Foreign Body.....8
Conization, Cervix.....9	Repair, Anal Fissure.....6
Custotomy.....1	Repair, Muscle.....1
Cystocele repair.....2	Repair, Perforation.....2
Cyst Punctured.....14	Repair, Traumatic Injuries.....4
Cystoscopic Examination.....7	Resection, Bowel.....1
Dilatation.....4	Resection, Meckel's Diverticulum...1
Dilatation & Curettage.....75	Salpingectomy.....19
Examination under Anesthetic.....3	Saphenous Ligation.....14
Excision, Abdominal Fistula.....1	Skin Graft.....2
Excision, Cervical Polyp.....8	Spinal Tap.....8
Excision, cysts, moles, etc.....63	Sutured, Stump, L.....1
Excision, Hymen.....1	Tendon Repair.....1
Excision, Ingrown Toenail.....6	Thyroidectomy.....8
Excision, Pilonidal Cyst.....5	Tonsillectomy.....24
Exploratory Laparotomy.....10	Ton. & Adenoid.....74
Hemorrhoidectomy.....15	Tooth Extraction.....8
Herniorrhaphy.....40	Urethral Sounding.....1
Hydrocele Repair.....5	Uterine Suspension.....8
Hysterectomy.....18	Wiring Jaw(Unsuccessful).....2
Ileostomy.....1	
Incision & Drainage.....12	
	Total
	999

WELFARE DEPT. ANNUAL REPORT YEAR 194823. j. HOSPITALS AND MEDICAL SERVICE (Continued)EMERGENCY ROOM REPORT

	<u>Company Cases</u>	<u>Outside Cases</u>	<u>Total Cases</u>
January	183	132	315
February	165	139	304
March	179	150	329
April	187	120	307
May	214	166	380
June	245	147	392
July	251	141	392
August	249	143	392
September	242	141	383
October	271	181	452
November	263	143	406
December	<u>250</u>	<u>183</u>	<u>433</u>
Total	2699	1786	4485

	<u>Company Visits</u>	<u>Outside Visits</u>	<u>Total Visits</u>	<u>Operations</u>
January	390	296	686	27
February	361	325	686	34
March	370	347	717	32
April	423	274	697	31
May	535	390	925	48
June	528	321	849	35
July	517	299	816	39
August	508	286	794	43
September	531	272	803	51
October	746	459	1205	55
November	736	389	1125	43
December	<u>627</u>	<u>485</u>	<u>1112</u>	<u>19</u>
Total	6272	4143	10415	457

WELFARE DEPT. ANNUAL REPORT YEAR 1948

23.

j. HOSPITALS AND MEDICAL SERVICE (Continued)TREATMENTS FOR THE YEAR 1948

Basal Metabolism.....	291
Ultra Violet Ray.....	274
Infra Red.....	76
Diathermy.....	2693
Cautery.....	212
Dressings.....	31
Water Baths.....	8
Intramuscular injection.....	289
Massage and Manipulation.....	<u>347</u>
Total	4221

DEPARTMENT OF INDUSTRIAL HYGIENE

Blood Chemistry.....	12
Differential Count.....	21
Glucose Tolerance.....	3
Hemoglobin.....	2210
Red Cell Count.....	60
Sedimentation.....	2211
Urinalysis.....	2211
Vena Punctures.....	2211
White Blood Count.....	<u>2211</u>
Total	11150

YEAR 1948

	<u>Jan.</u>	<u>Feb.</u>	<u>March</u>	<u>April</u>	<u>May</u>	<u>June</u>	<u>July</u>	<u>Aug.</u>	<u>Sept.</u>	<u>Oct.</u>	<u>Nov.</u>	<u>Dec.</u>	<u>Total</u>
Patients admitted	161	144	162	166	156	160	130	135	143	131	153	143	1784
Patients Discharged	138	154	166	163	157	172	130	137	128	134	150	158	1787
Number of adults	121	116	109	121	116	97	89	198	107	198	111	108	1291
Number of children	10	4	24	14	7	24	19	8	5	9	3	6	133
Newborn	30	24	29	31	33	39	22	29	30	24	39 _x	29	359
Classified as:													
Newborn	30	24	29	31	33	39	22	29	31	24	39	29	360
Obstetrical	33	28	33	34	38	41	27	30	33	21	43	30	391
Medical	39	34	33	33	46	25	26	38	32	38	31	34	409
Surgical	59	58	67	68	39	55	55	38	47	48	40	50	624
Daily Average	60.19	63.89	58.3	59.2	62.9	59.06	41.6	45.5	52.6	51.1	55.5	52.8	55.22
Newborn Days	294	269	192	185	205	256	163	175	195	184	291	189	2598
Patient Days	1572	1584	1616	1592	1746	1516	1128	1236	1384	1401	1373	1450	17598
Total Days	1866	1853	1808	1777	1951	1772	1291	1411	1579	1585	1664	1639	20196
Operations:													
Emergency Room	27	34	32	31	48	35	39	43	51	55	43	19	457
Major	25	23	28	30	16	19	13	8	22	14	14	21	233
Minor	32	40	55	50	23	44	31	30	22	33	20	34	414
Circumcisions	14	18	15	14	12	21	8	9	14	13	13	18	169

x One birth outside the hospital, brought in later

76 deaths included in discharges

WELFARE DEPT. ANNUAL REPORT YEAR 194823. j. HOSPITALS AND MEDICAL SERVICE (Continued)CLASSIFICATION OF PATIENTS ON ADMISSION

Medical.....	409
Surgical.....	285
Obstetrical.....	392
Newborn.....	360
Gynecological.....	101
E. E. N. T.....	94
Traumatic.....	<u>143</u>
Total	1784

CLASSIFICATION OF PATIENTS ON DISCHARGE

Medical.....	337
Surgical.....	301
Obstetrical.....	362
Obstetrical (Not delivered).....	30
Newborn.....	341
Gynecological.....	108
E. E. N. T.....	95
Traumatic.....	<u>137</u>
Total	1711

WELFARE DEPT. ANNUAL REPORT YEAR 1948

23. j. HOSPITALS AND MEDICAL SERVICE (Continued)

SURGERY FOR 1948

	<u>Major</u>	<u>Minor</u>	<u>Circumcisions</u>
January	25	32	14
February	23	40	18
March	28	55	15
April	30	50	14
May	16	23	12
June	19	44	21
July	13	31	8
August	8	30	9
September	22	22	14
October	14	33	13
November	14	20	13
December	<u>21</u>	<u>34</u>	<u>18</u>
Total	233	414	169

Male	283
Female	364
Infant Circumcisions	<u>169</u>
Total	816

Total Patients for Year	816
Total Operations for Year	999

23.

j. HOSPITALS AND MEDICAL SERVICE (Continued)NEGAUNEE DISPENSARY

The building formerly known as the Negaunee Hospital and in recent years known as the Negaunee Dispensary continues to serve as the medical center for our employees in Negaunee and environs. Dr. W. A. Mudge and Dr. R. L. Paine maintain their offices in the Negaunee Dispensary, as does Miss Atkin, the industrial nurse for the Negaunee District. There are over 1500 employees in the Negaunee area and most of them have their medical needs taken care of through the Negaunee Dispensary. We have maintained through the year a regular registered nurse as part of the staff at the Negaunee Dispensary and a nurses' aide also, who has had over a year's training as a nurse. During the year we have also had Mr. George Landry, a registered pharmacist, on duty at the Negaunee Dispensary pharmacy and our employees and their families in the Negaunee District now have the services of a full-time registered pharmacist.

Dr. R. A. Burke, who owns and operates the Twin City Hospital at Negaunee, is a member of our staff in that he serves the medical needs of our men at the Cambria Jackson Mine. I believe if some kind of an arrangement is to be continued with Dr. Burke we should make him a regular member of our staff and pay him a salary instead of the \$2.00 per man per month for the men at the Cambria Jackson. Many of the Cambria Jackson men prefer to go to the Negaunee Dispensary and to call on Drs. Mudge and Paine.

The Negaunee Dispensary serves as an emergency hospital or clinic in the Negaunee District. Many of the emergency cases, particularly injuries, are not brought to the hospital in Ishpeming but are taken care of at the Negaunee Dispensary. We do not hospitalize anyone, however, in the Negaunee Dispensary.

The living quarters in the Negaunee Dispensary are occupied by Mr. and Mrs. John Roberts. Mr. Roberts is the custodian and janitor of the building. He keeps the building in good shape, takes care of the fires, unpacks the supplies and materials and takes care of the doctors' and nurses' cars, as well as any other type of work that normally falls within the sphere of a custodian of a building. Mr. Roberts will soon be 69 years of age and if we continue our present arrangement much longer, I believe that he should be retired and a younger man placed on the job. (I wish to report that Mr. John Roberts, custodian of the Negaunee Dispensary, passed away suddenly February 23, 1949.)

GWINN DISTRICT

Dr. S. J. Green continues to serve our employees in the Gwinn area. He occupies the home which the doctor has always had and in which he has his office and a small dispensary. We do not maintain an industrial nurse in the Gwinn District.

23. j. HOSPITALS AND MEDICAL SERVICE (Continued)

REPUBLIC HOSPITAL

Each year we include a paragraph in our annual report on the building which was formerly known as the Republic Hospital. This building is now under the supervision of the Republic Township Board. Dr. Van Riper, of Champion, who cares for our medical needs in the area, uses the Republic Hospital daily as an office and as sort of a health center. The maintenance of medical service at the old Republic Hospital is a great convenience to the people of Republic and the surrounding area.

The Republic Township Board engages a registered nurse, a married person, who, as part of her remuneration, is granted the use of an apartment in the hospital building. The nurse is on duty to assist Dr. Van Riper and to give attention to emergency cases. The arrangement appears to be a very good one.

IRON RIVER HOSPITAL

During the year several calls were made at the General Hospital of the Iron River District at Stambaugh. The Superintendent of the Welfare Department attended several of their meetings, as well as the annual meeting. The General Hospital of the Iron River District provided for the medical and hospital needs of our employees at the Spies Virgil Mine at Iron River. This hospital is managed by a board of trustees representing the different stockholding mining companies and it is administered and operated in a very business-like manner. The Superintendent of the Welfare Department represents our company on the Board of Trustees of the Iron River General Hospital.

Dr. L. E. Irvine continues to provide the necessary medical attention for our Spies Virgil employees. He also gives the physical examinations, both pre-employment and periodical. Dr. Addison at Crystal Falls, who is associated with the hospital there, provides medical care for a small group of our employees who particularly request his services.

PAYMENTS TO PHYSICIANS

For reference purposes the following statement is made in each annual report:

On August 1, 1927 the rate of payment for the Cleveland Cliffs Iron Company went into effect. The employees paid \$1.25 for medical services for themselves and the dependent members of their families, and the Company paid 50¢ per man per month to cover medical and hospital services for cases coming under the Compensation Act.

23.

j. HOSPITALS AND MEDICAL SERVICE (Continued)

From time to time the rates for membership in the Company's medical plan have been changed. On January 1, 1944 the monthly rate was raised from \$1.25 to \$1.50. The Company increased its contribution at that time from 50¢ to 75¢ per man per month. In June of 1946 the employees' rate was increased from \$1.50 per man to \$2.00 per man per month.

PHYSICAL EXAMINATION OF EMPLOYEES

The Industrial Hygiene Department, under the direction of Dr. George McL. Waldie, continues to give the physical examinations to employees and to counsel with them regarding physical deficiencies. The regular physical examination schedules are now made by the Employment Department. It has been the policy, and this policy is being continued as far as possible, to examine twelve men each working day. Copies of the physical examination schedule are filed with the Welfare Department and a record is kept in the file of each employee. Almost daily discussions are held by the Superintendent of the Welfare Department with Dr. Waldie, Director of the Industrial Hygiene Department, regarding employees who may have developed some physical deficiencies and whose cases require consideration and study.

The contract which the company formerly carried with the Trudeau Foundation of Saranac Lake, New York was not renewed in the fall of 1945. We are convinced that our own Industrial Hygiene Department can carry on the program very well.

The possibility of engaging an assistant to Dr. Waldie has been discussed with Mr. C. J. Stakel, General Manager. He has the general outline calling attention and giving the reasons for providing an understudy for Dr. Waldie.

*Check
letter in
file.*

WELFARE DEPT. ANNUAL REPORT YEAR 1948

23. j. HOSPITALS AND MEDICAL SERVICE (Continued)

INDUSTRIAL HYGIENE DEPARTMENT

Our Industrial Hygiene Department was organized on April 1, 1939. Dr. George McL. Waldie continues to have charge of this department. The department continues the usual physical examination program, as well as the follow-up program in cases where employees have been found to have some deficiency. Considerable valuable information has been gathered by this department during the past several years and we feel that we have excellent records on all employees from the standpoint of their physical condition.

The work of the Department of Industrial Hygiene has increased since we did not renew our Saranac contract in the fall of 1945. All films which formerly were sent to Saranac for reading and interpretation are being read and interpreted locally by Dr. Waldie. This work covers also the Inland Steel Company and the North Range Mining Company's employees on the Marquette and Menominee Ranges, as well as the employees of the Hercules Powder Company. Dr. Waldie submits monthly reports, as well as periodical reports, covering the work of his department.

In cases where it seems necessary for an employee to have medical attention of some kind, Dr. Waldie refers him to a regular member of our medical staff. The department makes an effort to correct any defect which may be found and in cases where employees are found to have some defect or some type of illness, a follow-up program is instituted and a check-up is made from time to time to determine what the employee's condition is.

The possibility of engaging an assistant to Dr. Waldie has been discussed with Mr. C. J. Stakel, General Manager. He has the general outline calling attention and giving the reasons for providing an understudy for Dr. Waldie.

The following number of examinations have been conducted through December 31, 1948:

The Cleveland Cliffs Iron Company	24,528
Inland Steel Company	4,066
Republic Steel Corporation	1,653
North Range Mining Company	1,237
Oliver Iron Mining Company	725
Pickands Mather & Company	149
M. A. Hanna Company	199
Hercules Powder Company	283
Calumet & Hecla Company	29
Marquette County Road Commission	<u>10</u>
Total	32,879

23.

k. COMMUNITY HEALTH

Each year we include in this report a statement concerning the general health conditions in Marquette County. It is pleasing to again report that the general health conditions in the county were good during 1948. There were no epidemics and no great loss of time at the mines because of illness.

There continues to be an increase in the use of the Ishpeming Hospital. Very often the hospital has to arrange a schedule for admittances of people due to the fact that there is a great demand for hospitalization. During 1948 1832 individual cases were actually hospitalized at the Ishpeming Hospital. Presently there is a waiting list in the community of persons who are waiting to be hospitalized.

The three cities in Marquette County each have a health officer and a full-time school nurse. The City of Marquette also employs a full-time nurse whose services are made available, for the most part, to the township districts. The townships also have health officers.

The city health officers in Marquette County are:

- Ishpeming - Dr. W. A. Corcoran
- Negaunee - Dr. G. A. Knudson
- Marquette - Dr. C. P. Drury

The Northern Michigan Children's Clinic at Marquette, operated in connection with St. Luke's Hospital and supported largely by funds from the Michigan Children's Fund, has continued to serve children throughout the entire Northern Peninsula. The counties of the Northern Peninsula are very fortunate in having available such a fine clinic.

The Bay Cliff Health Camp at Big Bay was in session again during the summer of 1948, completing thirteen years of service. About 150 children from the counties in the Northern Peninsula were enrolled. These children are cared for for about six or seven weeks and special services are rendered for various groups, such as services for poliomyelitis convalescent children, cardiac cases, rheumatic hearts, speech and hearing defects, diabetics and under-nourished children. The Superintendent of the Welfare Department has continued to serve as Chairman of the Board of Directors of Bay Cliff Health Camp.

WELFARE DEPT. ANNUAL REPORT YEAR 1948

23.

m. RELIEF WORK

During 1948 we carried on our usual program of extending assistance to certain special cases.

The following is a statement of assistance, not including cash assistance, rendered in 1948:

	<u>Gwinn</u>	<u>Ishpeming</u>	<u>Negaunee</u>	<u>Total</u>
January		\$11.16	\$84.96	\$ 96.12
February		11.16	24.96	36.12
March		26.44	19.64	46.08
April		11.16	44.96	56.12
May			25.40	25.40
June		89.60	70.64	160.24
July		18.00	55.44	73.44
August		115.00	66.16	181.16
September			86.45	86.45
October	\$93.63	72.10	26.00	191.73
November		80.00	26.21	106.21
December		<u>41.61</u>	<u>86.03</u>	<u>127.64</u>
Total	\$93.63	\$476.23	\$616.85	\$1186.71

n. EMPLOYMENT

The Welfare Department keeps in almost daily touch with the Employment Office, in charge of Mr. H. W. Sundberg. In cases where there may be some question regarding the employment of a certain individual the case is reviewed. Every effort is made to protect the best interests of the Company in connection with the employment of people.

WELFARE DEPT. ANNUAL REPORT YEAR 1948

23.

o. INCAPACITATED EMPLOYEES

During the year payments have continued to certain men and certain families who originally did not have sufficient service to bring them within the provisions of the pension system, or, more recently, who were not employed long enough under the Social Security system to bring them benefits from that source. Donations were granted to these people. Some of these men had suffered some disability through accidents or through injuries at the mines, and there are some with large families who have become incapacitated. Recent additions to this payroll are usually individuals who have become disabled prior to the retirement age of sixty-five. When they become sixty-five and are eligible for Social Security benefits, they are immediately transferred to our Retirement payroll.

For the purpose of record it is mentioned that on February 1, 1947 those individuals who were receiving Company aid in the form of direct grocery, fuel or clothing orders were granted monetary allowances over this payroll. This resulted in a cutback in record keeping and paper work.

The Mining Department Donation Payroll included thirty-seven people on December 31, 1947, and on December 31, 1948 there were thirty-five payees. The total amount expended over this roll during the year was \$11,190.00. Following are the additions and deletions for the year:

John Tammelin	Added effective	6/1/1948	
Gust A. Johnson		10/1/1948	
Pasquale Meni		11/1/1948	
Mary C. Ryan		11/1/1948	
Toivo H. Bergstrom		12/1/1948	
Edwin C. Dawe	Dropped as of	3/31/1948	Reemployed
Louis Oien		9/30/1948	Died 10/13/1948
James Filizetti		9/30/1948	Transf. to Retirement Roll
John Meni		6/30/1948	" "
Kuisti Mantela		7/31/1948	" "
John H. Korpela		1/31/1948	" "
William Jenkin		7/31/1948	" "

One death, that of Peter Lesage on April 7, 1948, was recorded on the Holmes Mine Donation Payroll during the year. Mr. Lesage was dropped from the payroll as of March 31, 1948. There are three people remaining on this roll, and the total amount expended during the year was \$743.88.

WELFARE DEPT. ANNUAL REPORT YEAR 1948

23.
o. INCAPACITATED EMPLOYEES (CONT'D)

The Furnace Department donations, after being granted, were paid originally by the Furnace Department itself and later by the Cliffs-Dow Chemical Company. By directions from Cleveland on September 1, 1937 the donations have been paid from this office. There were two people on this payroll on January 1, 1948. Mr. Jacob Hill was dropped as of March 31, 1948 because of his death on April 5, 1948. Mr. Julius Olson is the only recipient on this roll as the year closes. A total of \$360.00 was expended over this roll for the year.

The Mesaba-Cliffs Mining Company Donation payroll included only the name of Eli Rantala on January 1, 1948. He was dropped as of March 31, 1948 because he was reemployed. The payroll was inactive during the remainder of the year. The total expended over this roll was \$90.00.

There are five widows who are on the Donation Payrolls, all being included on the Mining Department roll. Two of these widows, Mrs. J. H. Tregoning and Mrs. Fiina Kampinen, have been granted regular donation payments, while the other three, Mrs. Johanna Forstrom, Mrs. Charles Hill, and Mrs. Hilma Maunula, appear on the Mining Department roll as a result of the discontinuance of direct relief payments mentioned in a previous paragraph. Miss Mary C. Ryan, the only other woman appearing on the rolls, is a former Welfare Department employee.

Amount of Mining Department Donations (including widows)	\$ 11,190.00
Amount of Holmes Mine Donations	743.88
Amount of Furnace Department Donations	360.00
Amount of Mesaba-Cliffs Mining Company Donations	<u>90.00</u>
	\$ 12,383.88

23.

o. INCAPACITATED EMPLOYEES (Cont'd)Retirement Payrolls

The purpose of our retirement plan is to provide retirement under Social Security benefits to employees who are 65 years of age or over. It has been the policy of the Company to supplement these benefits, ordinarily by \$10.00 per month. Effective July 1, 1948 all retirement allowances were increased by \$10.00 per month, so that the usual retirement supplement is now \$20.00 per month. Retired employees are given the opportunity to carry our medical plan at \$1.00 per month and may carry one-half of the principal amount of their group insurance policies at the time of retirement. In those cases where retirement took place under the group life policy which granted a twenty-five per cent increase in the principal, a ruling was received that this increase was not to be considered a part of the principal when figuring the reduced coverage. Each addition to this payroll is carefully studied with the superintendent of the mine and is finally referred to the General Manager for approval.

Thirty-two additions and sixteen deletions were recorded on the Mining Department Retirement Payroll during the year. There follows a list of these additions and deletions:

Axel Hendrickson		Added as of 1/1/1948
John Crowe		1/15/1948
Jule T. Gagnon		"
John S. Herman		"
James H. Jewell		"
Lauri Huttinen		"
John H. Korpela		2/1/1948
Peter Leaf		"
Charles Kirschner		"
Alfred Koski, Sr.		"
Alex Makela		"
Herbert Skewes		"
August E. Kangas		5/1/1948
Louis A. Rappazini		"
Edward J. Prideaux	(Monthly allowance - \$25.00)	6/1/1948
William Wicklund	(Monthly allowance - \$25.00)	"
John Meni		7/1/1948
John H. Johns		"
Wilfred Dumble		"
Christ Anderson		"
William Jenkin		8/1/1948
Kuisti Mantela		"
Victor Ollikainen		"
John Lenten		"
Frank Niemi		"
Joseph Petroni		"

WELFARE DEPT. ANNUAL REPORT YEAR 1948

23.

o. INCAPACITATED EMPLOYEES (Cont'd)

Retirement Payrolls

Charles H. Rasmussen	Added as of 8/1/1948
Lee Sandstrom	"
James Filizetti	10/1/1948
Luigi Basegio	"
Frank Ayotte	11/1/1948
Charles Maki	"

William T. Waters	Dropped as of 3/31/1948	Died 4/7/1948
Chris Stone	8/31/1948	8/27/1948
Henry Hyvonen	11/30/1948	12/15/1948
Emanuel Stephens	1/31/1948	2/9/1948
Joseph Yopic	4/30/1948	4/28/1948
John Freethy	5/31/1948	6/12/1948
A. H. Tillson	2/29/1948	2/24/1948
Jacob Nikko	7/31/1948	7/27/1948
Gust Vinge	9/30/1948	10/7/1948
Konstu Saastomoinen	3/31/1948	3/27/1948
Nick Kratz	2/29/1948	3/7/1948
Joseph Montcalm	2/29/1948	2/29/1948
Dominic Tasson	2/29/1948	2/26/1948
Jacob Hahka	9/30/1948	9/29/1948
John M. Johnson	3/31/1948	Reemployed
Sydney Haines	6/30/1948	Died 6/20/1948

Minnesota Retirements

This office continued to handle payments to retired employees of our Minnesota properties during the year 1948. Two payrolls are prepared, one for the Canisteo Mine retired employees and the other for the retired employees of the Mesaba-Cliffs Mining Company.

There was one change in the Canisteo Mine Retirement payroll during the year, the name of Walter Powers being added as of January 1, 1948.

The following changes were recorded on the Mesaba-Cliffs Mining Company Retirement Payroll during the year:

M. E. Gaffney	Added 1/1/1948
Nick P. Erkeneff	"
John Pennala	"
Axel Hendrickson	Dropped as of 1/1/1948 Transferred to Mining Dept. Retirement Payroll

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o. INCAPACITATED EMPLOYEES (Cont'd)

Retirement Payrolls

A resume of the 1948 Retirement Payrolls follows:

Number of Mining Department Retired Employees 12/31/1947	202	
Number of Mining Department Retired Employees 12/31/1948	218	
Total Expenditure to above employees for year 1948		44,490.68
Number of Canisteo Mine Retired Employees 12/31/1947	6	
Number of Canisteo Mine Retired Employees 12/31/1948	7	
Total Expenditure to above employees for year 1948		1,260.00
Number of Mesaba-Cliffs Mining Co. Retired Employees 12/31/1947	20	
Number of Mesaba-Cliffs Mining Co. Retired Employees 12/31/1948	22	
Total Expenditure to above employees for year 1948		3,960.00
Total Number of Retired Employees 12/31/1947	228	
Total Number of Retired Employees 12/31/1948	247	
Total Expenditure to Retired Employees for year 1948		49,710.68

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1. RED CROSS

Each year we receive a report from the Marquette County Chapter of the American Red Cross. The county chapter maintains a nursing service with a full time nurse. Each year we have made this report a part of this annual report. In view of the fact that most of these cases do not concern our own employees, the statistical portion is omitted but is available in the files of this department.

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p. COST OF LIVING

Each year we make a brief statement in our annual report regarding living costs as they come to our attention during the year. We have used the Federal Department of Agriculture and the State Department of Social Welfare charts and indices in determining what the present living rates in the district are compared with previous years. During the year there has been considerable fluctuation of prices and checks made periodically on local prices indicate that the general trend or the overall picture, as far as prices are concerned, is on a downward trend.

Local merchants have stated that business conditions throughout the year were very good. They seem to think that people desire the better quality products and are willing to pay the prices while they are making the high wages.

The largest new industry in the community which is the Robbins Flooring Mill continues to operate with two shifts and they employ approximately 145 people. Fewer new enterprises by private individuals were established in the year 1948.

Housing

The housing situation continues to present a problem. A number of new homes were built during the year but it seems that the demand is as great at the moment as it has been at any time in the past several years. We know that there is considerable planning for new construction and that the lack of lots has kept down the building of homes.

Relief Situation

There has been a slight increase in the number of relief cases in Marquette County this year. This is probably due to the fact that employment cannot be secured as readily as heretofore. The number of older persons in Marquette County who receive Old Age Assistance from the State increased only four cases during 1948. However, the average Old Age Assistance grant during 1948 increased so that the average grant is now \$41.50 per month.

The aid to dependent children load during the year 1948 dropped from 203 to 188 cases. The average grant increased from \$72.00 to \$76.96.

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g. IMPROVEMENT WORK

Mr. Julein Payen, the company's landscape gardener, continues to have charge of all the improvement work for all the grounds in the shale district. This work has been carried on for a good many years and it appears to have a very good effect upon the general morale of the community. We feel also that the keeping of the Company's grounds in presentable condition is an incentive to our employees.

r. GARDENS AND WELL KEPT PREMISES

The Best Kept Premises and Vegetable Gardens contest was not conducted during 1948. It is felt that this contest should be re-established since it gives opportunity to make contacts with certain employees who go along year after year without any particular problems of relief and welfare and many of them are regarded as the company's most loyal employees.

s. COMMUNITY SERVICE WORK

The American Legion Building, which for many years has been the center for the majority of the community activities, has been transferred to the local Legion Post by our company and the Oliver Iron Mining Company.

The American Legion building in Negaunee is leased from our company and recommendations for transfer to the local Legion Post in Negaunee have been made and are underway. We continue to keep the building in condition and regular inspections are made. Considerable of the community activities centers around the Negaunee Legion Clubhouse.

The number of fraternal organizations in the district is rather large for a community of this size. Many of the fraternal orders maintain their own club rooms and considerable of the social life of the community centers around these organizations.

t. SATURDAY NOON LUNCHEON CLUB

The Saturday Noon Luncheon Club, made up of superintendents and heads of departments, approximately thirty in number, has not had many meetings during 1948. Mr. Stakel, General Manager, has called these meetings when he wished to discuss some particular program or problem with the entire group.

u. OUTDOOR ACTIVITIES

The interest in outdoor activities in the community has increased considerably in recent years. The Winter Sports Club, which maintains a clubhouse north of the city, is a very popular organization and there is greater activity there each winter. This area is also made available during the summer months for various types of outdoor meetings.

The Ishpeming Ski Club conducted its 61st Annual Ski Tournament on February 22, 1948. These tournaments seem to interest more people every year. Several of the employees of our company participate in the ski jumping.

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v. THE MATHER INN

The Mather Inn continues to be the most popular hotel in the Northern Peninsula. It is serving the public in a very fine manner. Many of the civic and community meetings are held here.

w. VARIOUS DEPARTMENTS AND ACTIVITIES

Each year a statement is included in the annual report covering special activities of this department throughout the year. In 1948, the Superintendent of the Welfare Department completed his ninth year as a member of the State Social Welfare Commission. He served as the Chairman of this Commission for three years. This Commission is the state agency which meets once a month and establishes the program and policies in all matters dealing with Old Age Assistance, Aid to Dependent Children, Aid to the Blind, Child Welfare Services, direct relief, problems concerning adoption and the licensing of boarding homes, maternity hospitals, foster day care homes, homes and camps for transients and matters dealing with delinquency of juveniles. The 1947 session of the Michigan Legislature gave the State Social Welfare Commission three new assignments, as follows: (1) Board of Governors of the Boys' Vocational School; (2) Board of Governors of the Girls' Training School; and (3) Board of Governors, the Michigan Children's Institute at Ann Arbor.

Other activities during the year were the following: I have continued to serve as Chairman of the Board of Directors of Bay Cliff Health Camp at Big Bay. I was elected first Vice President of the Michigan Society for Crippled Children and Adults. I serve on the Board of Trustees of the Marquette County Chapter of the American Red Cross, as a Director of the Marquette County Branch of the Michigan Tuberculosis Association, as a Director of the Michigan Welfare League, District Chairman in the Northern Peninsula for the American Cancer Society, and as a member of the Advisory Consultant Staff to the State Department of Public Instruction on community planning and programming.

On December 23, practically all of the employees in the Central Office buildings gathered at 4 P.M. and the first Christmas Party in which all of the employees in the Main Offices participated was held. A complete story of the party will be published in the next issue of the "Orbit".

x. POLICE DEPARTMENT

The Police Department is under the supervision of the Superintendent of the Welfare Department and is in direct charge of Mr. R.J. Veale, Chief. Almost daily conferences are held with Mr. Veale, dealing with police work and plant protection. Mr. Veale submits a monthly report.

Our police have been uniformed for several years and we have felt that we get excellent service from them. New men for the department are selected with care and we no longer follow the old policy of using older men in their declining years as members of our police force.

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y. THE CLEVELAND CLIFFS ORBIT

The name of the "Miners' Bulletin" was changed in 1947 to the "Cleveland Cliffs Orbit". The "Orbit" is published periodically with Mr. William Newett, of the Iron Ore, as consultant editor. We feel that there is considerable interest in the publication but that it does not yet meet the needs or does it present the company in the best light. It is our opinion that the company might well establish a magazine such as the Jones & Laughlin Ore Company has established and now known as "Men and Steel".

z. APPRECIATION

It is a privilege to again record in this report my appreciation for the cooperation, the guidance and the understanding which have always been given this department by Mr. C. J. Stakel, General Manager, and by Mr. C. W. Allen, Manager of Michigan Mines. I wish also to express my appreciation for the cooperation which has always been received from Mr. A. J. Stromquist, Safety Director, and from Captain H. F. Rogers, his assistant. We shall strive to coordinate and cooperate with the work of this department at all times. It should also be mentioned here that the Superintendent of the Welfare Department, who acts as Administrator of the Ishpeming Hospital, appreciates the splendid cooperation and help of Mr. C. W. Allen, Manager, Mr. J. S. McNabb, Chief Clerk, Mr. Joseph Cameron, Superintendent of the Hercules Powder Company, Mr. Ray Satterley, Superintendent of the Inland Steel Company, and Mr. Harry Peterson, Superintendent of the Jones & Laughlin Ore Company, who have been serving as members of the Ishpeming Hospital Advisory Administrative Committee.

I wish to conclude my annual report by expressing appreciation for the splendid help and assistance of Mr. W. E. Johnson, Compensation Agent, and for the fine service rendered by Mr. L. C. Holmgren and Miss Marilyn Holmgren, assistants to Mr. Johnson. We record again that we are very pleased to express appreciation for the fine services rendered by Miss Shirley Holmgren, Secretary to the Superintendent of the Welfare Department, who succeeded Mrs. Emily Nicholas Kivisto.

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w. VARIOUS DEPARTMENTS (Continued)LAKE SUPERIOR & ISHPERING RAILROAD COMPANYCOMPARATIVE STATEMENT OF GENERAL WELFARE EXPENSESYEARS 1945 - 1948, INCLUSIVE

<u>Donations:</u>	<u>1945</u>	<u>1946</u>	<u>1947</u>	<u>1948</u>
Fire Departments	35.00	32.50	35.00	30.00
American Red Cross	350.00	250.00	150.00	100.00
Munising War Fund	30.00			
Marquette Honor Roll	100.00			
Alger County Community Chest		24.00		
Community Chest Fund - Marquette, Negaunee, and Ishpeming	437.50	300.00	300.00	330.00
Tuberculosis Association	10.00	10.00	10.00	10.00
Munising Hospital Association		2000.00		
Michigan Sheriff's Association				10.00
Palestra Fund (Marquette)				400.00
	<u>962.50</u>	<u>2616.50</u>	<u>495.00</u>	<u>880.00</u>
 <u>Pensions:</u>	 5040.00	 5004.16	 5966.10	 6445.00
 <u>Compensation:</u>				
Compensation Paid	1158.18	1475.40	1323.00	8270.57
Medical Expense	2811.58	1371.45	1849.51	1627.25
Percentage of Payroll	.0012	.0013	.0010	.0057

WELFARE DEPARTMENT

WELFARE DEPT. ANNUAL REPORT YEAR 1948

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w. VARIOUS DEPARTMENTS

LAND DEPARTMENT

COMPARATIVE STATEMENT OF GENERAL WELFARE EXPENSES

YEARS 1945-1948, INCLUSIVE

	<u>1945</u>	<u>1946</u>	<u>1947</u>	<u>1948</u>
General Welfare Acct. No. 11.				
A-2 Prop. charged by Treas.	300.00	300.00	300.00	300.00
11-F Miscellaneous Expenses	<u>240.00</u>	<u>240.00</u>	<u>240.00</u>	<u>420.00</u>
	540.00	540.00	540.00	720.00
<u>Donations:</u>				
U.P. Development Bureau	500.00	500.00	500.00	500.00
Red Cross - Negaunee & Munising	905.00	465.00	232.50	182.00
Munising Fire Department	20.00	10.00	15.00	15.00
Munising Community Chest		100.00		
Alger C.o. War Fund	100.00			
Munising Hospital			5000.00	
Munising Softball Club			7.90	
Munising Baseball Club			15.93	
Boy Scouts - Munising			100.00	
Seney Tnsp. - a/c Manistique Hospital			<u>500.00</u>	
	<u>1525.00</u>	<u>1075.00</u>	<u>6371.23</u>	<u>697.00</u>
<u>Compensation:</u>				
Monthly payments to				
Ishpeming Hospital	489.29	471.51	651.08	829.75
<u>Compensation: Personal Injury:</u>				
Medical and Hospital	8.00	39.00	95.91	62.85
Compensation Payments	3122.12	2135.12	2294.62	1976.88
Percentage of Payroll	2.9	1.6	1.5	1.2
Physical examinations - Company employees		45.00	58.00	41.00

WELFARE DEPARTMENT

ELECTRICAL DEPARTMENT
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ATHENS MINE:

Several repairs were made to the compressor equipment during the year, including a rebuilt starting compensator for the 325 H.P. Westinghouse synchronous motor on the Nordberg compressor. Repairs were also made to the exciter of the Rand compressor including bearings and a complete rewind of armature and a new commutator.

The Fenwal thermostiches for automatically stopping overheated compressors were tested periodically at 324°F for the Nordberg and 318°F for the Rand compressor.

Cleaning and repainting of the skip hoist motor and generator windings has occurred more often since the generator fire in May of 1948. This fire started while the M.G. set was up to speed so the burning particles spread rapidly until the machine could be stopped. After a shutdown of several hours and careful examination, it was learned that no insulating material was destroyed. The fire was apparently started by a spark from the commutator.

A complete change of lubricating oil for the circulating system of the skip hoist M.G. set was made in December of 1948. This is the first complete change of oil in the tank container since January 11, 1945, when Renown engine oil was used.

The gear driven oil pump connected to main shaft of this M.G. set has also been rebuilt after a failure of gears and bearings last October.

Repairs were also made to the torque motor for the liquid rheostat and the liquid rheostat tank, water-coils, bushings and plates were also repaired during the summer vacation period.

Routine repairs and minor changes were made to the haulage equipment.

The Jeffry locomotive taken from the Princeton Mine to the General Shops for repairs was sent to the Athens Mine to be used underground. This locomotive is C.C.I. object No. C-1-110-062.

The 400 H.P. Westinghouse slip ring motor of the No. 2 Prescott pump was repaired during the month of March after the failure of several rotor coils.

CAMBRIA-JACKSON MINE:

The stator winding difficulties of the 500 H.P. Westinghouse hoist motor continued to get worse during the first several months of the year until a complete set of coils were ordered for a stator rewind. The entire motor was finally shipped to the Milwaukee shops of the Westinghouse Co. on June 27 where it was rebuilt and returned to the mine for installation in July. During the repair period, a 400 H.P. G.E. motor borrowed from Inland Steel Co. Bristol Mine at Crystal Falls was used.

The work on electrical equipment of the compressors was mostly routine during the year. Fenwal thermo relays are used on the two larger machines and are tested periodically and kept at about 315°F.

ELECTRICAL DEPARTMENT
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YEAR 1948

CAMBRIA-JACKSON: (Continued)

Several changes were made in the D.C. haulage set up. The load requires two 150 H.P. generators in parallel, which was arranged with considerable difficulty on account of the different characteristics of the General Electric and Crocker Wheeler machines. Some changes have been made in the panel and cable layout and two 800 amp. D.C. circuit breakers were purchased and installed during the year. One failure in the winding of the Crocker Wheeler generator occurred and was repaired in October.

The 250 H.P. starting compensator for the induction motor of the G.E. haulage M.G. set burned out in March, 1948. This was part of the equipment used by the Republic Steel Co. in the old engine house. The necessary material to keep the generator going was brought from the Princeton Mine and used until the faulty equipment was rebuilt.

The regular maintenance and repair work was carried on with the pumping equipment.

On the top tram, considerable difficulty has been encountered with Larry cars and controls, largely with old contactors getting out of adjustment, bearing failures, burned armatures and field coils. Two new cam type controllers were recently installed and grid resistors changed in the control house.

CLIFFS SHAFT MINE:

The band wire and stator coil difficulties in the 750 H.P. "A" shaft hoist motor continued to be the cause of costly delays during the first six months of the year.

A complete rewind job of the rotor and stator of this motor was commenced August 8, and completed August 15. The coils and insulating material was fabricated by Westinghouse and two of their men sent to take charge of the work with a crew from our General Shops to keep the work going 24 hours per day.

A double band wire was placed on the slip ring end of the rotor at 400 pounds pressure, and a single band on the coupling end.

Band wires and rotor connections of the "B" shaft hoist motor are inspected periodically.

The exciter armature of #1 Ingersoll-Rand compressor has been repaired.

The rotor coils and connections for the 438 H.P. synchronous motor of No. 1 compressor have also been repaired.

These compressors have also had temperature control tests several times during the year. The results of the last tests were #1 Rand compressor - 292°F, #2 - 317°F, and #3 - 302°F.

The haulage system has had the usual maintenance and minor repairs. The old Westinghouse synchronous motor of No. 1 haulage set became troublesome when its stator lamination slipped around in the outer casting. This was corrected by 3/8" plate curved to conform to the sides of the lamination and casting, and held in place with cap screws.

ELECTRICAL DEPARTMENT
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CLIFFS SHAFT: (Continued)

Four G.E. Tungar battery chargers were bought during the year and taken underground for charging locomotive batteries.

Installation of cables, switches, sub-way boxes and a 150 KVA 3 phase transformer for 440 volt power distribution in the section 10 area has been completed. The 2300 volt 3 phase cable extension was made from 6th level "A" shaft, a distance of about 2000 feet.

Routine repairs were made to pumping equipment. A new section of 2300 volt 3 conductor 2/0 cable was put in from the disconnecting switches on the pole near "A" shaft to the oil circuit breaker to replace one which failed.

Installation of motors and controls for individual drives of grinders, rollers and crusher equipment at crusher room of the central laboratory was completed. The crusher room has also been rewired and fluorescent fixtures installed.

LLOYD MINE:

Some repairs and changes have been made on the primary contactors of the skip and cage hoist controls. Difficulty has been experienced in getting parts for these panels as well as the one at the underground hoist on account of their old model and parts being obsolete.

Compressor equipment has been in service with usual electrical maintenance. Temperature relay tests were made periodically, the tripping occurs at 290°F for the Sullivan and 346°F for the Ingersoll-Rand.

The D.C. and A.C. power cable and switch installations to the 9th level have been completed. A 30 H.P. Westinghouse motor from Cliffs Shaft formerly from Gwinn district was taken to the shops for repairs and used on a centrifugal pump at the 9th level. This motor was changed from 440 volts 3 phase to 220 volts 3 phase 3545 R.P.M. It is serial No. 6-966039 and operates with a magnetic switch. Three 10 KVA 2300/220 volt transformers were also taken to the 9th level for 220 volt A.C. power supply. One of these 10 KVA transformers failed October 22, and was scrapped. A new one was bought from stock for replacement.

The 25 H.P. Buffalo blower formerly used at the Princeton Mine was taken to the Lloyd Mine in November with a 25 H.P. SK Westinghouse motor from Negaunee Mine to be used for ventilating the 9th level.

The new 54B shovel used at the Negaunee Mine most of the loading season was moved to the Lloyd Mine in September. The oil circuit breaker, disconnecting switches and 1000 ft. of #4 - 3 conductor cable were also taken from Negaunee Mine.

MAAS MINE:

Some changes in the liquid rheostat and controls for the skip hoist were made during the year.

Control equipment for the new Ward Leonard controls has been purchased and delivered at the mine.

ELECTRICAL DEPARTMENT
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MAAS MINE: (Continued)

The 1500 H.P. D.C. generator, 1500 H.P. D.C. hoist motor and the 1000 H.P. synchronous motor for the D.C. control of the skip hoist have been rebuilt in the General Shops and shipped to the mine for installation.

The stator of the 438 H.P. G.E. synchronous motor for #2 Ingersoll-Rand compressor was completely rewound in July. After the compressor fire in July, the Fenwal thermo relays have been tested periodically with No. 1 setting at 336°F and No. 2 setting at 324°F.

Failure of the stator winding of the 215 H.P. synchronous motor for #1 haulage set in February resulted in one coil being cut out of the winding.

The D.C. haulage panels and busses were changed for the installation of a new 2000 ampere circuit breaker.

Cable changes for using the old G.E. 2300 volt 3 conductor 2/0 pump cable as a D.C. single conductor feeder to improve the voltage for the 5th and 6th level haulage have been completed from the engine house to the 3rd level. This cable will carry the positive side of the load while the old German pump cable will carry the negative side of the haulage load.

Cables are on order for the 4/0 feeders from the 3rd level to the 6th level.

The upper section of the new 5000 volt, 3 conductor, 4/0 steel armored shaft cable was installed in February. This includes the section in the shaft from surface to 3rd level pump station and on surface from the shaft to the engine house.

The 250 H.P. Westinghouse motor and line starter recently moved from the Cliffs Shaft Mine to the Maas Mine 5th level with the Worthington centrifugal pump, was sent to the Holman Cliffs Mine in April after installation of the new Worthington piston pump on the 5th level. This equipment was returned to the Maas Mine in December and will be installed with the centrifugal pump on the 5th level.

The permanent layout of shovel cable connections have been completed, with ground protection equipment, switches and connections for east and west trestles, to replace temporary set up formerly used.

Westinghouse hoist generator serial No. 152N4711, Style 2-N-4711, 54 KW, 250 volts, Type SK, Frame 153, was taken from Maas 54B shovel in November to be used at the Atkins Mine at Kinney, Minnesota, while repairs are made to their generator, estimated four months.

Some work has been done on equipment for hoist to be installed on the 5th level for sinking the winze from the 6th to 7th level. The 200 H.P. motor object No. C-2-117-333 formerly used with Maas underground hoist and Princeton skip hoist, was taken to the General Shops with controller, grids, panels and circuit breaker from the hoist at #2 Princeton engine house to be reconditioned for the job.

Several changes have also been made on the top tram including removal of controllers and grids for the 50 H.P. A.C. motors formerly used with endless rope tram. The control equipment for the Larry cars was relocated after removal of the old equipment.

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ELECTRICAL DEPARTMENT
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MATHER A MINE:

There has been no change in the rope speed settings and the general regulations of the skip and cage hoists during the year. The new solenoid controlled, hydraulically operated emergency brake for the cage hoist has been installed and is now operating satisfactorily.

The commutators of the skip hoist generators have been turned true, and a set of G.E. brushes are being tried on one generator while National Carbon brushes are being used on the other.

The two operating compressors have been provided with thermo relays with a setting of 300°F.

Installation of the 500 H.P. G.E. synchronous motors, line starters and separate exciter M.G. sets with other electrical equipment for the operation of the two new Ingersoll-Rand compressors is about completed.

Changes in the engine house crane requiring the relocating of the cab, and moving and rewiring the controls has also been completed.

Installation of the control equipment for the new boiler plant and the heating and blower set up for the shaft, including the 50 H.P. blower has been completed.

Three 7½ KVA 2300/440/220 volt transformers for saw mill power and one 3 KVA 2300/110 volt transformer for lighting has been set up at the mill. A 2300 volt magnetic starter from Princeton Mine has been set up for starting the 40 H.P. saw motor. The cut off saw has a 10 H.P. 440 volt induction motor with magnetic starter. A blower has also been installed with a 5 H.P. 440 volt induction motor and a magnetic starter. Two 10 KVA 2300/440 volt transformers were set up near the mill to supply power for the Layne North-west pump near the stocking grounds.

Two of the Larry cars were rewired during the year, four spare motors bought from Westinghouse have arrived and are presently at the Lake Shore shops to be adapted to the Larry car job. A new electrically controlled oil burning heater has also been set up in the car repair house on the rock trestle.

Installation of the three new Worthington pumps on the 6th level has been completed. The electrical equipment for each pump consists of a G.E. slip cycle line starter, a G.E. 350 H.P. synchronous motor and a suction pump driven by a G.E. 15 H.P. 440 volt induction motor.

Transformers for the supply of 440 volt 3 phase power and 110 volts for lighting have also been set up in the pump station. Three 25 KVA 2300/440/220 volt are used for power distribution and one 7½ KVA 110 volt for lighting.

The two 5000 volt 350,000 C.M. 3 conductor A.C. power cables in the shaft have been extended to the 6th level where each cable terminates in a 4 way subway box. These subway boxes are on the plat near the shaft and are connected together with a 3 conductor 5000 volt 350,000 C.M. cable.

ELECTRICAL DEPARTMENT
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MATHER A MINE: (Continued)

From this location a 1/0 5000 volt 3 conductor cable is used to connect to the 6 way subway box located in the pump station. Presently the connecting links in one of the 4 way boxes are open so that one shaft cable carries the pump load while the other carries the mine scraper and haulage load.

Routine maintenance of haulage equipment, and moving substations and cables for scraper power distribution has been carried on.

Two new 150 KVA 3 phase 2300/440 volt transformer stations were installed on the 5th level and two of the same size on the 6th level with the usual 3 KVA 2300/110 volt transformer for lighting with each sub location.

In conjunction with the moving of substations and scraper machines, approximately 5000 ft. of #2 - 3 conductor steel tape armored cable and about 5000 ft. of #1/0 600 volt 3 conductor steel tape cable has been used during the year.

The sinking hoist used underground on the 7th level of the Lloyd Mine was taken to the Mather A Mine and set up underground for sinking operations. A 37 H.P. slip ring motor was installed with this hoist since the motor for this equipment was being used on the ventilating pipe hoist at Mather B Mine. After the failure of the 37 H.P. motor in September, the original 35 H.P. G.E. motor for the Lloyd Mine hoist was taken from Mather B and installed at Mather A. The 37 H.P. motor was sent to the G.E. shops for a rewind and will be sent to Mather A as a spare for their underground hoist.

MATHER B MINE:

After the use of a temporary control set up using a liquid rheostat for control of the second 400 H.P. A.C. motor of the main hoist for shaft sinking, the new bank of grid resistors from G.E. Co. finally arrived and a more permanent control was installed, which was completed March 1. The switches, controller, primary and secondary contactors from the sinking hoist at Mather A was used to complete this control set up.

Two sections of the main A.C. power cables have been installed from surface to a depth of 1000 ft. These are 5000 volt 3 conductor 350,000 C.M. cables and are a part of the permanent mine installation.

Motor No. C-5-117-369 from the Lake storage is now being used on the ventilating pipe hoist to replace 35 H.P. motor which was taken to Mather A Mine.

NEGAUNEE MINE:

No appreciable change has been made in the hoisting, pumping or tram equipment at this mine during the year.

Rewinding of the 438 H.P. synchronous motor of the Ingersoll-Rand compressor was completed in March. There have been several failures in the new stator winding due to breaks in the copper. One faulty coil is cut out of the winding while the others have been repaired.

Some minor repairs have been made to pump cables and signal cables in the shaft.

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ELECTRICAL DEPARTMENT
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SPIES MINE:

Routine repairs have been made to the contactor panels and controls of the skip and cage hoists.

The 4/0 haulage cable installation from the engine house to the shaft was completed in September and a new cable was installed to replace the one which failed in the floor of the engine room.

The 40 H.P. 850 R.P.M. 220 volt motor for the 4th level plunger pump is in bad condition. An old motor from the turbo generator injection pump at the Maas plant was reconditioned at the shops and sent to the Spies Mine as a spare for this pump job.

Three 50 KVA 2400/240/480 volt transformers on order for 440 volt power for the blower and pumps at the air shaft arrived and were installed in August. The three 50 KVA 2400/120/240 volt transformers of the temporary set up were sent to the General Storehouse and sold to the Cliffs Power & Light Company.

Arthur Olson

