

Mine. This joint survey established the position of this quarter section line. From these surveys, we ran the East-West 4000 N. line and the 5000 N. line three-quarters of a mile East. From this East-West 4000 N. line, North-South lines were run at 6600 E., 8000 E. and 9600 E. across a portion of the $S\frac{1}{2}$ of Section 19 lying North of Highway US-41. These lines were run for the Geological Department magnetic surveys. Some mapping of outcrops and pits was done in this area and drill holes located.

TILDEN DISTRICT

The drilling in the $S\frac{1}{2}$ of $SE\frac{1}{4}$ of Section 24 and the $N\frac{1}{2}$ of $NE\frac{1}{4}$ of Section 25, 47-27, by the Geological Department, required brushing out of some of the old survey lines that had been run many years ago. Many of these old pins were found, from which the drill holes were located and surveyed. Additional iron pins set in concrete were placed on these old lines as it was found that some of the old pins were not usable.

SECTION 12, 47-27

During October and November, the leveling of all of the East-West lines in Section 12 was completed and the East-West 8800 S. line was re-run to correct an error that had been found in the original survey.

CLIFFS- 8TH ADDITION

Mr. Harry Hall of Oconto, Wisconsin, formerly City Engineer of Ishpeming, was employed to prepare plans for street grades, water, sanitary and storm sewer plans for the Cliffs 8th Addition in the $S\frac{1}{2}$ of $SE\frac{1}{4}$ of Section 34, 48-27 North of Ishpeming. There was no field work done in this area during the year but estimates of cost of installation, grading, etc. were prepared.

HILL-TOP EXPLORATION

The leasing of the $NW\frac{1}{4}$ of Section 26 and the $NE\frac{1}{4}$ of Section 27, 43-35, Iron County, was completed late in the year and in December drilling was started. Preliminary surveys were run and some mapping done adjacent to the drill locations. The complicated surface ownership of these two quarter sections requires accurate surveys in order to determine, prior to drilling, the owner of the surface where the drill is to be placed.

GROUND WATER LEVELS

During the year, monthly readings of the Ground Water Levels were taken at the Mather "A" Mine. The readings at the Maas, Negaunee and Athens Mines were discontinued at the end of 1948. The following table shows the comparison of the readings at the beginning and end of the year:

Test Hole No.	Elevation of Water		Difference 1949	Original Elevation.	Total Difference
	Jan. 1, 1949	Jan. 1, 1950			
22	1385.0	1384.0	-1.0	1387.8	-3.8
26	1404.6	1404.2	-0.4	1406.8	-2.6
32	1401.8	1404.2	+2.4	1409.4	-5.2
38	1386.1	1386.2	+0.1	1391.3	-5.1
40	1383.3	1396.2	+12.9	1394.8	+1.4
54	1381.1	1385.7	+4.6	1390.2	-4.5
55	1383.9	1385.4	+1.5	1390.5	-5.1

Test Hole No.	Elevation of Water		Difference 1949	Original Elevation.	Total Difference
	Jan. 1, 1949	Jan. 1, 1950			
56	1390.0	1391.4	+1.4	1401.0	-9.6
57	1416.3	1417.5	+1.2	1420.1	-2.6
60	1385.6	1384.2	-1.4	1393.3	-9.1
61	1389.0	1399.4	+10.4	1407.3	-7.9
62	1380.4	1404.4	+24.0	1384.3	+20.1

There has been no explanation for the rise in the water level in Holes 61 and 62 during the past year. Both these holes have slotted pipes and throughout the year there has been quite a fluctuation in the water levels in these two holes for no apparent reason.

HOLIDAYS

The following holidays were granted during the year:

- January 1st New Years Day.
- May 30th Memorial Day.
- July 4th Independence Day.
- September 5th Labor Day.
- November 24th Thanksgiving Day.
- December 26th Christmas.

Carl Duwer

Recorder

CB:DW
5-10-50

GILBERT BOND
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ATHENS MINE:

One serious accident to mechanical equipment at this property occurred during February when the south skip was dropped to bottom, a distance of 280 ft., when struck by load of ore let loose from 4th level pocket when skip was ascending at 8th level location. Cause of pocket unloading prematurely was due to "hair-trigger action" of 4th level measuring pocket door operating mechanism. Since the accident, which resulted in severe damage to skip and skip road at shaft bottom, all measuring pocket door mechanisms of operating levels were re-conditioned.

In the engine house a major breakdown occurred to hoisting equipment when the service brake toggle base casting of cage hoist broke, rendering this brake inoperative. A new casting was secured and repair made over a week end. The hoist was not out of service during production hours as the manually operated hand wheel brake on opposite side of drum could be used.

A second major breakdown occurred in December when the east main bearing of main motor-generator set seized when direct connected lubricating oil pump failed. Since then the set has been equipped with an independent lube oil pump operated from pressure switch. This unit supplements the direct connected pump.

The initial installation of an underground belt conveyor system was made at this property during the year. This 24" Joy-Ladell Conveyor was installed in a block cave area on 4th level. The belt worked quite satisfactorily, but the shuttle feeder proved entirely too light for the work intended and numerous delays were incurred. The unit was kept in operation until that portion of the block cave area it served was mined out, then it was removed to surface and has not been installed since. The consensus of opinion was that a 40 HP double drum slusher hoist was a more practical and economical means of ore transportation in the block cave transfer subs than a belt conveyor equipped with shuttle feeder because of moving ground conditions and size of material being handled.

Subsidence of ground about surface installations continued to give alarm during the year. It was noted that settlement of stocking trestle was causing the headframe to pull to the west and so the connection between the two structures was severed to allow for free movement of the trestle. Numerous cracks appeared in masonry about the Miners' Dry and all piping systems had to be equipped with swing joints and/or expansion couplings to prevent rupture due to excessive strain.

In the shops, the drill press and circular saw were equipped with individual electric motor drives and a 20" jointer was transferred here from Hard Ore Shops.

CAMBRIA-JACKSON MINE:

The major change in the engine house concerned the replacement, in August, of the 500 HP, 435 RPM hoist motor with a 700 HP, 390 RPM wound rotor motor removed from Maas Mine skip hoist. To maintain the same hoisting speed, a new pinion shaft with larger integral herringbone pinion was purchased and installed. At the same time the pinion shaft pedestal bearings were modified to take adjustable bases so that alignment could be easily adjusted and maintained. The change in motors was made merely to reduce overload condition and no increase in skip factor is anticipated.

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CAMBRIA-JACKSON MINE: (Continued)

New surface installations included changes in Miners' Dry heating and plumbing along with remodeling of water heating and storage facilities. The hand-fired engine house boiler was equipped with underfeed stoker.

Underground, a new 200 lb. discharge air compressor was installed in 4th level pump house to aid in charging plunger pump cushion chambers.

Planning of underground winze conveyor belt haulage system was completed and equipment ordered. Excavation of winze began in latter part of the year. This installation will involve a 30" belt conveyor system having 556 ft. centers and total lift of 144 ft. It is planned to install the belt conveyor in three sections as winze sinking progresses so that same can be used for winze muck removal.

CLIFFS SHAFT MINE:

In the engine house the coupling brake wheels on both hoists were renewed because of excessive friction checking on braking surface. The new cast steel replacements are of a design to better dissipate the heat generated by emergency braking and are proving out very well. A stand-by 300 GPM water circulating pump was installed in pump house for cooling water requirements.

In the shops all power driven equipment was equipped with individual motor drive and overhead line shaft removed. Old style pipe radiators were removed and heating in all shop buildings is now furnished by overhead steam operated unit heaters. In the drill shop the IR-54 Drill Sharpener was provided with U. S. Rubber vibration dampeners and inertia block foundation to successfully dampen out impacts that were affecting delicate balances in adjacent Ore Analysis Laboratory.

"B" Shaft headframe structure was completely renovated by the Intrusion-Prepakt Company who installed 3500 sq. ft. of concrete patches to make this shaft house structurally sound. They also installed four louvered openings in top of dome which will materially aid in venting moisture-laden shaft air and prevent seepage into construction joints with resultant freezing and spalling.

In July a new steel railroad car loading pocket was completed in Crusher Building.

LAKE MINE DEFERRED:

Dewatering operations began here on December 10th with the installation of a 1500 GPM centrifugal pump borrowed from the Tilden Mine. Lindberg & Sons were engaged to remove the overburden and load out the ore, using our Tilden Mine Euclid trucks. Plans were being rushed at end of year to utilize a portion of the old Lake Mine buildings for Euclid truck storage and maintenance. Diversion of water flowing over mining area to Lake Mine will be by means of installation of 14" spiral welded pipe line on hand at Mather Mine "A" Shaft.

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LLOYD MINE:

During the first half of the year the 8th level winze hoist gave a lot of trouble and considerable delay was experienced with failure of main shaft bearings until old cast iron units were replaced with forged steel caps and cast steel bases. In July a serious accident occurred with this winze hoist when operator dozed on night shift and pulled loaded cage into head sheave and severed the hoist rope which allowed cage and loaded car to drop 170 ft. to the winze shaft bottom. Fortunately a spare cage, head sheave and rope were on hand and production was resumed with one day loss. Since that time the hoist has been equipped with an over-travel alarm and emergency coupling brake.

Some changes in pumping arrangements were made and a new 6" discharge column was installed from 8th to 7th level to effect a continuous 6" water column from 9th to 7th levels inside the mine.

MAAS MINE:

On surface the main discharge line was relocated to allow L. S. & I. Railroad Company to install a new 7-track storage yard. Considerable replacement of deteriorated structural members of the headframe was required. This work will continue as steel crew is available until the shaft house is structurally sound.

In the engine house the major change was the conversion of the skip hoist drive from A.C. to D.C., utilizing war surplus motors and generators and auxiliaries plus new Cutler-Hammer control equipment. The old A.C. drive motor was transferred to the Cambria-Jackson Mine. The drum shell rope spout on the cage hoist failed by cracking up around rope entrance point, which made for a serious condition until noted and repaired because the cage rope started to sever over the sharp broken edges. A cast steel rope spout attachment was bolted in place to lead the rope to anchorage over longest possible radius.

Plans were made to sink the inside winze from 6th to 7th level so the single drum winze hoist previously used was reconditioned in Hard Ore Shops and installed on 5th level ready for sinking operations to begin. Work began on construction of two cages which will be used to transfer 65 cu. ft. cars of ore from 7th to 6th level by means of balanced hoisting.

MATHER MINE "A" SHAFT:

On surface, revision of stocking trestle track arrangement by company crews and erection of no. 3 stocking trestle by Wisconsin Bridge & Iron Company were the largest projects. At the end of the year, no. 3 trestle was 90% complete. Due to excessive maintenance costs and delays due to breakdown of Lake Shore All-Way Dump Top Tram Cars, an intensive study of suitable replacements was made and final decision reached to engage a competent designer to design a 250 cu. ft. top tram car complete with hydraulic brakes and door operating levers which would be pushed by separate 8-ton locomotive. The Design Service Co., Inc. of Cleveland handled the design and before the end of the year, an order for three cars and three locomotives was placed for delivery prior to commencement of 1950 stocking season.

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MATHER MINE "A" SHAFT: (Continued)

In the headframe, the north railroad loading pocket was redesigned and fitted with six air cylinder-operated doors for simultaneous loading of two cars. A study of suitable screening and crushing equipment for headframe installation was made and orders placed for manganese feeder, shake-out screen and jaw crusher. This equipment will be installed during 1950 vacation period.

In the engine house, the two war surplus Ingersoll-Rand compressors were installed and placed in operation. This plant now has a total air plant capacity of 10,800 CFM of free air at 100 lbs. pressure. Each of the four units have 5-step control which makes for a very flexible system that can adequately maintain 90 lb. air pressure at all points of the system. In addition to the installation of the two compressors, the air receiver and piping from compressors to same was remodeled and one additional receiver installed.

Underground, a new 2" fire protection water line was installed in shaft from surface to first level. Final touches were made to 6th level pump station where three 500 GPM Worthington Duplex Plunger Pumps are ready for service. The extension of the main shaft to open up the 7th level was made and involved extension of 14" counterweight pipe, 12" compressed air line and temporary water discharge lines. The single drum winze hoist used for handling shaft sinking rock was not removed from its foundation as it will be used to handle skip pit spillage.

Considerable experimental work was done on design of solid rubber tire skip guide rollers in an effort to lessen wear on 80 lb. rail used as skip guides. The set installed in July proved successful and their use will be adapted to the second skip in the near future.

In the shops the only major changes involved transfer of overhead traveling crane from original warehouse location to machine shop area and installation of new oil-fired forging furnace for handling drill steel heating.

MATHER MINE "B" SHAFT:

During the year 1949 many changes took place on the surface of this new property. The permanent engine house structure was completed by MacDonald & Kaake and all main machinery foundations constructed. The Nordberg cage hoist erection started March 1st and was completed except for adjustments that had to wait until power was available. Skip hoist erection began in July and the mechanical portion of that hoist was erected and driving motors applied before end of year. Erection of cage hoist synchronous motor driven M-G set was started as well as main M-G flywheel set, but installations were not complete at end of year. The first of two 500 HP synchronous motor driven Ingersoll-Rand war surplus air compressors was erected. A used, 35-ton capacity overhead traveling crane was erected in engine house and used for all heavy machinery erection.

McDowell & Company began erection of new headframe in April, and job was complete by August. A. H. Proksch & Son Company completed the crusher house enclosure subsequent to the erection of heavy flow sheet machinery items such as two heavy manganese steel rock feeders, a shake-out screen and jaw crusher.

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MATHER MINE "B" SHAFT: (Continued)

A. H. Proksch & Son Company was awarded the general contract for construction of main dry, shops, office and boiler plant buildings. The six week strike in the fall seriously delayed their work but by the end of the year the boiler house was enclosed and boilers in place and the main dry portion of the buildings was far enough along to permit inside work to continue.

Conveyor belt stocking arrangement was worked out so that orders could be placed for all equipment necessary for initial north-south belt installation.

Shaft sinking progressed very satisfactorily during the year and shaft was completed in August; however permanent cage and skip road fir guides were not yet installed at year's end. The permanent 12" air line in shaft was completely installed.

Decision was made to try a bottom dump skip at this new property, to work in balance with a standard Kimberly skip. Before the end of the year the design of the new bottom dump skip was completed and fabrication of same in our own shops was started. The Kimberly skip design was completed and order for one unit placed with National Iron Company of Duluth.

NEGAUNEE MINE:

After mining operations ceased at this property April 27th, all underground mining machinery was removed to surface. Maintenance of pumping equipment was the largest mechanical item after the shut-down as there has been a definite increase in pumping load since then.

At the end of the year the option was exercised on the used double-drum, double-clutched, Allis-Chalmers mine hoist at the Kennedy Mine, Amador County, California. This unit will be repaired and ultimately installed in the Negaunee Mine engine house as new skip hoist which will be initially used to sink shaft from present 1500 ft. depth to proposed 3500 ft. depth.

SPIES MINE:

Underground, the maintenance of the pumping system required the greater portion of the Mechanical Department's time. In January, an increase in the acidity of the water being pumped from inside 4th level to air shaft was noted and an all-bronze 40 HP motorpump was purchased and installed. This unit gave good service from April throughout the year. On the 5th level the 800 GPM Aldrich Quintuplex Pump gave trouble when 5 ft. dia. belt wheel worked loose on pinion shaft. Emergency replacement of shaft was made. To channel the acid mine water from 4th to 6th level, the initial installation of a rigid plastic pipe line was made. This light weight plastic 4" line has proven to be acid-proof and will take pressures up to 145 p.s.i.g.

On the surface, an addition (30' x 22') was made to the main dry to provide new facilities for surface men and shift bosses. Also, the interior of the miners' dry was re-arranged to alleviate over-crowded conditions.

The McCully gyratory crusher in headframe was completely reconditioned by using parts from identical unit at idle Princeton Mine.

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TILDEN MINE:

There were no outstanding changes in plant or mechanical equipment at this property during the year. Regular overhaul of all processing machinery was carried on after close of operating season.

GENERAL:

HARD ORE SHOPS:

The footings and curb walls of a 30' x 99' addition to the east side of the north end of Blacksmith Shop were erected and the Truscon enclosure would have been completed except for the six week strike in October-November. Weather conditions after resumption of work were such that completion was postponed until spring. This addition will house steel set fabrication machinery which will adequately handle 500 complete sets per month.

TUNGSTEN-CARBIDE ROCK BIT APPLICATION:

The usage of tungsten-carbide insert rock bits became quite prevalent during 1948 and as their introduction interjected many new problems, an experienced engineer was hired for the Mechanical Department in January, 1949, and assigned to spend his full time in following up the application of this new drilling aid and its allied equipment in all the Marquette Range mines. Splendid results were obtained as evidenced by the decrease in insert bit cost per foot of hole drilled from average of \$.092 in 1948 to \$.0713 for the last nine months of 1949 at our Cliffs Shaft Mine which is the largest consumer of rock bits due to its hard ore.

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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>
1940	573,487	1,053,990,000	1,837	362,590,686	636
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
1949	504 513	1 124 105 000	2 228	433 229 875	821

ATHENS MINE:

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
1949	550 977	992 700 000	1 801	176 437 598	334

MAAS MINE:

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
1949	621 946	1 233 540 000	1 983	550 080 422	1 043

NEGAUNEE MINE:

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
1949	79 699	233 415 000	2 928	464 467 219	880

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COMPARATIVE TABLES

<u>CAMBRIA--JACKSON 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>
*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
1949	438 064	508 050 000	1 159	173 342 402	328

(*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:

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
1949	209 161	231 241 500	1 105	50 828 500	96

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
1949	1 154 538	1 207 350 000	1 045	91 876 158	174

TILDEN MINE:

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
1949	88 503

533

THE CLIFFS POWER & LIGHT COMPANY
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The energy generated and purchased during 1949 amounted to 115,529,840 Kwh which was 1.4% less than that generated during the year of 1948. Correspondingly, the sales of energy amounted to 105,414,618 Kwh or 1.7% less than the sales for 1948. This reduction in energy delivered to the transmission system and sales was due primarily to the strike in the iron ore industry which took place during October and the first half of November which caused a reduction of approximately 26% in the energy requirements on our system during these two months. Without this interruption in the iron ore mines, our energy requirements would have been approximately 6% greater than during the previous year.

At the end of December, 1948, we had, after allowance for ice, approximately 15.7% of our storage capacity filled and estimated that the available energy in this stored water amounted to 4,359,000 Kwh. This was an extremely small amount for that time of the year, but fortunately, the installation of the second group of five Diesel engines had been completed and by use of this additional equipment, we were able to meet all of our load requirements with little difficulty.

During the year 1949, we generated a total of 66,698,100 Kwh by use of our hydro plants, 30,006,500 Kwh by Diesel and purchased 18,825,240 Kwh. Water conditions remained extremely bad from January until July. The peak of our stored water during that period occurred in May when we had 44.6% of our storage filled. During July we received 11.72" of rain, the heaviest precipitation that had ever been experienced since we have been keeping weather records. This resulted in an appreciable increase in our stored water and continued precipitation for the remainder of the year placed us in a very good condition at the end of December, 1949, at which time, after allowance for ice, we had 58.4% of our storage filled and approximately 24,000,000 Kwh which would be available from stored water.

During the period from January, 1949, until July, 1949, we were generating an average of nearly 4,000,000 Kwh a month by Diesel engines and were purchasing approximately 2,000,000 Kwh a month. In July, we cut our Diesel engine generation down to approximately 2,000,000 Kwh monthly and in October, cut this down still further to less than a million kilowatt hours. Purchases continued at about the 2,000,000 Kwh per month level until October, at which time they were cut approximately in half. The all-time peak on our electric system was reached on August 30, 1949, at which time we had a peak load of 21,900 KW and generated 400,000 Kwh during one 24-hour period.

At the end of 1948, we realized that we were having an excessive amount of difficulty and excessive maintenance costs in the operation of our Diesel engine equipment. 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 and procedures which would reduce these costs. However, it was not until February 17 that they sent an engineer to us to assist in remedying these difficulties. Mr. Steeley of the General Motors Corporation arrived in Ishpeming on February 17 and stayed with us, working entirely on Diesel engine economies, until April 7. During that period he made many suggestions as to changes in our operating procedures and a few suggestions relative to the installation of the engines. These recommendations were followed with the result that production costs in the Diesel Plant were materially reduced subsequent to April 7.

By January 1, 1949, we had the foundations in for the main structure and equipment for the new 7500 KW steam turbine and boiler. Material arrived during the winter months according to schedule. During March, the Stone & Webster Engineering Corporation again checked their costs and revised their estimate of the ultimate cost of the station from \$1,900,000 to \$2,260,000. This revision in cost was followed by a conference in Cleveland between our people and those of the Engineering Corporation, and decisions were reached by which it was hoped the total expenditure could be held to a minimum. Actual construction above the foundations was started when steel erection was begun on April 7. Since that time, the power plant has proceeded according to schedule and at the end of the year, it was anticipated that the plant would be in operation only 15 days later than the original estimates had called for, namely it would be in operation on approximately February 15, 1950. Arrival of materials and invoices at prices not increased as much as were estimated resulted in a revision of the total estimated cost of the plant, which at the end of the year was given an overall estimated cost of \$2,110,163. Even after the station is put into operation, there will be a considerable amount of yard work, painting, and other similar items which will be taken care of in the early spring.

At the end of 1948, it was realized that the reduced hydro-electric production, resulting in increased energy production by fuel burning equipment, would materially increase the company's operating costs and decrease the net return of the company. Accordingly it was decided that a revision of rate structures was necessary to compensate the company for this added expense. An application had been made to the Michigan Public Service Commission for an increase in certain rate structures, the increase to consist of the addition of a fuel clause to existing rates, and increases in the rate structures of the private contracts under which energy was being sold to others for resale. Contracts had been signed with the Wisconsin Michigan Power Company and were being negotiated with the Michigan Gas & Electric Company and with the City of Negaunee. In January, the Michigan Public Service Commission notified our company that it would not accept the increase on present rate structures by the addition of the fuel clause unless a formal hearing was conducted.

In February in a conference with those in the company responsible for the conducting of this hearing, it was decided that we would proceed with the formal hearing but that instead of asking only for an increase by the addition of a fuel clause, we would also request an increase of approximately 10% in our rates W.P.-1, W.P.-2 and W.P.-3 in addition to the fuel clause. At the time of this conference, the Michigan Gas & Electric Company contract had been successfully negotiated and signed and the City of Negaunee contract was still being negotiated.

This decision was made known to the Michigan Public Service Commission and during March, they decided to make a preliminary investigation of our property accounts, particularly in regard to the changes made in 1939 as a result of the Stone & Webster revaluation of the property, and to gather other information which would enable them to decide whether or not our application for a rate increase should be granted. On April 26, we had the first formal hearing on this application and the Public Service Commission began to gather its data. On June 28, another hearing was had with the Commission in which it was requested that we be given authority to put into effect the rates for which we had applied on a temporary basis to give us some relief until the Commission had an opportunity to reach its decision as to whether or not these rates would be made permanent. We entered this hearing with the permission of all affected parties to make such an increase effective

and the Commission granted a temporary order effective July 1, approving the rates on a temporary basis until December 31. Late in December, an extension was given for the use of these rates until July 1, 1950.

The Commission proceeded then to make a thorough audit and investigation of all of the company's books in regard to property accounts, revenues, etc. which extended over several months and it was not until the latter part of December that it finally issued an order, establishing the original cost of our property as it should be entered on the company's books. With these values as a basis upon which to estimate the company's rate base, it is anticipated that they will reach an early decision and that the rate base will be such as to justify making permanent the rates which we have requested.

After many conferences and negotiations, the City of Negaunee approved a new contract on October 18, 1949, to be effective July 1, 1949, for a period of one year and renewable for one year periods, providing that they would be billed on the same rate structure which had been negotiated into the contract with the Michigan Gas & Electric Company. Because of the increase in general rate structures and in the rates effective on the private contracts under which the company sells power, the revenue from sale of energy showed an increase from \$1,485,828.72 in 1948 to \$1,605,364.38, or an increase of 7.4%, in spite of the fact that sales of energy had decreased 1.4%.

Work which had been started by the Intrusion-Prepakt Company in 1948, repairing the top and upstream face of the Hoist Dam, was carried on throughout the winter of 1949. The patches which had been prepared on the upstream face during the low water periods were pumped in May and all work done by this company on the dam was completed during June. The total cost of this project was \$73,466.13.

Due to low voltage conditions which were experienced by the customers fed from the Manistique end of the 60 KV line, it was decided to locate the synchronous condenser, which had been operating in the Brownstone Substation, at the Quarry Substation. This installation was made in May, but it was found that the machine was unbalanced and had to be taken out of operation in August. The rotor was removed and sent in for repairs and rebalancing by the Milwaukee Shops of the General Electric Company, but had not been received and placed back in operation by the end of the year.

During a severe lightning storm on July 28, the winding of the No. 2 Generator at the McClure Plant was burned out. Several coils were destroyed, but since we could not afford to take the unit out of service, new coils were ordered and the machine placed back into service at partial capacity. Because of the reduction in demand on the system generating facilities caused by the strike in the iron mines, work was started to rewind this machine as soon as the strike started, and a complete new winding was installed during the first half of October.

During 1948, we had ordered equipment necessary to convert the AuTrain Hydro-electric Station to automatic operation. This equipment arrived during 1948 and was installed, the first unit being placed into operation on August 11, 1949, and the second soon thereafter. However, due to the mechanical condition of one of the units, the automatic equipment could not be operated because the leakage in the wicket gates was excessive and the unit could not be stopped. Accordingly, this unit was dismantled and completely overhauled. Various difficulties were experienced and the unit

was still out of service at the end of December. However, it is anticipated that it will be placed into operation during January, 1950, and that about the first of February, this plant will be on a fully automatic basis.

Since the work of repairing the Hoist Dam had been completed in the spring and the repairs seemed very satisfactory, it was decided to do a similar job on the Carp Dam which was in extremely bad condition. On August 18, A. Lindberg & Sons was given the contract to chip off and replace the deteriorated concrete on the upstream face and the top of the dam. They began this work immediately and completed it on October 7. Intrusion-Prepakt Company was then given a contract to stop all leakage in the dam and to chip and rebuild the downstream faces and wing walls of the structure. They began work on October 13 and the work was progressing very satisfactorily at the end of the year. It is anticipated that all of the deteriorated surfaces will be chipped during the winter months and that as soon as weather conditions permit, it will be possible to replace the concrete in the places that have been prepared during the winter months.

On October 10, we had a very severe windstorm which caused slight damage to the AuTrain Dam by heavy wave action on the levee. At the time that the storm occurred, the water in the dam was several feet below its possible highest level and the damage which was sustained called to our attention very forcefully the fact that had the water in the dam been at its highest level, we would probably have had a serious failure of the dam. Realizing the existence of this condition, it was thought advisable to proceed immediately with raising the height of the dirt levees and riprapping the upstream side of the dam to protect against such wave action in the future. An estimate has been made to cover the cost of this work and it will be carried on in the spring of 1950.

THE CLIFFS POWER & LIGHT COMPANY

STATISTICAL DATA - 1949

	<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.	1,289,000	679,000	442,000	304,000	48,300	182,000	2,944,300	4,645,600	7,589,900	1,714,240	9,304,140
Feb.	2 363 000	551 000	702 000	348 200	52 200	181 000	4 197 400	4 127 300	8 324 700	1 551 240	9 875 940
Mar.	2 754 000	414 000	839 000	349 900	49 500	174 000	4 580 400	3 236 600	7 817 000	1 786 880	9 603 880
Apr.	1 896 000	1 721 000	550 000	653 700	192 300	810 000	5 823 000	3 049 700	8 872 700	1 688 760	10 561 460
May	2 471 000	1 109 000	833 000	721 200	306 000	884 000	6 324 200	3 248 600	9 572 800	1 578 280	11 151 080
June	2 397 000	747 000	790 000	329 700	165 500	340 000	4 769 200	3 979 400	8 748 600	1 828 520	10 577 120
July	2 516 000	1 171 000	840 000	267 200	256 200	683 000	5 733 400	1 908 000	7 641 400	2 020 440	9 661 840
Aug.	2 500 000	1 205 000	841 000	338 700	205 100	389 000	5 478 800	2 179 200	7 658 000	2 219 200	9 877 200
Sept.	3 185 000	1 107 000	1 157 000	386 300	148 800	420 000	6 404 100	1 730 300	8 134 400	2 152 280	10 286 680
Oct.	3 190 000	876 000	1 170 000	251 000	156 700	375 000	6 018 700	457 500	6 476 200	990 400	7 466 600
Nov.	2 465 000	1 656 000	757 000	274 300	270 700	536 000	5 959 000	833 000	6 792 000	557 000	7 349 000
Dec.	<u>4 006 000</u>	<u>1 910 000</u>	<u>1 484 000</u>	<u>363 800</u>	<u>271 800</u>	<u>430 000</u>	<u>8 465 600</u>	<u>611 300</u>	<u>9 076 900</u>	<u>738 000</u>	<u>9 814 900</u>
	31,032,000	13,146,000	10,405,000	4,588,000	2,123,100	5,404,000	66,698,100	30,006,500	96,704,600	18,825,240	115,529,840

THE CLIFFS POWER & LIGHT COMPANY

STATISTICAL DATA - 1949

	TOTAL GEN. AND PURCH.	STATION USE	DELIVERED TO LINES	KWH SOLD	TRANSMISSION LOSSES	
					KWH	%
Jan.	9,304,140	43,300	9,260,840	8,430,342	830,498	8.96
Feb.	9 875 940	38 360	9 837 580	9 101 454	736 126	7.48
Mar.	9 603 880	34 670	9 569 210	8 948 765	620 445	6.48
Apr.	10 561 460	32 600	10 528 860	9 684 517	844 343	8.01
May	11 151 080	37 120	11 113 960	10 248 155	865 805	7.79
June	10 577 120	39 600	10 537 520	9 577 301	960 219	9.11
July	9 661 840	29 350	9 632 490	8 694 531	937 959	9.73
Aug.	9 877 200	23 610	9 853 590	9 004 664	848 926	8.61
Sept.	10 286 680	25 600	10 261 080	9 376 415	884 665	8.62
Oct.	7 466 600	21 400	7 445 200	6 687 049	758 151	10.18
Nov.	7 349 000	21 760	7 327 240	6 773 099	554 141	7.56
Dec.	<u>9 814 900</u>	<u>22 810</u>	<u>9 792 090</u>	<u>8 888 326</u>	<u>903 764</u>	<u>9.22</u>
	115,529,840	370,180	115,159,660	105,414,618	9,745,042	8.48

THE CLIFFS POWER & LIGHT CO.
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SUBSTATION TRANSFORMERS:

Substation transformers installed as of December 31, 1949.

<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	37.5	<u>37.5</u>	37.5
<u>33,000/2300 Volts</u>					
Cliffs Shaft Substation	1	3	590	1 770	
Gwinn (old) "	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 Substation	1	3	1 000	3 000	
Mather "A" "	3	1	5 000	5 000	
Champion Mine "	3	1	1 250	1 250	
Mather "B" "	1	3	500	<u>1 500</u>	24 740
<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	2	5 000	10 000	
Carp Plant "	1	3	1 900	5 700	
Diesel Plant "	3	1	5 000	5 000	
" " "	1	3	2 000	<u>6 000</u>	34 050
<u>12,000/2300 Volts</u>					
Green School	1	1	15	15	
McClure Plant (Furnace Line)	3	1	1 250	1 250	
Inland #1	3	1	1 250	1 250	
AuTrain Substation	1	3	185	555	
Chatham "	1	3	50	150	
Eben "	1	1	25	25	
Rumley "	1	1	25	<u>25</u>	3 270

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

<u>12,000/440 Volts</u>	<u>Phase</u>	<u>No.</u>	<u>K.V.A.</u>	<u>Brought Fwd.</u>	<u>73,373.5</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 (old) "	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	1.5	<u>1.5</u>	1.5
<u>2300/460-230 Volts</u>					
Interstate Laboratory Sub.	1	3	100	<u>300</u>	300
<u>2300/120-240 Volts</u>					
C. C. I. Co. Research Lab. Sub.	1	3	50	<u>150</u>	<u>150</u>
Grand Total					75,830 KVA

DISTRIBUTION TRANSFORMERS:

	<u>Number</u>	<u>Capacity</u>
Total at first of year	615	3,806 KVA
" purchased during year	62	471
" installed " "	77	535
" sold " "	17	141½
" at close of year	660	4 135½ KVA
In stock at close of year	111	750½ KVA
" service at " " "	511	3 006
C.P.&L.Co. Plants & Auxiliaries	<u>38</u>	<u>379</u>
	660	4,135½ KVA

THE CLIFFS POWER & LIGHT CO.
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STATISTICAL DATA: - 1949

Month	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec
Precipitation -	1.97	0.68	1.90	0.42	3.90	3.67	11.72	2.23	4.31	2.20	3.22	1.01
Total precipitation at Ishpeming during 1949 -	37.23" (3.10 ft.)											
Average " " Marquette	- 32.80" (46 year record)											

CARP RIVER PLANT:

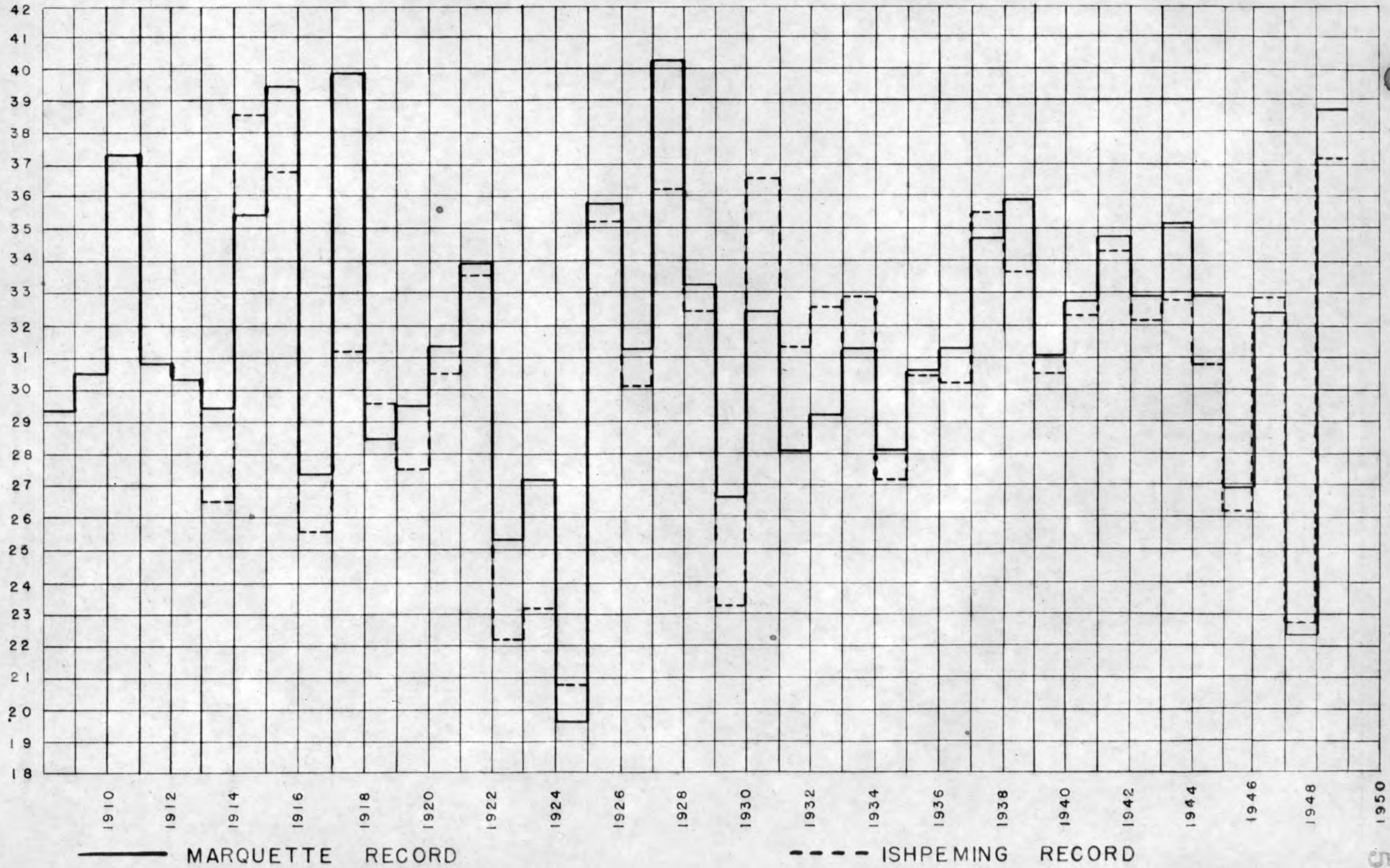
Drainage area above intake dam													66.66 sq. miles
Cubic feet precipitation in 1949													5,760,959,846
Kilowatt hours generated in 1949													13 146 000
Cubic feet water utilized (90 cu. ft. - 1 Kwh)													1 183 140 000
" " " wasted over intake dam in 1949													87 624 000
" " " in Carp storage basin Dec. 22, 1948													83 147 000
" " " " " " " Dec. 23, 1949													439 322 000
" " " added to storage in 1949													356 175 000
Total run-off for year 1949 (Cubic feet)													1 626 939 000
Run-off per sq. mile of drainage area (Cubic feet)													24 406 525
Second-feet of run-off													0.7739
	<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>	<u>1949</u>		
Total Precip.	33.58	30.34	32.20	34.26	32.04	32.77	30.81	26.12	32.88	22.87	37.23		
Sec.ft. run-off	1.47	1.05	0.83	0.84	1.17	0.70	0.81	0.56	0.88	0.44	0.77		

McCLURE PLANT:

Drainage area above intake dam													140.52 sq. miles
Cubic feet precipitation in 1949 (Hoist Plant-43.28"-3.62')													14,142,076,692
Kilowatt hours generated at McClure Plant in 1949													31 032 000
Cubic feet water utilized (125 cu. ft. - 1 Kwh)													3 879 000 000
" " " wasted over intake dam													0
" " " in Hoist storage basin Dec. 22, 1948													592 714 000
" " " " " " " Dec. 23, 1949													1 946 805 000
" " " added to Hoist storage in 1949													1 354 091 000
" " " in Silver Lake Dec. 22, 1948													0
" " " " " " " Dec. 23, 1949													246 330 000
" " " added to Silver Lake in 1949													246 330 000
Total run-off for year 1949 (Cubic feet)													5 479 421 000
Run-off per sq. mile of drainage area (Cubic feet)													38 993 887
Second-feet of run-off													1.24
	<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>	<u>1949</u>										
Total Precip.	37.27	28.81	43.28										
Sec.ft. run-off	1.22	0.78	1.24										

PRECIPITATION BY YEARS

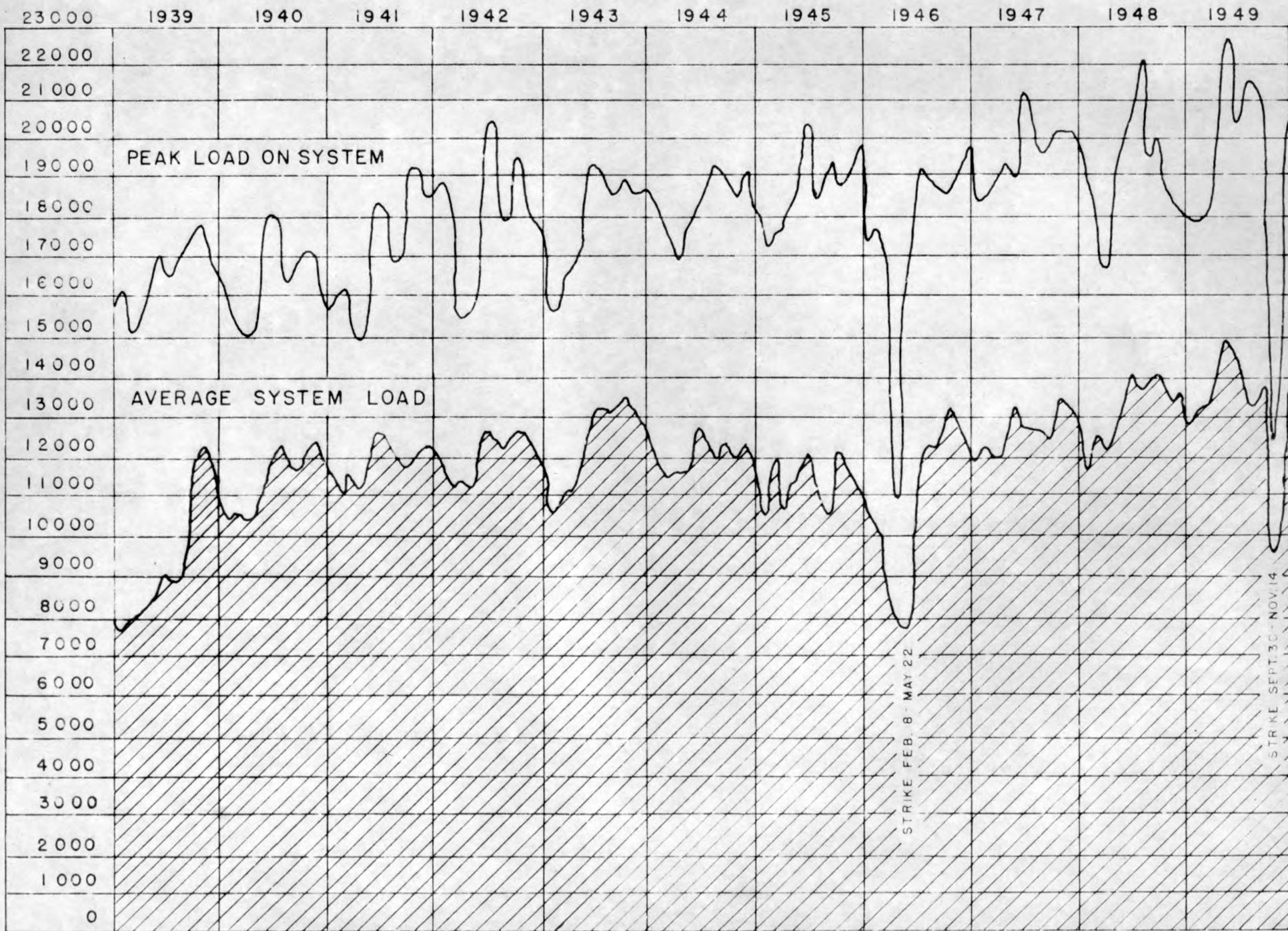
INCHES



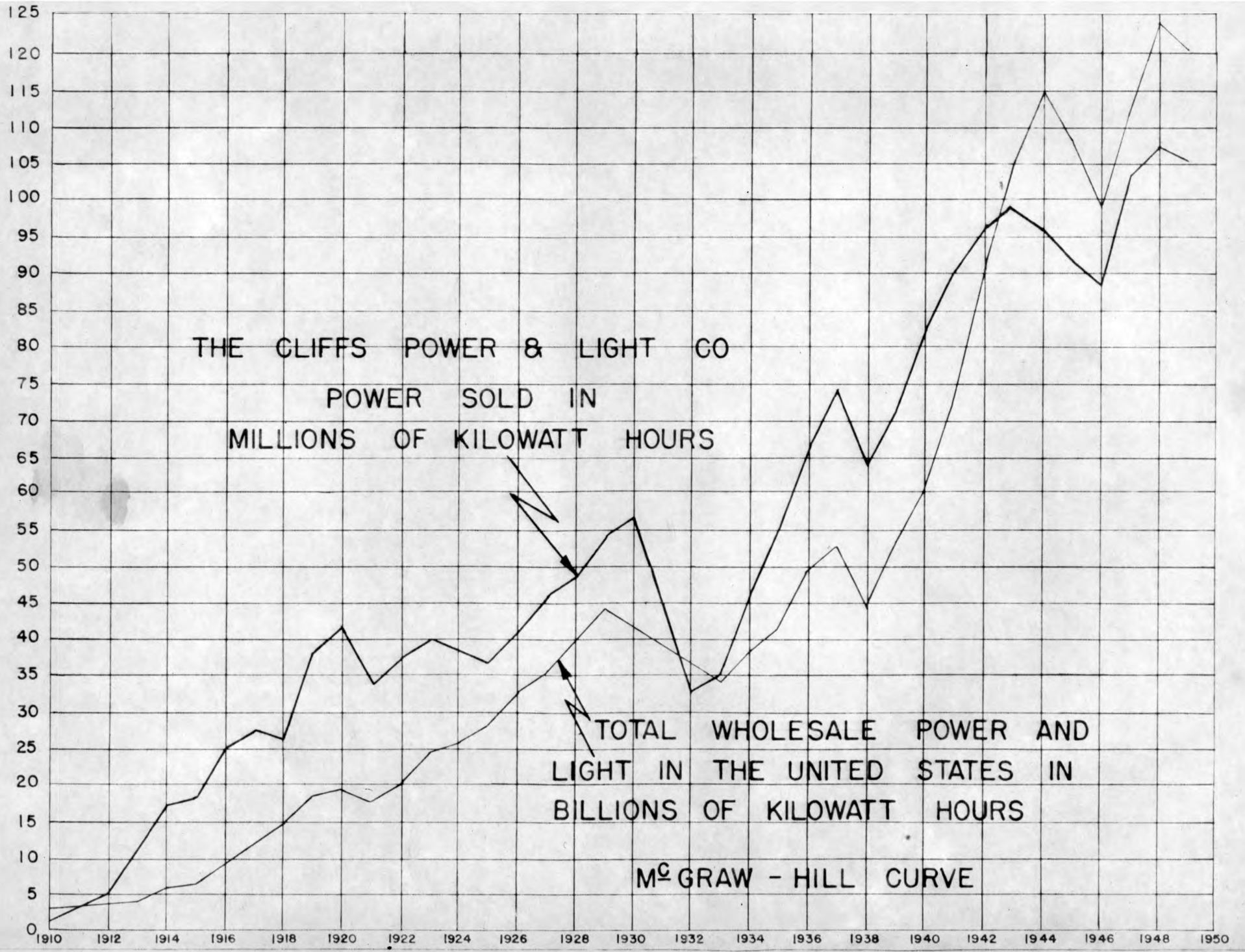
— MARQUETTE RECORD

- - - ISHPERING RECORD

KILOWATTS



STRIKE FEB. 8 - MAY 22
STRIKE SEPT. 30 - NOV. 14

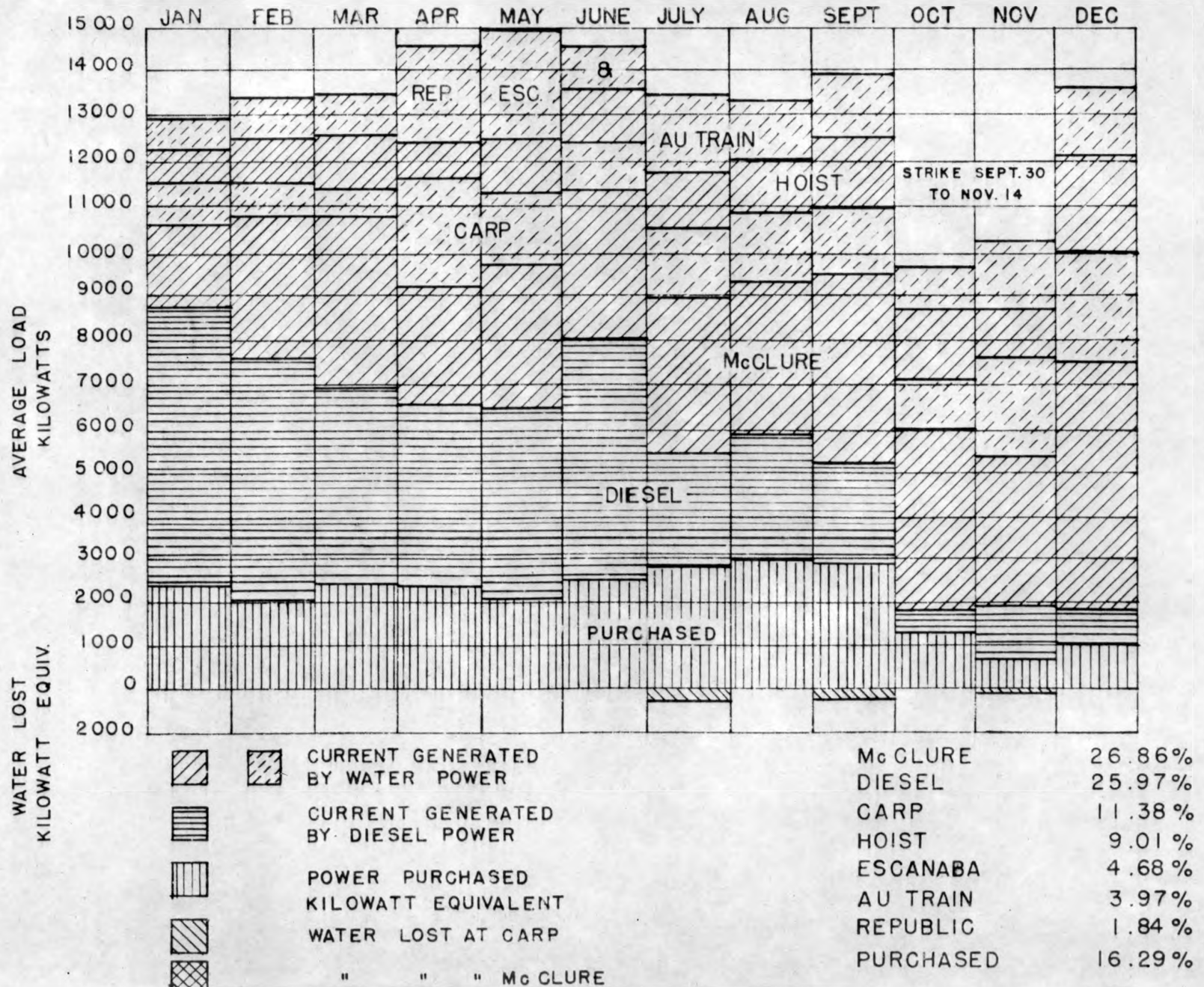


THE CLIFFS POWER & LIGHT CO
 POWER SOLD IN
 MILLIONS OF KILOWATT HOURS

TOTAL WHOLESALE POWER AND
 LIGHT IN THE UNITED STATES IN
 BILLIONS OF KILOWATT HOURS

McGRAW - HILL CURVE

1949



WELFARE DEPT. ANNUAL REPORT YEAR 1949

The usual functions of the Welfare Department were carried on in regular fashion during the year 1949. These functions include matters which concern the welfare of employees, relief, human interests, insurance, compensation, 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.

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, faithful service and cooperation means a great deal to the proper functioning of this department. Mr. Lowell C. Holmgren, who has assumed the responsibility of carrying out most of the details in connection with our group insurance and hospitalization plan, and all the payrolls of the department, is also commended for the fine manner in which he is handling his duties. His faithful and cooperative service is greatly appreciated. Miss Marilyn Holmgren, Secretary to Mr. Johnson and Mr. Holmgren, of the Compensation Department, continues to carry on in her usual efficient way and we express again our appreciation for her loyalty and faithful service throughout another busy year.

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.

Miss Shirley Holmgren, Secretary and Receptionist to the Superintendent of the Welfare Department, continues with her loyalty and faithfulness, and we express our appreciation throughout another busy year.

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.

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

A review of this case will be found in the 1948 annual report. After numerous delays and postponements this case was finally heard on September 8, 1949 before a deputy commissioner at Marquette, Michigan. The argument of the plaintiffs attorney was that the carcinoma of the stomach which resulted in Mr. Halme's death was a direct result of the injury he sustained at the Princeton Mine on December 29, 1943; that death therefore was a direct result of that injury and that compensation was due Mrs. Halme. We did not contest this point too vigorously as it has been held in several cases by the supreme court of Michigan that a pre-existing cancerous condition could be aggravated by an injury. Our defense was that Mrs. Halme did not make a seasonable claim following the death of her husband. On September 14, 1949, Mr. Silas J. McGregor, the deputy commissioner, ruled in favor of Mrs. Halme and her children. We will appeal the claim to the full board.

JOVO JURICH - AGNEW MINE - ACC. REPT. NO. 13

Mr. Jurich claims to have suffered a lumbo-sacral strain while lifting a large rock. He claims that the injury occurred on October 4, 1948. He made no claim until nearly two months subsequent to the alleged strain. There was a history of a lame back that troubled him on numerous occasions during the last four or five years. We denied liability in this case on the ground that no report was made by Mr. Jurich at the time of the accident and also on the ground that he had a chronic back that had troubled him over a period of years. The matter came up before a referee and on July 13 the referee awarded him compensation for 20% partial disability of the back plus medical expense. This finding was appealed to the Industrial Commission but at the end of the year no decision had been made by the Commission.

ROY RYTKONEN - ATKINS MINE - ACC. REPT. NO. 6

Rytkonen was employed as a truck driver at the Atkins Mine and it is his claim that on or about June 1, 1949 he sustained a back condition which he attributed to his work as a truck driver. No report was made to the mine but he did consult a doctor at Cook, Minnesota and this doctor in turn wrote to the Industrial Commission stating that Rytkonen claimed he had been injured while driving a truck. The record indicates that Rytkonen had also been treated for arthritis by another doctor and that he said nothing to this doctor about having sustained an injury while employed. However, he did file a claim with the Industrial Commission on November 9, 1949 and on December 10 we filed our answer through Mr. Gannon denying that Rytkonen had been injured while at work and asking that his petition be dismissed. This case will probably be heard or settled in 1950.

11.
a. WORKMEN'S COMPENSATION (Continued)

MICHIGAN LAW

The Michigan Workmen's Compensation Act was amended and became effective September 23, 1949. The sliding scale of benefits which had been in effect in death cases since 1943 has now been applied to disability cases. The maximum schedule is \$24.00 for an injured employee who has no dependents and increasing to \$34.00 for an injured man with five or more dependents--the increase being in steps of \$2.00 for each dependent. The minimum weekly compensation was also increased on the same basis starting at \$11.00 for an injured man with no dependents and increasing in \$2.00 steps to \$21.00 if there are five or more dependents. A wife and children under the age of sixteen are presumed to be dependents and in all other cases dependency shall be determined in accordance with the fact as the fact may be at the time of the injury. The dependent has to be a member of the family of the injured employee and dependents other than those conclusively presumed to be dependents must draw at least 50% of their support from the injured employee.

Under the old law the maximum payment for a death case was \$19.00 for one dependent increasing in \$2.00 steps for each dependent until a maximum of \$27.00 had been reached. The maximum payments now start at \$24.00 for one dependent and increasing to \$32.00 for five or more dependents.

The employer under the amended law is liable for medical expenses for the first six months after the injury and thereafter for not more than three additional six month periods in the discretion of the commission upon written request of the employee to the commission for each period and after the employer or his insurer has been given an opportunity to file objections thereto and to be heard thereon. The old law provided for one six month extension. There is nothing in the law which indicates that these extensions should be figured from the date of the accident and it is entirely possible that the Industrial Commission could grant these periods at any time during the duration of the disability.

MINNESOTA LAW

Effective on July 1, 1949. The maximum compensation rate was increased from \$27.00 to \$30.00 per week.

WELFARE DEPT. ANNUAL REPORT YEAR 194911.
a. WORKMEN'S COMPENSATION (Continued)

Following is a list of the more serious cases other than fatalities which occurred in 1949:

<u>Mine and Report No.</u>	<u>Name</u>	<u>Nature of Injury</u>	<u>Compensation Paid to 12-31-49</u>
Athens 526	Walter V. Wakkuri	Remove cartilage left knee.	\$577.50*
Athens 535	Paul A. Maino	Fractured left shoulder. Fractured jaw.	392.00
Maas 699	Arthur Truscott	Fracture left humerus. Fracture right scapula.	742.00
Maas 708	Fernley Kent	Compound fracture right leg.	336.00
Negaunee 822	August Makela	Fracture right shoulder. Fracture 9 ribs, both sides.	798.00*
Mather "A" 98	Dominico Andriacchi	Comminuted fracture left wrist with division of radial artery.	766.50
Spies 174	Joseph J. Kolbas, Jr.	Amputation middle finger right hand.	630.00
Cambria Jackson 77	Joseph Scoleri	Fracture 2nd-3rd & 4th metatarsals right foot.	455.00
Holman Cliffs 61	Steve Latkovich	Fracture left leg.	441.00
Canisteco 49	Herbert Mann	Contusion left hip and lower back.	420.00
Atkins 5	George Hyduke	Comminuted fracture both bones, left lower leg.	864.00*

*Payments still being made.

WELFARE DEPT. ANNUAL REPORT YEAR 194911.
a. WORKMEN'S COMPENSATION (Continued)FATALITY

The following fatality occurred in 1949:

TOIVO HOLMI
Age 41

Maas Mine	
Occurred June 1, 1949	
Slipped and fell at shaft plat	
fracturing right leg.	
Died on June 4, 1949	
Dependent son	
Compensation at \$19.00 per week	
until age 21	\$6,864.50
Funeral expense	300.00
	<u>\$7,164.50</u>

WELFARE DEPT. ANNUAL REPORT YEAR 1949

11.
a. WORKMEN'S COMPENSATION (Continued)

LUMP SUM SETTLEMENTS

Settlements on a partial disability basis were made in the following cases during 1949.

Paval Lulich	Agnew Mine	7 $\frac{1}{2}$ % disability of foot	309.83
James Adamini	Cambria Jackson Mine	Silicosis	3,000.00
Abraham Auvinen	Cambria Jackson Mine	Back Injury	2,000.00
John Tanila	Cambria Jackson Mine	Silicosis	4,000.00
Oscar Hietala	Canisteco Mine	10% disability of leg	480.00
Ernest Ayotte	Cliffs Shaft Mine	Fractured shoulder	2,500.00
Luka Uzelac	Hill Trumbull Mine	17 $\frac{1}{2}$ % disability of leg	840.00
Russell Wivell	Holman Cliffs Mine	5% loss of use of right arm	270.00
Albert Hendrickson	Negaunee Mine	Back Injury	3,000.00
Dominic Barbieri	Princeton Mine	Fractured Vertebra	1,653.00
John T. Hill	Sargent Mine	12 $\frac{1}{2}$ % disability of leg. 12 $\frac{1}{2}$ % disability of arm	1,250.00
Robert Madunich	Sargent Mine	Fractured fingers	985.50

ANNUAL REPORT - 1949
 STATEMENT OF COMPENSATION PAYMENTS FROM
 JANUARY 1, 1949 TO DECEMBER 31, 1949

	Average No. of Employees	No. of Fatal Accs.	No. of Non-fatal Accidents			Actual Comp. Paid in 1949	1940	1941	1942	1943	1944	1945	1946	1947	1948	1949	Estimated Compensation Still Pending	Medical & Special Expense	Fatal Cases Pending	Accidents Cases Pending	O. D. Cases Pending
Cambria Jackson	212		11	13	24	15,099.67															
Cliffs Shaft	461		12	23	78	11,041.00				1,092.00											
General Storehouse & Shops	150		1	2	21	3.50				936.00											
Ishpeming Hospital																					
Ishpeming Office	166																				
Lloyd	138		12	11	20	9,100.50															
Maas	382	1	16	27	80	10,223.00		936.00													
Princeton						4,684.00				1,376.33	2,214.67										
Spies	115		3		17	3,011.00				2,500.00	2,184.00										
Tilden	17					490.00				988.00	2,184.00										
Miscellaneous	19				10																
Unc. Const. E&A CCL43 Sec. 4 Hole 39						430.50															
Cleveland Roll	27													430.50							
Cliffs Power & Light Company	78		1	1	13	157.50															
Negaunee	72		2	4	10	14,198.32															
Mather "A"	658		28	49	184	10,600.07		112.32		2,196.00	1,092.00	4,596.00									
Mather "B"	113		1	9	20	1,329.00				1,056.00											
Athens	340		15	31	100	7,746.26	258.00		357.76			3,276.00									
Total - Michigan Mines	2,948	1	102	170	577	88,114.32	258.00	1,048.32	1,293.76	9,088.33	4,362.67	9,098.00	8,922.00	14,435.24	18,480.50	21,127.50	171,313.94	40,160.62	15	33	16
Hibbing Office	57																				
Hibbing - Miscellaneous	40				3																
Agnew	87		7	25	109	2,750.46															
Canisteo	165		3	9	85	2,597.63						489.60									
Hawkins	138		2	7	35	1,827.82								1,886.96	863.50	4,361.22	3,608.40			1	
Hill Trumbull	124		5	6	47	2,786.30						856.80		1,365.40	742.63	2,341.10	2,163.15			2	
Holman Cliffs	200		1	3	82	2,846.32				881.92		1,248.00		1,591.89	235.93	1,917.00	1,576.25			1	
Sargent	107		4	13	99	6,019.36								1,521.00	408.50	4,773.00	1,231.60			2	
Warless	38		1		9	30.00								275.40	441.00	3,325.17	1,983.35			1	
Atkins	43		2		14	864.00								4,402.61	342.69	3,768.20	1,218.75			2	
															30.00	150.00	230.25			1	
Total - Minnesota Mines	999		25	63	483	19,721.89				881.92		2,594.40	1,274.06	11,043.26	3,928.25	21,175.69	13,270.75	1	11	0	
Total - All Mines	3,947	1	127	233	1,060	107,836.21	258.00	1,048.32	1,293.76	9,088.33	5,244.59	9,098.00	11,516.40	15,709.30	29,523.76	25,055.75	192,489.63	53,431.37	16	44	16

WELFARE DEPT. ANNUAL REPORT YEAR 1949

11.
a. WORKMEN'S COMPENSATION (Continued)

ANNUAL STATEMENT OF COMPENSATION PAYMENTS
FROM JANUARY 1st, 1949 to DECEMBER 31st, 1949

Compensation paid on 1949 cases	25,055.75
Estimated compensation still pending	192,489.63
Cost of medical and hospital service, also special expense	<u>53,431.37</u>
	270,976.75
Less pending for years 1941 to 1948 inclusive	165,834.13
Less medical and special expense on accidents occurring prior to January 1, 1949	<u>14,801.15</u>
	<u>180,635.28</u>
	90,341.47
Less compensation paid on 1949 occupational disease cases	8,822.33
Estimated compensation still pending on 1949 occupational disease cases	<u>16,756.00</u>
	<u>25,578.33</u>
Estimated cost of 1949 accidents	64,763.14
Percentage of payrolls	.00504
Percentage of payrolls including Occup. Dis. cases	.00703
Number of fatal accidents	1
Number of compensable accidents	127
Number of lost-time accidents - non-compensable	233
Number of slight accidents	1,060

The following occupational disease cases occurred during 1949. 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	11

During 1949 a total of \$8,822.33 was paid on occupational disease cases, and it is estimated that it will cost \$49,750.00 to complete payments on the fifteen cases still active on December 31, 1949. Of these, two originated in 1945, three in 1946, five in 1948, and five in 1949.

WELFARE DEPT. ANNUAL REPORT YEAR 1949

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	1,307,413.61	183,425.24	120,924.84	14,494.42	83,150.57		10,282.71	1,719,691.39
1939								
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	73,727.12	28,162.82	8,548.15	687.00	9,083.73	824.57		121,033.39
1949	96,910.98	37,433.06	15,401.72	916.50	9,356.57	1,248.75		161,267.58
	1,958,384.24	415,603.89	222,312.03	27,014.92	157,366.89	3,601.59	10,282.71	2,794,566.27

Detail of Miscellaneous Companies:

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

WELFARE DEPT. ANNUAL REPORT YEAR 1949

11.

c. GROUP INSURANCE

The following statement shows the amount of claims paid under the group insurance and hospitalization plan during the policy year from October 1, 1948 to September 30, 1949.

	<u>Hospitalization</u>	<u>Death Claims</u>	<u>Health & Accident</u>	<u>Total</u>
Cambria Jackson	8,575.64	2,500.00	3,980.67	15,056.31
Cliffs Shaft	16,006.93	6,875.00	6,061.33	28,943.26
Cleveland Roll	1,287.96		257.14	1,545.10
General Roll	4,084.37		1,526.84	5,611.21
General Storehouse & Shops	3,970.95	7,500.00	1,726.42	13,197.37
Ishpeming Hospital	2,687.00	1,875.00	868.56	5,430.56
Lloyd	4,518.79		2,219.97	6,738.76
Maas	13,605.85	5,000.00	5,741.35	24,347.20
Miscellaneous	1,114.05		658.00	1,772.05
Spies	1,601.74		682.15	2,283.89
Tilden	140.39			140.39
Inactive		8,625.00		8,625.00
Total - C. C. I. CO.	<u>57,593.67</u>	<u>32,375.00</u>	<u>23,722.43</u>	<u>113,691.10</u>
Negaunee	3,577.61	5,000.00	1,405.72	9,983.33
Mather "A"	20,775.10	2,500.00	4,906.37	28,181.47
Mather "B"	3,632.53	2,500.00	1,249.27	7,381.80
Total - Negaunee Mine Co.	<u>27,985.24</u>	<u>10,000.00</u>	<u>7,561.36</u>	<u>45,546.60</u>
Athens Iron Mining Co.	10,042.39	10,000.00	3,295.72	23,338.11
Cliffs Power & Light Co.	919.40	2,500.00	330.57	3,749.97
TOTAL - MICHIGAN DISTRICT	<u>96,540.70</u>	<u>54,875.00</u>	<u>34,910.08</u>	<u>186,325.78</u>

A total of 1,023 hospitalization claims were paid, 411 persons drew disability benefits and 30 death claims were paid.

WELFARE DEPT. ANNUAL REPORT YEAR 1949

11. c. GROUP INSURANCE (Continued)

The following death claims were paid during the policy year ending September 30, 1949.

<u>Name</u>	<u>Mine</u>	<u>Date of Death</u>	<u>Amount of Insurance</u>
Joseph H. Prisk	Athens Mine	10-5-48	2500.00
Charles A. Jutila	Athens Mine	2-11-49	2500.00
Oscar Melander	Athens Mine	7-9-49	2500.00
Isaac Lahti	Athens Mine	8-27-49	2500.00
Solomon Kangas	Cliffs Shaft Mine	12-22-48	2500.00
Adolph Kippola	Cliffs Shaft Mine	2-25-49	1875.00
Howard Amell	Cliffs Shaft Mine	5-16-49	2500.00
Werden R. Hutchens	Cliffs Power & Light Co.	3-19-49	2500.00
Leonard J. Hellier	Cambria Jackson Mine	12-22-48	2500.00
Byron Clyde Olson	General Storehouse	10-13-48	2500.00
John G. Kulju	General Storehouse	4-7-49	2500.00
Presto Trembath	General Storehouse	4-20-49	2500.00
John Roberts	Ishpeming Hospital	2-22-49	1875.00
Henry Weekes	Maas Mine	4-19-49	2500.00
Toivo J. Holmi	Maas Mine	6-4-49	2500.00
Leo G. Lepisto	Mather "A" Mine	2-13-49	2500.00
Edlore LaFave	Mather "B" Mine	8-11-49	2500.00
William C. Antilla	Negaunee Mine	11-10-48	2500.00
John Choquette	Negaunee Mine	6-21-49	2500.00
Gust C. Vinge	Inactive	10-7-48	750.00
Jacob Nikko	Inactive	7-27-48	750.00
Louis Oien	Inactive	10-13-48	1875.00
Henry Hyvonen	Inactive	12-15-48	750.00
Philip T. Rowe	Inactive	3-18-49	500.00
John H. Korpela	Inactive	5-7-49	750.00
Charles H. Pascoe	Inactive	5-26-49	500.00
James Christian	Inactive	6-16-49	500.00
Charles Poggi, Sr.	Inactive	7-21-49	500.00
Reginald J. Chenneour	Inactive	8-20-49	1000.00
John Mattson	Inactive	8-24-49	500.00

One death was due to suicide, three were the results of non-occupational accidents and two were occupational accidents.

WELFARE DEPT. ANNUAL REPORT YEAR 1949

11.
c. GROUP INSURANCE (Continued)

The following table shows the total premium cost, by unit, of our group insurance plan for the policy year from October 1, 1948 through September 30, 1949:

<u>Unit</u>	<u>Premium Cost</u>
Cambria-Jackson	24,044.70
Cliffs-Shaft	42,864.85
Gen. Storehouse & Shops	13,125.40
General Payroll - Ishpeming Office	16,366.16
General Payroll - Ishpeming Hospital	3,797.07
Ishpeming Office Inactive	2,541.96
Lloyd	13,248.96
Maas	37,615.72
Misc. Payroll - C.S. Lab.	1,786.23
Misc. Payroll - Ishpeming Hospital	1,516.62
Spies	10,523.74
Tilden	1,092.94
Negaunee	11,981.69
Mather "A"	62,095.34
Mather "B"	10,117.12
Athens	33,108.67
C. P. & L. Co.	<u>5,567.54</u>
Total	291,394.71

WELFARE DEPT. ANNUAL REPORT YEAR 1949

11.
c. GROUP INSURANCE (Continued)

Coverage under a group life, disability, hospital and surgical policy was again available to the employees of the Company. For the Company's Michigan properties this group insurance plan is carried with the Aetna Life Insurance Company of Hartford, Connecticut under policies 14,440, GS-14,440, and H-14,440. The plan became effective September 1, 1947. For purpose of record it is mentioned that a resume of the plan is included in the Annual Report for 1947.

The monthly computation of the premium cost of the group plan is made in this department. The renewal date of the policies is October 1st, and each year premium rates are set on that date for the next policy year.

The following premium scale governed premium computations for the policy year from October 1, 1948 through September 30, 1949:

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

The following premium rates were received for the policy year beginning October 1, 1949:

Life	- .98 per month per \$1,000.00
Disability	- .057 per month per \$1.00
Hospitalization Insurance:	
Employee Daily Hosp. Benefit	- .144 per month per \$1.00
Employee Surgical Fee Benefit	- .37 per month per employee
Dependents' Daily Hosp. Benefit	- .322 per month per \$1.00
Dependents' Surgical Fee Benefit	- 1.43 per month per employee

These premium schedules are furnished by the Aetna Company.

WELFARE DEPT. ANNUAL REPORT YEAR 1949

23.
a. PENSION SYSTEM

The pension system which went into effect on January 1, 1909 completed the forty-first year of its operation in 1949.

No changes in the rates of pensions were made during the year 1949. 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 three deaths on the Mining Department and Holmes Mine pension payrolls during the year.

No.	Name	Pension Began	Date of Death
148	George Derwin	8/1/1921	6/15/1949
252	Jerry Beauchamp	1/1/1931	8/11/1949
256	John A. Johnson	2/1/1931	4/23/1949

Number of deaths during year 1949	3
Number of pensions in force January 1, 1949	15
Number of pensions in force, December 31, 1949	12

Average annual pension for 1949	\$217.38
Average annual pension for 1948	\$225.92

The Holmes Mine pension payroll became inactive with the death of John A. Johnson. It will remain inactive. The last payroll was for the month of April. A total of \$80.00 was expended over the roll during the year

The total expenditure over the Mining Department pension payroll for 1949 was \$3,180.68.

WELFARE DEPT. ANNUAL REPORT YEAR 1949

23. a. PENSION SYSTEM (Continued)

The table below shows pension payments for the Mining Department and Holmes Mine Department combined for the years 1909 through 1949.

<u>Year</u>	<u>Old Age</u>	<u>Widows and Orphans</u>	<u>Total</u>
<u>1908</u>			
thru	727,536.70	22,547.00	750,083.70
1939			
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	3,840.68	0.00	3,840.68
1949	<u>3,260.68</u>	<u>0.00</u>	<u>3,260.68</u>
	808,968.35	22,547.00	831,515.35

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

WELFARE DEPT. ANNUAL REPORT YEAR 1949

23. a. PENSION SYSTEM (Continued)

Republic Mine Department

There was only one pensioner on this payroll during the year. Frank Vierela was paid a total of \$240.00 during the year.

The table below shows the pension payments made over this roll for the years 1920 through 1949.

<u>Year</u>	<u>Amount</u>
1920	
thru	138,149.04
1939	
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	515.04
1949	<u>240.00</u>
	148,849.05

WELFARE DEPT. ANNUAL REPORT YEAR 1949

23.
a. PENSION SYSTEM (Continued)

Land Department

Erick Johnson was the only pensioner on this payroll during the year. He was paid a total of \$240.00.

The table below shows the pension payments made over this roll for the years 1927 through 1949.

<u>Year</u>	<u>Amount</u>
1927	
thru	3,596.88
1939	
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	240.00
1949	240.00
	<hr/>
	5,996.88

WELFARE DEPT. ANNUAL REPORT YEAR 1949

23. a. PENSION SYSTEM (Continued)

Furnace Department

This payroll became inactive in 1948.

The table shows the pension payments made over this roll for the years 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	55.95		55.95
	<hr/>	<hr/>	<hr/>
	65,255.22	900.00	66,155.22

23.

b. REPUBLIC MINE FUNDS

Every year it is recorded in the annual report of this department that the 1940 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 1949

23. d. VISITING NURSES

Our visiting nurses continued their usual services throughout the year 1949. 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 1949 the following nurses were employed:

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

WELFARE DEPT. ANNUAL REPORT YEAR 1949

23. d. VISITING NURSES (Continued)

Following is the report of the Ishpeming visiting nurse for the year 1949:

Total number of patients cared for during year	846
Total number of new cases cared for during year	653
Total number of visits to patients	4182
Number of families visited for the first time	74
Number of social calls	35
Number died	8

Classification of new cases for the year:

Number of adults	214	Male	37	Female	177
Number of children	439	Male	188	Female	251

Nationalities of new cases for the year:

American	446	Irish	2
English	35	Italian	46
Finnish	64	Norwegian	13
French	19	Swedish	28

Diseases and number of new cases:

Appendicitis	2	Injury	16
Arthritis	1	Kidney Trouble	1
Asthma	5	Measles	45
Baby Welfare	7	Migraine	1
Bowel Trouble	11	Obstetrical	34
Bronchitis	7	Otitis Media	8
Burns	1	Paralysis	1
Carcinoma	4	Pleurisy	1
Cervical Adenitis	6	Pneumonia	4
Chicken Pox	5	Post Operative	27
Cold	109	Pul. Tuberculosis	2
Cystitis	1	Quinsy	2
Gen. Dist.	1	Rash	2
Grippe	2	Rheumatism	2
Heart Trouble	4	Sarcoma	1
Immun. Treat.	4	Rupture	2
Infants, new born	31	Stomach Trouble	27
Infections	37	Tonsillitis	142
Influenza	62	Unclassified	4
		Undiagnosed	28
		Var. Ulcer	3

Visiting Nurse: Miss Myrtle V. Welander

WELFARE DEPT. ANNUAL REPORT YEAR 1949

23. d. VISITING NURSES: (Continued)

Following is the report of the Negaunee visiting nurse for the year 1949:

Total number of patients cared for during year	1149
Number of new cases cared for during year	620
Total number of visits to patients	3747
Number of families visited for the first time	22
Number of social calls	559
Number died	7

Classification of new cases for the year:

Number of adults	257	Male	61	Female	196
Number of children	363	Male	196	Female	167

Nationalities of new cases for the year:

American	281	Italian	51
Finnish	277	Swedish	10
French	1		

Diseases and number of new cases:

Acute Indigestion	1	Infants, newborn	42
Allergy	1	Infections	39
Anemia	8	Influenza	47
Appendicitis	15	Injury	57
Arthritis	4	Kidney Trouble	1
Asthma	5	Lumbago	1
Bowel Trouble	12	Mal-nutrition	62
Bronchitis	17	Measles	63
Burns	5	Migraine	1
Carcinoma	1	Myocitis	1
Cerebral Hemorrhage	1	Neuralgia	1
Chicken Pox	15	Obstetrical	3
Cholecystitis	2	Otitis Media	5
Cold	38	Paralysis	2
Colic	2	Parkinson's Disease	1
Croup	1	Pleurisy	4
Cystitis	1	Pneumonia	4
Diabetes	3	Post Operative	52
Eczema	1	Pregnancy	33
Epitaxis	2	Pyletis	1
Gen. Deb.	5	Rheumatism	1
Goiter, toxic	1	Rupture	4
Grippe	12	Scarlet Fever	2
Glycosuria	1	Sore Eyes	3
Heart Trouble	9	Sprains	1
Hibes	2	Stomach Trouble	8
Immunization	10	Tonsilitis	38
		Unclassified	9

Visiting Nurse: Miss Ina E. Atkin

WELFARE DEPT. ANNUAL REPORT YEAR 1949

23. VISITING NURSES: (Continued)

NUMBER OF PATIENTS ATTENDED AND CALLS MADE

	<u>No. of Patients</u>	<u>No. of New Cases</u>	<u>Male Adults</u>	<u>Female Adults</u>	<u>Male Children</u>	<u>Female Children</u>
Ishpeming	846	653	37	177	188	251
Negaunee	1149	620	61	196	196	167

	<u>Total No. Visits</u>	<u>Number died</u>	<u>Social Calls</u>	<u>Families visited for the first time</u>
Ishpeming	4182	8	35	74
Negaunee	3747	1	559	22

NATIONALITIES OF NEW CASES

	<u>American</u>	<u>English</u>	<u>Finnish</u>	<u>French</u>	<u>Irish</u>
Ishpeming	446	35	64	19	2
Negaunee	281	--	277	1	-

	<u>Italian</u>	<u>Norwegian</u>	<u>Swedish</u>
Ishpeming	46	13	28
Negaunee	51	--	10

WELFARE DEPT. ANNUAL REPORT YEAR 1949

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. ISHPERING Y.M.C.A. BUILDING

Several months ago an agreement was reached whereby the Ishpeming Y.M.C.A. building will be turned over by the city to the state for use as a National Guard Armory. The building is now in the process of being remodeled.

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WELFARE DEPT. ANNUAL REPORT YEAR 1949

23.
1. SAFETY WORK

Under the direction of Mr. A. J. Stromquist, Safety Director, the Central Safety Committee held monthly meetings during 1949. 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 near future. Each accident is then classified. Meetings were held on the following dates in 1949:

January 24	July 8
February 18	August 11
March 11	September 12
April 11	October 10
May 13	November 7
June 9	December (no meeting)

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
- T. A. 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. W. F. Gries, Superintendent, Welfare Department; Mr. Ray Satterley, Superintendent, Inland Steel Company; Mr. Joseph Cameron, Manager, Hercules Powder 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 reorganization of our present plan is undertaken.

certain group?

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

23.

j. HOSPITAL AND MEDICAL SERVICE (Continued)

a 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 reorganization 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 reorganized 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 a few years ago 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.

23.

j. HOSPITALS AND MEDICAL SERVICE (Continued)

The staff of the Ishpeming Hospital during the year 1949 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, also, 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 1949

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 1949.

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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
W. A. Mudge, M.D.
R. G. Jaedecke, M.D.

George McL. Waldie, M.D.
R. G. Williams, 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.

DEPARTMENTS

Laboratory and Roentgenology
A. W. Erickson, M.D.

Gwinn Dispensary
S. J. Green, M.D.

Negaunee Dispensary
W. A. Mudge, M.D.
R. L. Paine, M.D.

Anesthesia
A. W. Erickson, M.D.

Histories
A. W. Erickson, M.D.

Industrial Hygiene
Geo. McL. Waldie, M.D.

Walter F. Gries, Administrator

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WELFARE DEPT. ANNUAL REPORT YEAR 1949

23. j. HOSPITALS AND MEDICAL SERVICE (Continued)

ISHPEMING HOSPITAL
STATISTICAL REPORT FOR THE YEAR 1949

Number of patients remaining in the hospital at the beginning of the year		45
Number of adult patients admitted	1323	
Number of child patients admitted	194	
Number of births	334	
Total new patients for year		<u>1851</u>
Total of all patients during year		1896
Number of deaths	84	
Number discharged during year	<u>1769</u>	
Total number leaving hospital		<u>1853</u>
Number of patients remaining at the end of the year		43

CLASSIFICATION OF NEW CASES

Newborn	334	
Surgical	677	
Medical	483	
Obstetrical	<u>357</u>	
Total		1851

NUMBER OF PATIENTS OPERATED ON

Major	295	
Minor	482	
Circumcisions	<u>162</u>	
Total		939
Emergency Room Operations	455	
Physiotherapy Treatments	3359	

NUMBER OF PATIENT DAYS

Newborn	2448	
Other	<u>17526</u>	
Total		19974

Average number of patients per day	54.7	
Number of meals for patients	52608	
Number of meals for nurses, superintendent and dietitian	12441	
Number of meals for physicians and guests	193	
Number of meals for help	15103	
Total meals		80975
Average stay per patient	10.7	

23. j. HOSPITALS AND MEDICAL SERVICE (Continued)

DEATHS FOR 1949 CLASSIFIED BY DISEASE

Acute Alcoholism.....	1
Apoplexy.....	1
Arteriosclerosis.....	4
Arteriosclerotic Heart Disease.....	1
Asphyxia.....	1
Atresia.....	1
Bilateral Pneumonitis, terminal.....	1
Bronchial Pneumonia.....	1
Carcinoma, breasts, bilateral.....	1
Carcinoma, pancreas.....	1
Carcinoma, prostate.....	1
Carcinoma, right lung.....	1
Carcinoma, stomach.....	2
Carcinomatosis, primary, urogenital tract.....	1
Cardiac Failure.....	10
Cardio Respiratory Collapse.....	2
Cardio Respiratory Failure.....	2
Cardio Vascular Accident.....	3
Cardio Vascular Failure.....	5
Cerebral Hemorrhage.....	3
Cerebral Vascular Accident.....	6
Cirrhosis, Liver.....	1
Congestive Heart Failure.....	2
Coronary Occlusion.....	2
Decompensated Heart.....	2
Diabetes Mellitus.....	4
Fracture, hip.....	1
Fracture, skull.....	1
Influenza with Meningeal Symptoms.....	1
Leukemia.....	1
Lobar Pneumonia.....	2
Myocarditis.....	3
Nephritis.....	1
Osteomyelitis.....	1
Pulmonary Carcinoma.....	1
Pulmonary Embolus.....	1
Septicemia.....	1
Stillborn.....	8
Thrombosis, veins, left leg.....	1
Carcinoma, uterus.....	1
Total	84

WELFARE DEPT. ANNUAL REPORT YEAR 1949

23.

j. HOSPITALS AND MEDICAL SERVICE (Continued)

DEATHS DURING THE YEAR 1949

Surgical.....3
 Medical.....58
 Gynecological.....0
 Traumatic.....4
 Newborn.....11
 Stillborn.....8

Total 84

Deaths under 48 hours.....25
 Deaths over 48 hours.....51
 Stillborn.....8
 Total 84

TRAUMATIC DEATHS

<u>Month</u>	<u>No.</u>	<u>Case No.</u>	<u>Name</u>	<u>Age</u>	<u>Diagnosis</u>
January	0				
February	1	32173	Donald Manninen	6	Fracture, skull
March	1	32306	Mrs. Martha Thomas	75	Cardiac Failure Fractured Pelvis
April	0				
May	0				
June	0				
July	0				
August	0				
September	0				
October	1	33412	Norman Gauthier	25	Lobar Pneumonia Fracture 5th cervical vertebra
November	1	33394	Victor Lind	57	Cerebrovascular Accident 3rd degree burns, chest and back
December	0				

WELFARE DEPARTMENT

WELFARE DEPT. ANNUAL REPORT YEAR 1949

23.

j. HOSPITALS AND MEDICAL SERVICE (Continued)

LABORATORY REPORT FOR 1949

Blood Chemistry.....	872
Blood Type or Match.....	156
Bleeding Time.....	198
Cultures.....	17
Coagulation Time.....	199
Differential Count.....	3781
Feces.....	61
Gastric Analysis.....	11
Glucose Tolerance.....	10
Hemoglobin.....	4327
Icteric Index.....	44
Miscellaneous.....	76
Pathological Specimens.....	0
Red Cell Count.....	4341
Sedimentation.....	957
Smears.....	51
Special Blood Exams.....	5
Spinal Fluid.....	6
Sputum.....	37
Urinalysis.....	6715
Vena Punctures.....	3173
White Blood Count.....	4169
Transfusions.....	63
RH Factor.....	146
Bromsulfalien Test.....	3
P. S. P. Test.....	12
Thiocyanate Level.....	34
Galactose Tolerance.....	1
Biliary Drainage.....	2
Prothrombin.....	10
Hematocrit.....	5
Cephalin Flocculation.....	<u>5</u>
Total	29487

FRACTURE CASES DURING 1949

Cleveland Cliffs Iron Company.....	25
Inland Steel Company.....	9
Hercules.....	1
Outside.....	<u>160</u>
Total	195

WELFARE DEPT. ANNUAL REPORT YEAR 1949

23. j. HOSPITALS AND MEDICAL SERVICE (Continued)

X-RAY REPORT FOR YEAR 1949

Extremities.....	1049
Shoulders.....	80
Spine.....	173
Ribs.....	79
Skull.....	40
I. V. Pyelogram.....	8
Kidney.....	15
Pelvis.....	24
Gastrointestinal.....	68
Fluoroscope.....	1
Foreign Bodies.....	34
Colon.....	31
Abdomen.....	13
Chest.....	358
Jaw.....	16
E.K.G.....	198
Fetus.....	77
Gallbladder.....	93
Nasal Bone.....	2
Sternum.....	5

Total 2364

No. of Out Patients.....1959

No. of In Patients.....405

Total 2364

WELFARE DEPT. ANNUAL REPORT YEAR 1949

23. j. HOSPITALS AND MEDICAL SERVICE (Continued)

DIETARY REPORT--ISHPEMING HOSPITAL-- YEAR 1949

Patient Meals.....	52608
Doctors, Nurses, Employees, Visitors.....	27737
Total Meals for the Year.....	80975
Formulas.....	334

Special Diet-- Patient Days:

Selective.....	1030
Low Fat.....	190
Low Sodium.....	162
Salt Free.....	662
Nephritic.....	13
1200 Calories.....	55
Bland.....	137
Low Fat, Low Salt.....	28
Diabetic.....	730
Initial Ulcer.....	196
1500 Calories.....	34
Final Ulcer.....	53
Modified Sippy.....	157
1000 Calories.....	44
High Caloric.....	115
Salt Free Neutral Diabetic.....	5
Low Fat Selective.....	7
Neutral 1400 Calorie.....	36
800 Calories.....	8
Salt Free High Protein.....	16
High Vitamin, High Protein.....	170
Low Fat, High Carbohydrate.....	40
Low Residue.....	10
Salt Free 1500 Calories.....	37
Salt Free 1200 Calories.....	79
High Carbohydrate.....	6
Salt Free Diabetic.....	130
Fat Free.....	335
Selective High Protein.....	21
Ulcer.....	4
Low Residue Bland.....	5
Ground Meat Soft.....	22
Sodium Free Bland.....	3
High Protein.....	113
Fat Free 1200 Calories.....	2
Neutral.....	44
Rice.....	7
Allergy.....	1
Bland Selective.....	7
Sippy.....	20
Sodium Free.....	26
Total Special Diet Patient Days.....	4760
Total Special Diet Meals.....	14280

WELFARE DEPT. ANNUAL REPORT YEAR 1949

23. J. HOSPITALS AND MEDICAL SERVICE (Continued)

SURGERY--1949
CLASSIFIED BY OPERATION

Abortions, Therapeutic	3	Hemorrhoidectomy	13
Adenoidectomy	2	Herniorrhaphy	37
Adhesions, Freeing	8	Hydrocele, Repair	5
Amputations	8	Hysterectomy	13
Amputation of Cervix	3	Incision and Drainage	14
Appendectomy	129	Insertion Kirschner Wire	4
Aspiration	2	Insertion Steinman Pin	6
Biopsy	20	Ligation of Fallopian Tubes	33
Blood Transfusion	1	Ligation of Vas Deferens	7
Bunionectomy	1	Mastectomy	2
Casts	25	Oophorectomy	20
Caesarean Section	22	Open Reduction	3
Cauterization	4	Orchiectomy	1
Cholecystectomy	16	Paracentesis, Abdominal	7
Cholecystotomy	3	Plastic, Repair	7
Circumcisions, total	173	Proctoscopic Examination	13
Colostomy	1	Prostatectomy	8
Closed Reduction	17	Removal, Foreign Body	8
Common Duct Drainage	1	Repair, Viscera	4
Conization of Cervix	1	Repair, Traumatic Injuries	14
Curettment	1	Repair, Rectocele	10
Cystotomy	1	Resection, Patellar Fragments	1
Cystocele Repair	6	Resection, Bowel	1
Cyst Punctured	2	Smith, Peterson Nailing	1
Cystoscopic Examination	7	Salpingectomy	19
Debridement	5	Saphenous Ligation	1
Dilatation	5	Skin Graft	4
Dilatation and Curettage	91	Spinal Tap	6
Examination under Anesthesia	1	Tendon, Repair	1
Excision of Abdominal Fistula	4	Thoracentesis	12
Excision of Cervical Polyp	1	Thyroidectomy	5
Excision Cysts, Moles, Lesions, etc.	87	Tonsillectomy	12
Excision Ingrown Toenail	5	Tonsillectomy, Adenoidectomy	98
Excision Pilonidal Sinus	1	Tooth Extraction	17
Exploratory Laparotomy	15	Uterine Suspension	10

TOTAL 1089

Majors	295
Minors	482
Circumcisions	162, infant
Total Patients	939

WELFARE DEPT. ANNUAL REPORT YEAR 1949

23.

j. HOSPITALS AND MEDICAL SERVICE (Continued)EMERGENCY ROOM REPORT

	<u>Co. Cases</u>	<u>Mine Acc. Cases</u>	<u>Outside Cases</u>	<u>Total Cases</u>
January	251	49	165	465
February	226	53	304	583
March	240	51	297	588
April	138		41	179
May	276	61	306	643
June	269	58	296	623
July	267	20	222	531
August	281	54	239	574
September	261	43	205	509
October	268	4	151	423
November	256	16	168	440
December	<u>187</u>	<u>49</u>	<u>172</u>	<u>408</u>
TOTAL	2782	458	2566	5966

	<u>Co. Visits</u>	<u>Mine Acc. Visits</u>	<u>Outside Visits</u>	<u>Total Visits</u>	<u>Operations</u>
January	483	127	465	1075	18
February	348	120	535	1003	23
March	259	131	518	908	31
April	686		90	776	56
May	289	155	327	771	39
June	589	131	331	1051	32
July	680	82	544	1306	63
August	832	168	739	1739	57
September	621	107	411	1139	46
October	652	14	346	1012	27
November	647	40	351	1038	37
December	<u>452</u>	<u>97</u>	<u>261</u>	<u>810</u>	<u>26</u>
TOTAL	5852	1162	4828	12623	455

WELFARE DEPARTMENT

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23.

j. HOSPITALS AND MEDICAL SERVICE (Continued)TREATMENTS FOR THE YEAR 1949

Basal Metabolism.....	175
Ultra-Violet Ray.....	275
Infra-Red.....	24
Diathermy.....	2771
Cautery.....	182
Burdick Constrictor Therapy.....	80
Massage and Manipulations.....	412
Intramuscular Injections.....	442
Dressings.....	113
Hot Water Soaks.....	139
Intravenous Injections.....	12
TOTAL	4625

DEPARTMENT OF INDUSTRIAL HYGIENE

Blood Chemistry.....	7
Blood Type or Match.....	3
Differential Count.....	5
Glucose Tolerance.....	6
Hemoglobin.....	2029
Miscellaneous Examinations.....	3
Red Cell Count.....	81
Sedimentation.....	2032
Sputum.....	1
Urinalysis.....	2031
Vena Punctures.....	2031
White Blood Count.....	2031
TOTAL	10260

YEAR 1949

	<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	134	149	169	152	147	168	160	166	160	156	159	131	1851
Patients discharged	121	153	164	149	167	155	168	161	158	161	151	145	1853
Number of adults	98	106	127	109	110	120	114	106	119	110	111	93	1323
Number of children	14	9	9	16	9	24	14	27	12	19	24	17	194
Newborn	22	34	33	27	28	24	32	33	29	27	24	21	334
Classified as:													
Newborn	22	34	33	27	28	24	32	33	29	27	24	21	334
Obstetrical	24	36	33	30	31	25	38	33	32	26	26	23	357
Medical	31	32	47	38	48	58	34	36	32	43	43	41	483
Surgical	57	47	56	57	40	61	56	64	67	60	66	46	677
Daily Average	54.32	59.46	55.68	58.27	57.48	55.57	51.68	53.19	55.5	54.29	49.27	52.42	54.72
Newborn Days	191	251	197	203	185	162	239	280	214	197	153	176	2448
Patient Days	1493	1414	1529	1545	1597	1505	1363	1369	1451	1486	1325	1449	17526
Total Days	1684	1665	1726	1748	1782	1667	1602	1649	1665	1683	1478	1625	19974
Operations:													
Emergency Room	18	23	31	56	39	32	63	57	46	27	37	26	455
Major	23	17	19	25	19	20	19	25	35	32	39	22	295
Minor	33	28	34	37	26	45	42	53	59	41	42	42	482
Circumcisions	14	17	20	10	7	11	15	12	19	13	10	14	162

84 Deaths included in discharges

23.

j. HOSPITALS AND MEDICAL SERVICE (Continued)

CLASSIFICATION OF PATIENTS ON ADMISSION

Medical.....	484
Surgical.....	294
Obstetrical.....	356
Newborn.....	334
Gynecological.....	101
E. E. N. T.....	111
Traumatic.....	<u>171</u>
TOTAL	1851

CLASSIFICATION OF PATIENTS ON DISCHARGE

Medical.....	405
Surgical.....	307
Obstetrical.....	334
Obstetrical (Not delivered).....	27
Newborn.....	324
Gynecological.....	101
E. E. N. T.....	114
Traumatic.....	<u>157</u>
DISCHARGED.....	1769
Deaths.....	<u>84</u>
TOTAL	1853

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.

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. Charles Johnson. Mr. Johnson 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.

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, 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.

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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. Donsiderable 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, 1949:

The Cleveland Cliffs Iron Company	26,262
Inland Steel Company	4,272
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	305
Calumet & Hecla Company	29
Marquette County Road Commission	10
Total	34,841

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 and there were no epidemics or loss of time at the mines because of illness.

There continues to be an increase in the use of the Ishpeming Hospital, so much so that very often the hospital has to arrange a schedule for admissions of people due to the fact that there is a great demand for hospitalization. During 1949, 1851 patients were admitted to 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 service 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 1949, completing fourteen years of service. There were about 150 children in the camp from the counties in the Northern Peninsula. 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.

23.

m. RELIEF WORK

During 1949 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 1949:

	<u>Ishpeming</u>	<u>Negaunee</u>	<u>Total</u>
January	\$ 40.00	\$ 26.29	\$ 66.29
February	40.00	52.30	92.30
March		5.60	5.60
April	135.00	25.89	160.89
May		65.58	65.58
June			
July	9.00	79.70	88.70
August			
September		56.16	56.16
October	10.74	44.30	55.04
November			
December	<u>10.00</u>	<u>35.58</u>	<u>45.58</u>
Total	\$ 244.74	\$ 391.40	\$ 636.14

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.

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23.

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. The statistical portion of this report is omitted but is available in the files of this department. The Superintendent of the Welfare Department serves on the Red Cross Board.

23.

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. We find that 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 still on a downward trend.

According to the local merchants, business conditions throughout the year were very good, except for the period during the labor dispute. 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.

Fewer new enterprises by private individuals were established in the year 1949. The largest new industry within the past few years is the Robbins Flooring Mill which operates on two shifts and employ approximately 125 people.

Housing

The housing situation still 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. Because of the lack of lots, the building of new homes has been kept down.

Relief Situation

There has been an increase in the number of relief cases in Marquette County this year. This is 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 77 cases during 1949. However, the average Old Age Assistance grant during 1949 increased so that the average grant is now \$45.25.

The Aid to Dependent Children load during the year 1949 increased from 189 to 240 cases. The average grant increased from \$78.44 to \$81.97.

WELFARE DEPT. ANNUAL REPORT YEAR 1949

23. o. INCAPACITATED EMPLOYEES (Continued)

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. Mr. Julius Olson is the only recipient on this payroll. A total of \$300.00 was expended over the roll for the year.

The Mesaba-Cliffs Mining Company Donation Payroll continued to be inactive during the year. The last payment over this roll was made in March 1948.

There are five widows on the Donation Payroll, 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. The other three, Mrs. Johanna Forstrom, Mrs. Charles Hill, and Mrs. Hilma Maunula, appear on the payroll as a result of the discontinuance of direct relief payments as mentioned in a previous paragraph. The payment to Miss Mary C. Ryan, the only other woman appearing on the rolls, was discontinued in September 1949 because of her death on September 18, 1949.

Amount of Mining Department Donations (including widows)	\$9,958.60
Amount of Holmes Mine Donations	530.97
Amount of Furnace Department Donations	<u>300.00</u>
	10,789.57

23. o. INCAPACITATED EMPLOYEES (Continued)

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 was the original policy of the Company to supplement these benefits 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 became \$20.00 per month. Retired employees are given the opportunity to carry our medical plan at \$1.00 per month, which is one-half the usual fee, 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 computing the reduced coverage. Each addition to the Retirement Payrolls is carefully studied with the superintendent of the mine and is finally referred to the General Manager for approval.

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

Andrew Elgland	Added as of 1/1/1949
Robert Olds	2/1/1949
James Doney	"
Gust Hautakangas	"
Carmelo Russo	"
Sam Goodman	3/1/1949
Patrick Kennedy	"
Richard Konster	"
Peter Larson	4/1/1949
Pasquale Meni	"
Isaac Tuuri	5/1/1949
George J. Heppola	"
Emil A. Granlund	"
James R. Cain	6/1/1949
Walter S. Crisp	"
Andrew Invenes	7/1/1949
Fred Carlyon	"
William Chinn	"
William Hampton	"
William Kamppinen	"
Thomas Roberts	"
Tobias Savolainen	"

23. o. INCAPACITATED EMPLOYEES (Continued)

Retirement Payrolls (Cont'd)

Luigi Suardini	Added as of 7/1/1949
Joseph Saari	"
Charles J. Ayotte	"
William Billings, Sr.	"
Paul St. John	8/1/1949
Charles Racine	10/1/1949
Jack Hytinen	"
Oscar Antilla, Sr.	11/1/1949
John Zanardi	12/1/1949
Fred Borlace, Sr.	"
John Warnstrom	"
Thomas Hill, Sr.	"
Victor Maki	"
Jacob E. Kujala	"

John Mattson	Dropped as of 8/31/1949	Died 8/24/1949
Mrs. Anna Simo	7/31/1949	7/21/1949
James Christian	6/30/1949	6/16/1949
Matt Hemmila	10/31/1949	10/20/1949
Thomas Berryman	9/30/1949	9/18/1949
Hemming Silas	11/30/1949	11/26/1949
Frank Martin	11/30/1949	11/28/1949
Swan Anderson	9/30/1949	10/4/1949
Noah Morin	11/30/1949	12/8/1949
Frank Velin	10/31/1949	11/6/1949
Charles Pascoe	5/31/1949	5/26/1949
Philip T. Rowe	2/28/1949	3/18/1949
Elias Latunen	9/30/1949	10/8/1949
Charles Poggi	7/31/1949	7/21/1949
Richard H. Burrows	8/31/1949	9/14/1949
John H. Korpela	4/30/1949	5/7/1949

Minnesota Retirements

This office continued to handle payments to retired employees of our Minnesota properties during the year 1949. Two payrolls are prepared, one for the Canisteo Mine retired employees and the other for the retired employees of the Mesaba-Cliffs Mining Company.

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23. o. INCAPACITATED EMPLOYEES (Continued)

Minnesota Retirements (Cont'd)

The following changes were recorded on the Canisteo Mine Retirement Payroll during the year:

Louis A. Jacobson		Added effective 1/1/1949
Jac Kokko		"
Elmer T. Eckland		"

Isaac Mattson	Dropped as of 1/31/1949	Died 1/28/1949
Andy Nelson	5/31/1949	5/28/1949

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

Nick Kuzma		Added effective 1/1/1949
Joseph G. Dolezel		"
John G. Ranta		"
Frank Hill		"
John M. Snarich		"
Joe Karan		"

Thomas Meenahan, Sr.	Dropped as of 11/30/1949	Died 12/12/1949
Alex Gray	9/30/1949	9/28/1949

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23. o. INCAPACITATED EMPLOYEES (Continued)

Retirement Payrolls (Cont'd)

A resume of the 1949 Retirement Payrolls follows:

Number of Mining Department Retired Employees 12/31/1948	218	
Number of Mining Department Retired Employees 12/31/1949	238	
Total Expenditure to above employees for year 1949		61,016.92
Number of Canisteo Mine Retired Employees 12/31/1948	7	
Number of Canisteo Mine Retired Employees 12/31/1949	8	
Total expenditure to above employees for year 1949		2,040.00
Number of Mesaba-Cliffs Mining Co. Retired Employees 12/31/1948	22	
Number of Mesaba-Cliffs Mining Co. Retired Employees 12/31/1949	26	
Total expenditure to above employees for year 1949		6,640.00
Total Number of Retired Employees 12/31/1948	247	
Total Number of Retired Employees 12/31/1949	272	
Total expenditure to Retired Employees for year 1949		69,696.92

WELFARE DEPT. ANNUAL REPORT YEAR 1949

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 at the mines, and there are some with large families who have become incapacitated. Recent additions to this payroll are 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 ordinarily 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 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-five people on December 31, 1948, and on December 31, 1949 there were twenty-nine payees. The total amount expended over this roll during the year was \$9,958.60. Following are the additions and deletions for the year:

Abel Laitinen		Added effective 7/1/1949
William Bond, Sr.		10/1/1949
Andrew Elgland	Dropped as of 1/1/1949	Transf. to Retirement Payroll
Pasquale Meni	3/31/1949	"
John Tammelin	5/31/1949	Reemployed
Andrew Invenes	6/30/1949	Transf. to Retirement Payroll
R. J. Chenneour	7/31/1949	Died 8/20/1949
Andrew Niemi	8/31/1949	Died 9/11/1949
Mary C. Ryan	9/30/1949	Died 9/18/1949
Ernest Swanson	9/30/1949	Died 10/7/1949

One death, that of Carl Jarvinen on 3/28/1949, was recorded on the Holmes Mine Donation Payroll. Mr. Jarvinen was dropped from the payroll as of 3/31/1949. There are two payees remaining on this roll, and the total expenditure for the year was \$530.97.

23.

q. IMPROVEMENT WORK

Mr. Julian Payen, the company's landscape gardener, continues to have charge of all the improvement work for all the grounds in the whole 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 1949. 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 organization.

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 1949. 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 62nd Annual Ski Tournament on February 19, 1949. These tournaments seem to interest more people every year. Several of the employees of our company participate in the ski jumping.

23.

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. In July of 1949 the Superintendent of the Welfare Department completed his tenth year as a member of the State Social Welfare Department as commissioner on the State Social Welfare Commission. His service on this commission ended with his second term after the expiration of his second five year term. A change of governor meant that the appointment went to a member of the Democratic Party.

The Superintendent of the Welfare Department was re-elected first vice-president of the Michigan Society for Crippled Children and Adults. He was also elected a member of the Michigan Welfare League and the Tuberculosis Association.

The Superintendent of the Welfare Department was honored during the year by being selected as District Chairman of District XI of the Michigan University Alumni Association to serve as the chairman for the district on the Michigan Memorial Phoenix Project, which is a national undertaking by University of Michigan alumni to divert the use of atomic energy into the various fields of usefulness for mankind.

The Superintendent of the Welfare Department continues to serve as Chairman of the Board of Directors of Bay Cliff Health Camp at Big Bay. He also serves as a member of the Advisory Consultant Staff to the State Department of Public Instruction on community planning and programming.

On December 22, the employees of the Central Office held their second annual Christmas Party.

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 the police force.

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w. VARIOUS DEPARTMENTS (Continued)

LAKE SUPERIOR & ISHPEMING RAILROAD COMPANY

COMPARATIVE STATEMENT OF GENERAL WELFARE EXPENSES

	YEARS 1946 - 1949,	INCLUSIVE		
<u>Donations:</u>	<u>1946</u>	<u>1947</u>	<u>1948</u>	<u>1949</u>
Fire Departments	32.50	35.00	30.00	40.00
American National Red Cross	250.00	150.00	100.00	75.00
Community Chest Fund - Marquette	300.00	300.00	330.00	300.00
Marquette County TB Association	10.00	10.00	10.00	10.00
Munising Hospital Association	2,000.00			
Michigan Sheriffs' Association			10.00	10.00
Palestra Fund - Marquette			400.00	
Marquette Centennial Expense				431.48
National Handicapped Children Committee				5.00
Alger County Community Chest	24.00			
	2,616.50	495.00	880.00	871.48
 <u>Pensions:</u>				
	5,004.16	5,966.10	6,445.00	5,040.00
Aetna Group Insurance - Railroad Proportion			10,380.39	9,349.31
 <u>Personal Injury Expenses:</u>				
Compensation paid and settlements	1,475.40	1,323.00	8,270.57	13,393.40
Medical Expenses	1,371.45	1,849.51	1,627.25	2,258.31
 Total of Payrolls			1,456,920.00	1,500,274.00

WELFARE DEPT. ANNUAL REPORT YEAR 1949

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w. VARIOUS DEPARTMENTSLAND DEPARTMENTCOMPARATIVE STATEMENT OF GENERAL WELFARE EXPENSEYEARS 1946-1949, INCLUSIVE

General Welfare Acct. No. 11	<u>1946</u>	<u>1947</u>	<u>1948</u>	<u>1949</u>
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>420.00</u>	<u>240.00</u>
	540.00	540.00	720.00	540.00
<u>Donations:</u>				
U. P. Development Bureau	500.00	500.00	500.00	500.00
Red Cross - Negaunee & Munising	465.00	232.50	182.50	175.00
Munising Fire Department	10.00	15.00	15.00	25.00
Munising Community Chest	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		500.00		
Community Church - Grand Marais				200.00
Don Montgomery Memorial Fund				<u>25.00</u>
	<u>1075.00</u>	<u>6371.23</u>	<u>697.00</u>	<u>925.00</u>
<u>Compensation:</u>				
Monthly payments to Ishpeming Hospital and proportion of Hospital loss	471.51	651.08	829.75	754.87
<u>Compensation: Personal Injury</u>				
Medical and Hospital	39.00	95.91	62.85	46.00
Compensation Payments	2135.12	2294.62	1976.88	1334.57
Percentage of Payroll	1.6	1.5	1.2	.95
Physical examinations - Company employees	45.00	58.00	41.00	93.50

WELFARE DEPARTMENT

23.

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.

ELECTRICAL DEPARTMENT
ANNUAL REPORT
YEAR 1949

ATHENS MINE:

Several minor changes and repairs were made to the hoisting equipment during the year. New copper cooling coils for the skip hoist liquid rheostat were built and the change made in November.

After several failures in the original cage hoist control wiring which was installed in 1917, a new wiring job was put in from the control to the contactor panels.

The failure of one coil in the armature of the skip hoist generator occurred in the month of May and was repaired on the job over a week end with no delay in operations.

Considerable difficulty has arisen due to low voltage in the underground D.C. haulage system which also supplies power to blowers and sub-level scraper machines. Several tests were made with various load conditions. These tests reveal a considerable change in the diversity factor due largely to the nearly continuous operation of larger scraper machines in transfer sub-levels, and a more continuous operation of eight locomotives. This D.C. power is supplied by a 150 KW M-G set which was ample with a lesser operation of the mine equipment and a more diversified and short time operation of scrapers. The overload protection is set at 1200 amperes at a voltage from 260 to 270. With this high setting of 200% load on the generator, the power failures due to overloads are much too frequent. It would be unwise to set the protection higher on account of the heating and consequent commutator trouble with the generator. The voltage on the 4th and 6th levels is also very low on account of small feeders in the shaft and on the levels. The installation of larger feeders to improve the voltage would not be good with the present setup because of the increased burden on the M-G set. This all points to the fact that if we are going to continue increasing the size of scraper equipment, and the operating time, we must have more D.C. generating capacity plus larger feeders. The connected load of locomotives, blowers and scrapers is now approximately 1500 H.P.

Changes in the cooling water circulating pumps for the compressors in the engine house were completed and the old 3 H.P. motor set up with the new 5 H.P. motor so that either one may be used.

The regular maintenance of electrical equipment on air compressors and pumps was carried on during the year.

CAMBRIA-JACKSON MINE:

Some of the motor winding and bearing difficulties of the hoisting equipment continued into 1949. Work on preparing the foundation and conduits for the hoist motor change was started in July. The change in hoist motors was made during the vacation period from August 13 to August 23. The 500 H.P., 435 R.P.M. wound rotor Westinghouse motor was taken out and the 700 H.P., 390 R.P.M. wound rotor type Westinghouse motor from the Maas Mine skip hoist installed in its place. The spare rotor and bearings recently purchased by the Maas Mine for this 700 H.P. motor will be stored at the Cambria Mine.

ELECTRICAL DEPARTMENT
ANNUAL REPORT
YEAR 1949

CAMBRIA-JACKSON: (Continued)

No changes worthy of note have been made in the haulage system and air compressors during the year.

The 200 H.P. pump motors on the 4th level Prescott pumps were taken to the General Shops for repairs in the month of March.

CLIFFS SHAFT MINE:

The 750 H.P. "A" Shaft hoist motor was taken apart for inspection and rotor banding repairs January 15 and June 12.

The rotor of the "B" Shaft 750 H.P. hoist motor was completely rewound during the vacation period and back in service August 22. The Lilly hoist controllers were also fitted with new worms and gears at this time.

Considerable work has been done on the haulage equipment during the year. The 150 KW M-G set was taken out in March and sent to the General Shops for repairs. The commutator of the D.C. generator was turned and slotted while the field coils were checked and painted. The A.C. motor was also repaired and painted while all bearings were rebuilt. The machine was returned to the engine house and set up for operation March 22. While this M-G set was tied up, D.C. power for the mine was supplied by the 100 KW M-G set and the 100 KW rotary converter connected in parallel.

On account of difficulties which arose from loose laminations in the synchronous motor of No. 1 haulage set, the motor was sent to the Westinghouse shops for restacking the laminations and a complete rewind of the stator. The rotor coils were repaired and bearings rebuilt in our shops. This machine was back in service in November after a two month tie-up.

Regular maintenance and repairs were made to the compressor controls. The synchronous motor for No. 3 Ingersoll-Rand compressor was repaired in April by a crew from the General Shops. The rotor bars were rebuilt and the stator coils repaired and rewedged in the slots. A similar repair job was done on the No. 2 Ingersoll-Rand synchronous compressor motor in January. New brush holders for more contact capacity of the slip ring circuit were put on to stop the pitting and burning difficulty which caused several shutdowns. The rotor bars and a number of stator coils were also repaired.

The 2300 volt line to "B" Shaft has been removed temporarily to clear the scaffold for the concrete work on the headframe. A 2/0 3-conductor steel armored cable is used for power connection while the repair work is being done.

A 220 volt, 3 phase line was also built to the location of the rock tram west of "B" Shaft. A 25 KVA transformer from the 2nd level "B" Shaft and a 15 KVA transformer formerly used at the laboratory is used to furnish 220 volt power for this rock hoist.

One of the rock trams at the crusher house was discontinued during the year. The primary contactor, switches, grids and controller for this rock car control were reconditioned and now stored at the mine.

Only minor changes were made in the pumping equipment during the year.

ELECTRICAL DEPARTMENT
ANNUAL REPORT
YEAR 1949

LLOYD MINE:

Only minor changes and the regular maintenance on hoisting and haulage equipment and compressors were made in 1949.

Several changes were made in the pumping equipment. A $7\frac{1}{2}$ H.P. pump and motor formerly used at the Princeton Mine were taken to the 9th level and set up about 200 ft. from the 30 KVA transformer station. Two hundred feet of #6 3-conductor cable and a 3 pole switch from Princeton were also sent with this pump. The C. C. I. Object Number of the pump is E-1-138-196.

A K-20 oil circuit breaker was also taken from the Maas rock tram for low voltage protection of the 7th level pumps.

The 8th level 25 H.P. blower motor armature failed and was rewound in October. The 4th level blower motor was also rebuilt including field coils and armature.

MAAS MINE:

The Maas Mine started operations on August 22, after a shutdown of one week while the new setup of D.C. controlled skip hoist equipment was connected and tested. This equipment consists of a motor generator set with a 1000 H.P. synchronous motor and 665 KW D.C. generator, 830 H.P. D.C. hoist motor and the necessary A.C. motor drive with the smaller D.C. generators for control and excitation. The above machinery plus oil circulating pumps and motors are war surplus equipment. The new controllers and contactor panels were built by the Cutler-Hammer Company.

The D.C. exciter generators for the Rand compressors failed and were repaired during the year. The 438 H.P. synchronous motors for these compressors were also repaired and repainted.

The armature of No. 1 - 100 KW haulage generator failed and was sent to Westinghouse for rewind February 6 and returned March 20. Failure of brush-holder insulation and cables from the generator to the switchboard also occurred at the time. This cable was replaced and the generator reconditioned. The re-wound armature is stored at the mine as a spare. Additional copper for the negative haulage cable was extended to the 6th level. The old 3-conductor pump cable recently disconnected from the 2300 volt lines is now used as a positive 250 volt conductor from the engine house to the 3rd level.

The stator winding of the synchronous motor for No. 2 haulage M-G set was repaired in the shops during the month of July.

Installation of a new 5000 volt 3-conductor 4/0 A.C. power cable in the shaft from the 3rd to the 5th level was completed and connected in April. This completes the #2 shaft cable from the engine house to the 5th level. Subway boxes and connections are also provided for the parallel operation of #1 and #2 cables and connections for pumps and winze equipment.

ELECTRICAL DEPARTMENT
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MATHER MINE "A" SHAFT:

Installation of the new D.C. armature for the skip hoist generator was made during the year. This new equipment was bought after the flash-over difficulties in the generator due to oil and carbon collection in the risers. The faulty armature was brought to the General Shops for repairs.

The 2500 H.P. A.C. drive motor for the skip hoist M-G set, the other 1250 KW D.C. skip hoist generator and exciter were also completely repaired during the same period.

The liquid rheostat control of the 2500 H.P. skip hoist M-G set motor has been set to run the load up from 400 amperes to 560 amperes. The rope speed has also been set up from 2250 feet per minute to approximately 2400 feet per minute.

Single pole oil circuit breakers brought from Negaunee Mine are now being used as feeder switches for the top tram trolley lines to replace 3 pole, 100 ampere switches which failed and burned the cable ends.

The 85 H.P. G. E. 2300 volt induction motor formerly used to run the crusher at the Gwinn Crusher Plant was taken to the Mather Mine "A" Shaft and installed at their mill to run the large saw. A starting compensator from Negaunee Mine was also set up with this equipment.

Installation of subway boxes and cables for electrical connections for shovel operations are completed.

MATHER MINE "B" SHAFT:

The sinking equipment in the temporary engine house, including the hoist with its two 400 H.P. A.C. motors and controls, and the 325 H.P. Nordberg compressor, has worked very well with little delay in operations during the year.

The installation of the main 2300 volt feeder cables from the substation to the new engine house has been completed. The feeder panels and circuit breakers for the power distribution to the hoists, compressors, generators and underground power feeders were delivered to the engine house and set up during the year. Control panels for No. 1 and No. 2 Rand compressors were also set up and the wiring and conduit work of the No. 1 compressor completed.

The generators and motors for the cage and skip hoists with all the necessary control equipment were also delivered and the installation commenced the latter part of the year.

The two main 2300 volt 350,000 C.M. power cables and subway boxes were extended in the shaft to near 2000 ft. from the timber tunnel and are being connected and used for 440 volt power distribution for shaft pumps and loaders.

NEGAUNEE MINE:

Failure of the signal cable in the shaft between the 10th and 11th levels occurred in 1949, and a new 10-conductor steel armored cable was installed.

ELECTRICAL DEPARTMENT
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YEAR 1949

NEGAUNEE MINE: (Continued)

The Ingersoll-Rand compressor motor failed several times and coils in the new winding were repaired. One coil could not be repaired so we now have one coil cut out of the stator winding.

The trolley and feeder cables for the haulage system were all taken out of the mine. The trolley wire was taken to Maas and Cambria-Jackson Mines and the feeder cable is used to build up the positive feeder capacity on the main haulage level at the Cambria-Jackson Mine.

The 350 H.P. wound rotor motor of the old motor-generator hoist set failed and coils have been ordered for a complete rewind of the stator.

SPIES MINE:

Some changes were made on the skip hoist equipment since hoisting operations increased from the 6th level. Larger rotor cables from the motor to control panels are now in use and a larger control transformer from Negaunee Mine is also being used.

One of the 800 ampere circuit breakers from the 150 KW haulage set at Negaunee Mine was sent to the Spies Mine and installed on the No. 2 haulage panel after the failure of the 600 ampere Westinghouse breaker formerly used at the Princeton Mine.

The installation of a 2-way subway box on the 6th level and a new section of 5000 volt 3-conductor 2/0 cable from 6th to 8th level was completed. This is Anhydrex, steel wire armored shaft cable and replaces varnished cambric and lead covered cable which failed due to moisture after a break in the lead sheath.

GENERAL:

Several tests were made on the Fenwal temperature relays for all compressors during the year. The breakers opened at the following temperatures on the latest tests:

Spies Mine	-	Ingersoll-Rand Compressor	-	300°F
Athens Mine	-	Ingersoll-Rand Compressor	-	338°F
Athens Mine	-	Nordberg Compressor	-	330°F
Cambria-Jackson Mine	-	Ingersoll-Rand Compressor	-	300°F
Cambria-Jackson Mine	-	Laidlaw-Dunn-Gordon Compressor	-	310°F
Cliffs Shaft Mine	-	Ingersoll-Rand Compressor #1	-	320°F
Cliffs Shaft Mine	-	Ingersoll-Rand Compressor #2	-	338°F
Cliffs Shaft Mine	-	Ingersoll-Rand Compressor #3	-	322°F
Lloyd Mine	-	Ingersoll-Rand Compressor	-	310°F
Lloyd Mine	-	Sullivan Compressor	-	308°F
Negaunee Mine	-	Ingersoll-Rand Compressor	-	360°F
Negaunee Mine	-	Nordberg Compressor	-	338°F
Maas Mine	-	Ingersoll-Rand Compressor #1	-	328°F
Maas Mine	-	Ingersoll-Rand Compressor #2	-	310°F
Mather Mine "A" Shaft	-	Ingersoll-Rand Compressor #1, #2, #3 and #4	-	300°F
Mather Mine "B" Shaft	-	Ingersoll-Rand Compressor #1	-	300°F
Mather Mine "B" Shaft	-	Nordberg Compressor #2	-	360°F

