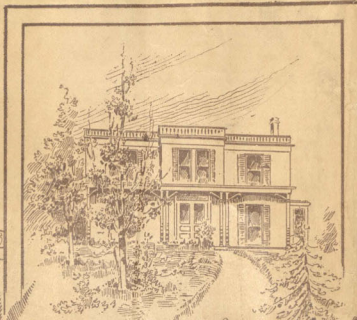
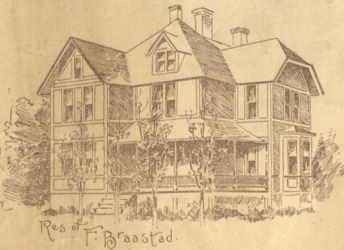
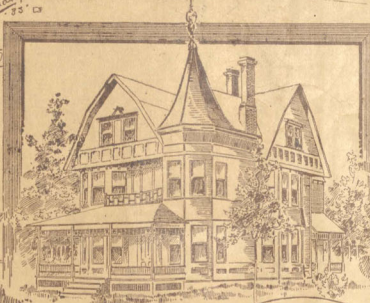


ISHPEMING

New Year
1889.



Geo. A. Newell
Editor and Publisher
Illustrated
by Will Bradley.



*THE - ISHPEMING - NATIONAL - BANK,
ISHPEMING, MICHIGAN.*

O. W. HALL, President.

CHAS. MERRYWEATHER, Vice Presd.

A. B. MINER, Cashier.

*Report of the Condition of the ISHPEMING NATIONAL BANK at the Close of
Business January 1st, 1889.*

RESOURCES.		LIABILITIES	
Loans and Discounts.....	\$303,881 26	Capital Stock.....	\$50,000 00 } \$120,000 00
Overdrafts.....	719 19	Surplus.....	70,000 00 }
U. S. Bonds to secure circulation.....	12,500 00	Circulation.....	10,550 00
Other Bonds.....	2,300 00	Undivided Profits.....	263 72
Real Estate, Furniture and Fixtures.....	16,514 61	Deposits.....	320,146 61
Premiums.....	1,665 00		
Cash { Due from Banks.....	\$58,397 89		
{ Coin and Currency.....	54,983 38		
	\$450,960 33		\$450,960 33

statistics at hand to show the actual amount of devastation wrought by such cause, but we do know that

A. W. MALLMOND
manufactures as fine a loaf as one needs to put a tooth upon. He has a thoroughly-equipped bakery. He has a large capacity, and can supply bread, cakes, biscuits, pies, etc., to all who need them, guaranteeing the quality to be first-class. Goods are delivered to all parts of the country, a specialty being made of supplying both wholesalers and retailers. Everyone accommodated.

LUMBER

finds a ready sale in this place as may be judged from the amount of building being done each season. The Deer Lake company, which maintains an office in this city, is the pioneer institution of the kind in the place. It annually cuts about three million feet, selects the different grades with great care, and always satisfies its patrons. Lime, brick, cement, a complete line of masons' supplies, is also carried. Everything is of the best, proves always satisfactory.

HUCKLEBERRIES.

There are annually sent from this city thousands of bushels of huckleberries that grow and thrive to a wonderful degree in the jack pine plains to the north and south of this place. Hundreds of men, women and children engage in the work of picking during the season which lasts for several weeks. The "patches" are free to everyone, and considerable money is made by the pickers and those who purchase the product.

James Lucks & Co.,

of whom Mr. Chas. Merryweather is the Company, do a grocery business in the Merryweather block, of which our artist presents an engraving. They enjoy a large trade which they have secured by carrying the finest goods and selling at the lowest prices. Both gentlemen are possessed of a long experience in the grocery business and have the full confidence of their patrons as to their reliability in giving them such quality as they bargain for. Mr. Merryweather commenced operations in this county on a very small capital. By industry and thrift he has accumulated a comfortable fortune, is liberal in his expenditure for the general improvement of the place, is well known and highly respected by the entire community.

OUR STANDING ARMY

consists of the Emmett Light Guards, a company of young gentlemen who have formed themselves into a martial body for the purpose of drill, and who have made successful progress in that direction since the time of their organization.

SHOES.

The Red School House shoe has earned a reputation for itself that may well be envied by all other manufacturers outside of the firm of C. M. Henderson & Co., Chicago. This firm is represented in this peninsula by Mr. S. P. McIntyre, of Negaunee, whose advertisement will be found further on in this paper.

Logs Come Down

seasons to the mill of F. W. & Co. They receive them by select the very best pine and fir timber used by them. They have a yard in this city the business of which is in the hands of Mr. O. B. Robinson. He has taken an interest in it, has added considerably to the former favorable trade. Many of the new buildings are constructed from the Red Lumber. They have patent drying devices that insure against shrinkage, have all the conveniences necessary to furnish a satisfactory article.

E. CRONIN

manages a neat grocery store on west Division street, where he enjoys a healthy trade, supplying a large number of families with goods in his line. He is active, alive to the wants of his patrons, does all in his power to please them.

Railway Extension.

During the past year the Chicago & Northwestern railroad has extended its line westward as far as Champion and Republic. This extension passes within half a mile of the Ishpeming gold range, and a station possessing the significant name "Golden" has been made. The Northwestern continues to keep up with the times in looking after passenger and freight business and promises many beneficial changes in the near future. As far as Ishpeming is concerned it has ample railway facilities for the carrying on of its business.

M. CASSIN

has conducted a meat market on West Division street for several years past—running it well, too, cutting up his share of the meats eaten in the town. This a great meat-eating country. It is one where muscle is needed, and it takes best steak to produce the foundation for it. Mr. Cassin has been engaged as a cutter for the past twenty years and knows everything in connection with the business.

Lake Superior Breezes

make our summers the delight of the

able. He has large stores on the corners of Second street and Cleveland avenue, and employs a small army of clerks. On one corner is the grocery department and meat market, on the opposite one the clothing, dry goods and millinery stores. Everything needed to eat or wear is provided for his customers. Mr. Braastad has grown up with the city, sharing in its general prosperity. Of course he has worked hard to acquire the wonderful business he enjoys. His undivided attention has been given to making the different departments a success, and he deserves the good fortune that has been accorded to him. He began a poor boy, without a dollar, and the business he has amassed is principally due to his own care and foresight. It is such men who deserve to succeed, who are of some benefit to mankind. Mr. Braastad has now in addition to his other business, the Braastad mines, formerly known as the Winthrop and Mitchell, which properties, as we have before mentioned, furnish employment to three hundred and fifty men. He operates a big farm, also, several miles to the northwest of the city, upon which large crops of potatoes, turnips, vegetables, hay and oats are raised.

In charge of the clothing depart-

ment. He has large stores on the corners of Second street and Cleveland avenue, and employs a small army of clerks. On one corner is the grocery department and meat market, on the opposite one the clothing, dry goods and millinery stores. Everything needed to eat or wear is provided for his customers. Mr. Braastad has grown up with the city, sharing in its general prosperity. Of course he has worked hard to acquire the wonderful business he enjoys. His undivided attention has been given to making the different departments a success, and he deserves the good fortune that has been accorded to him. He began a poor boy, without a dollar, and the business he has amassed is principally due to his own care and foresight. It is such men who deserve to succeed, who are of some benefit to mankind. Mr. Braastad has now in addition to his other business, the Braastad mines, formerly known as the Winthrop and Mitchell, which properties, as we have before mentioned, furnish employment to three hundred and fifty men. He operates a big farm, also, several miles to the northwest of the city, upon which large crops of potatoes, turnips, vegetables, hay and oats are raised.

ment. He has large stores on the corners of Second street and Cleveland avenue, and employs a small army of clerks. On one corner is the grocery department and meat market, on the opposite one the clothing, dry goods and millinery stores. Everything needed to eat or wear is provided for his customers. Mr. Braastad has grown up with the city, sharing in its general prosperity. Of course he has worked hard to acquire the wonderful business he enjoys. His undivided attention has been given to making the different departments a success, and he deserves the good fortune that has been accorded to him. He began a poor boy, without a dollar, and the business he has amassed is principally due to his own care and foresight. It is such men who deserve to succeed, who are of some benefit to mankind. Mr. Braastad has now in addition to his other business, the Braastad mines, formerly known as the Winthrop and Mitchell, which properties, as we have before mentioned, furnish employment to three hundred and fifty men. He operates a big farm, also, several miles to the northwest of the city, upon which large crops of potatoes, turnips, vegetables, hay and oats are raised.

ment. He has large stores on the corners of Second street and Cleveland avenue, and employs a small army of clerks. On one corner is the grocery department and meat market, on the opposite one the clothing, dry goods and millinery stores. Everything needed to eat or wear is provided for his customers. Mr. Braastad has grown up with the city, sharing in its general prosperity. Of course he has worked hard to acquire the wonderful business he enjoys. His undivided attention has been given to making the different departments a success, and he deserves the good fortune that has been accorded to him. He began a poor boy, without a dollar, and the business he has amassed is principally due to his own care and foresight. It is such men who deserve to succeed, who are of some benefit to mankind. Mr. Braastad has now in addition to his other business, the Braastad mines, formerly known as the Winthrop and Mitchell, which properties, as we have before mentioned, furnish employment to three hundred and fifty men. He operates a big farm, also, several miles to the northwest of the city, upon which large crops of potatoes, turnips, vegetables, hay and oats are raised.

REAL ESTATE.

The card of Mr. H. H. Mildon will be found further on in this number, announcing the fact that he has engaged a real estate office in the Peninsula Bank building where he is prepared to handle stocks on commis-

ing spring trade with that object in view.

BY TELEPHONE

we converse with Marquette. Negaunee, Republic, Deer Lake, Braastad mines, Champion, and other places of smaller size. The exchange is in the hands of the Detroit Telegraph Construction company, and gives excellent satisfaction.

SUPERIOR POSTEN,

the only Swedish newspaper in the state, has been published for a little more than half a year, in which time it has worked up a wonderful circulation. It has a large field to circulate in, there being a large number of Scandinavians scattered throughout the entire peninsula. It is an ably-edited, clean, newsy sheet that is bound to flourish and make itself immensely popular. Mr. N. Mortenson is editor, Mr. Andrew Sandberg business manager. Office in the Iron Ore block, first floor.

JOHN JONES

one of the successful residents of this city, who has been engaged in the coal, omnibus and express business for many years, is one of the most enterprising citizens of the place. He

on the corner of First and Division streets, has built up a paying trade. The place is headquarters for the Finnish people, who find in Mr. Kangas a ready friend.

NANKERVIS BROS.

are engaged in the grocery business, occupying one of the Voelker buildings on Main street. They enjoy a fine trade, report a steady increase in the amount of business done. They are a new firm as compared with many others, but are practical grocery men and favorites with many.

FRED. J. EGGAN

is one of the old residents who has been successful in the city, has made money, saved it, and improved his property in a way that has become creditable to himself and the general surroundings. He conducts a first-class hardware store on Cleveland avenue, makes a specialty of fine heating stoves and ranges, and has a lively trade in the general stock he handles. During the past summer he erected a 4000-dollar residence.

F. B. WASLEY,

who began in an unpretentious way to dispense groceries to the people a few years since, has gradually been growing from a business point of view, has established himself on Main street, put in a larger stock of the very best goods and gives satisfaction to all who deal with him. He is a hard worker, spares no pains to please and is bound to succeed.

A Public Fountain.

the gift of Mr. C. H. Hall, adorns the public square. The figure represents an Indian chieftain—supposed to be old Ishpeming himself—standing on an eminence gazing into the land of the setting sun. In one hand he grasps a bow while the other holds an arrow. It is a fine piece of work, the material being of iron, appropriate for the place. It is fourteen feet in height, containing water receptacles for man and beast.

WM. MARKERT

has lately opened up a store in the Voelker block South Main street, where he is cutting first-class meats, and attracting attention by the neat display he makes of his stock. He has earned the reputation of being one of the finest cutters in the city, keeps a neat market, and sells as low as the lowest. He is well acquainted with the people, having resided here for the past twelve years.

F. J. SCHWEITZER & CO.

occupy one of the fine stores in the Jenks' block, and carry a stock of groceries and provisions. They have been doing business here but a short time, but in that have succeeded in attracting people by the fine quality of goods they keep. They are thorough grocery men, having conducted a similar business at other points. They possess every facility for properly attending to all the orders tendered them, promptness being one of their aims and achievements.

AUG. SWANSON & CO.

is a thriving firm, located on Cleveland avenue. During the past summer they have moved into more commodious quarters than previously had, and they find their present space completely filled. The members of the firm are wide-awake gentlemen, having a long acquaintance with the people, are popular and prosperous.

Hans Gunderson

is quite a banker in the way of handling funds to be sent to foreign sources. As our report shows he sent out \$24,000 to Norway, Denmark and Sweden for 1888. He also conducts an insurance business and manages to keep his hands full all of the time.

Fine Millinery

may be had by patronizing the establishment of Mrs. W. H. Roberts, Main street. She carries an elegant stock, keeps a competent trimmer, and turns out a superior style of hat or bonnet.



E. C. COOLEY'S RESIDENCE, NORTH MAIN STREET.

heat-ridden resident of "lower" towns. The lake is composed of water of a low temperature. It is a large "pond," 350 miles long, 100 wide, 878 feet deep, 627 above tide water, has 100,000 square miles.

H. ASGAARD,

undertaker and dealer in furniture, has one of the finest stocks of goods to be found in this district. He has been engaged in business here since the town amounted to anything, has earned a reputation for fine workmanship in the cabinet line that is worth something to his business. A fair sample of what his establishment is capable of may be seen in the railing and office furniture of the Ishpeming National Bank. During the past year he has greatly added to the attractiveness of his place of business, which, on the corner of First street and Cleveland avenue, by adding a new front to his building, raising the ceiling, and otherwise improving it. He built an elegant residence in the year just just ended, at a cost of \$3,000. He has done considerable towards improving the town and deserves credit for his enterprise. He enjoys a prosperous business and invites inspection of an elegant line of furniture just put in.

F. BRAASTAD & CO.

are doing the largest general merchandise business of any firm in the upper peninsula, and this means consider-

ation, to look after the interests of non-residents and to do a general real estate business. Mr. Mildon is one of the "solid" men of this city, one of the pioneers, also, who is too well known to need any introduction to the people. For the past four years he has acceptably filled the office of judge of probate of this county, and has held many positions of trust aside from that, during his term of residence in this city.

THE D., S. S. & A. R. R.

The Duluth, South Shore & Atlantic railroad, after a multiplicity of changes in officers, etc., has finally settled down to a steady business and bids fair to flourish to a degree never before experienced—even in the halcyon days when it received a dollar a ton for hauling iron ore from Ishpeming to Marquette.

Within the past few months Mr. Fitch, a railroad man who served a long and prosperous term with the Chicago & Northwestern railroad company, has been secured as general manager for the D., S. S. & A., has taken hold with a will and is bound to render satisfactory service to the public at any cost.

During the past year the road has been completed through to Duluth, forming the connecting link between the east and the great northwest, with a through line reaching from Sault Ste Marie and the Straits of Mackinac to Duluth, traversing and touching at every place of importance on the south shore of Lake Superior.

At present there is a local train service on the Duluth division, but we are promised a through train ser-

vice early next spring. To those traveling to and from the Ishpeming and Gogebic ore ranges this line is far shorter than any other, the roadbed is good and the route will be the universal one. The equipment in the passenger department is of the best.

J. H. QUINN

operates one of the finest dry goods establishments in this city, being located on south Main street, occupying a fine brick building, which he also owns. He has conducted an exclusive dry goods business since the time of his start, believing it would prove more satisfactory to himself and the public, than by trying to take care of the many lines embraced in a general stock. His wisdom in this direction has been proved, as he has had time to study the needs of the people and to prepare for them accordingly. He has paid the closest attention to buying, and has one of the most attractive stocks to be found in the region.

In connection with the store, occupying the second floor, there is a dressmaking department that has grown rapidly in favor with the ladies since the time of its start. Altogether Mr. Quinn has enjoyed a very satisfactory trade, intends to increase it, and is arranging for the

started here without a dollar, and by dint of hard work and care has worked up a paying business, and is the owner of considerable fine property. He annually disposes of a large amount of coal to people in this city, and surrounding country. His bus and dray line is one of the best managed in the district, while no express office in the region is handled in a more satisfactory way than is the American, of which he is agent.

Aiding him in the work are his sons, and as an appreciation of their services he has lately taken them into partnership, they sharing in the profits of the different enterprises, which they have done so much toward making a success.

CONFECTIONERY.

can be furnished you by John Zoberlein, who has begun business on Main street. He carries an elegant assortment of the purest candies and invites a trial of its qualities. Prices low.

S. P. SANDMARK,

located in the Nolan block, is a jeweler of considerable note, being an inventor who has created considerable notoriety. He has a fine stock, is enterprising, deals in sewing machines of the best makes and asks the public to pay him a visit when in need of anything in his line.

ADAM KANGAS

has charge of a neat grocery store

MORE GOLD.

Messrs. F. Braaslett, M. B. Toulloff and other gentlemen of Ishpeming, have secured an option on lands to the west of this city from Jos. Peppia, and are exploring the same for gold. They have a large vein of quartz that outcrops for a considerable distance on surface, and which shows gold and silver in encouraging quantity, according to assays lately made. They intend to give the property a thorough testing and have great faith in its returning them sufficient of the precious metal to repay them for their pains.

Uncas Larson

occupies a neat office in the Peninsula Bank building, where he talks insurance to all those who desire anything in that line. He represents one of the best accident companies in the Union and does a large business in the way of insuring miners and others.

Calendar.

Send for one of the new calendars of I. E. Swift. They are pretty, as a picture, plain to read, and you should have one in your office.

BATHS.

Mr. Asher Hagony, proprietor of the Nelson house tonorial establishment, has fine bath rooms for the accommodation of the public. He has all the conveniences that go to make his place popular, and as a knight of the "trenchant blade" type can excel him.

California Lands

can be bargained for through Messrs Lindholm & Malloy, this city, they representing large landed interests in that country. All information pertaining thereto can be learned by calling on or writing to the gentlemen.

D. E. SULLIVAN

has been in the furniture business in this city for some time past, has worked up a good business in that line and in undertaking goods, has given general satisfaction and for these reasons intends to remain and keep in the business ranks.

Miss K. McKenna

is thoroughly conversant with all that pertains to the business of millinery. She carries an elegant stock of goods, all fresh, in season, pretty and desirable. She employs competent assistants, and makes it a point to please all who call upon her.

DR. RUSS

is a dentist of acknowledged skill, being well known in the peninsula generally. He has his parlors in the Voelker block, has a large business that is constantly increasing. All the modern appliances intended to add to the effectiveness of dental work as well as to make the patient comfortable while being operated upon, will be found at his office.

GOLD

put into cavities in the molars of humanity preserves their shape, fills many an aching void, is a blessing that many can appreciate. Foremost in doing this artistic work is Dr. Jarvis, who has dental parlors in the Milton block, on the corner of Main and Bank streets. He is a dentist of acknowledged skill, and is constantly employed in the interest of many patrons.

THE TOURIST.

can find much in Ishpeming and vicinity to amuse and instruct him. The mines, to those who have a desire to see the home of iron ore, furnishes a source of much wonder and gratification. At no other point will a better system of mining be found, no better equipment.

If fond of fishing the adjacent streams will furnish speckled trout in sufficient quantity to make the sport interesting. The Escanaba river, one of the greatest trout streams in existence, still contains plenty of fine fish. It requires work to get them,

but this, to the real sportsmen, only adds to the pleasure. The stream is a large one, spring-fed, contains the coolest and purest of water, in which trout thrive and attain great size. In former years a wholesale slaughter was indulged in, but now there is a game warden on the outlook for offenders, and a sportsmen's association in Ishpeming, that is punishing all law-breakers. As a result the fishing is getting better each succeeding year.

Deer hunting continues to be indulged in, by lovers of the sport. The noble game still continues to exist in large numbers, and lawful measures are being enacted and carried out for their preservation. The boundless forests furnish ample cover for the deer and will for many years to come. All that is needed is to protect them in the fall when they are moving southward, or where they make "yards" in the forests here. The wolves have been one of their worst enemies, and an increase of bounty for killing the latter should be made by the state.

Camping parties are very popular in this section, a few weeks of rare enjoyment being indulged in each fall by many of the residents.

The bracing air the beautiful sunsets, the pines and hemlocks, the hunting and fishing, the mountainous scenery, all tend to making this a paradise for the party in search of recreation and rest.

A. W. LINDHOLM

is one of the active business men of the place, who is working up a trade that is entirely satisfactory in its ratio of increase from year to year. He handles notions, toys, confectionery, cigars, newspapers and various other things that can be better known by paying a visit to the place. He is agent for several steamship lines, sends money to foreign countries and is kept busy attending to the wants of many customers.

CLEO MILLEUR

has just established himself in the grocery business on the corner of Main and Pearl streets, and asks for a trial of quality and price of the goods he keeps in stock. He is familiar with the trade of this place, having served in the capacity of clerk in similar establishments for some time past. He is alive to the position he occupies,

stock of paints, oils, kalsomine, wall paper, and other things needed to make the housekeeper happy. He employs only the best workmen, makes a specialty of sign painting and house decorating.

WHITE & HALL,

insurance agents, have a display advertisement further on in this number calling attention to the list of

Wright, Prof. C. D. Lawton and other reliable authorities.

The balance of the credit we modestly reserve for ourselves.

Few people imagine the labor or expense entailed in such a work. To begin, we print 70,000 copies. There are 25 pages, the paper used being 70 pounds to the ream, requiring over 16 tons of stock. The cost of this and the composition was considerable. The enterprise was not cal-

rates are reasonable.

We thank those who have favored us in the past with their patronage, we will endeavor to earn a continuance of it in the future.

Our job department is in perfect condition, having lately been improved by new presses, type, etc. We do all kinds of mining and commercial work at lowest prices, will be glad to furnish figures to all who wish them.



ISHPEMING SNOWSHOE CLUB HOUSE.

companies represented by them. They make a solid array, being of the best in this and foreign countries. Their office is in the Ishpeming National Bank.

OUR PAPER.

In the presentation of this number of the IRON ORE, the editor first wishes to thank his artist, Will Bradley, for his valuable assistance. He has labored hard, and in the brief time given him has accomplished a great amount of work, the quality of which speaks for itself. Nothing of the

enulated as a money-making scheme. We expected to pay our share towards advertising the city and ourselves.

We believe every citizen who has the welfare of the town at heart will appreciate the effort we have put forth.

We have just a word more to add, that we wish the reader to give heed to.

We propose to make this the best mining paper on the lakes, one of the newest, generally. We expect every

Two dollars in advance will buy the IRON ORE for this year, and you cannot invest two dollars in a way that will give you larger or more satisfactory returns.

Artistic Painting.

In fine sign painting Mr. Christ Olson claims to be ahead of any similar concern in this district. He has many standing advertisements about town relating his skill with the brush, and as a decorator he has an excellent reputation. Many of the finest residences in the city have been decorated by him and he makes it a point to have every piece of work help secure another. His shop is on Pearl street, where he carries a complete stock of paints, oils, etc.

AUG. JACOB

is doing a lively business in the way of building wagons and carriages, sleighs, etc. His place of business is on West Division street. He gives employment to a number of men and turns out work of a satisfactory kind.

\$2.00.

Subscriptions to the IRON ORE are now due from a majority of subscribers. We want those two dollars, and want 'em badly. You will be pleased with the return you will receive for it. Please give the matter your attention. The amount is small

and liable to escape your notice if you do not send it to us at once.

NELS NELSON,

a retailer of fresh, dried and salted meats, has been an active dispenser of such provisions in this city for several years. Employing a competent force, he has made it a point to treat all customers alike, to faithfully serve the best interests of all. He has a paying business and intends to keep everything up to the highest point of perfection as he has always done in the past.

Musical Instruction.

Mrs. F. E. Canfield, with parlors on the second floor of the Jenks' block, has a large class receiving instruction from her hands. As a teacher she ranks amongst the best, possessing a rare faculty of imbuing the pupil with a clear idea of what the object intended to be attained really is. The task being made plain the successful performance of it is rendered comparatively easy. Mrs. Canfield possesses an elegant piano, has pleasant, quiet apartments for the accommodation of pupils and will be glad to state her terms of instruction to all who have an interest in knowing. Pupils and parents will find her an agreeable, accomplished lady in every way competent and deserving.

Gannister,

the very finest produced in the union, is mined near this city from a quarry operated by Mr. D. McVehie. It has a lively demand from furriers and others who desire a superior article. During the summer season quite a large force of men are employed in the work and the business is steadily growing. Shipments are made as far south as St. Louis, Mo., and east clear to the Atlantic seaboard.

E. ROBBINS

started as a miner not a great many years ago, is still connected with mining work, doing considerable in the way of prospecting, and is now engaged in the Ishpeming gold range. He was thrifty and soon gained a foothold, accumulated property, and erected several buildings in the town. He conducts a clothing store, it being in charge of his son, this being located in one of his buildings on Cleveland avenue, in which he enjoys a satisfactory run of trade, and sells as low as anyone.

Let us remind the stockholders in properties in this region that the IRON ORE publishes all the news, that it can be had for \$2 per year.

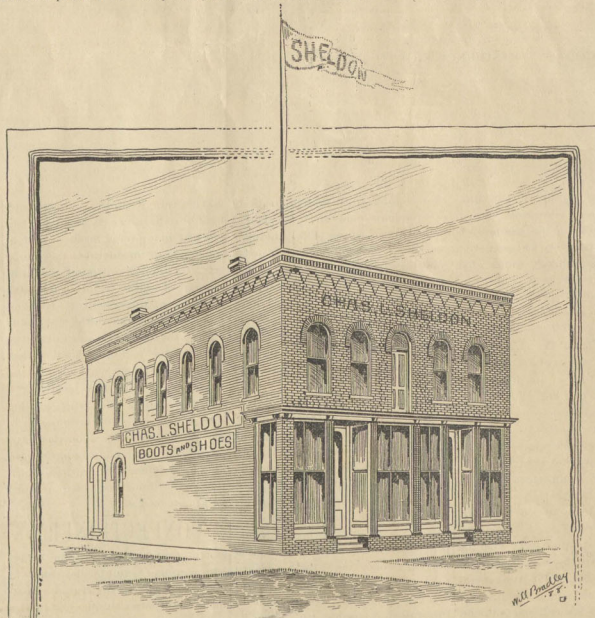
REAL ESTATE.

and all kinds of stocks BOUGHT and SOLD on Commission.

Property cared for, rents collected, and taxes paid for non-residents.

HENRY H. MILDON,

Ishpeming, Mich.
Room 2, Peninsula Bank building
Correspondence solicited.



SHELDON'S SHOE STORE, MAIN STREET.

will fill it acceptably to all concerned.

R. McSWEYN

is one of the oldest artists of the brush in this section, and from his rugged and youthful appearance, he bids fair to add many years to his time of service. His paint shop is located on Pine street between Pearl and Division. He carries a complete

kind has ever before been shown in a Lake Superior journal. As an artistic designer Mr. Bradley has few equals in the country. Still young in years he has made wonderful progress and enjoys a splendid position as head designer of one of the largest institutions in the city of Chicago. He comes quite naturally by his talent, his father being an artist of merit. Our historical sketch we credit to the works of Jacob Houghton, C. E.

shareholder in the mines in this region to subscribe for it. The subscription price is but \$2 per year, payable in advance.

Many subscriptions are now due, and these we want. Subscribers will save us considerable work if they will remit this small amount quickly.

To advertisers, we say this is the best advertising medium in the district, we have the largest weekly circulation, reach all the readers, our



C. M. Henderson & Co. sell everything in Leather and Rubber Boots and Shoes.

S. P. McINTYRE.

Agent for the Upper Peninsula.

Postal address, box 126; Telephone address, M. C. Quinn, Negaunee.

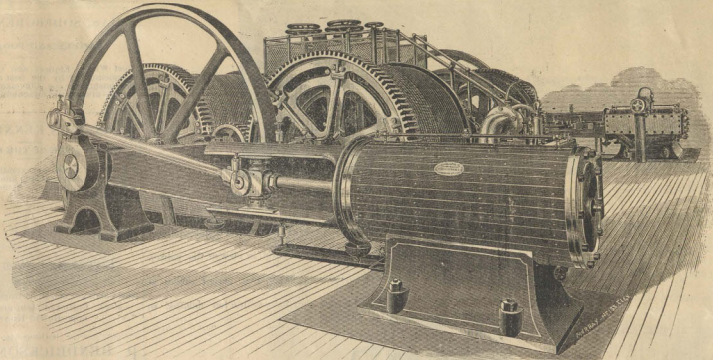
IMPROVED HOISTING MACHINES.

A very important feature in the equipment of every mine is its hoisting machinery, and the mining company that has machinery which will hoist its ore with the least amount of friction in itself, and the smallest consumption of fuel under its boilers for a given product, has a decided advantage over a competitor who is using an old clap-trap of a machine with throting engines of poor design, using steam in the most extravagant manner possible.

Competition has made itself felt in the ore trade as in every other branch of business, and close attention to every department is required to bring the cost of production down to satisfactory figures. The leading mining companies already appreciate this fact, and nothing but the highest grade of automatic cut-off engines are put in for operating their hoisting plants and the drums must be of the best and simplest design and consume a minimum amount of power in friction.

Foremost among the manufacturers of this class of machinery stands the well-known house of Webster, Camp & Lane Machine company, of Akron, Ohio. They are the pioneers in the manufacture of large hoisting plants for the Lake Superior iron region.

The accompanying illustration shows one of their four drum hoisting plants with double engines, which are made with drums from six feet diameter up to any size required, the largest now used in the district being twelve feet in diameter.



The engines vary from 20x42 to 28x60 and are usually fitted with their automatic four-valve gear having flat gridiron valves with a number of ports in each.

The regulation and economy of these engines is unexcelled, and the workmanship first-class in every particular.

Among recent orders taken by this company is one for a plant of four six foot drums for the Chandler Iron Mining Co., of the Vermillion range. They are now working orders from the Ashland Iron Mining Co. and the Germania Iron Mining Co., of the Gogebic range, each for three ten-foot sand friction hoisting drums having capacity each for 1,800 feet of 1 1/2-in. rope.

Each plant is to be driven by a 26x48 engine of 300 horse power, of their automatic type. These are the first large plants to go to the Gogebic range and shows the rapid development of the large mines on the range.

The W. C. & L. Co. have at their works at Akron all the different departments of machine construction under one management, including a large and well-equipped foundry, fitted for doing all kinds of large and heavy work.

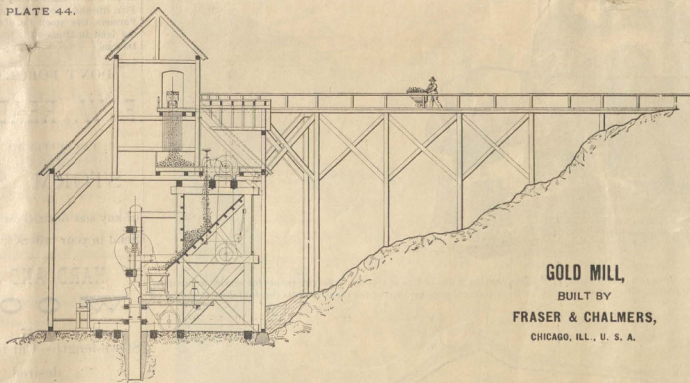
Their works are furnished throughout with the latest pattern of tools, to which they are constantly adding, as the demand for their products is constantly increasing.

In addition to their Lake Superior trade the company have an active and growing demand for their direct acting, and geared hoists and General mining machinery throughout the gold and silver districts of the west and of Mexico.

They also make a speciality of underground haulage machinery for coal mines and have a large trade in this department in Ohio, Pennsylvania and W. Virginia and the new mining districts of Tennessee and Alabama.

The facilities of this company are now such that they are in position to fill all orders entrusted to them in a prompt and satisfactory manner.

PLATE 44.



GOLD MILL,
BUILT BY
FRASER & CHALMERS,
CHICAGO, ILL. U. S. A.



SUCCESSORS TO THE ATLANTIC GIANT POWDER CO. AND JUDSON POWDER CO.

SMALL & SCHRADER, GENERAL AGENTS,
Offices: 245 Broadway, New York.



SAFE, RELIABLE, POWERFUL, & EFFECTIVE.

ALSO MANUFACTURERS OF



Guaranteed 50 per cent. stronger than the best Black Powder, and far safer to use. Adapted for all kinds of blasting where Black Powder has heretofore been used. Also dealers in **BLASTING CAPS, FUSE, ELECTRICAL BATTERIES, Etc.** For sale in all sections of the country, by our authorized Agents.

R. J. WATTERS, Ishpeming, Mich. J. C. HARRIS, Houghton, Mich.
H. G. FISK, Iron Mountain, Mich. and Hurley, Wis.

Revere Rubber Co.,

—Sole Manufacturers of—

Four Ace, Giant, Granite, Shawmut

(Copyrighted) Brands of

Hose, Belting, Packing, Etc., and

USUDURIAN PACKING,

VALVES, SPRINGS, and all goods for Mechanical Purposes.

Our **FOUR ACE** and **GIANT** Air Drill and Steam Hose are superior to all other makes.

We make a Speciality of **HIGH GRADE** Products, but no "Competition" Goes. Samples and discounts sent on application.

Sole Western Agents for Genuine "Eureka" Piston Packing.

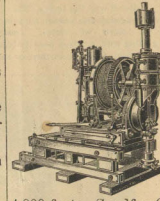
REVERE RUBBER CO.,

Factories, Boston Mass—

150 Lake St, Chicago, Ills.

SULLIVAN

Diamond Prospecting Core Drills.



The only reliable and satisfactory way to develop mineral lands is by the Diamond Core Drill.

The Sullivan Drill meets all requirements for a simple, durable machine, rapid and accurate in its work and economical in wear of carbon.

These drills are well adapted to **HARD OR SOFT ROCK.** They are sold outright, Without Restrictions.

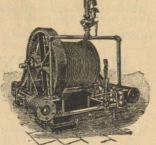
We carry in stock Hand and Power Drills, for surface and underground prospecting, of capacities from 300 to

4,000 feet. Send for Circular.

HOISTING AND HAULING ENGINES, EXPLORING HOISTS, STEAM PUMPS AND BOILERS.

Contractors for prospecting mineral lands with the Diamond Drill.

DIAMOND PROSPECTING CO., Gen'l Agents,
74 and 76 West Lake Street, Chicago, Ill.



Standard Explosive Co.,

(LIMITED)

—Manufacturers of—

"Standard" Powder,

—And Dealers in—

Safety Fuse, Detonators

Electric Blasting Apparatus,

New York, N. Y.

GEORGE F. STANTON, General Agent
for the State of Michigan.

HOUGHTON,

MICHIGAN.

DAVID M. FORD,

—AGENT FOR—

GATES IRON WORKS,

Chicago, Ill.

ROCK AND ORE CRUSHERS,

(Capacity from 1/2 ton to 250 tons per hour.)

Elevators and Screens for Crushed Rock and Ore, Engines, Boilers, Dump Cars, Rolls, and General Mining and Milling Machinery.

Sanderson Bros. Steel Company.,

SHEFFIELD, ENG., 1776

—Manufacturers—

SYRACUSE, N. Y. 1876

CRUCIBLE STEEL of Every Description.

FINE TOOL STEEL a Speciality.

Manufacturers and Importers of the Celebrated English Improved Patent Steel and Patent Special Plough Steel

WIRE ROPE!

This Rope is especially adapted for Mines, Hoisting, Transmission of Power, Cables, and all Purposes for which Wire Rope may be used.

EXCELSIOR IRON WORKS

New York, 43 Broadway
San Francisco
Pacific Iron Works

CHICAGO, ILL.,
Manufacturers of

Butte City, Mont.
Salt Lake City

Mining Machinery, Engines, Boilers,

and machinery for hoisting

GOLD, SILVER AND COPPER ORES

By the Milling, Smelting or Concentration Process

Agency Original Lake Superior Safety Fuse Co. Eagle River, Keeweenaw Co, Mich. Estab-
lished 1862 Manufacturers of Fuse of all kinds

As I represent the Manufacturers direct, I am enabled to offer the lowest. Manufacturers' Rates and Terms, and solicit a share of the patronage of the Lake Superior Mining Districts. Send for Illustrated Catalogues and Price Lists

DAVID M. FORD, Agent, Houghton, L. S. Mich

"RACKAROCK"

THE ONLY SAFE HIGH EXPLOSIVE

IT CONTAINS NO NITRO-GLYCERINE OR GUNCOTTON.

CHEAPEST, BEST AND STRONGEST.

COMPOSED OF TWO INGREDIENTS.

shipped and kept separately until required for use at the work

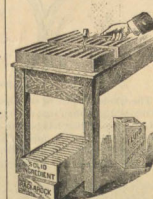
250,000 lbs. used in Flood Rock, Hell Gate, N. Y.

No Accidents by Its Use in any Tunnel.

No Noxious Gases. No Headache. No Stains

FUSES, CAPS AND ELECTRIC BATTERIES.

Send for descriptive circulars, information and prices;



RENDRICK POWDER COMPANY,

23 Park Place, New York, U. S. A.

C. R. ELY, ELECTRICITY AS A MOTIVE POWER.

ROOM 12, JENKS' BLOCK,

ISHPEMING, MICH.

REAL ESTATE

—AND—

Good Iron Properties Bought and Sold.

✉ CORRESPONDENCE SOLICITED.

R. R. GOODELL,

REAL ESTATE AGENT.

One, Hardwood and Mineral Lands Sold. Taxes paid for Non-residents.

HOUGHTON MICHIGAN

E. EVERETT,

MINING ENGINEER.

All kinds of Surveying done.

City Surveyor for IshpeMING.

Office over Sheldon's Shoe Store.

ISHPEMING, MICHIGAN.

CASH PAID

For partly developed

MINING PROPERTIES,

Pine and Mineral Lands.

JULIAN M. CASE,

11-2 Marquette, Mich.

ISHPEMING

LABORATORY.

J. ROPES, Proprietor.

Analysis of all Ores and Minerals.

Examines and reports on Gold and Silver properties.

Office over Sheldon's Shoe Store.

No. 1 Main street, IshpeMING, Michigan.

OLOF VENSTROM,

M. G. F. S.; M. A. I. M. E.

Consulting Mining Engineer.

Mines Examined, Reported and Surveyed. Iron ore properties explored by "Magnetometer."

Furnishes Plans for Soft Ore Mining.

Sole agent in the Northwestern States of U. S. A. for the Venstrom Magnetic Concentrator.

OFFICE: Harlow block, Marquette. Telephone.

CHAS. E. WRIGHT'S

Laboratory & Assay Office,

Arthur Uddenberg, Manager,

MARQUETTE, L. S. MICHIGAN.

Analyses of iron ores and all kind of minerals a specialty. Also analyses of slates, clays and water.

Quick Returns and Accurate Results Guaranteed

References and terms made known on application.

GEO. STANTON,

HOUGHTON, MICH.

General agent for the state of Michigan to

Standard Explosives Co.,

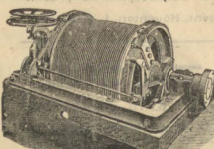
Kings Great Western Powder Co.

Blasting and Sporting Powder,

Sergeant Drill Company.

IRON BAY

Manufacturing Co.



Manufacturers of

HOISTING

And PUMPING MACHINERY

STEAM ENGINES,

BOILERS, CAR WHEELS,

AND

CASTINGS.

MARQUETTE, MICHIGAN

We venture to say, that upon no department of the Industrial world had there dawned more of hopeful promise, and for the limited time, since its entrance, more of practical fulfillment in great benefits received, than has come to the Mining public, in the advent of Electricity, as an agency for the transmission of energy.

It seems almost beyond credence, that achievements in this direction, that five years ago if foretold, would have been deemed but the dream of some crazed enthusiast, are now, the sober, matter-of-fact accomplishments of every day life. To be sure, since the era of telegraphs, energy electrically transmitted, has been to the intelligent mind an accomplished fact.

But it was the feeble click of the telegraph magnet; not as now in the rolling mill, the ponderous blow of the ten-ton trip hammer.

It gave us yesterday the sudden surprise, in its flash in the group of incandescent lamps, in our parlors. To-day, from a water-fall we cannot see, tumbling down the mountain-side a score of miles away, the unseen resistless force, moving along the "cold, motionless, tiny wire, just above our heads, starts on their easy, gliding way, a dozen heavily laden cars, with their gratified occupants; or sets in steady, energetic movement at the mine, the compressor plant, the pump, the hoist and the tramway, located on the surface, or hundreds of feet deep, in the bowels of the earth.

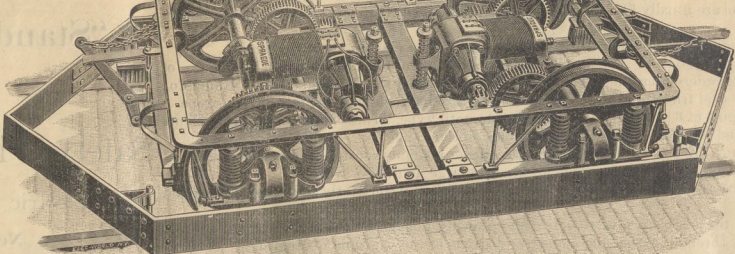


Nothing in all this wonder-working agent, is more astounding, than its vehicles of movement, are so simple, easily handled, and adjusted; or so noiseless, clean, and unobtrusive. No ponderous pipes with their rushing water torrents, or red hot, hissing volume of steam; no heavy shafting or flapping belts, or creaking gears, or sagging cables, and the modest, bright copper conductor; content if turning the sharpest corner, suspended in sunlight, or buried in the dark under the sod; ever doing its duty, without jar or friction, patiently, silently, effectively; giving out honestly at the far end of its service, miles away, with the slightest toll for the transit, the whole unit of energy with which it started on the race.

There is room for poetic numbers in this wonderful adaptation of electric energy for all uses; and no license of pen or language can be an exaggeration, in view of the matter-of-factly, that is daily being done by this mighty steed, now harnessed up by inventive genius for all uses, and for every condition and locality.

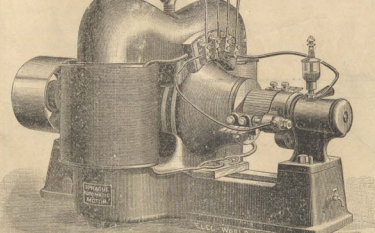
The system of electric transmission of energy we now have under consideration, is that of the Sprague Electric Railway & Motor Company who have their parent offices at No. 16 Broad St., New York; and their agencies all over the globe.

Beginning with the longest and most difficult street railway to operate, in existence, that at Richmond, Va., with 13 miles of road and 40 cars, they have within ten months, so



entrenched themselves in public confidence by their success in conquering difficulties, and making their roads good paying investments, that they are overwhelmed with orders; and now have in the brief period named, under contract, 30 street railways in process of construction.

In the leading cities of the country the Sprague Motors are employed in stationary work covering a very extended field, embracing 128 varieties of industry; from a dentist's lathe, lapidary wheel, printing press, all varieties of elevators, to flour and rolling mills.



At the Big Bend Tunnel Mining Camp, on Feather River, Cal., they have run out a circuit for 18 miles, tapping it on the line at a dozen different points for service in pumping, hoisting, etc. And so perfect is the operation of the motors, in their duty 15 miles away from the primal energy, that 65 per cent of the same, does its constant duty at the far off

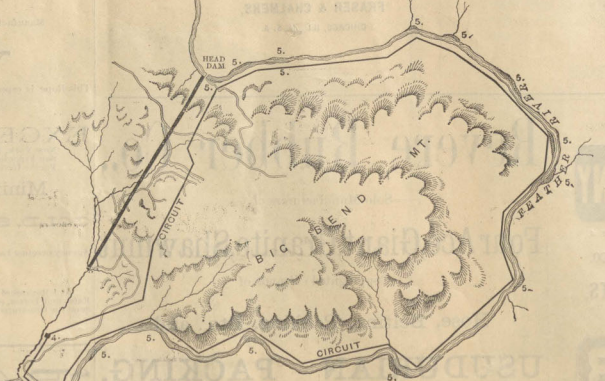


Diagram of an application of the Sprague Electric Motor System in the transmission of Power in the bed of Feather River, Big Bend, Butte Co., California.

The Electric Circuit is eighteen miles long, supplying current at fourteen points along the river bed for the operation of Sprague Motors, which furnish power there for pumping, hoisting and haulage in the mining operations.

Number 1 on the diagram gives the location of the water power and generator station. Number 5, position of Sprague Motors in the circuit.

Motor in Work. The whole expense of this equipment was about one-third of what would have been required had steam been the agent for the service; and its depreciation and maintenance are 60 per cent. less than that of a steam plant of the same capacity, and in the same locality.

At Aspen, in Colo., a plant that has been in operation for four months, has as its generating power at the water-fall, a Pelton wheel, which is 6500 feet distant from the mine shaft; where its energy is delivered for hoisting, and mine tramway service. The loss in transmission of electric energy depends upon the distance, the size of the wire, and the current to be carried. In the case of the installation at Aspen, the loss in transmission is about 10 per cent. The energy available for work at the Motor Pulley is 72 per cent. of the water taken from the water-wheel. An Electrical Motor rated at 10 H. P. is capable of exerting a momentary effort of 15 or 20 H. P. as in starting a load, etc., without injury to the Motor.

The wires used in transmitting to the mine, are not insulated, as there is little or no danger of their crossing or being interfered with in any manner. From the mouth of the tunnel to the motor, insulation is necessary; and the wires are so well protected, that no current can be felt by clasping one or both of them in the hand. The motor is placed in the Veteran Tunnel at a point 1000 feet inside, where a large chamber has been excavated for it, and for the hoister, a part of whose duty it is to drive. The speed and power of the motor are controlled by a single switch. The engineer holds in his right hand the lever which operates the paper friction and the brake, in the usual manner, while with his left hand he turns the switch so as to get any desired speed. This switch also serves to start the motor, to stop it, and to reverse its direction of rotation, if desired. Ability to reverse is essential, and is a very great addition to the value of Sprague Motors. (Continued on next page.)

H. O. YOUNG, FIRE INSURANCE

Office in National Bank Building, up stairs, ISHPEMING, MICH.

CHILD'S ART GALLERY.

PINE PHOTOGRAPHS, TIN-TYPES AND FRAMES. One door west of the Iron Ore Office, ISHPEMING, MICH.

HAYDEN & YOUNG, ATTORNEYS AT LAW.

Office over IshpeMING National Bank, ISHPEMING, MICH.

CHAS. SODERGREN, SAMPLE AND POOL ROOMS.

Best Wines, Liquors and Cigars in the city. Supplemented by the best of entertainment. Refreshment car, Cleveland style, and first street—always run on schedule time.

CORNELIUS KENNEDY, JUSTICE OF THE PEACE.

Collections made and remittances promptly returned. Conveyancing and other legal work correctly and promptly attended to. Post-office box 250.

JOHN T. BURKE, LIVERY AND SALE STABLE.

New Carriages and Good Horses, driver if desired. Corner of Main and Division streets, opposite The Iron Store.

P. HENDRICKSON, MEAT MARKET.

Dealers in fresh, cured and smoked meats, sausages, vegetables, etc. Shop on First st. opposite the city fire engine house.

J. A. HODGKINS, LIVERY, SALE AND BOARDING STABLE.

Jobbing given Especial Attention. Barn on Cor. of Pine and Bank Streets.

The Best Rigs in the City

J. W. ARENANDER, JUSTICE OF THE PEACE.

Collections promptly attended to, books examined, opened, posted and closed. All European steamship line, railroad tickets to all parts east. Bank money orders on Europe Fire, life and accident insurance company Farmers, live stock Co. of Chicago. Farming land in Minnesota, Iowa, Nebraska and Dakota.

DON'T FORGET THAT F. W. READ & CO

CAN SUPPLY YOU WITH

STORM SASH

of any size desired on short notice. Send in your orders.

HARD AND SOFT WOOD!

Stove-length—Cut to any size desired.

From sound body wood. Apply to C. MELBY, at Burke's Livery Stable.

Delivered to any part of the city

ED. GIRZI, WATCHMAKER AND JEWELER

DEALER IN

Watches, Organs and General merchandise. Agent for all kinds of Sewing Machines, among these

THE WHITE

AND

THE HOUSEHOLD.

Wahlman & Grip, CONTRACTORS and BUILDERS

Estimates furnished on all classes of buildings. Work taken in any part of the peninsula

Oldest firm on builders in Marquette county.

IshpeMING, Mich.

J. B. SWEATT,
ARCHITECT and BUILDER.
Plans, specifications and estimates on short notice. Heating, ventilating and sewerage specialties. Office in the Opera House block, Marquette, Mich.
Mar. 13.

H. B. BACON,
GENERAL AGENT,
Marquette and Mackinaw Dist.,
OF THE
WASHINGTON LIFE INSURANCE CO.
Office Peninsula Bank Building, First Floor, Ishpeming, Michigan.

Rattle, Nye & Mintz
ANALYTICAL CHEMISTS.

Quick returns and Accurate results guaranteed.
Rooms 5 and 6 McKee's block, Cor. Main and Pearl streets.

ISHPEMING MICHIGAN.

PATENTED OCT. 27, 1885.

USE
GOODSELL'S
PATENT
Rubber-Back Flax
Piston-Rod
PACKING

The best article made for Steam, Air or Water. Lightest in weight. Finest materials. Best principles. Rods never flute with it.
Dealers in Belting, Hose, Sheet and Piston Packing of all kinds. Write for Prices.
B. W. GOODSSELL,
SOLE MANUFACTURER,
139 Lake street, Chicago, Ill.

BLACK DIAMONDS,
For Diamond Drill Work.
Can be obtained from
Geo. A. Newett,
Ishpeming Mich. sole representative for the Upper Peninsula for the well-known house of D. L. van Moode, importers and dealers, New York.
Only first quality goods kept in stock. Prices the lowest.

Mining men can be accommodated with any amount of carbon by calling or ordering from the Ishpeming office.

The Lake Superior Ship Canal,
RAILWAY AND IRON COMPANY
450,000 acres of land in the upper peninsula of Michigan for sale or lease.

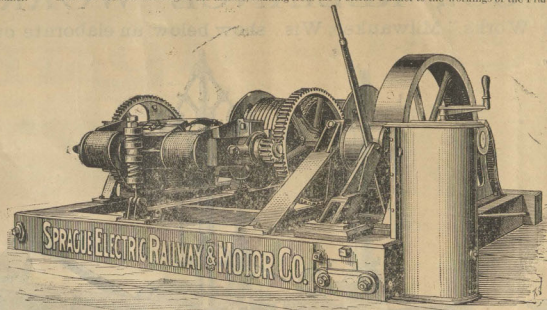
Iron Mines, Copper Mines, Silver Mines, Slate Quarries, Marble and Sandstone Quarries, Mill Sites, Water Power, Fertile Locations with Fuel Pine and Cedar Timber, Poplar Timber, Hardwood Timber.
1,500,000,000 feet of PINE TIMBER owned by this company.

These lands were selected by experts, for mineral or timber, at a time when but very little land had been purchased from the government. In this vicinity, consequently, the lands of the company are invariably the most desirable for either minerals, or pine, or other timber in the district in which they lie.

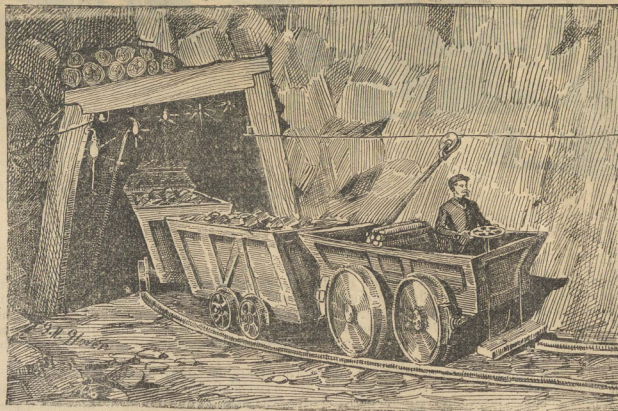
Menominee Iron Range, Gogebic Iron Range, Ontonagon Copper District, Silver District of Iron River.

The Mineral Lands of the company are now offered for lease on favorable terms, and options given for the purpose of examination. Eleven of the best and largest mines of the Menominee Iron Range are on the lands of this company, viz: East Valonia, two mines, West Valonia, Curry, Norway, Gogebic, Lindington, Calumet, Indiana, Mastodon and Great Western.
Each of the most promising lands in the new Gogebic Iron Range are on lands owned by this company.
For terms, etc., apply to
J. M. LONGYEAR, Agent,
Marquette, Mich.

This plant has given perfect satisfaction as regards economy and promptness of operation: its powers are used to pull in empty or loaded cars, and to control the speed of the loaded cars running out of the tunnel. It is also used for hoisting in the incline, running from the Veteran Tunnel to the workings of the Franklin mine, 300 feet below.



A duplicate of this plant is erected in another portion of the tunnel where a chamber is being cut out to receive it. The train it operates consists of 500 cars, running in the empties, and regulating the speed of the out-going loads. Formerly one man was required to each car, making



the round trip in 20 minutes; but now the entire train is sent out and returns in 8 minutes. 25 cars could be handled as easily, rapidly and economically if necessary.

There is neither danger, discomfort or delay in the operation of Sprague Motors. The current of electricity does not have sufficient pressure to endanger a man's life, and if more motors were required, the current would simply be increased in volume, but there would be no increased danger from electricity. The underground station is not filled with steam and smoke as it would be with a steam plant, but is dry, comfortable, noiseless, and every way acceptable to the miner who has it in charge. If desired, lighting of the mines can be derived from the same motor current, as well as signaling bells, etc., thus giving increased efficiency, comfort and safety to all details of underground operation.

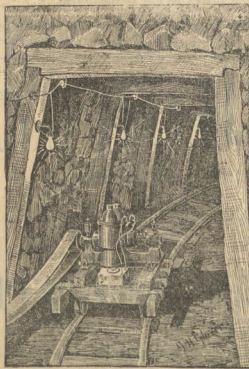
The Sprague motors are proving capable of doing all work required of them, in a thoroughly efficient way. It is a thoroughly efficient way. It is a thoroughly efficient way. It is a thoroughly efficient way.

Our mining engineers are familiar with the difficulties of hydraulic, pneumatic, steam, wire rope, or any of the hitherto used methods of power transmission. The fact that electrically transmitted power, in any form, can now be sent for miles with a maximum loss of 20 per cent and that at the far end it can be recovered in economical and reliable amounts to run a single machine, or a 500 H. P. mill, if desired, is a revelation of the greatest importance. The Sprague Electric Railway & Motor Company are daily estimating and contracting for the delivery of hitherto wasted water-power, or power from steam plants favorably located for cheap wood or coal, at distances of from 1 to 20 miles.

Their motors have been readily adapted to all classes of the mining industry, in the operation of Hoists, Pumps, Dumping Rigs, Air Compressors and Drills, Surface and Under-



ground Tramways, etc., etc. By their use they bring to the mine's great economy, ease of adaptation, in the application of power, by the simple wire-conductor, which is so readily fixed in any position, at any angle or in any direction; with the absence of heat, noise, smoke, gases, etc., etc., and entire safety from fire or explosion. The underground, or surface haulage, by steam locomotives, in many cases accompanied with so many disadvantages of smoke and gases, and such lack of economy, is entirely relieved of these objectionable features by means of the Sprague Electric Tram Cars; and the ventilation is made complete and the haulage greatly economical. The mechanical application in the moving of the mine car by the motor is entirely satisfactory. There is no delay, the load is taken instantly, without noise, friction or jerking; there being from the start a steady pull. The ability to easily and quickly change the position of and relocate the motor, at any point where its power may be wanted is of itself a feature of great importance to Mining operations.



For instance, a Sprague Motor might be delivering 20 H. P. at a heading 500 feet from the shaft, in one direction, and be wanted at some other part of the mine. Motors for this service are permanently placed upon a track, which is easily moved to any desired position: when change of service is called for, the conductor is rapidly wound up on a reel the truck run out to its new position and in an hour the motor is ready for work. A large number of Sprague motors are now running successfully on machinery and applications covering the most important mining operations, such as hoisting, pumping, tramway service, ventilation, etc., etc. As in the use of the Sprague system the heavy vertical shafting, down the shafts, can be dispensed with, these would be delivered from the conductors on the floor of the shaft, or on any level from it, a large per cent. of the power, that was formerly always lost in the bearings, in such a line of shafting; and as the motors occupy small space, a 20 H. P. taking up only 3 by 4 feet, a motor can very readily be placed and worked, from any point or angle in a shaft or level. In fact, the advent of Electrical Energy means, an early revolution in the mining methods, giving to the Operatives convenience, comfort and health; and to the Mining Companies, greatly increased facilities, advantages and economies, in all their mining operations above or below ground. Finally, there is another consideration which is of importance to the mining world. There are \$100,000,000 worth of low grade ores, on mining properties now in the United States, now lying useless. By the adoption of the Sprague System, cheap natural energy can be brought long distances to the mine shaft; enabling mine owners to work such low grade ores with great ease and profit.

Leave your washing at
AL. SMITH'S BARBER SHOP
—FOR—
Campbell's Milwaukee Steam LAUNDRY.

MUSICAL INSTRUCTION
—UPON THE—
PIANO
—will be given by—

MRS. T. CANFIELD.
ROOMS IN THE JENKS' BLOCK.

A. W. Malmberg & Co
WHOLESALE Bakers,
Ishpeming, Michigan

DYES.
Those of Cook & McLain, of Chicago, are pronounced the BEST IN THE WORLD. You will be surprised and pleased at what they will do. They are the Best and Cheapest. For color list and any further information call or address
W. S. NELSON,
Ishpeming.
With T. F. DOSAHOE.

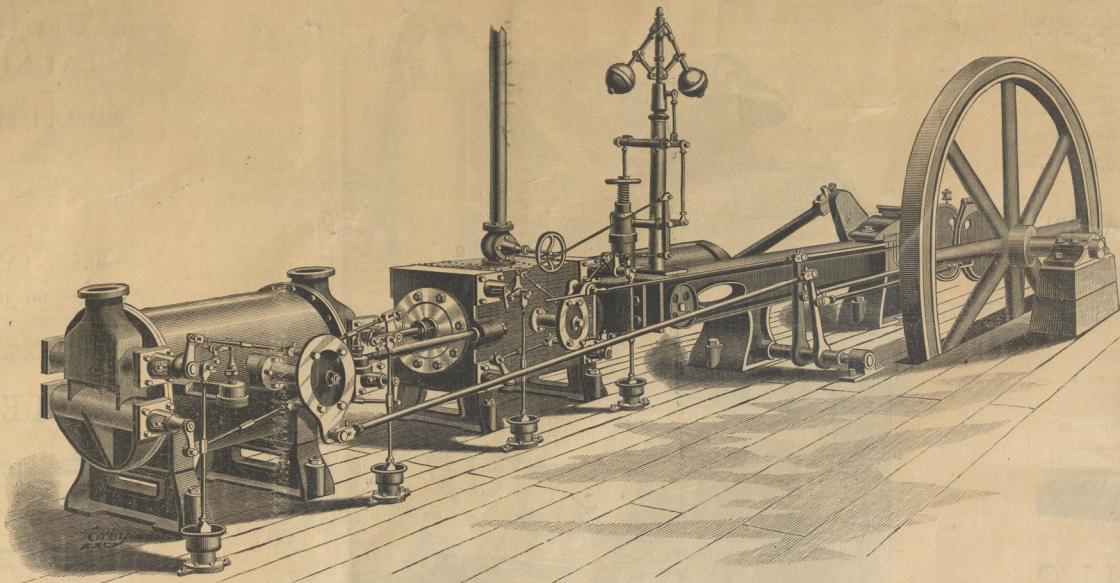
THE FINEST FAMILY FLOUR
in the market is that manufactured by
S. K. Wambold & Son
APPLETON, WIS.,
Brands, Gild Edge and Royal Patent.
Be sure and ask for WAMBOLD'S After a single trial you will use no other.

Save Your Money
BY GETTING YOUR
CLOTHES
MADE AT
A. BOULSOM'S
Negaunee, Mich.

Just received a fine stock of new goods which will be sold \$5 to \$10 less per suit than by any other merchant tailor in the upper peninsula. Fit guaranteed.

TIBOR,
THE GROCER,
Has just received a full line of
FINE GLASSWARE
For TABLE and other uses. Bar-room Glassware of latest styles.
A full assortment
CROCKERY,
of the well-known Lustre Brand.
Flower Pots, Hanging Pots, Etc.
A nice line of FRUITS and CONFECTIONERY that will please you.
J. B. TIBOR.

EDW. P. ALLIS & CO., RELIANCE WORKS, MILWAUKEE,
 Who operate the well-known "Reliance Works," Milwaukee, Wis., show below an elaborate cut of their Reynolds Air Compressor.



It illustrates a new type of air compressor which was designed by Edwin Reynolds for the Kearsage Mining Co. The motive power to drive the air piston is furnished by one of their regular Reynold's Corliss engines. The piston rod of the engine is extended through the back cylinder head of the steam cylinder into the air cylinder, both the steam and air pistons are attached to one and the same rod. This simple arrangement of the compressor and motive power, together with the positive motion air valves and perfect pressure regulator, combine to make an efficient and economical compressor. We call particular attention to the new automatic releasing valve-gear, as applied to the discharge valves, and the perfect pressure regulator, which has absolute control of the engine when working under any pressure the speed of the engine being controlled by the rise or fall of pressure in the air receiver, which insures that an even air pressure will always be maintained.

The discharge and induction air valves are placed in the cylinder heads, in order to reduce the clearance to the lowest possible limit. They are cylindrical blocks of iron, very similar in shape to a Corliss steam valve. The induction valves are at all times connected to the wrist plate, while the discharge valves are operated by a new form of valve-gear, for which patent is now pending. They are closed by the forked rods, which are connected to the wrist-plate, and are held in this closed position by the hooks shown at either end of the air cylinder. To the "tails" of these hooks are connected the pistons of the small cylinders shown at each end of the compressor cylinder. The top surfaces of these pistons are at all times exposed to the pressure within the compressor cylinder. As the air piston advances, the air contained in the cylinder is compressed until the pressure in the cylinder nearly equals that in the receiver, when the small piston will be forced upwards and disengage the hook, releasing the valve, which will be opened instantaneously by the force due to the vacuum in the dash pots. The pressure at which this piston will be forced upwards to release the valve, can be varied by attaching to it a smaller or larger piston rod, which will reduce the area of the top side of the piston more or less, the under side remaining full size. The automatic speed and pressure regulator furnished with this air compressor is a combination of a fly-ball governor and a small air cylinder, the latter having the receiver pressure on one side of the piston and an adjustable counterbalance spring on the other side; both the governor balls and the piston of the pressure regulator are attached to the cut-off mechanism of the steam valve gear on the engine cylinder.

The fly-ball governor remains inoperative when the engine is running under ordinary conditions, but should an air pipe burst or any other accident happen to relieve the pressure, and by the sudden release of the load on the engine cause it to run above the maximum speed, then the fly-ball governor would adjust the cut-off mechanism of the steam valve-gear and hold the engine to the regular speed to which the regulator was adjusted. When the pressure is on in the air receiver, the pressure regulator alone has control of the cut-off mechanism on the steam cylinder. It adjusts it perfectly to meet any demands for a greater or less quantity of air that may be needed to maintain a steady and even pressure in the receiver. When a high pressure is to be carried an air cylinder which is completely surrounded by a cold water jacket is furnished. The firm manufactures all kinds of mining machinery and has a large business in this field. They will issue their new catalogue at an early date and every mining man should have one.

**MUST GO!
 AT A GREAT BARGAIN.**

OUR ENTIRE STOCK OF
READY-MADE CLOTHING,
 Which we have placed on the upper floor of our Brownstone Store. This stock consists of a full line of MEN'S BOYS' and YOUTHS' CLOTHING and will be
SOLD AT A SACRIFICE
 As we are going out of the clothing trade.

Do not fail to call and look the stock over. We can please you with goods and prices. We can sell you a good suit for

ONE HALF THE PRICE

You will have to pay for it at any other Clothing House in the town.

T. F. DONAHOE.

DEER LAKE COMPANY,

Manufacturers and Dealers in

LUMBER,

Doors, Sash, Blinds and Mouldings,

CEMENT,

Lime and Plastering Hair.

Office and Yard on West Bank St., Ishpeming, Mich

ANDERSON & CO.'S

JEWELRY STORE.



DOMESTIC

Sewing Machine

Agency,

The best machine in the world

Largest and finest stock in the city. Where you will find our prices as low as the lowest.

Musical Instruments of all descriptions.

Repairing done promptly and in a first-class manner

ARTHUR TAILOR!

ISHPEMING, MICHIGAN

Has always on hand the Choicest Line of

Foreign and Domestic Cloths

And is ready to show the same to anyone in need of a

Dress or Business Suit.

The patterns are the very latest and the material is of the best

**Walseth & Tislov,
 LIVERY
 SALE AND BOARDING
 STABLES**

PEARL ST., ISHPERING, MICH.

Also Manufacture and Repair,

**CARRIAGES, BUGGIES, WAGONS
 and SLEIGHS.**

Handle The Famous

Jackson and Studebaker Wagons,

The Best Made.

Shop on the Corner of Second and Pearl Streets.

**King's - Great - Western
 Powder Company,**

Founded 1878 by J W King



Manufacturers of

Sporting, Blasting & Mining Powder

8 and 10 West Third Street, CINCINNATI, OHIO.

GEO. F. STANTON, Gen'l. Agt.,

Houghton, Michigan.



HISTORICAL.

In prefacing the description of the city in which the Iron Ore is published, a little space devoted to the history of the Upper Peninsula may be of interest, especially to those outside of our borders who may be unfamiliar with the facts, and for whom this edition is particularly intended.

In the year 1668 the French, by James Marquette and Claude Dublon, founded a mission at Sault Ste Marie, and while the country had been visited long before by emissaries of that nation, nothing was previously done in the way of attempting a settlement. The early Jesuites were sent to prospect the country for its mineral wealth, their object being the civilization of the numerous tribes of Indians that inhabited the region; yet in their wanderings while spreading their teachings to the aborigines, they found much upon the shores of the great lake that awakened their curiosity and to which they could not appear insensible. The copper "jewelry" in the possession of the natives, which were worn as ornaments, rudely fashioned with stone hammers, indicated the presence of that metal in native state. The arrow heads of the Indians were also often made from copper. The good Fathers made inquiry for the source of the supply and were shown the metal on the shores of the lake, in the beds of streams, and these discoveries they duly reported to their king and country. A big mass of copper that laid high and dry upon the surface, twenty miles above the mouth of the Ontonagon river, was seen and described by L'Houtan in 1688. This, although surprising to that gentleman, evidently did not seem sufficient in his eyes to make up for the general uncultivated condition of the land and people, for in his writing of the region he pronounced it "the fag-end of creation!" The Baron may be excused for this expression. In the centuries that have elapsed since that time we find men who to-day are even more discourteous in their treatment of us. The mountainous surface of many districts, the heavy swamps of others, are features which, if met with frequently by the explorer, are discouraging. Time has not changed this fact, although there has been considerable learning of the district since its brief examination by the gentleman in question. The same copper mass was also described by Charlevoix in 1721, and by Henry in 1765. Eight years thereafter the latter made a feeble attempt at mining in the vicinity of this mass, but not with the view of finding copper; he hoped to find gold or silver. He was assisted by a Russian gentleman, Mr. Nordburg, who possessed some scientific knowledge in mining, who found a piece of native copper weighing eight pounds which was carried by him to England and placed in a museum. It was about this time that the battle for independence was commenced by the colonies against Great Britain, which may have interfered with this mining venture. At any rate the work was stopped and discontinued for many years.

Schoolcraft in his journey along the south shore of Lake Superior reported the finding of many specimens of copper. He went through Portage Lake, thence up to the mouth of the Ontonagon river to view the wonderful

"copper rock" that lay upon its bank. Previous to the opening of the mines on Lake Superior such specimens of native copper, of this magnitude, were not known to exist anywhere in the world. It was a romantic object and widely sought by all who could reach it, who had the time and wealth to devote in making the necessary trip for that purpose. It required a hard journey by canoe and land. The region was indeed a wilderness of immense proportions, of great solitude. It was little wonder so many turned back without accomplishing the objects originally intended.

Prior to the admission of Michigan as one of the states of the Federal Union, the Territory claimed as a valued portion of its domain a strip of land bordering on Lake Erie in which was included the now flourishing city of Toledo. The right of possessing this parcel of land was insisted on with equal strenuousness by the state of Ohio, and when, in 1835, a convention assembled at Detroit and formed a constitution defining the boundaries of the proposed state, and comprised within that this disputed territory, so great did the excitement become that men upon both sides began to arm and to organize for a conflict, that for a time it seemed most inevitably occur. The matter coming before congress on the application of Michigan to become a state, that body passed an act admitting her into the Union upon condition that she should relinquish her claim to the disputed territory.

To appease the wrath of the people of the territory by the loss of the Toledo district the government tendered the strip of land known as the Upper Peninsula. A convention was called to discuss the matter and the conditions were received with indignation, but at a second convention, after it was found that there was no hope for the possession of the Toledo tract and admission to the Union at the same time, it was thought best to accept the peace-offering—a worthless one then considered—and in 1837 the state was admitted. Thus the state had forced upon it the richest region in the Union and lost a beggarly little strip that was of no consequence in the general make-up of the Wolverine. Our legislators, when they decided upon the acceptance of the "higher" peninsula, builded better than they knew. The "fag-end of creation" is now at the head of any mining region the union possesses. Its mines of iron ore and copper cannot be excelled by any country of the inhabited globe. Its wealth in timber has been enormous; its unexplored tracts are yet large, its future is even more bright than its past has been for the last quarter of a century; as rapid as has been its strides, it will make still greater progress. As the "wild and untamed," the "fag end," it has done remarkably well.

At the time of its admission into the Union very little was known of the land now teeming with various industry. It had been run over, probably, by a few explorers, skilled in their vocation or not as the case might be; the existence of copper was known, but the quantity or exact location of the mother lodes yet remained in doubt. The early settlers were too eager in the work of carving out homes for themselves to make any attempt at exploring. It was a laborious and costly business.

Dr. Douglass Houghton, an eminent geologist, was the first to draw the attention of the country prominently to the mining possibilities of the region. He had been engaged in the work of survey of the Lower Peninsula and at his urgent request he was given permission to make a linear and geological survey of the Upper Peninsula, this combination effecting a great saving in the cost of the work. In the survey he was assisted by Mr. Wm. A. Burt, inventor of the solar compass, whose death in Detroit was lately announced. Dr. Houghton himself took the contract for making the linear survey, and in addition to the usual requirements for such work his contract with the government specified that the surveyor should notice all outcrops of rocks, their strike and dip, character, etc., and also collect specimens of them and return them properly labeled, with notes. All the topographical notes, such as timber, soil, streams, lakes, hills, mountains, etc., also the variation of the magnetic compass were noted. His idea was to connect the two surveys under the direction and authority of himself, and he would thus be enabled to systematize a great mass of facts. Mr. Burt, who thoroughly entered into the plans of Dr. Houghton, and was equally enthusiastic in the prosecution of the work, superintending the running of the township lines, while the running of sub-division lines was allotted to competent and faithful deputies. The geological report presented to the state in 1841 caused much comment and drew attention anew to the region. Mr. Burt began his survey in 1840 and had progressed to some extent when Dr. Houghton's contract took effect.

On October 13th, 1845, Dr. Houghton was drowned off the mouth of Eagle River while trying to enter the harbor in a small boat during a storm, a fact universally regretted, the gentleman being possessed of great ability in his profession, honorable too, as well as talented. Mr. Burt continued the work of surveying, made geological notes, but there was no one to correlate and classify the facts and publish the events to the world. Many of these data, however, were placed upon the maps of the surveys, and have thus afforded information which has proved of very great value.

By a succession of treaties between the United States and the Ottawas, Menominees and Chippewas, the titles of the Indians to the lands of the Upper Peninsula, including Isle Royal, were finally extinguished in 1843. Shortly after this numerous applications were made to the war department, by individuals, for permits to explore for minerals and to locate tracts of land in the district. In 1818 a law had been passed by congress, authorizing private entries of this character to be made in the lead district of Illinois, and in virtue of this act the secretary allowed similar claims to be made in Michigan. The grantee was required to make his selection within one year and to survey and mark the boundaries thereof, and to keep a person in charge of it, and to send to the department a description of his claim. The party was then entitled to a lease of three years, on condition that he pay the government six per cent. of all the metal produced, and if a renewal of the lease for another three years was obtained, he was to pay the government ten per cent. of

the mineral raised. A further extension of three years was also provided for on the same terms. These grants were subject to any disposal which congress might see fit to make of the lands. Applicants were at first allowed to select three miles square, but this was subsequently modified to one mile square. One thousand of these permits were issued by the war department, and nine hundred and sixty selections were actually made, most of which were on the Keweenaw point, some in the Ontonagon district, and a few in the iron region, notably the Jackson, Cleveland and Lake Superior locations, while later on the discovery of the iron ore deposits here in the fall of 1844, by the United States surveyor, were secured by permits.

Congress having declared that the granting of these permits by the war department was without authority of law, in 1846 their further issue was suspended. In 1847 the Lake Superior land district was established, comprising all that portion of the state north of Saginaw Bay and the Grand River, including the Upper Peninsula and the islands. In this act a geological survey was also provided for, and the president was authorized to offer for sale, by advertisement, such lands as were found to contain valuable minerals. The act further secured to parties all vested rights in lands held under permits from the war department. The land office was located at Sault Ste Marie, and for a time there was much hurrying, by rival claimants, in their endeavors to forestall each other in securing coveted lands. A journey from the iron or copper range in those days was a difficult undertaking and not unattended with danger. At the time the government began to grant mining permits a mineral agency was established at Copper Harbour, 1844. This agency was controlled by the war department, and was maintained for the purpose of protecting the government interest in the mineral lands of the country, and for receiving applications for permits, entries, etc.

Subsequently the mineral lands were appraised by government agents at five dollars per acre. Still later the mineral lands were sold at the minimum price of one dollar and a quarter per acre. Before the lands in this region were brought into market, the permits of the war department were the only titles which people could obtain and they were naturally not unfrequently rated at a high value.

At Copper Harbor the seat of the government agency a small stockade fort, Fort Wilkins, had been built, and being garrisoned by a company of Federal soldiers, it naturally became the rendezvous of explorers and the starting point for all expeditions into the wilderness. As the copper bearing rocks are plainly exposed in this exhibit, and on examination readily exhibit indications of copper, the first locations were made here. Subsequently, in 1846, a branch agency was established at the mouth of the Ontonagon river for the convenience of explorers in that portion of the range. Explorers were abundant. The field was new; it was uncertain what might be found, but all were stimulated in a high degree with enthusiasm and eagerness to find something. Search for mineral wealth has in all ages driven men to endure privations and dangers that scarcely another man could

have sufficed to have impelled them to have met. To the same influence is due the settlement of all the remote portions of our land. It guided the pioneer across the plains to California in '49. It has sent him to the mountains of Colorado, to the Black Hills of Dakota, to the arid plains of Arizona, the icy fields of Alaska. It has made populous states and territories, thriving towns and industry, where were otherwise unsettled and unknown territory.

Lake Superior was the first of our great mining regions to which the steps of the explorer was directed; the first in which was indicated the aptitude of the American for such preliminary work. The fever of exploration in the copper range culminated in 1848, at the time of the completion of the United States linear surveys in that district, and in the following year began the great tide of pioneer emigration to the Pacific coast.

In 1849 the troops at Ft. Wilkins were transferred to the seat of war in Mexico, and the government mineral land agent was removed to the Sault. In the meantime several mining companies had been organized and were successfully working. Copper Harbor was no longer the seat of the empire; its glories were already become of the past; the metropolis of the region was at the mouth of Eagle River, in the vicinity of which were the Lake Superior, the Cliff, the Copper Falls, the Northwestern, and other mines.

The early efforts of the pioneer miners were crowned with far less success than had been anticipated; their hopes were high and the results were small. The disappointment which had attended nearly all of the mining work had created a good deal of discouragement. The discovery of the Cliff mines, the finding of the masses of copper at the foot of the Greenstone bluff in that vein, in 1845, was the first inspiring indication; it accounted for the origin of the erratic copper boulders that had from immemorial been found in the country, and renewed the confidence and zeal of the people in the mineral value of the region.

In 1848 the villages in the copper district were Copper Harbor, Eagle Harbor and Eagle River, the latter of which became the shire town of Houghton county. To Houghton county, which embraced the entire copper district, was also appended Marquette county. Other settlements in the Upper Peninsula were the villages of Mackinac and Sault Ste Marie, and the small settlements at L'Anse and Marquette.

The first general mining law of the state was made in 1853; previous to that time the companies worked under special charters or as partnership concerns, or were incorporated under the laws of other states. The Michigan general mining law was considered a very wise and liberal one and the successive amendments which have from time to time been made, has been such as experience has dictated.

The early explorations in the copper range were mainly in these portions where rocks are exposed; where bluffs, gorges and river channels afforded the best opportunity for rock examinations. Keweenaw Point, including Isle Royal and the Ontonagon district, afford many localities of this description, and for some years exploration and mining work in the copper region was con-

tinued to those localities. Up to the discovery of the Minnesota mine, very little success had attended the efforts which had been made in Ontonagon county, but the Minnesota yielded masses of copper from the start. Previous to this masses of copper had only been found in the fissure veins of Keweenaw point. In Ontonagon, where are no copper-bearing transverse fissure veins, native copper was first found to occur in lodes, which had the same strike and dip as the formation. Soon after the discovery of the Minnesota the National mine began its prosperous career and, stimulated by the success of these prosperous mines, innumerable others sprang into existence, so that for a time Ontonagon county was the most prosperous portion of the Upper Peninsula. The village of Ontonagon grew into a town of importance and became the metropolis of Lake Superior. But the mines did not long continue profitable and for years they have remained stagnant. Now, however, with an increased price for copper, with a better knowledge of cheap and more successful operation, many of the old workings will be revived and, it is hoped, the prosperity of other days will again be visited upon the region.

Keweenaw county, the peninsula that jutted far out into Lake Superior, was once the leading copper district, but it too, like its neighbor, sunk into great quiet. Steps for the resumption of operations at some of the old properties in the district are now in progress.

The Portage Lake district proved to hold the bonanza lodes of the Upper Peninsula in the way of copper. Work was first begun here in 1852 at the Isle Royal mine and within the few succeeding years a number of other mines were opened and largely worked. It is now the greatest copper-producing region in the world. This district is divided by Portage Lake, a deep water channel that crosses the range and with the brief canal and the western extremity, extends wholly across the Keweenaw peninsula, making an easy passage-way suitable for the transport of the heaviest vessels.

Of the mines in this district will also mention Hecla is the largest one, richest in the world. The cost of pumping dividends to its shareholders has been kept in 22 years in which it has a capital of \$31,350,000, while it has increased its plant. Next in point of value, which the Tamarack, will be abandoned of conglomerate, will be revived again sunk to intere a that ore will be ob- on its dis- believe that explorations shaft was or arrangement to the achievement will be business for the mining con- do.

scale than not uncommon in mine- plance the region, was met with in ducton, drift above mentioned, of the where the drill had shown cured. 30 feet of ore, causing the will be supposed that a large other is been ent, the drift proved it skill dis- at a thickness of a few "Portage" exceeding two feet at its places. This, as we have said, met with in drill work, buoy- seat. The spirits of the prospector located altitude, which drop as and is t- when the real condition of tract. This puts us in from the am Burt's silver vein. It stamp- wide, but only half an inch done. It was at the time of the sil- long pri- excitement in this county

missionaries were attracted by the copper tinklers in the hands of the natives, this metal had been worked by a people who have left no record but the implements they used and the excavations they made. This is an interesting study to many, and much time has been given by many visitors in the attempt to unravel the history of the ancient miners. One of the best accounts is that furnished by Jacob Houghton in 1876, being as follows:

On the south shore of Lake Superior the works of the ancient miners extend over a district of country comprising what is known as the Trap range, having a length of one hundred and fifty miles through Keweenaw, Houghton and Ontonagon counties, Michigan, with a varying width of from four to seven miles. They also wrought the copper deposits of the Trap range of Isle Royale, covering an area of about forty miles in length by an average of five miles in width. Their mining operations were crude and primitive. The process was to heat the embedding rocks by building fires on the outcrops of the veins or belts, to partially disintegrate the rocks by contraction produced by the sudden throwing on of water, and to complete the removal of the pieces of native copper by mauling of the adhering particles of rock with stone hammers. This is attested by the presence, in all of the ancient pits, of large quantities of charcoal, and of numberless hammers, the latter showing marks of long usage. That the miners had not advanced to any knowledge of the artificial elevation of water, is shown by the fact that apparently, in all cases, the pits have only been sunk to a depth where the limit of man-power in hauling out the water is reached. Between the successive pits are ridges of unremoved rock and soil rather indicating that they were left as dams to prevent the water from passing from a pit already filled with water into one in process of being wrought. The pits, the charcoal and stone hammers and the implements and tools made of copper are the only relics left of the race that wrought these mines. Neither a grave, vestige of a habitation, skeleton or bone has been found. Among the Indians inhabiting the region, from the earliest acquaintance of the white man, neither tradition nor legend remained of these ancient miners. The Indians themselves had no knowledge of the existence of copper in the veins and belts, so thoroughly had the debris of ages covered them. Their knowledge was confined to the float pieces of copper in the soil.

When considering the extent of country previously stated, over which this mining work extended, the crude and slow process of the labor, and the enormous amount of work performed, it becomes evident that the work extended through centuries of time and was carried on by a vast number of people. The largest congregation of ancient pits yet discovered is what is known as the "big belt," on Isle Royale. Here, instance of one and three-fourths had for an average width of Do no need fear the successive pits you with goe mining out of the belt to an average depth of ON and are battered stone berless, but running You will have to

resumed that these were unacquainted of a division of re undoubtedly water and men o manufacture of copper pro Others were had transport-cessaries of re employed rting from he rounded, diorite and sed by the edges. I mers have I attrition of fasten- CIt handles mber are gles which I when in w of the r that at

DEER LU

LU

Doors, Sash, Lime and

one place near the mouth of the Ontonagon river, he had seen quite an area of ground strewn with stone chips and broken and discarded pieces of diorite and porphyry, indicating it to have been a workshop for preparing the hammers before being transported inland.

"The ancient miners made few mistakes in the selection of deposits to be wrought. In almost every instance in the places where they had carried on extensive mine work, have been wrought the successful mines of these latter days. This fact is often quoted to advance the idea that those ancient people were gifted with some mysterious knowledge by which they were able to discover and trace out mineral veins or lodes. This day when the divining rod is lost to faith and the mysteries of the alchemist have been opened to full light by the science of chemistry, should be too late for such a superstition. The explorers of to-day have, as aids to discovery, the dip and the traverse needles, and still the most experienced and observing of them in the reconnaissance of the surface which overlies beds of magnetic iron ores, where the needles develop the most activity, are simply enabled to approximate conclusions, and are only satisfied when a full development has been made by a system of costaining. It may be considered improbable that the ancient miners possessed any aid approaching to the value of the magnetic needles of the present day. It is far more reasonable to assume that the ancient miners, following comparatively close upon the recession of the glaciers, occupied the country before the action of the elements had disintegrated the surface of the rocks, and when the mineral veins and beds or belts were exposed to view. In this connection should be stated the fact that, without exception, the copper deposits of the country are contained between the walls of hard rocks (crystalline trap) that have served the purpose of withstanding, to a great extent, the grinding force of the glaciers. In consequence of this protection, they occupy the high points of the country and are now covered with a comparatively small depth of soil, the product of the disintegration of the rocks themselves; while the valleys and rivers of the lowlands bordering the lake have a greater depth of drift, probably the deposits of the receding glacial period. At the time the ancient miners were carrying on their work, under a climate milder and far more inviting than now, these high points were destitute of soil or trees, and for timber and fuel for their mining work they resorted to the valleys of the streams and the lowlands bordering the great lake—where, also, were carried on their agricultural pursuits.

The implements and tools into which the pieces of native copper thus won from the rocks were fabricated, were axes, knives, chisels, fleshers, spears, daggers, arrow-heads, awls, needles and bracelets. These tools are found scattered in wonderful profusion, from Lake Superior to Central America, and from eastern Pennsylvania on the east, to Arizona on the west. In 1870 I saw, at Pittsburg, Pennsylvania, several of these tools, that had been recovered from the soil in that vicinity; and in a newspaper correspondence from Arizona in the winter of 1874-5 (Detroit Free Press), I was not in the least surprised to see mentioned the discovery, in that territory, of what was called by the correspondent, a copper fountain. It matters not for what purpose the article may have been used; the fact of the find is sufficient for the present purpose. These tools, however, have been found in the greatest numbers buried in the works of the mound builders throughout Wisconsin, lower Michigan, Ohio, Indiana, Illinois, Iowa, Missouri, Tennessee, West Virginia, Kentucky, Mississippi and Louisiana.

Bernal Diaz, who accompanied in his expedition of the Conquest of Mexico, says that upon entering Tuspan he found that each Indian had besides his ornaments of gold, a copper axe, which was very highly polished, with handles curiously carved, as if to serve equally for an ornament and for the field of battle. We first thought these axes were made of an inferior kind of gold; we therefore

commenced taking them in exchange and in the space of ten days had collected more than six hundred, with which we were no less rejoiced, as long as we were ignorant of their real value, than the Indians with our glass beads.

When Columbus, in his fourth voyage, was visited at the Guanaja islands by a trading canoe of Yucatan, the crew, according to Herrera, had small hatchets made of copper, small bells and plates.

That the copper from which these tools, scattered over such a vast area of country, were manufactured, came from the ancient mines of Lake Superior, does not admit of doubt. Although large and numerous deposits of copper ore are scattered through Arizona, New Mexico, Mexico and Central and South America, there is no evidence that the aborigines of this country had sufficient metallurgical knowledge or skill to reduce the ores to refined copper. On the other hand, the great Creator, for provision to the wants of that ancient race, had planted on the shores of Lake Superior the only known workable deposits of native copper in the world. The term virgin copper is well used to denote its purity. In this latter day it outranks all others in the markets of the world.

The occurrence of this native metal in segregations of various weights, enabled the ancient miner to easily follow the deposit and to readily separate the pieces of metal from the containing rock. These segregations were peculiarly adapted for the use of the forgers of the tools. The extreme ductility of the metal, due to its purity, was also a provision of great advantage to the ancient artisan. In examining the tools that have been recovered, one is involuntarily amazed at the perfection of workmanship and at their identity in form with the tools made for like purposes and used at the present day of the prototypes of the implements of our present civilization. The sockets of the spears, chisels, arrow-heads, knives and fleshers are, in nearly all instances, formed as symmetrically and perfectly as could be done by the best smith of the present day, with all the improved aids to his art. The sockets of these tools, however, are in all instances left open on one side, showing no attempt at welding or brazing. While acknowledging that the greater portion of these tools were forged from the native metal, several investigators of the subject assert that many of them were cast. Their position is principally based on the observation of certain raised marks upon the tools, which are claimed to be the marks of the joining of molds. The writer believes that the weight of evidence is against the theory of melting and casting. It is probable that the raised marks are due to unequal oxidation, or to incompleteness of fabrication. Had the tools which were made with sockets been cast, it is reasonable to suppose that the sockets would have been cast complete. Without exception the sockets are all open on one side; on the sides of the open parts lips are turned sufficient for holding the handles. The presence of spots of native silver in the tools is against the theory of casting. Native silver to a large extent is present with the copper throughout the region, and always as a distinct and separate metal, occurring in masses and strings upon and through the copper. In melting for casting, the two metals would form an alloy, and as the proportion of copper would be the greatest, the silver would not be visible. In all of the relics of the mound builders there is no evidence of any vessels that would serve the purpose of crucibles or melting pots. In excavating the mounds pieces of galena are frequently reported to have been found lying in the immediate vicinity of the copper tools, but there is no record of any lead implements whatever. When it is considered that the melting point of lead is only 594 degrees Fahrenheit, while that of copper is 2,548 degrees, it would certainly be remarkable if the ancient race had progressed so far in metallurgy as to melt the latter, and had failed to melt and utilize the former. None of the tools are hardened; they are simply pure native copper. Any process of alloying the copper with tin or zinc for the purpose of hardening, was

entirely unknown to the race. It is an established fact that in the Old World (a gross misnomer as applied to the age of the Eastern hemisphere, when compared with that of the Western hemisphere) man existed in the Stone Age contemporaneously with the Siberian elephant, Siberian rhinoceros, mammoth, cave bear, etc., while scientists have been loth to concede the existence of the mound builders as contemporary with the mastodon, mammoth, etc., of the Western hemisphere. The mound builders have been not rightly, assigned to the more recent Age of Bronze.

Mr. J. W. Foster, in speaking of the discovery in Illinois of a copper knife and the bone of a mastodon in the same geological formation, and separated from each other but a few miles says, "One of two suppositions is true—either that there has been an intermingling of the relics of two distinct ages, or that if the synchronism is established, man on this continent, as a contemporary with the mastodon, was far in advance in the mechanical arts of man, as the contemporary of the fossil elephant on the European continent."

The existence of copper tools among the relics of the mound builders has been the stumbling block in this matter. In these metal implements of man in the Stone Age in America there was only the advance over the man of the Stone Age in Europe, that was due to the obtaining of native copper that could be hammered and drawn out into the desired shapes without any resort to the processes of metallurgy. It was with a view to this point that I have throughout this paper endeavored to constantly impress upon the reader the fact of the purity and ductility of the native copper. It was also for this that I so fully discussed above the reasons that lie against the theory of the melting of the copper and the casting of the tools. The relics of the Stone Age left by the mound builders are the stone hammers used for mining copper, and for hammering out copper tools—axes, hatchets, fleshers, pestles for pulverizing maize, chisels, knives, arrow-heads, amulets, pendants, pipes, etc.—a list of sufficient extent to warrant the claim for the mound builders of the high antiquity of the Stone Age, and at least of a contemporaneous existence with the pre-historic man of Europe. As proof of the contemporaneous existence in this country of man with the mastodon, the following extracts are given from a paper of the late Dr. Koch, of St. Louis, Missouri, communicated to the St. Louis Academy of Sciences:

"In the year 1839 I discovered and discovered in Gasconade county, Missouri, at a spot in the bottom of the Bourbeuse river, where there was a spring distant about four hundred yards from the bank of the river, the remains of the above named animals. The bones were sufficiently well preserved to enable me to decide positively that they belonged to the *mastodon giganteus*. Some remarkable circumstances were connected with the discovery. The greater portion of these bones had been more or less burned by fire. The fire had extended but a few feet beyond the space occupied by the animal before its destruction, and there was more than sufficient evidence on the spot that the fire had not been an accidental one, but on the contrary, that it had been kindled by human agency, and, according to all appearances, with the design of killing the huge creature, which had been found mired in the mud and in an entirely helpless condition. This was sufficiently proven by the situation in which I found, as well as those parts of the bones untouched by fire as those which were more or less injured by it, or in part consumed; for I found the fore legs of the animal in a perpendicular position in the clay, with the toes attached to the feet, just in the manner in which they were when life departed from the body. I took particular care in uncovering the bones to ascertain their position beyond any doubt before I removed any part of them, and it appeared during the whole excavation fully evident that at the time when the animal in question found its untimely end the ground in which it had been mired must have been in a plastic

condition, being now a grayish colored clay. All the bones which had not been burned by the fire had kept their original position, standing upright, and apparently quite undisturbed in the clay; whereas those portions which had been extended above the surface had been partially consumed by the fire, and the surface of the clay was covered, as far as the fire had extended, by a layer of wood ashes, mingled with larger or smaller pieces of charred wood and burnt bones, together with bones belonging to the spine, ribs and other parts of the body, which had been more or less injured by the fire.

"The fire appeared to have been most destructive around the head of the animal. Some small remains of the head were left unconsumed, but enough to show that they belonged to the mastodon. There were also found, mingled with the ashes and bones, and partly protruding out of them, a large number of broken pieces of rock, which had evidently been carried thither from the shores of the Bourbeuse river, to be hurled at the animal by his destroyers, for the above-mentioned layer of clay was entirely void even of these almost pebbles; whereas, on going to the river I found the stratum of clay cropping out of the bank and resting on a layer of shelving rocks of the same kind as the fragments, from which place it was evident they had been carried to the scene of action. The layers of ashes, etc., varied in thickness from two to six inches, from which it may be inferred that the fire had been kept up for some length of time. It seemed that the burning of the victim and the hurling of rocks at it had not satisfied the destroyers, for I found also among the ashes, bones and rocks, several arrow-heads, a stone spear head and stone axes, which were taken out in the presence of a number of witnesses consisting of the people of the neighborhood, attracted by the novelty of the excavation. The layer of ashes, etc., was covered by a stratum of alluvial deposits, consisting of clay, sand and soil from eight to nine feet thick."

The preceding statements and reasonings are, therefore, sufficient for the position that the ancient miners and mound builders were contemporaneous with the mastodon, and were occupying this country at a period corresponding with the Stone Age of Europe.

The mound builders were not confined to the occupation of the country lying to the south of Lake Superior. Well attested and authenticated statements are made of the existence of the well-known artificial mounds in the valley of the Red River of the north, throughout Dakota, Montana and British Columbia. It is possible that future explorers may trace their works still further to the northwest than investigators of this day dare predict.

It is generally conceded that during the glacial period North America was covered with ice between the Rocky mountains and the Atlantic coast, and from the north pole nearly to the tropics. There is sufficient evidence to suggest the belief that man inhabited the tropics as early, at least, as the latter portion of the glacial period. On the recession and disappearance of the glaciers, probably accompanied with a subsidence, beneath the ocean, of a large portion of the northern continent, and followed by a modified, warm and genial climate, man, together with the mastodon, mammoth, etc., moved north and occupied the land to a comparatively high latitude. This movement, of course, occupied many ages. Subsequently there was a gradual elevation of the land above the ocean—causing a gradual change, through long time, in the temperature of the country until brought finally as it now exists. It was during the changes of this period that the copper miners and mound builders flourished. The effect of the final change in temperature, due to the elevation of the continent, was to drive this race further and further southward, until the seat and center of their power became fixed in the Mississippi and Ohio valleys, and in the region of the great lakes. In this southward movement it is possible that the drones were left behind, and the nomadic people of the far north, and

some of the tribes of worthless and shiftless Indians that it is impossible to win to industrious lives; have descended from the outcasts of the people who were the miners of copper and the builders of mounds.

The Mexican records, as interpreted by the Abbe Brasseur de Bourbourg, are to the effect that the mound builders were finally driven from the Mississippi valley by prolonged and continuous incursions of fierce, predatory and warlike tribes which came from the west. Leaving their long occupied homes, they became dwellers in Mexico and Central America, and leading participants in the work of the early civilization that was the glory of those countries. The beginning of this forced migration according to Abbe Brasseur, was more than a thousand years before the Christian era. How long prior to this was the first occupation of the Mississippi valley by this ancient people? is a question the writer will not attempt to answer. The writer, however, does believe, that in the height of the power the population of that portion of the United States occupied by those ancients, was equal in numbers to the present population of the same area. As previously stated, the mound builders were intelligent and industrious people. They followed peaceful pursuits, and their works bear evidence of the efficiency of their government. Their staple food was maize. Their works do not exist on the Atlantic coast except far to the south. Their pursuits being agricultural, they occupied the Mississippi and Ohio valleys and the Lake region as the country most suitable for those purposes—thus being the precursors of the present race of men who, led by the same instincts, are occupying the same lands, and for the same purposes, but with an advanced civilization which is capable of making the territory once occupied by the mound builders of the Stone Age, the grain producing country for the world, and the centre of governmental power. The mound builders being driven out, their territory was occupied by their assailants. Under the sway of a nomadic and warlike people the works of the ancient race were left to decay, and their cultivated fields ran to waste. Thus, through centuries, was rest given to the soil, in order to renew fertility and prepare it for the occupation of our present race. After this is in the future.

IRON.

Dr. Houghton is conducting his work for the government, first begun his labors in this peninsula in the copper district, and as there are no outcrops of iron in that district, nor on the lake shore along which he had frequently coasted, the discovery of the iron ore deposits was not made until the fall of 1844. He had asserted that he believed the ore existed in places and in quantity in the country. Frequent specimens had been found and commented upon but no deposits had actually been seen by those competent to recognize and describe them.

The discovery is due to a party of United States surveyors, when engaged in running the west line of township 47, range 26. The northwest corner of this township is at Teal Lake and the line south of the first mile crosses through the present city of Negaunee, making also the east line of the Jackson mine; it was in running this line, on the 19th of September, when about a mile south of Teal lake, that remarkable variations in the magnetic needle—facts which the surveyors were required to observe and record—were noticeable, attributing the cause of the phenomenon to the existence of the presence of magnetic ore in considerable quantity, they sought for it and found outcrops of ore at several points, specimens of which were taken and preserved. It is related that Mr. Burt, who was chief of the party, was greatly elated at this illustration of the value of his solar compass, which was the instrument employed, the invention of which is due to himself.

The first location of iron lands was made in the summer of 1845, the year following the discovery, by use of a "permit" applied to the same lands on which the discovery had been made, though it is not certain that any knowledge of this fact led the

parties to make the application. The entry was made with Mr. O. M. Everett, who, with a party of four men, came to the country from Jackson, Mich. Messrs S. T. Case and E. S. Rockwell, members of Mr. Everett's party, were led to the spot by an Indian named Manjekikik, who described the outcrop as bright and shiny, leading the party to anticipate that the find would be gold or silver. Although the party were in search of mineral which, in their minds, was of more value than iron, yet they concluded to make sure of what they had found, and secured it by a permit granted to James Ganson. As only the township lines had been run, the party made their own survey as best they could, and described their location, which includes the present Jackson mine, by metes and bounds, making Teal Lake the starting point. Subsequently when the township was subdivided, the land was purchased of the government at \$2.50 per acre. These permits were issued from the war department and when locations were first taken the entries were made at the mineral agency at Copper Harbor. In their anxiety to get something, and knowing about nothing of the country, these permits were frequently applied at haphazard and the descriptions were very imperfect; generally the first entry was but temporary, the holder being allowed by the agent, on application, to lift it, as it was called, and apply the permit elsewhere. At the time of Mr. Everett's visit in 1845 much of the country west of Dead River had been secured in this way. Mr. Everett's party had thus been anticipated by the application of a permit—No. 158—granted to D. Hamilton of Waterford, N. Y., to section 1, town 47, range 27, thus covering the land which the Jackson party sought to secure. In the same manner sections 3 and 10 had been secured, on the former of which is the new York mine and the richest portion of the Cleveland and Lake Superior mines, Ishpeming. Subsequently these prior applications were withdrawn and the Jackson men having got an accurate description of their property, held possession of it until the government survey was completed, when the final purchase was made. Thirteen men, residents of Jackson, Mich., had formed a company which they styled the Jackson Iron company, appointing Mr. Everett secretary and treasurer. In the following year four men of this company visited Lake Superior, for the purpose of making further examination of their iron location, and making further entries of land by using the permits, of which a number were still held by the company. On returning to Jackson this party took with them about two hundred pounds of the ore, from which they succeeded in making, in a blacksmith's forge, the first iron derived from Lake Superior ore. A mining company had been formed at Cleveland, and its agent, Dr. Cassels, when on his way to Lake Superior, met, at the "Soo," Mr. A. V. Berg, the president of the Jackson company. Upon the advice of Mr. Berg he took the latter's canoe and an Indian guide, and proceeding to the Jackson location examined it, and also looked on lands to the west of it, as he had planned to do when he left the Sault, and afterwards secured this latter location with a permit. This entry became known as the Cleveland location, and was the subject of much subsequent controversy.

Mr. Fairchild Farrand, a member of the Jackson company, explored the Jackson location, in the summer of 1846, and having mined some ore and become satisfied of its quality, and that it existed in sufficient quantity, the company constructed the machinery for a forge, which they removed to Lake Superior and erected on the Carp river, three miles from the mine, in the following year.

The first iron made on Lake Superior was in this forge February 10, 1848. In a few days thereafter a freshet, caused by a sudden thaw, carried the dam away. The following summer Mr. Everett rebuilt the dam and the manufacture of blooms was resumed.

The forge was operated by different parties under leases from the company; but little iron was made and

no money. The daily product was about three tons of iron, requiring two teams of six horses each to carry the iron over the intervening ten miles of execrable road to Marquette. These teams on returning, brought back supplies for men and animals. Frequent mishaps and breakdowns occurred, both at the forge and on the road. Much difficulty was also experienced in procuring ore and charcoal; there was also an insufficient water power. The difficulties were too many and serious for the maintenance of the concern and resulted in its abandonment in 1856. The Jackson Mining company having been incorporated in 1848, and changed to the Jackson Iron company, its shares were brought up in sufficient amount to secure a controlling interest by Gen'l Curtis of Sharon, Pa., who owned and operated extensive iron works at that place. He conceived the idea, that the future market for Lake Superior ore would be at the coal fields of Pennsylvania and Ohio. He took about seventy tons of ore to Sharon, where it was

turing blooms, starting with ten fires. After the merging of the company's interests with those of the Cleveland, the operation of this forge was continued by the latter company, using the ore of the Cleveland mine, as had been previously done. The manufacture of blooms at all the forges ever started in this district proved financially unprofitable; transportation was too difficult and expensive, there being no railroads, or scarcely wagon roads, in the country; no canal at the Sault; no docks at the harbor, no regular communication anywhere. Labor, especially skilled labor, was difficult to get; and machinery must be waited for from "below," and returned there for repairs.

This forge of the Marquette company was destroyed by fire in 1854, and in the same year the Cleveland made the first shipment of ore from this country, 149 tons.

Involved in the same controversy regarding ownership was also what has since been known as the Lake Superior mine. The land was pur-

chased by John Burt at a great land sale held at the Sault in November, 1850. Burt leased an undivided one-half interest to Robert Graverat, by whom it was assigned to the Marquette company as an offset to cash capital paid in by other parties. It passed, with the other assets, to the Cleveland company, in 1853, and was subsequently sold for the sum of \$30,000 to the Lake Superior Iron company, which latter was consummated in 1855. The land in which the mines are contained is the same as that purchased by John Burt, and comprised one hundred and twenty acres in sections nine and ten, township forty-seven north and range twenty-seven west. The first shipment of ore was made in 1858, comprising 4658 tons.

In 1853 Mr. H. B. Ely made a contract with the iron mining companies and undertook the construction of a railroad, but on account of some controversy with the mines, the work did not proceed as favorably as it should, and the companies built a tram track in opposition. In 1855, however, these difficulties were righted, and the company incorporated under the general railroad law that had recently passed, the road being put in operation in 1857. This road is now a part of the Duluth, South Shore & Atlantic. The construction of a canal around the Sault Ste. Marie affected not only the iron industry but every other tributary to Lake Superior. Previously to the completion of this improvement everything had to be reshipped that passed above or below the rapids.

To overcome this obstruction congress granted to the state of Michigan 750,000 acres of land by an act approved August 26, 1852 to be used to pay for the construction of a ship canal around the falls. The canal was opened to the public in June 1855, two years after work upon it had begun. It has since been greatly

enlarged, the new locks finished the past summer being one of the greatest works of the kind in the country. Since 1864 a large portion of the ore has found its way to Escanaba—the larger portion of later years—the road being completed to Escanaba from this port in '64. The Chicago & Northwestern extended its line from Green Bay, Wis., and filled in the gap that gave us communication with the outside world.

The Menominee iron range was opened up in 1857, its development being remarkably rapid. It is an district, a producer of good ores, and has many fine mines at the head of which is the Chapin, said to possess the largest deposit of soft ore in the world.

The Gogebic ore range sent out its first shipment of ore in 1855, and in no other district extant has so remarkable growth been recorded. It profited by the experience and modern appliances of other ranges and has a record that must be pleasing to all those interested. The Norris, for the season just closed, has sent out 402,

iron mail, the towering pines through which the zephyrs played at will, the glowing sunsets for which the place is noted, or whether 'twas the noble deer that bounded through the wood, or graceful trout that sported in the brook, that lent him the suggestion for a title, we do not know. The characteristic longing on the part of the warrior for a "square meal" favors the idea that he was thinking of his stomach. At the same time a more beautiful spot would be hard to find. Its woods and hills, rivers and lakes, were objects that would awaken the admiration of one possessing even the minutest soul, and in choosing the name the red man gave it, those who were responsible did well.

It was not the beauty of the place, however, that attracted those who first came here to carve out a home and fortune. Of the objects and trials of those hardy pioneers we have previously spoken.

The village of Ishpeming was incorporated in 1859 by the purchase and laying out of the Iron Cliffs ad-

3,940,173. Few people can realize what this amount of ore means. To illustrate, the reader can imagine a train of cars over one thousand miles in length, this train being loaded with Lake Superior mine ore. From this they can get some idea also of the extent of the underground workings of the property.

In the hard ore end of the mine, fourteen levels have been opened, nine only of which are now in operation, those near surface having been worked out some years ago. The lowest level has a depth from surface vertically, of 720 feet, and the mine has been opened up, to an average length of 650 feet. The property here does not present the immense slopes of ore that were met with in the upper levels, big bunches of Jasper having come in that interfere with mining, and renders it more expensive than it was in former years. Although this is so the roamer must not jump at the conclusion that the ore is becoming rapidly exhausted. Good slopes, ranging in width from 15 to 30 feet are still in existence and probably will be encountered long after the expiration of the present century.

The upper levels of the Lake Superior were nothing short of wonderful, slopes to a width of 100 feet having been wrought. The ore horizon here is very wide, and the lenses assume all manner of position, requiring constant care to properly locate. Indeed, in the upper levels where the ore was thought to have been all found, explorations with the diamond drill have lately made known the fact that there are lenses yet lying there that will warrant attention from the miner. Drill borings from the lower levels to the north and south have also revealed the presence of considerable ore. Like all other mines this has its seasons of illness, but the treatment has invariably been right, and the patient brought out strong and vigorous as usual. The residents need have no apprehension that the "old reliable" is going to give up the ghost at any time in the near future. It has an excellent management, a wise, careful and skillful one, and nothing will be overlooked that patience and money can find. The diamond drill here, as in many of the hard ore properties, has been found an invaluable servant. Three machines are constantly employed searching the ground. It is used in testing all contemplated extension of the workings. Every shaft and drift is first located by the drift, and nowhere is a more systematic method of exploration employed than here.

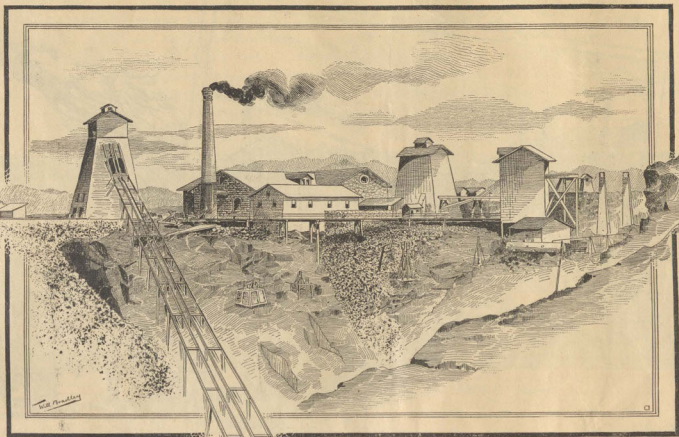
No. 2 shaft is now the main one in this portion of the mine. A year ago the first of December last a drift from the 720-foot level was commenced, being pushed to the westward to connect with No. 7 shaft, 950 feet distant. This drift, 8x10 feet, has just been completed, and was an excellent piece of work. To connect with this, No. 7 was sunk 200 feet. The drift was principally in Jasper, although some good lenses of ore were encountered. By this drift, No. 7 shaft will be drained of its water by No. 2, and the hoisting from No. 7 will also be done from the main engine house, this doing away with the cost of maintaining a hoisting and pumping station at No. 7 that has been kept in the past. It will require a cable 3,000 feet in length, but long pulls are easily met by the splendid hoisting plant the company possesses. No. 7, which yielded ore in immense quantities has been practically abandoned of late, but work will be revived again and it is certain that ore will be obtained. We believe that explorations have lent encouragement to the belief that there will be business for the long cable to do.

One thing, not uncommon in mining in this region, was met with in driving the drift above mentioned. At a point where the drill had shown some 20 or 30 feet of ore, causing the management to suppose that a large lens had been cut, the drift proved it to have but a thickness of a few inches, not exceeding two feet at its largest point. This, as we have said, is often met with in drill work, buoying up the spirits of the prospector to a high altitude, which drop as suddenly when the real condition of the vein is found. This puts us in mind of Sam Burt's silver vein. It was 9 feet wide, but only half an inch long. It was at the time of the silver-lead excitement in this country

condition by Mr. Robt. Nelson, founder of the town. Capt. G. D. Johnson was president. In 1873 the village threw off its swaddling clothes being incorporated as a city, with Capt. F. P. Mills mayor, W. F. Swift recorder. From that time the city has grown and flourished—slowly, true, but it has increased in a substantial way. There have been no inflations or booms; business has been conducted in a legitimate manner, success attending the general effort of the people. On April 19th, 1874, a disastrous fire visited us which consumed the greater portion of the business part of the town, but the result was the re-building of a better class of structures, which has saved us from further calamity in the way of conflagrations. The city has grown in a measure corresponding to the development of its industries, of which the main one is mining. In the depositing of its minerals, Dame Nature was very lavish to what is familiarly termed the "Ishpeming basin," her generosity in this direction being generally well known amongst mining people, and has been the subject of much comment for many years in the past—will continue to be for many in the future. In the presentation of the subject under the heading at the beginning of this column—"Ishpeming"—we will first turn our attention to the natural resources—the mines—commencing with

THE LAKE SUPERIOR

for the reason that it stands first in number of tons produced, not only of the mines in this city, but of those of the United States as well. It commenced operations in 1858, in which year it sent out 4658 tons. In 1876 it reached its first 100,000 tons, in a single season, in 1890 its first 200,000, and in 1887 its first 300,000. During the present season it sent out 240,317 tons, making a grand total of shipments since work first began, of



VIEW SHOWING A PORTION OF THE LAKE SUPERIOR MINE.

000 tons, the largest shipment ever achieved in a single season by any Michigan mine.

The increase of all the ore ranges has been steady and satisfactory. We have not the space to devote to them in this issue. Later on we intend visiting them, giving them such attention as they deserve. They have their editorial representation—some have had a surfeit of it, and we have much ahead of us in the writing up of our own home.

Other industries, the quarrying of slate, the manufacture of lumber, etc., have grown and flourished at different points. Of these we will speak at some other time.

The mining of gold is another important feature, also, to which we shall pay attention further on in this number, it being as yet an enterprise of this region to which credit should properly belong to Ishpeming.

ISHPEMING.

ITS MINES AND OTHER INDUSTRIES.

THE KIND OF FOUNDATION IT HAS.

WHAT WE ARE DOING, AND EXPECT TO DO.

"Heaven," as translated from the Ojibipwa; the red man's ideal of the happy hunting ground, probably, as, in the early days before the tide of emigration and civilization had reached it, the bronzed aborigine feasted his eyes upon the scene of beauty. Whether it was a love of nature—the lofty bluffs with their

which is the fifth, no mining is at present being done, the level being opened up so as to connect with the one above. The drifts run show large bodies of ore, and the outlook is extremely gratifying to all interested, and who are acquainted with the true condition of things.

In the fourth levels slopes are being wrought that have a width of anywhere from 10 to 30 feet. The bulk of the ore is a hard specular and magnetic, mixed, an ore peculiar to this mine, and to this particular portion of it. It is an ore that works splendidly in furnace, is high in iron, and once used is again sought.

The third level is working above and north of the workings of the fourth. Here the vein makes all the way from 10 to 50 feet in width, and at one point, in the east end reaches the enormous thickness of 125 feet.

On the second level there is the same excellent condition of things observable in those below, and an additional deposit, that was lately found by the diamond drill to the south of the main body of ore, 100 feet, is now being drifted for. This shows a thickness of 40 feet by the drill cuttings. This ore is similar in structure and quality to that mined on this level. In addition to the slopes being wrought there are several that are idle for the reason that they are too low in iron,

Allis, Corliss, condensing, 18x60 inch. The main gear wheel has a diameter of 24 feet and weighs about 20 tons. It is the intention to have this plant take care of the water from the Incline pit, the Incline to be connected with No. 3 by a large diamond drill hole, this conveying the water to No. 2 shaft. This will do away with the present pumping station at the Incline mine, reducing the cost of unwatering the two pits, considerably.

The Incline mine, or pit, that used to produce 110,000 tons per year, of fine-quality ore, is not yielding much at present writing. In the past it has been wonderfully prolific, and hopes are entertained for a continuation of the vein again. The ore belt is large and other lenses will no doubt be found. The diamond drill is now being employed with this aim in view, and success is looked for.

The Moro mine, or pit of the Cleveland, is situated on the south side of the upper track of the D., S. S. & A. R. R. It has nine levels, and sinking is now in progress for the tenth. It is producing ore from the first, third, sixth, seventh, eighth and ninth levels. The ore occurs in lenses running in thickness all the way from 5 to 30 feet, is a specular slate, easily broken and worked, and is very near the Bessemer limit—would be called a Bessemer if it was found on some of the ranges not

degrees. At 250 feet a drift was started for the ore, this cutting a deposit of 100 feet in width, ore being hematite, of excellent quality, similar in appearance to that being mined 2,400 feet further west by the Lake Superior Iron company. From the end of the drift, after it had passed through this 100 feet of ore, a diamond drill bore, horizontal, was made to the south, this cutting 370 feet of rock after which it cut another deposit of ore of 100 feet in thickness, making 200 feet in all that was struck. This, with the boring previously made, before the shaft was begun, proves the ore lies in a synclinal, the second deposit merely being the upturn of the fold. That the ore makes yet another trough beyond this to the south is almost certain, and the statement before made by us that under Lake Angeline lies one of the largest and finest ore bodies in the world, has good ground to sustain it. Already this vein, figuring the distance opened up by the Lake Superior, which is without doubt a continuation of it, has a known length of 4,000 feet and a width varying from 30 feet in the bottom of the trough, to 350 feet in the centre. Nowhere in the country has such a regular deposit of such enormous proportions been revealed. To the east there is a stretch of ground of several thousand feet before the diorite will cut it off, and to this

the back may be prevented. It is the only course to pursue that will insure the safety of mine and miner. Should it fail, then some agreement will probably be made such as before suggested.

The shaft sunk here is 5x18 feet inside of timbers, having room for a double skip way, pump and ladder way.

The Cleveland Hematite mine operated by this company, while not in the corporate limits of the city, lies just outside of them, and as many of the employes are resident here, and the whole force are supplied by Ishpeming merchants, it is looked upon as an Ishpeming enterprise, as it really is from a business point of view.

This mine annually produces 40,000 tons of Bessemer ore, of the same quality for which the Teal Lake range has ever been famous. The present bottom level has a depth from surface of 625 feet and sinking for another 100 foot lift is now in progress. The mine looks as well as it has for years past and is expected to send out its regular old-time product for many years to come. The water is handled by a large duplex compound condensing Knowles pump, the hoisting done by an Allis Corliss engine and two 6-foot Gilchrist drums, the latter being the invention of Mr. Duncan Gilchrist, master mechanic of the Cleveland

the left is the machine and blacksmith shops. Beyond is the main engine and boiler house, while in the lower right hand corner are K and J shafts.

The location is kept neat and tidy, at all points there is an air of thrift and success. It is an enterprise that aids Ishpeming considerably, is one of the main supports. It employs at present 600 men. Capt. F. P. Mills, son of Ishpeming's first mayor, is agent and superintendent, Harry Wills mining captain, J. F. Armstrong cashier.

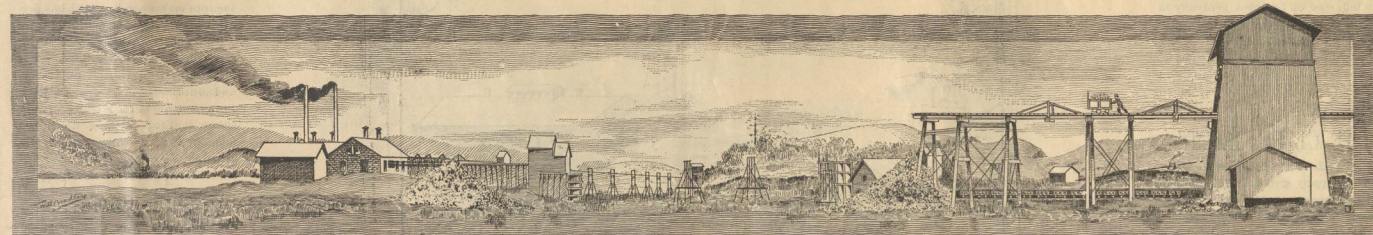
THE LAKE ANGELINE

occupies the third place in the role of Ishpeming mines. More properly it should be called the Pittsburgh & Lake Angeline, that being the name under which it is incorporated, but the people of this region are generally too busy to give it credit for its full title. It has an ore credit, however, that makes up for the omission of the "Pittsburg," etc.

The Lake Angeline commenced operations in 1864, at a point that is now beyond its most easterly working. It was operated in a very modest way, as an open pit, securing a yearly product of anywhere from 15,000 to 30,000 tons. People generally didn't pay much attention to it. The ore was good, furnacemen asked for it, but

This will let the ground down, and the supply house and other buildings located at that end of the mine have been removed to prevent damage to them. In this mine fully two-thirds of the ore, in the shape of pillars, has been left to support the hanging, and it will take some time to "rob" these. One pillar alone will yield 200,000 tons. Little attention has been paid to this portion of the mine of late. The seventh level has been permitted to fill with water, this saving the expense of lifting it to surface, and the management is not yet ready to work that portion of the mine. It will yield considerable ore when the time comes for getting it.

"A" shaft, next in order in running west is bottomed at the seventh level. "C" shaft, from which the west end of the mine is tapped, is now the scene of the greatest activity on the vein, or deposit. This is a very large shaft, 10x20 feet inside of timbers, and the record made in sinking it will compare favorably with any like piece of work in the country. It was begun a year ago the seventh day of last March and up to the first day of December last had reached a depth of 425 feet. Six levels had been opened in ore, and each level connected with the shaft by drifts put through 80 feet of rock. From this shaft has been raised 180,000 tons of hard ore. Capt. Walters



VIEW SHOWING SURFACE AT LAKE ANGELINE MINE.

running about 59 per cent. This would be a fine ore in some parts of the country, in the southern states, for instance, where the ores will not average better than 45 per cent, and require a large quantity of flux to smelt. Here, in this Lake Superior region, however, where the finest ores in the world are mined, 59 per cent, is considered too low to touch especially at times when the market is slow and prices low. The day is rapidly coming when 59 per cent. ores will have a demand. Each year witnesses a large gain in the amount of iron used for foundry purposes. Structural iron is taking an important place in the cities and a better grade of it than that which the southern product furnishes will be demanded. The ores such as that which the Cleveland is now leaving behind them will make a tough, strong iron, and it is going to find a sale. There has been an unjust discrimination against the Superior ores in the making of prices, between them and southern irons, and the purchaser of the manufactured articles is going to need something better than southern ore produce; he is going to stipulate in his contract that Lake Superior ores must be used. As regards quality we take the lead, and quality is going to form an important part in sales in the near future.

This portion of the Cleveland has been opened up from the original opening over one-fourth of a mile, and has been wrought upon for a period of 36 years. The most westerly workings are now under the old skating and curling rink on Cleveland avenue. The vein makes to the southwest and appears to hold a very regular course.

A new pumping plant lately put in takes care of all the water in No. 3 that formerly was raised by a number of Cornish lift pumps. It consists of three fourteen-inch plungers, the manufacture of Webster, Camp & Lane, of Akron, Ohio. Each pump has a 200-foot lift. The pumping engine is an

so modest about a few one thousandths per cent. of phosphorus. Furnacemen pronounce it one of the finest ores they secure from the Lake Superior district.

The lenses here found, are located by the diamond drill, one machine being operated here for half the year, probably. The sixth level has been opened up for about 300 feet, a fine body of ore being encountered. The ore has the same general trend as that lying further north—nearly east and west—a little south of west and north of east, having a slight dip to the north.

From the first level a rise is being put into the ore, following on its dip, and is now up about 250 feet, within 50 feet of the surface. The first level is 300 feet below surface. This rise will probably run in ore to the surface. There is every indication of it at present, and if such proves to be the case it will be worked from surface as an open pit as long as such system is practicable.

There is one shaft from which the ore is raised, at this mine, "J." To the east a shaft, "K," has been sunk to a depth of 300 feet, but is used only for the purpose of ventilation.

At this portion of the mine, as in all others, the pockets and stockpile foundations have been changed so as to accommodate the large-sized ore cars that are now coming into general use.

The most interesting portion of the company's possessions at the present time is the shaft and workings on the north side of Lake Angeline, we should more properly say beneath the lake. Here, two years ago, the diamond drill was placed upon the ice, at a distance of 200 feet from shore and several holes put down, cutting a large body of hematite. To reach this deposit a shaft was commenced a year ago last spring, starting in the year 1867, back from the lake shore. It has been sunk to a distance of 310 feet, on an incline to the south of 30

formation the ore will undoubtedly make.

In this Lake Angeline basin is material that will support the city of Ishpeming for a hundred years to come. It is a very pleasing thing for the citizens to contemplate. The big Chapin, the Norrie, the Minnesota and Colby deposits are insignificant in comparison with it, and it is also gratifying to note the ore is of excellent quality.

When the Cleveland people have run this drift at 250 feet from surface, they found the first upturn of the ore at a distance from the edge of the lake of 200 feet—they are out under the lake that far. Above them is 73 feet of ore, 33 feet of sand and 47 feet of water. It is the last 47 feet that is the point giving the management some apprehension. Just how the mine will be affected by the water is a question for the future to decide. Thus far it shows no signs of being wetter than hematite mines in general. Should the lake find its way into the mine then some arrangement between the Cleveland, Lake Superior and Lake Angeline companies and the city would probably be entered into whereby the city would secure its water supply from some other source—Lake Sully, for instance, and the miners could then remove the ore without trouble. We believe this course will ultimately have to be resorted to. The city would get the benefit of this enormous ore body, and a better supply of water than it has at present. It would require but a short time for the mines to drain the lake were they to combine in putting in a large-sized plant.

The Cleveland company in its drift at 250 feet from the top of the water, intends this to be the top of their first level. The bottom will be a hundred feet below, it being the intention to have this level 100 feet thick. A thorough system of filling will be used, the ore to be replaced with rock as fast as it is taken out. By using care in this respect it is hoped that any settling of

company.

The main engine house of the Cleveland company, in Ishpeming, is supplied with a double engine 22x42-in., and four 8-foot drums, one 20x30-in. engine operating two 8-foot drums, Webster, Camp & Lane, two duplex Rand compressors 16x30-in. cylinders.

At the Cleveland hematite there is a 16x42-in. Allis Corliss engine and a 10x16-in. Rand compressor.

At the Moro mine the pumping is done by a special engine located at the shaft, the hoisting being done from the main engine house.

A Brush electric light plant illuminates the surface. The maximum horse power of the mine is 1531, the average horse power of all machinery 666.

The company operates 26 Rand rock drills and two Bullock diamond drills, which have ever given the best of satisfaction. The company owns two locomotives with which they do their switching of ore cars.

One thing that will be of interest to our readers is the fact that the company is now building two steel steamers that will be the largest plying in fresh water, they to have a capacity of 25,000 tons of ore, the other of 28,000 tons. These boats will make much faster time than the passenger boats, will "walk" right away from them. No passenger boat on the lakes will equal them in speed. There is nothing old-foggy about the Cleveland company from their boats down, or up, as the case may be.

They intend to take care of their interests against the piratical owners of lake craft in general. It is an enterprise in which more of the large companies should engage. The Republic has a fleet of seven boats and finds the addition to their business a paying one.

The mine buildings of the Cleveland are of the most substantial character as our artist shows in his reproduction of them on paper. The "K" shaft

the product was so small that it amounted to but little. About 40 men were given employment, and the property was but a small help to the city. In 1882 the yearly product was but 14,578 tons and the prospects for the future looked exceedingly gloomy.

It was about this time that a well was sunk on the company's land to the west of the old open cut a few hundred feet, and in this well ore was found. It led to further exploration that gave great encouragement, and subsequent developments have proved that for twenty years the real value of the property was unknown. To show how the production has increased, the following figures for the past seven years will serve to illustrate better than anything else we can advance:

Year	Gross Tons
1882	14,518
1883	27,259
1884	27,018
1885	111,051
1886	131,384
1887	104,121
1888	223,635

The property has produced to date 1,317,796 gross tons. With the discovery of the ore to the west of the old workings a change in the method of handling the property had to be inaugurated. An underground system had to be adopted, and to look after the proper operation of this a competent overseer had to be placed in charge. Capt. Thos. Walters was that man as the mine's record and its present condition proves.

At the east end of the property the ore is the thinnest and has been nearly all worked out. When we say "nearly" we mean that there may be a few thousand tons to be yet secured; but little mining is being done, however. At this end of the mine "D" shaft is the outlet, four levels have been opened and the diorite is but thirty feet below the bottom of the shaft.

To the west of this is "B" shaft, down to the seventh level. The ore has been mined from here also, so that the pillars are now being attacked.

believes this will equal anything the district can show, in which we agree with him.

The deposit at this point makes longer than at any other place in the mine, it reaching a thickness in the widest part of 120 feet, being similar in this respect to that obtained by the Lake Superior company, to the west, the result of assays being previously announced. This lense has a length of about 220 feet and is located 80 feet from the shaft.

Another body of ore, egg-shaped, lies to the southwest of the one referred to and has been crossed to a distance of 105 feet. These lenses incline to the west and lap over each other. Against this large body of hard ore there lay one of hematite, it was both against and upon it, and rendered the task of getting at the hard ore a troublesome one for a time.

The method of "filling," now becoming universal in this field, is resorted to here. At some places the surface is permitted to come in, as is the case in the eastern workings. The walls here are very bad, requiring the greatest care to keep in safe condition.

The Lake Angeline has many years' store still ahead of it and will be an active producer for a long time. The bodies of ore to the west are of enormous dimensions and will require years to exhaust.

Then, too, the company has much ground that is as yet unexplored. While its neighbors are finding acres of ore beneath the lake, it will come in for its share as the ore unquestionably makes upon its lands. Hundreds of thousands of tons are awaiting the hand of man to remove, and when the time comes that the present working give signs of speedy exhaustion, the new ground will be opened up. Already what promises to be a valuable find has been made upon their possessions, and on the south

bank of the lake and near its eastern end. This is a blue ore of excellent quality and present indications point to a large body of it.

In the 24 years the property has been in operation it produced 1,317,796 tons of ore, and it has many times that amount yet left to raise.

It is a mine in which men like to find employment, as they can easily earn large wages. The management is a liberal one and treats its miners well. About 400 men are employed.

Like the other big mines of the city the Lake Angelina is well equipped for doing work. It has a first-class plant, six 4-ft. Merritt drums, a Rand duplex 18x30-in. and a straight-line Rand 16x24-in. engine, the latter being kept in reserve. No. 2 Rand drills are used and work splendidly. The buildings are of a substantial kind, brick and stone, and a fine coal dock is also owned. It has an electric light plant, both the arc and incandescent light being furnished.

The company has changed its tracks and docks so as to accommodate all sizes of ore cars, and is well equipped for rapid loading.

Its shafts are provided with double skip way, ladder and pump ways, and all the ore mined can be raised.

Our artist pictures the mine as viewed from "C" shaft that stands out so prominently to the right. It gives a fair idea of the surface, while the shipping tables and our brief pen picture will give something like a correct impression of the appearance of things underground.

The increase made by the Lake Angelina from former years has quite an influence on business generally in our city. It is now one of the largest producers in the county.

Mr. Alfred Kidder, of Marquette, is agent, Capt. Thos. Walters, Ishpeming, superintendent, George R. Persons, cashier.

THE CLIFF SHAFTS.

Under the above name the Iron Cliffs company are operating an extensive property in this city, having taken the place of the Barnum mine. The latter adjoins the Lake Superior immediately upon the west, and has been wrought since 1808. It derives its title from one of the principal owners, Hon. W. H. Barnum, of Connecticut. For the past ten or twelve years it has been working near the eastern line of its property, and securing anywhere from 12,000 to 25,000 tons of ore per annum. At present the pillars are being removed, and its total suspension will be the question of but a few years.

In the stead of the "old Barnum," as it is familiarly known to the people here, the company has a comparatively new mine lying to the northeast of the old one several hundred feet, possessing a more extensive ore body and one that bids fair to continue in force for a great many years. This was opened in 1881-2 by the sinking of two shafts, these being 835 feet apart. The one to the west is known as "A" shaft and is down 470 feet from its collar to the collar in the main level. To the east is "B," both possessing a depth of 420 feet. Both these shafts are provided with cages, which prove of great assistance in rapid handling of the ore, and also in taking the miners up and down the shafts.

At the Cliff shafts mining has been pursued in a very quiet way since it first began here. No particular effort was made to dispose of the ore, which, although it runs well in iron, is not a Bessemer; the company were apparently content to let the work proceed in a quiet manner, which did not give the mine, or local management, a chance to show what the property was capable of. Now, however, there has been an awakening to the realization of the fact that there has arisen a competition in the ore business, and this is soon to resolve itself into a question of the "survival of the fittest," and the mining company that expects to keep afloat and secure any profit must do so by dint of wakefulness and a big product. Competition will have to be met in this way.

So now the Cliff shafts will work another shift of miners, nearly doubling their underground force, and with this aim in view the mine is being gotten in shape for duty. Besides the main level at "A" shaft two others are opened above it. That is,

drifts have been run, the lenses located, and when the call for an increased product is made the mine will be in shape to yield the amount needed. Both shafts have been connected by this main level drift, which shows a large amount of ore and insures a healthy circulation of air to the underground employes.

To the east of A shaft the level has been run about 800 feet, so that the breast of this slope is now nearly under the residence of Mr. E. G. St. Clair, on the corner of Main and Barnum streets. From B shaft west the ore bodies are making larger and are more connected than to the east. The ore found to the east, while it holds a very regular course and uniformity of size, rolls or folds on its trend, and also folds on it dip, is occupying a cylindrical fold of the formation.

In this direction the ore forms an immense W, the Cliff shafts working on the north side, the ore dipping to the south, rising again several hundred feet away from the central portion of the letter, then then turn-

left below. After work has been carried for the length of the levels they turn back and take the ore that is left. It is a safe way, and all the ore can be secured. The levels are about 36 feet apart.

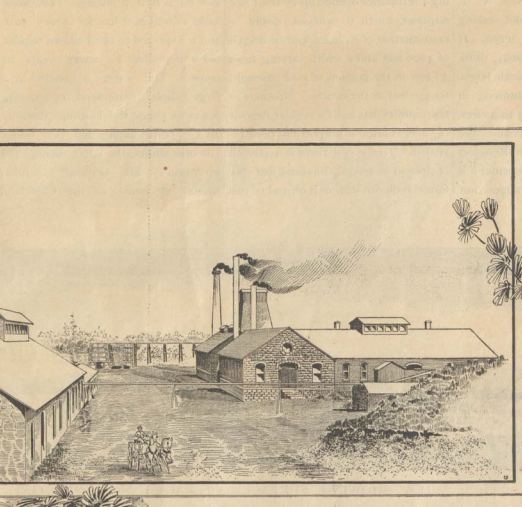
The uniformity of the ground and quality of the ore renders it very easy to make contracts for its working. The miners know as well as the superintendent what price will be made per ton, or foot, as the case may be. There is no timber to handle. If hard steel ore is struck they know they will have just so much for breaking it. The contracts in the mine do not vary 15 cents per ton, and it is a very simple matter to set the price and all the miners know just what to expect. There is very little difference in the maximum and minimum price, and this is of advantage to all concerned.

The Cliff shafts raise about three thousand tons of work every twenty-four hours. This is easily handled by the present pumping plant, two 14-inch plungers in A shaft, two 20-inch in B which raise about 850 gallons

per minute. The mine possesses fine buildings, of stone, blacksmith and machine shops. Our sketch shows the end of machine and blacksmith shop in the foreground. In the middle ground is the engine and boiler house, in the background is B shaft. The view is taken looking to the west. During the past year the company has erected a large boiler house, stone, with iron roof, 95x112 feet. This will hold eight boilers, four batteries. Six will furnish the power needed, two being held in reserve.

Two 10-foot hoisting drums; Merritt's internal gear, were added during 1888. Two large condensing engines furnish power to operate the hoists. Two duplex compressors operate 25 No. 3 Rand drills.

The mine employed on an average of 200 men during the year just past, which force, it is expected, will soon be increased considerably. It is a property that is one of the big helps to Ishpeming and has an immense territory to draw from.



CLIFF SHAFTS—SHOPS, ENGINE AND BOILER HOUSES, AND B SHAFT.

Capt. Wm. Sedgwick is superintendent, Thos. Bargh, cashier, A. W. Maitland, Negamee, general manager.

The Salisbury mines on the south side of the high diorite bluff that rises just south of Lake Angelina, and nearly opposite the old workings of the Lake Angelina mine. It has been in operation since 1872, and has produced in that time 526,463 gross tons.

The product for the year just ended is the largest ever obtained in the mine's history, being 74,000 tons, and is 24,771 better than the record of 1887.

The Salisbury is operated by the Iron Cliffs company, Mr. A. W. Maitland, general manager, Mr. Thos. Buzzo, mining captain, Mr. Walter Sterling, cashier. For some years it was worked as an open pit, but now

is an underground mine. It has nine levels, the three lowest of which are in operation. The levels have an average length of about 300 feet and the lowest is about 500 feet below the collar of the shaft. The ore dips to the south at an angle that averages 45 degrees for several hundred feet, but further south, where a diorite bluff comes in, the dip is sharper, about 60 degrees.

But one shaft is in operation. There are two old shafts in the open pit which serve to take a few buckets each day that are secured by scramblers, but they cannot longer be called active workings. The dip of the ore has naturally carried the stopes far away from the main shaft, which is back in the foot. Trammings is a long and expensive work, and to obviate this a new shaft was commenced a few weeks since at a point about 500 feet south, by a little east, from the old shaft. The new shaft will be 9x20 feet inside of timbers and provided with a pump-way, skip and ladder-way. It will also have a cage to take the men in and out of the

mine, during which time the skip will be taken off. The shaft will be vertical. It is now down about 40 feet, hard Jasper being met with. The character of the ground is different from that expected, as a test pit put down a little further to the south-east met mixed ore, a lean hematite formation. It is expected the Jasper will soon cut out, however, making sinking less costly and more rapid. A gang of miners are raising from the levels below to meet the shaft. When down to the ore it will have a depth of 500 feet, from which point it will follow the natural incline of the foot.

The ore in this mine occurs in lenses, or pockets of all sizes from five to thirty feet in thickness. When a pocket becomes exhausted there is a run of rock to meet, no one can tell of what extent, when another ore pocket is reached. This necessarily makes trouble in looking after the rock. Great care has to be taken to keep it from the ore, and to avoid mixing, only one shift is worked, so that the sorters on surface can have daylight to see that no bases find their way into the stockpile.

Explorations made to the south indicate that the ore is making in a much larger body than has been heretofore found. It takes a change in dip and it is expected that the old enemy, rock, will be less troublesome from this time on. The diorite bluff referred to was supposed to incline to the north, and would cut the ore off at no great depth, but exploration proves it dips to the south and will really be the hanging wall of the ore. It is therefore reasonable to suppose that this will be to the benefit of the mine, and that a fine ore body may be expected.

This is evidently the opinion of the management, as the improvements now under way, and those that will have to be added in the shape of additional hoisting and pumping facilities, will cost fully \$100,000. It will take some ore to pay for this. Here the reader has some idea of what it costs to keep mines up, and this is a small one, as looked upon in Ishpeming.

The mine makes considerable water, keeping the 14-inch plunger busy at five strokes per minute. They have a Hodge hoist, and a small Merritt hoist, the latter being used in shaft sinking. Rand rock drills are used and give excellent service.

Prospecting with a diamond drill has been in progress to the south of the mine several thousand feet. An eleven-foot vein of good ore was cut at a depth of 500 feet and another boring is now being made with the hope of catching the ore on its underlay and proving its size more satisfactorily.

Everything in and about the Salisburys is in good shape and it looks better than ever before. It employs 100 men and more will probably be added in the near future.

The property is of assistance to us as one of our pillars of support, and

so, advantage was not taken of it. The gentlemen in question, gaining possession of the lands, put a cross-cut into the west part of the hill, finding several bunches of very nice ore—enough to greatly encourage them—and to secure the help of outside capital, Messrs. S. K. Wambold, of Appleton, Wis., being prominent. Mr. W. H. Johnston was chosen superintendent, Mr. C. R. Ely secretary.

Several old test pits had been sunk about the hill and a shaft had been put down, rumor said to a depth of 80 feet. This shaft was to the southwest of the bluff a little distance and it was decided to clean it out and push it downward. When the water had been pumped out it was found to be only 37 feet deep. It was sunk about one hundred feet further and a drift was put in at sixty feet, a second at one hundred, these striking ore to the north of the shaft. That encountered on the first level appears to have been but a pocket which made in the formation that overlies the true ore body. On the second level the showing is much better and considerable fine ore has been mined, but everything points to the belief that a sufficient depth has not yet been reached to prove what the vein will really make at this point. The indications show that the ore being taken from the second level is really from the top of the vein, or lense, as in most places the back comes down to within ten or twelve feet of the bottom of the level. A set and a half of timber in height is all that can be put in at many places. At one point the roof makes a raise which has permitted four sets being worked before the hanging interfered, which is by far the highest stopping done. The vein here trends to the northwest and southeast, and dips to the east. In the bottom of the level it plainly shows that it is making under the hanging at a rate that will rapidly increase its size. At present it is being worked to a width of 25 feet, three 8-foot sets, in width, of timber being introduced. Legs are seven feet high and have a 16-inch cap. The vein to the north of this shaft (No. 1) has been drifted upon a distance of 130 feet and much fine ore, especially in the bottom of the drift, is exposed. In many places the ore is mixed with sand and rock, by reason of the nearness to the broken, irregular capping. The latter objectionable feature, it is thought, will be missing in the next level. The shaft from which this ore is raised is back in the present foot, nearly 200 feet from the vein, and another to take its place will be sunk as soon as enough is known of the ore body to decide its proper location.

From the end of the crosscut from No. 1, on the second level, to the east, the showing of ore is larger and the quality is generally better—less mixed with rock—than at the west. On this side of the crosscut the same characteristics are noticeable in the hanging, which folds, in wavy undulations, coursing close to the ore in places and at no point is above it more than 16 feet. The hanging shows the same dip as to the west, and indicates a large body of ore. This ore body has been drifted upon about 200 feet, and has a width, as determined by numerous crosscuts, of from 50 to 60 feet. Three rooms have been worked out, and two pillars left to support the ground. One of these is 29 feet thick, the other 37.

The ore taken from this portion of the mine is of good quality. Three assays of an average of samples were taken that gave the following result:

No. 1, Metallic iron, per cent. 65.25
" Phosphorus " .056

No. 2, Metallic iron " 65.55
" Phosphorus " .057

No. 3, Metallic iron " 65.60
" Phosphorus " .049

This shows the ore to be a Bessemer of fine quality.

On the east end of the bluff is No. 2 shaft, which was sunk 100 feet, and crosscuts put in to the north and south. To the north a distance of 60 feet was run, and about 20 feet of ore cut. In the opposite direction the drift is in about 450 feet, having cut several pockets of fine ore, and gone through some of a mixed nature, suggesting that a sufficient depth has not yet been attained to insure a clean product. The shaft is being sunk another lift of fifty feet. The

THE EAST NEW YORK.

It is with much pleasure that the writer turns his attention to this, one of the newest mines of the great ore basin of Ishpeming, because the property is a new one, promising to be a valuable addition to the city, one that will add considerable to its wealth and importance. We look upon it in the light of a new and profitable customer. Much of its stock is owned by residents of this place and the profits which we trust will accrue to them, together with the money that will be paid to its laborers, and the increase in our population will, if present hopes are realized, all be very acceptable.

The location of this property is a short distance east of the New York mine, and is bounded on the south by the Cleveland mine. No better neighbors could be desired, no more promising site asked for. This fact was long ago realized, for nearly every year, during the past twenty, the property has been prospected by as many different parties, each having given up their option in disgust. Hundreds of thousands of dollars, it is said, have been expended in a vain search for the ore that so many believed ought to exist there, and it remained for a few "tenderfeet" to happen upon the long-sought bonanza.

Messrs. C. R. Ely, James Ames and P. J. Lundquist secured an option on the land during the summer of 1887, being encouraged to do so by the discovery of a small seam of ore that outcropped on the west end of a bluff that rises to a height of some 40 feet below the general level. It is now said that this same seam of hematite was known to exist, and had been worked upon sixteen years ago. If

ore here lifts to the west, opposite from that found in No. 1, some 500 feet to the west, and leads the management to believe that it will make into the low ground, meeting the western vein, merging into one, making an enormous deposit. There is good ground for this reason from the position of the formation, and there is plenty of room for the ore to "make."

It is the intention to open two levels before another shipping season begins, which will give plenty of ground to work upon, and from which 50,000 tons of ore can be taken before the close of navigation this year.

From the south drift of No. 2 shaft, at a distance from the shaft of some 25 feet a drift is being put in to the west to connect with that being driven from No. 1 shaft, which will give communication between the two, and be of advantage in many ways. To the east from No. 2 shaft a 20-foot drift and 8-foot sump has been made to accommodate a No. 5 Knowles pump, which frees the shaft from water. As yet there is but little work for the pump to do, but with another level or two added, it will probably require a larger pumping plant. A stock pile ground is being made at No. 2, and other arrangements perfected for taking care of the product.

The mine shipped for the year just closed, 14,354 tons. Much of this has gone to Philadelphia, Pa., and the demand for it has far exceeded the product. Those who have tried it were eager for more. A trial lot in Deer Lake furnace gave splendid results.

The company has a neat engine house, a good engine and two 44-foot Lane drums. A comfortable dry is made by using the exhaust steam for heating, it passing through a large receiver, furnishing hot water for the men, also.

Capt. Geo. Bodenna, a hematite miner of long experience and great skill, is in charge of the mining work. He says, in all his connection with the mines of this region he never saw one that started out with so promising a showing as the East New York. He believes it will make one of the largest hematite properties in the district.

The mine employs about 55 men.

Many people may wonder why the ore was not found before this, when so much was done upon the property in the way of exploration. In early days hard ore was sought, little was known of hematite, and the testing done was not carried deep enough. After the capping, a lean ore, Jasper and paint rock, was struck and sunk into a short distance and the prospectors gave it up as a hopeless task. These old pits frightened those who came later, and they went to other points on the land. They were led to believe the old pits and shafts had been put down much deeper than they really were.

The East New York Iron company has a valuable property, and have found ore in the forty adjoining the one above referred to; that will be given attention as soon as the present mine is gotten well under way. It bids fair to be a big help to Ishpeming, and much interest attaches to it on that account.

THE YORK MINE.

This is better known as the New York mine. It has been idle for some time owing to legal difficulties, we are told. It has produced 1,000,000 tons, and has still a good vein of ore left to begin operations upon. It is thought that next spring will see the property in operation again. There was shipped from its stock pile the past season 11,823 tons. The mine buildings, machinery, etc., are kept in good order, awaiting the notice of resumption. Capt. Aug. Beerling is in charge. Mr. W. A. McCluskey is also here to look after the interests of the property.

THEY LOOK HEALTHY

In looking over the mines of Ishpeming the editor of the Iron Ore met with much of a gratifying nature. The condition of all of them is good, the outlook exceedingly encouraging. After thirty years of exploration they are now really

GETTING INTO SHAPE FOR PRODUCTION.

They present enough to warrant us in saying that Ishpeming will be the centre of the greatest iron ore field in the Union, for a long period, and that the competition of other fields cannot retard her growth and progress.

In the first place we possess ore bodies of great size and wonderful purity. That is the great foundation. We have an advantage, also, in our nearness to lake port, being but 15 miles from Marquette and 60 from Escanaba. Another item of importance is: that our companies have no royalties to pay, they being the owners of the fee of their lands, which amounts, in their favor, to any where from 30 to 50 cents per ton. The companies are rich, with any amount of reserve capital to tide them over depressions, should they come. They have the advantage of every modern appliance that can cheapen the product of their mines.

There is no reason why we cannot successfully cope with the most formidable of our rivals.

PRODUCT FOR 1888.

Lake Superior, gross tons.....	240,317
Lake Angelina " " " " " "	223,635
Cleveland " " " " " "	182,732
Chif Shafts " " " " " "	88,966

Lake Superior, gross tons.....240,317
East New York " " " " " ".....14,354
York " " " " " " " ".....11,823

Total tons for 1888.....855,827

This nearly equals the shipment of 1887. Had the stockpiles of the Lake Superior and Cleveland all been sent out we would have a credit of over 900,000 tons, as that amount was really produced. The reader will be in mind that this is from the mines in the corporate limits of the city, and embraced in an area of not more than one half square mile.

When the time comes for adding to our product then we will branch out a little, taking in more of the mineral property at hand.

The total production of the mines of the city from the time of their start has been as follows:

Lake Superior.....	4,940,173
Cleveland.....	3,882,588
Lake Angelina.....	1,317,736
York.....	1,000,000
Barnum & Chif Shafts.....	973,265
Salisbury.....	526,963
East New York.....	15,132

Grand total, tons.....12,655,917

By an error in the figures in our description of the Lake Superior mine it is credited with a million tons less than it should have. A million tons is not much of a matter to the Lake Superior, but the city is entitled to the benefit of its actual product.

Here then we have a credit of over eleven and a half million tons of iron ore, that have been taken from the mines of Ishpeming.

When the other "greatest ranges on earth" are presenting their case let them think of this. There's a deal of cold argument in it.

In these mines are employed 2100 men.

OUR FRIENDS.

Contiguous to Ishpeming we have several active properties that really should be embraced within our limits, they looking to us for all their supplies, and adding our merchants not a little in securing a large and profitable business. First in point of importance is

THE BRAASTAD MINES.

located about a mile south of the Salisbury. This property, a valuable hematite, is now in the hands of Mr. Fred. Braastad, of Ishpeming, and sent out a larger product for last year than ever before in its history, 85,325 tons. In 1887 it produced 53,392 tons. The product for that time came from the east and west deposits,—the Mitchell and Winthrop—as formerly, and better, known. The past year the Mitchell end was not worked, but is now in operation again. Many changes have been made at this property, many improvements added.

It is now giving employment to 350 men, all of whom, as we have said, do their purchasing of supplies from Ishpeming houses. Capt. W. J. Officer is superintendent. Chas. T. Fairbairn, cashier.

THE CLEVELAND HEMATITE.

of which we have spoken in conjunction with the Cleveland Iron Mining company, is located just outside the northern boundary line of the city. It gives employment to 80 men, many of whom live in Ishpeming, and all of them do their trading with us.

THE DETROIT MINE

is located a few rods west of the

It produces an ore that ranks amongst the finest found on the peninsula, averaging between 68 and 69 per cent., a Bessemer. The property gives employment to about 40 men, all of whom, as well as the company, secure their supplies from Ishpeming.

THE DEXTER.

located a short distance east of the American, is a promising property, under the direction of Capt. Thos. Walters, of the Lake Angelina. It gives employment to a force of 25 men, and aids us considerably.

The Lake Superior Iron company is developing a property near the Winthrop, which gives rare promise of yielding ore in abundance. They have a shaft down, have started two levels, and are meeting ore of good quality. From present indications it will soon be working vigorously furnishing employment to a large number of men. The property is in charge of Mr. Jno. Trebilcock.

Besides these mines several prospecting parties are working in our immediate vicinity, all of which tend to our good.

Turning from the iron ore industry we will take up another mining branch which promises to figure largely in our future.

with chances for a future rich harvest.

This gentleman had sought with considerable persistency for gold in the hills about Ishpeming, and was finally rewarded with success on the 17th of May, 1881, by the discovery of a narrow quartz vein, or leader, that showed silver \$96, gold \$24 per ton, the location being on the east end of the south half of the northeast quarter of section 29, town 48, range 27.

On the 21st day of July, 1881, the Iron Ore announced the discovery, being first to give publicity to the fact. Little interest was shown in the gold business at that time. People generally scouted the existence of the metal, and it has taken time to educate many to the fact that gold really does exist here, occupying the same position, located in the same rocks, and taking many of the characteristics of the metal as found in the western fields where the best paying mines are located.

By dint of much labor ago a company was formed to develop the lands on which the find had been made, an organization being perfected under the title of the

Ropes Gold & Silver Co

After some time spent in prospect-

On the sixth, seventh and eighth levels but little mining has been done and this is the most promising portion of the mine. There is a drift seventy feet to the east on the seventh, one of fifty feet east on the eighth. The levels are connected with those above them by winzes, outside of which no ground has been taken. This rock has given very satisfactory results in the mill. On the eighth level a drift has been run west forty feet, and a winze put through to the level above. So that on the three lower levels no stopping has been done, and the rock is the best the mine possesses.

In the seventh and eighth levels the quartz, which is all of excellent quality, has a thickness of twelve feet, and at no other point has the vein been as regular as here, although some ground that has probably equalled it in richness has been shown in some of the upper levels.

The sinking of the shaft was suspended some weeks ago to permit of repairs. The shaft, which was a little irregular in size and dip, has been "trimmed down," and in the stead of the old bucket-way a skip-ramp has been put in, a skip added, so that now the rock comes to surface much more rapidly than formerly, and sinking is again in progress, it being the intention to crowd the shaft downward with all possible speed. There is a ladder and pump-way in the shaft, separated from the skip-way as the law requires. A substantial shaft house 90x30 feet, and 45 feet high, has also been constructed in the past year. As the skip dumps load the quartz runs upon grizzlies, through which the finer stuff drops to the second floor, the coarser to

THE HUCK GATE'S CRUSHER

on the first floor. This crusher is worthy a moment's notice. It is a 14-ton machine—that is, it weighs that much—and surpasses everything we have ever seen as a "chever" of rock. To give us an idea of what it could do, two men shoveled quartz into its voracious maw as rapidly as they could, and it was mere sport for the monster to reduce it. Pieces of all sizes, weighing from three to one hundred pounds were thrown in. Mr. Weatherston, the mill superintendent, informed us that at a trial made of a skip of rock, a ton at least, it was reduced in the space of one minute. The crusher is guaranteed to reduce 30 tons an hour, and this it can easily accomplish. It is operated by a special engine placed at the shaft house.

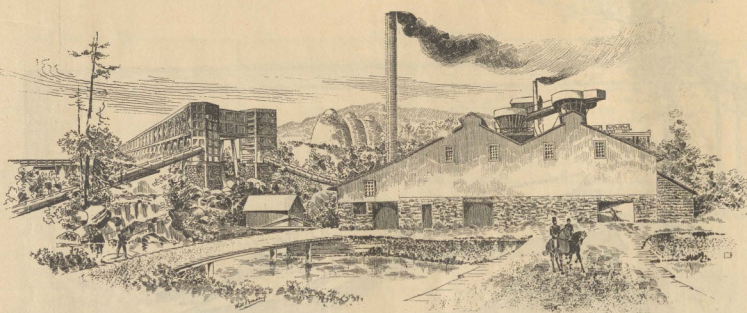
From this shaft house are two tram-ways, one 6 feet above the other. One leads to the old mill, the other to the new, there being a difference of 6 feet in the elevation of the two.

Our engraving shows that the Ropes has a mill building, as well as a mine.

The old mill now possesses 25 stamps, five batteries of five heads each. There are ten Frue Vanners run in connection with these. The mill is a substantial building, constructed of the best material, built upon honor in every way. Its dimensions are 75x56 feet. It possesses a pocket capable of holding 200 tons of rock, sufficient to last over Sunday, this having been built within the last few weeks.

Immediately to the east is the new mill building, 84x76 feet. This is supplied with four batteries, 20 stamps. This mill cannot be exceeded by any other gold mill in the Union. It possesses all the modern, worthy improvements. The stamps are 100 pounds heavier than those of the old mill, weighing 850 pounds each. The coppers are silver, electro-plated, there are quicksilver tanks attached to the mortars, and the mortars themselves are constructed on the newest and best plan. Automatic feeders are attached, the Challenge, which are superior to the old ones. There are eight new Frue Vanners. It is a perfect mill and works splendidly. There is room in this building for twenty additional stamps, which will be put in the near future.

Between the mills is a boiler and engine house 49x60 feet. This holds a 22-x48-in. 25-horse-power Corliss engine, Frazer & Chalmers, a five-foot hoist, a 9x15 Rand compressor, that operates five Rand drills, two 5x16 and one 6x16-foot Haxton boilers. There is sufficient power to operate the



DEER LAKE FURNACE AND FALLS.

GOLD.

The Precious Metal Being Found in Paying Quantities in the Ishpeming Field.

The Present Condition of the Properties, the Outlook for the Future.

When Dr. Douglass Houghton was making his survey of this region, to which we have referred in the historical sketch on our first pages, he exhibited to those who were assisting him, an eagle quill filled with virgin gold. He did not make known the exact location of the discovery, he fearing desertion of his men to seek for it. He was

drowned a few weeks after he showed the gold, and the secret of the whereabouts of the place that afforded the metal perished with him. The fact that gold had been found by him was not taken advantage of by explorers. Few appeared to have any knowledge that the precious metal was discovered by him, and these gave no time to the work of searching for the home of the treasure. Iron ore engrossed their attention, and, indeed, possessed sufficient charms to excuse them for not looking for other mineral substances.

Whether Dr. Houghton really did find gold or not made no difference in the interest exhibited over that metal, as it is associated with quartz veins, for there was no interest. Nothing more of importance attaches to the report, than the report itself, which figured in no way in the development of gold mining.

Go the Julius Ropes, of Ishpeming, goes the credit, fully verified, of showing

THE FIRST GOLD-BEARING QUARTZ from Michigan, and in this instance the discovery has borne some fruit

ing, a little mill, consisting of five stamps, was erected two years following the discovery. Of the many trials under which the company labored we need not speak. It was natural, probably, that there should be prejudices. "The metal had lain undisturbed so long that it was surprising it had not been found before," "this was not the place for gold," "if it really existed at all it was in very small quantity," "if the quantity was favorable, it was not free milling," and "if it proved free milling it would only be so for a time." It was such unkind remarks, generally distributed, that kept the public frightened, and the company from getting the assistance the property deserved. Those interested were poor men with any amount of faith, but lacking in funds.

Naturally the development was retarded and fault found with the management. It was a new business to them, the rock had its peculiarities, as has that of all mines, which had to be learned. There were many obstacles to overcome, and in the face of them all

SOMETHING WAS ACCOMPLISHED,

and there is considerable to show for the money and time expended. A recent visit of inspection to the property shows this:

To begin, there is a mine. It is not a prospect. There is a shaft sunk to a depth of 48 feet, upon which eight levels have been opened, and by sinking twelve feet further the ninth will be started. These levels, with the exception of the two lower ones, have been opened up by drifts to a length that will average from 350 to 400 feet. From all these upper levels good milling rock has been secured, the vein being of varying thickness, but those below appear to be more prolific and regular. Fine bodies of quartz were exposed in the upper levels, however, and much of this is yet standing. On the fourth level a large amount of high grade rock is being procured at present writing, and yields well in the mill.

twenty stamps that will be put in position in the near future.

There is a carpenter and blacksmith shop 20x40 feet, a supply house 20x44 feet, an assay office about 15x24 feet. This laboratory has been fitted up the past fall, and a competent chemist, Mr. Wilson, placed in charge. It is a valuable addition.

Then there is a water system that has been put in at a cost of \$7,000 or \$8,000. A dam was constructed across the Carp river at a point about three-fourths of a mile from the mill, and a 5-foot head secured. This, through the medium of a 24-inch Victor turbine, operates a No. 5½ duplex Knowles pump, which forces water through a 6-inch wood pipe to the mill. The elevation is 85 feet between the mill and the river. While the first cost of this improvement was considerable, it will soon pay for itself, being an addition of great importance. 1300 feet of 3-inch iron pipe were also laid to convey the water from the small streams to the southwest of the mill. So that there is something in and about the Ropes to show for the money that has thus far been expended.

FORMATION, CHARACTER OF ORE-BEARING MATRIX AND ASSOCIATE MINERALS.

The Ropes mineral deposit is on the north contact between the massive serpentine group and the older formations of the region, viz: the feldspathic greenstones, granitic and dioritic rocks. The surface outcrops for a width of 300 or 400 feet; between the two formations are rocks of varying character, having a general parallelism and trending a little southwest and northeast over a distance of some 3,000 feet. In the immediate vicinity the massive serpentines and older rocks rise from 50 to 100 feet above the contact beds. On the south, in contact with the massive serpentine, outcrops a mixture of serpentine and dolomite, (ophiolite), having a thickness of 50 feet, followed by a narrow zone of dolomite, outcropping at intervals in low, lenticular knobs, this in turn being followed by 200 feet of a soft talcose schist with more or less dolomite in thin, interlaminate seams, and completing the series on the north are beds of magnesian and feldspathic schists. Cutting through the talcose zone is a dike of hard green—at times bluish—serpentine, 40 to 75 feet thick. This dike throughout its entire mass is heavily impregnated with iron pyrites, is intersected with narrow seams of contemporaneous quartz, also carrying iron pyrites, the whole mass showing gold 50 cents to \$1.00 per ton. Along the contact of this dike, at times on both sides, and frequently in the dike itself occur the quartz bodies, the object of exploitation, and they are evidently the last of the series making up the formation, with the occurrence of quartz on both contacts the intervening ground talcose siliceous slate evidently the product of metamorphism of the dike material is also impregnated with gold sufficiently rich for a profitable milling ore.

The quartz bodies at times attain a width of 30 to 40 down to 4 feet; quartz and slate in part, low grade ore from 50 to 60 feet. The present workings, comprising the exploited portion of the dike, is about the middle of the property, and extend a distance as we have before mentioned, of 400 feet.

THE QUARTZ
is in part white, milky and dark water-colored. In addition to free gold and native silver, occur, as accessory minerals, iron pyrites, grey and yellow copper, somewhat of silver ore, in places considerable quantity, running up from 10 to 15 per cent, giving very high results in gold, less in silver all a comparatively free-milling ore. The siliceous slates contain only iron and are free-milling.

But little exploring has been done to determine the extent of the ore bodies on the property. Three to four hundred feet to the east the dike comes close to the surface; beyond, 1200 feet to the east, except at the extreme limit of the property where the discovery ledge outcrops, and rich ore exists, it is low, swampy ground, covered with drift: In the magnesian schists, west of the present works, and 200 feet north, outcrops a heavy quartz reef, and a short distance south and west of this is quite a large

outcrop of the typical dyke, both somewhat auriferous, but is not pay ore at the surface, yet promising enough to justify explorations.

The serpentine group is regarded by Prof. Rominger as the most recent rocks of the region, of igneous origin, forced to the surface in a semi-plastic state instead of igneous fusion. So, too, and of more recent origin than the serpentine, probably, do all the conditions presented by the contact rocks point to their being a product of igneous and chemical agencies; none of the marked characteristics of stratification or detrital origin apparent, although in places somewhat schistose.

To the intrusion of the serpentine dike, in all probability, are the quartz bodies, with their containing minerals, due, and by substitution, likely, the mineral solutions extending along the pathway of the dike from subterranean sources, dissolving the soft magnesian schists in its course with the formation of crystalline minerals and quartz. Thin sheets of fine crystalline trap, at times, divide the quartz reefs, which seem to exert a favorable influence, the ore usually being richer when it is present.

With the existing geological conditions, the occurrence of large bodies

all been assayed so we cannot give its exact value, but from tests made from that already brought in we can say that the product for December will run about \$8,000, and the best rock was inaccessible.

This would give a yield of something over \$4 per ton, as the stamps are treating about a ton and a half each per day. With rock averaging four dollars the mill can be operated at a handsome profit, and the outlook for a much richer material than now being worked, is encouraging. If it will be no better, then the stockholders have no reason to complain. The Homestake mine quartz yields about \$3.00 per ton, and from its treatment handsome dividends result. Some of our copper mines paid dividends on rock that gave them but \$1.75 per ton. So it will be seen that four-dollar rock leaves a margin for the pockets of the shareholder.

The mill and mine are now in shape to repay those who have stood by the enterprise. The Ropes has a promising future before it, and we believe the initial gold mine of Michigan will grow in size and richness to the fullest expectations of its most sanguine friends.

Mr. Julius Ropes is president, W. H. Rood, general manager, Geo. Weather-

the length of the lode was all satisfactory.

We will state here that previous to this time a rich find of gold had been made by the Lake Superior Iron company, to the west, and it was also to prove whether this was the same lode as that upon which they had made the strike that the exploration was carried so far westward. They were rewarded, however; by proving the vein to be one and the same as that upon which the Lake Superior were working.

The quartz being tested on its trend, the next thing to be done was to look up its depth, and for this purpose several shafts were started. By the following winter considerable headway had been made, and about this time, when developments were fairly under way, the company were hindered by a law suit being brought by parties who claimed priority of rights for a lease. While the company felt confident of being successful at the trial they did not think it right to spend the money of the shareholders while there was the slightest possible doubt of losing possession of their lands, so the force was discharged and work virtually suspended, only a man or two being left to guard the property.

tions could be secured. Hundreds of people visited the bonanza shaft to convince themselves that it really produced the gold that had been exhibited, and were met with all the profanity necessary to satisfy themselves that the story of the precious metal had not been exaggerated.

This extraordinary rich rock held out for a depth of nine feet, after which distance it was found in less quantity, though every foot of the way below this yielded free gold. The shaft has now attained a depth of over fifty feet, and the rich rock is again showing as plentifully and as full of gold as near surface.

Nowhere in the Union has a gold-bearing quartz vein shown more of the precious metal for the distance sunk than at this shaft of the Michigan company.

At its present depth of fifty feet, the position of the vein is vertical. Up to this point or to a depth in the shaft of forty-five feet it had a slight inclination to the south. The vein in the 77-foot shaft, further west is also vertical after a depth of fifty feet was attained. We mention this fact for the reason that the vein is located but a short distance from the south line of the forty, and were it to dip in that direction it would ultimately

also, the crystals have theirs, the work of metamorphism has been performed, and the signs are plain enough to anyone who will take the pains to look into them, that the vein cannot give out.

As far as the strength and permanency is concerned, no one need have any apprehension, and it has already been proved that they hold gold enough to warrant extensive and thorough exploration.

Thus far the Michigan company has confined itself wholly to exploratory work, no attempt at mining having been made. They have considerable staking ground exposed and could furnish a mill of considerable size with rock.

At the present time they are arranging for a test of 200 tons of the rock in the Ropes mine mill, two batteries to be used in the trial. The result of this is looked forward to with considerable interest. It is expected that the supreme court will render its decision favoring the company this month, and if this proves so, and if the rock yields what the management expects, then no time will be lost in putting on a larger force of miners, and the erection of a mill will at once be commenced. Everything seems to point to a mill at this place during the present year.

The company has a blacksmith shop, a warehouse and boarding house at the location, and can secure a water supply from the lake our map shows as "Gold Lake." There is a splendid site for a mill, an excellent fall for the refuse being had.

The Michigan Gold company is directed by enterprising people, who will make rapid progress as soon as the courts open the way for them. Jas. Pickands is president, S. L. Mather, secretary and treasurer, Cleveland, Ohio.

Whatever success may be met with, in a similar measure will the city of Ishpeming be aided, and the chances for success are certainly very encouraging.

THE LAKE SUPERIOR

Iron company have for some time been conducting explorations on lands owned by them, and immediately adjoining those of the Michigan Gold company upon the west. It was here that the first find of free gold in this end of the range was made, the discovery being due to a party of explorers who found the precious metal at "grass roots." An attempt to gain possession of the land proved fruitless, and nothing was done for many months. The discoverers had exhausted the pocket of its treasure, nothing more in the way of free gold was to be seen, and while the quartz was identical with that being shown in which the native gold was so thickly placed, many doubted that it really came from where it was said to have been secured.

In August of 1887, the Lake Superior Iron company decided to sink upon the vein where the find was made, put on a force of half a dozen men, and after going some ten or twelve feet, struck a magnificent "nest" of

YELLOW NETGGETS.

Assays of the rock showed it to contain gold at the rate of \$44,000 to the ton. Specimens were sent to the Boston office, and soon after this work was stopped, much to the disappointment of the many interested in the development of the lode. The company, so it is given out, wished to amend their charter so as to permit them to mine for gold, which the provisions of the old one did not give them power to do. Winter came and it was decided to postpone operations until the next spring. Then the shaft was started again, being enlarged in size to 6x12 feet and a small hoisting plant put in operation to aid in the work. But a few feet had been sunk when another rich pocket was encountered. The shaft was continued downward about 50 feet, when the vein appeared to pinch. Investigation proved that it had but turned from its former dip and was soon found in place again. At 50 feet a drift was run east for some distance which yielded some rock wonderfully rich in virgin gold.

In the fifty feet sunk ten or eleven pockets of free gold were met with, and at no other point on the range has more been done to prove that

of quartz from the surface down, its continued strength and richness at the present depth of the shaft, 438 feet, the outlook is certainly promising, and gives every assurance of a continuance in extending to the deep in quantity and quality.

The property is one affording rare encouragement for exploration, and now, that the company has its main workings in successful operation, some attention will probably be given in testing the lode at other points.

The site of the mill is a favorable one, there being a good fall that carries away the refuse to a distance that will not annoy, from backing up, for a great number of years.

Of as much interest to the reader as anything else in connection with the property is the amount of gold and silver it has yielded. This we find, by referring to the books of the secretary, to be as follows:

STATEMENT OF PRODUCT TO NOV. 1, '88.

Amount of gold produced to March 1, 1888.....	\$100,290.67
Amount of silver, same date.....	10,804.54
Amount of gold produced for eight months to Nov. 1, 1888.....	29,470.67
Amount of silver produced for same period.....	3,358.31
Total product.....	\$143,924.19
Gold.....	\$129,761.34
Silver.....	14,162.85
	\$143,924.19

During November the mill was closed down, pending the improvements in mine and mill, and resumed again the first of December. For the two months previous to the closing down an average of nearly \$7,000 a month was produced. The bullion for the month just expired has not

ston, superintendent, W. F. Swift, S. S. Curry and F. Moore with Messrs. Ropes and Rood, directors.

THE MICHIGAN

Gold company is probably the best known, outside of the Ropes, of the gold properties in the Ishpeming field. It is located, as shown by the map we present, on the northwest quarter of the northeast quarter of section 35, town 48, range 28, and has yielded specimens of gold-bearing quartz of surprising richness. Indeed, none have been shown from any mine in the Union that excel them. The gold, being in a native state, has done considerable to convince skeptical people that Ishpeming really did possess the precious metal. Those who might be unfamiliar with gold as associated with other minerals, could not mistake the genuineness of this. The color was unmistakable, the quantity sufficient to show what it was.

The property was taken hold of August 15th, 1887, by the company now in possession under the guidance of Capt. F. P. Mills, of the Cleveland mine, thirty men being given employment. The first thing done was to expose the vein to determine its persistency on its trend. It outcropped at many places and was easily followed. There was but little drift upon it, about three feet, and the lode was stripped of this, showing the quartz to continue the entire distance across the forty. Several parallel veins were also found and stripped as the main one had been, and the main lode was also stripped to a distance of 300 feet on lands adjoining on the west, and for some distance, also, upon the east, so that

The case was decided in favor of the company in the Marquette circuit, and the plaintiffs appealed to the supreme court, where a decision is expected the present month. There is no doubt but that it will favor those who are now in possession, and if this proves true, then exploration will be actively pushed again.

At the time of closing down in the winter of '87, a shaft had been sunk to a depth of 77 feet. From the bottom of this, rock was taken that assayed \$223 per ton, the quartz being of a very favorable nature, the vein being about ten feet thick, but since that time nothing has been done at this point, because it would have been too expensive to have unwatered and continued it at a time when expense was endeavored to be avoided.

Operations were again commenced in a quiet way on the fifteenth of last May, and shortly after that time a rich strike was made in a shaft sunk at a point on the vein about midway between the east and west line of the company's property. The find was nothing short of wonderful. The rock was so impregnated with the gold that when fractured it would hold together after the manner of copper rock. The metal was of great coarseness, pieces often being found as large as a pea; it occurred in strings also, presenting a sight the beholder never tired of feasting his eyes upon.

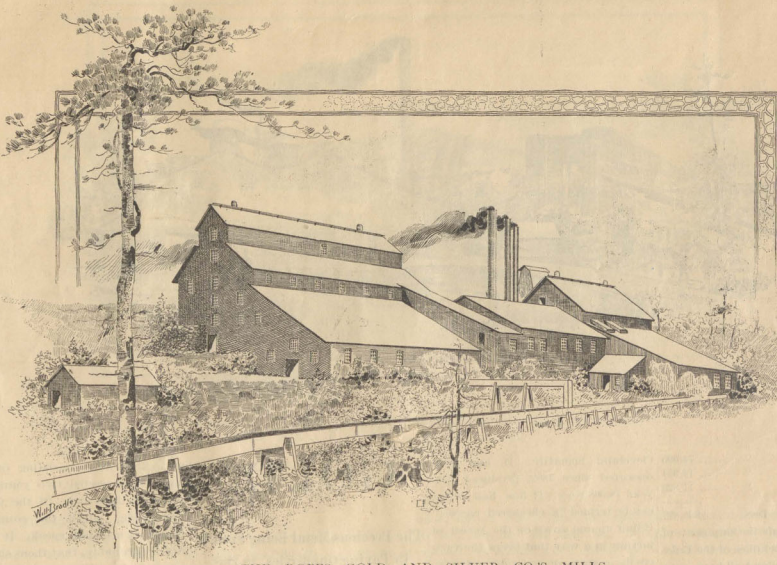
Assays of selected pieces of the rock yielded at the rate of \$100,000 per ton. This rich quartz created considerable excitement in this district, and while it did not assume the shape of a fever, it had the effect of bringing prospectors to the range, and started exploration on every adjoining piece of land upon which op-

be carried off the company's lands. We have heard it said, too, that the vein would dip in that direction to the disadvantage of the company, but this will not prove to be the case.

Besides the two shafts referred to, there are two others sunk on the main lode, and two on parallel veins, free gold being shown in all of them.

The character of the rock changes from a so-called "sugar quartz" white in color, made up of small particles, very friable, to that of a harder nature, of a watery appearance. In the sugar quartz little mineral, other than the free gold, is seen, but in the harder variety there is shown antimonial galena, gray and yellow copper and iron pyrites, and it is in the latter that the richest free gold has also been found.

The vein occupies a fissure in the diorite. For some distance on either side the walls take on a schistose character, due to chemical action, the depositing of chemical acids, probably, at the time the quartz flowed in and filled the crevice. As at the Ropes, there is every indication of the vein being formed by igneous and chemical forces. There are no marks of stratification, indicating the quartz to be placed in beds—everything opposes that theory. There is every proof necessary to argue for the permanency of the lode as far as depth is concerned, and that it will be mineralized as far as it extends downward. The gold was brought here in a chemical state, flowing upward throughout the entire distance of his great fissure, being deposited in solution. The different elements have assumed their proper condition, and place. The lime is in its proper form, the gold,



THE ROPES GOLD AND SILVER CO.'S MILLS.

gold exists in this region than here. Sinking was discontinued while the drift was being run but it has been resumed again.

The company, being a conservative one, makes little stir about its gold prospect. It has no shares for sale, does not wish to create any furor without reason, yet it cannot turn away from such a showing as it has here without considerable of an effort. A man possessed with any soul at all or a love for the "beautiful," must see more of that vein.

In character it is similar to that of the Michigan. Assays of the rock showing antimonial galena, and in which no free gold was visible to the eye, gave about \$700 per ton by assay.

The vein will probably contract and expand, as all gold veins do. In the forming of this fissure it cannot be expected that it will hold an even width. That would be expecting too much of Dame Nature.

It is generally figured by scientific men that these veins go in depth in a measure corresponding to the extent of their strike, and this really seems a reasonable way to look at it. This vein has been traced on surface for a mile and everything points to its continuing downward as far as it will be possible to mine upon it. The Lake Superior Iron company has plenty of means to develop the property and will probably put a diamond drill at work here in the near future. As yet this method of prospecting has not been tried, and it would be a valuable one in testing the extent of the lode.

People hereways are pleased that the company is sinking its big shaft on the vein, and look for a continuance of the rich ground that has thus far been developed. No mill test has been made of the quartz. There is quite a stockpile here, and if the vein turns out favorably it is probable a mill will be erected. That such will be the case is certain as the rock would not be shipped away for treatment.

To the east of the Michigan Gold company's forty is one that is being prospected for gold by the

SUPERIOR GOLD CO.,

the officers of which are Dr. J. Vandeventer, president; C. R. Ely, secretary and treasurer, Ishpeming, Mich. The work of exploring this land was commenced last fall, a shaft being started to catch the Michigan vein which had made so persistently across the lands to the west. This shaft found the quartz considerably mixed on surface with the diorite, and not as satisfactory as the company desired it. But at a depth of 30 feet, which was attained two weeks since, the quartz vein was regular and strong and besides several specimens showing free gold were found. This has lent additional courage to those having the work of development in hand. The vein is the same as that being worked upon by the Lake Superior Iron company and Michigan Gold company. It shows the same characteristics, in structure of quartz, the accessory minerals, etc., and there is no reason why it should not prove as rich in the precious metal as it does to the west.

Besides this vein there is another that cuts through the northeast portion of the forty which is thought to be the same as that being prospected by the Peninsula company, of which we shall speak later on.

The Superior certainly has a promising property, and the finding of free gold upon it proves the vein to be productive of the metal for a distance on its trend for fully three thousand feet at least. It shows something of the future possibilities of the vein.

The company has a supply house, a blacksmith shop, etc., and is well prepared for conducting exploring work to advantage.

THE PENINSULA

is the name of a property described as the southwest quarter of the southwest

quarter of section 25, which is now in the hands of Detroit, Mich., parties. Wm. B. Moran is president, Fred T. Moran secretary and treasurer. It is better known to Ishpeming people as the "Sanson" prospect, it having been explored by Mr. Sanson, of this city, some years ago, who was forced to give up his option thereon by reason of a lack of assistance to properly develop its mineral veins.

The present possessors are men of means who intend giving the forty a thorough testing. They have now a force of six men who are working under the direction of Capt. Richard Trevarthen, have all the necessary buildings to accommodate them.

They are continuing a shaft sunk by Sanson and party and show rock that is very promising in appearance.

The shaft shows free gold from a depth of twelve feet from surface down to the present bottom, which is thirty feet below the collar of the shaft. A number of specimens rich in free gold were taken out on Friday, December 21st. The gold does not occur in such quantity as in the vein to the southwest, but is generally disseminated through the quartz, the condition being more as found at the Ropes mine. The gold is due to the mineralization

THE GITCHE GUMME.

The Gitche Gumme Gold company is organized to work on the west half of the northwest quarter of section 36, a quarter of a mile east of the Michigan, the Superior lying between the two, and is being operated by Ishpeming and Marquette parties. The directors are Messrs. W. P. Healy and N. Kauffman, Marquette; Messrs. Coon and Mildon, Ishpeming, Mr. Mildon being the superintendent.

The company has uncovered the quartz vein for a distance of 500 feet, the quartz being of that excellent quality found to the west. Underhand stoping is now in progress on the vein with a view to locating a working shaft.

The company has erected a substantial boarding house, a blacksmith shop and supply house, and means to give its property a systematic exploring. They look for the same good result being achieved by their neighbors to the west.

THE MOCKLER.

The Mockler prospect, located on the southwest quarter of the southwest quarter of section 35, is being developed by a party of Ishpeming and Ne-

southwest quarter of the northwest quarter of section 36. Principally interested are Messrs Geo. and Albert Raymond, H. J. Payne and Geo. W. Parnlee, Chicago, Jno. McDonald of Iron River, and J. H. Malloy of Ishpeming. A shaft is being sunk, and six men employed. An assay of the quartz, which here makes a good, strong vein, gave \$10.40 per ton in gold.

The Grummett property, located on the northeast quarter of the northwest quarter of section 36, has been operated in a very quiet way for some time, owing to a lack of funds on the part of those holding the option, to prosecute work vigorously. There is a shaft down 40 feet and good quartz is shown.

The Arthur & Robbins

is one of the newest explorations, the location being the northeast quarter of the southwest quarter of section 31. A shaft has been commenced on a quartz vein of goodly proportions. Assays show the rock to be gold-bearing, and are of a highly encouraging nature. Messrs Geo. H. Arthur and Edw. Robbins are principally inter-

ested. After the discovery of the Ropes, he believed his property would also show gold. He knew of the existence of quartz lodes, and averred that they would prove gold-bearing. He is now reaping the reward of his patience and confidence in the existence of the metal, of which he is truly deserving.

Altogether there has been a great deal accomplished in the Ishpeming gold field during the past year, the results being far in excess of the most sanguine expectations of the people interested. The rich rock taken from the Lake Superior and Michigan was a revelation nothing short of wonderful. It showed to the residents of this city, and the world at large, gold in quantity that never was dreamed of, as associated with Ishpeming. It proved the metal was here, and did it in a most emphatic manner.

There is no fever, but little excitement. The different properties are being wrought in a legitimate, conservative manner. We want no "mushroom" booms. We cannot afford to make misrepresentations for the sake of securing a "temporary loan" from outside capital. We desire to see every dollar expended here returned with a lively interest. We are aware of the

from the Michigan, Lake Superior and Ropes, prospectors are searching for similar treasure at other points in our hills and much may be revealed. Prospectors who have worked in the Colorado districts for years say they never offered as promising a chance for a mine as does the Ishpeming range, and while claims cannot be "staked" here as in the west, yet the lands can be secured on favorable terms from many of the companies owning them.

For several miles on the range, exploring is in progress. In looking over the field we find many parties operating in a quiet manner, who did not desire anything said as to what they had done, for the reason that the time was not yet ripe for doing so. They take the proper course, are desirous of proving up something of value before giving publicity to their work, and it is such quiet men who generally get to the front with any enterprise they are engaged in. The range is being prospected for a length of twelve miles, by from four to ten in width.

To the north of Ishpeming, an attempt at silver mining was made some twenty years ago, at what is known as the Holyoke mines, located near Dead River. A primitive crusher was erected, a few shafts sunk, and the work finally abandoned. Many miners who were employed at the property claim it was rich enough in silver to pay if it had been given a fair chance. The management was an extravagant one, and no ordinary mine could support it. Then the means of reduction were crude and imperfect. The silver is associated with lead. It not at all improbable that at no distant day these lead veins may be wrought to furnish flux for the reduction of our dry ores. Nature evidently calculated them for some purpose.

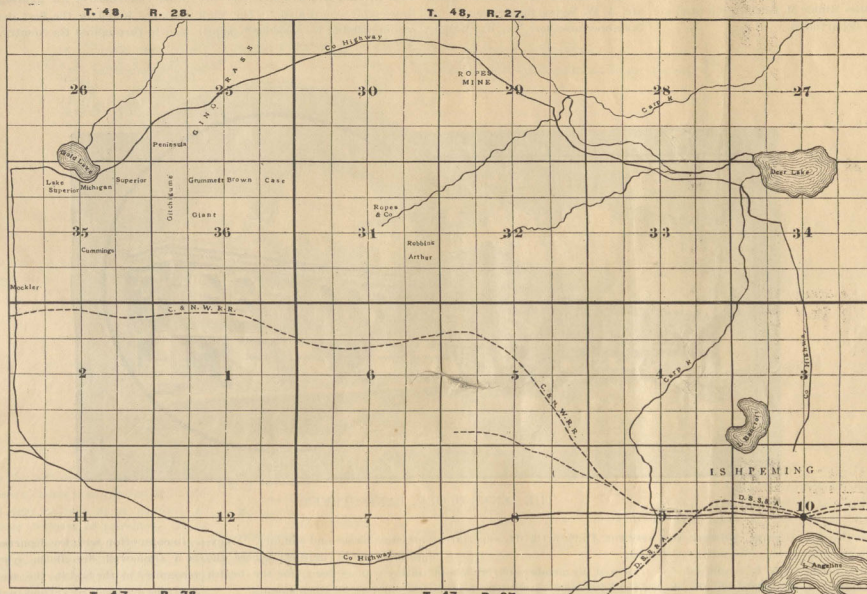
The Ropes company is talking of a smelting works for the reduction of its concentrates, and will no doubt erect one in the near future. At present its concentrates are shipped to Aurora, Illinois, a distance of five hundred miles or more, the cost of freight often eating up all there is in the sulphates, etc. The cost of a suitable plant would not exceed \$6,000 and this could soon be saved over the present system of treating the concentrates. Besides the mine has considerable smelting ore that is too rich to mill, and which is left standing until such time as it can be sorted and treated. It contains a large amount of the precious metal, assaying up into the hundreds per ton, and if this continues to be encountered a smelter will be a necessity.

To the north of Dead River considerable prospecting has been done, and some fine veins exposed. Many of these contain a large amount of copper ore and show a promising amount of the precious metal. During the present year, as soon as the snow leaves the hills, many prospectors will be found in that section.

The lack of capital has been the drawback to development work thus far but this is gradually being secured, and as soon as we demonstrate the fact that we have one paying mine, then there will be plenty who will try to find others. The range is a new one that has given great promise in the way of furnishing a new industry for Ishpeming that will be of great value. No other branch of mining creates so much interest as gold—"the root of all evil"—yet it is the bulwark of business. Ishpeming people are largely interested, and if a profit results we will have our share.

As the IRON ORE has before remarked, the indications favoring an appropriate gilding of the great dome of our iron industry by golden metal is decidedly encouraging.

As development progresses the IRON ORE will give reliable accounts of it. The way to keep posted is to subscribe for our paper. It is the best mining journal in the district, \$2 per year.



MAP OF THE ISHPERING GOLD RANGE.

of the quartz body, associated with the iron, the copper ores, etc. For this reason we believe the prospect to be a valuable one, and believe it will soon be proving the fact in a quartz mill.

No other property on the range shows so strong a quartz reef as this—of such proportions—it possessing a thickness of between 25 and 30 feet. The shaft is being sunk on the lode where it outcrops on the east side of the hill or bluff. To the east there is a ravine running north and south, and to the south is a gully running east and west.

To the north of the quartz lies granite, to the south of the reef is a light-colored felspathic schist heavily charged with iron pyrites, and lying next to this, greenstone.

From the south side of this bluff a drift was put in some years ago but was not pushed ahead far enough to be of any value in determining the value of the quartz body. The property is generally looked upon as favorable. Capt. Trevarthen informs us that he gets good "color" by panning the rock and has hopes of finding a mine that will satisfy the owners. The position of the quartz reef is nearly vertical, showing a very slight inclination to the north. The quartz is different in appearance from that found further south, or in the Ropes mine to the east. It carries considerable yellow copper and is well mineralized.

ganee gentlemen who have combined to explore the property. They have a shaft down twenty-five feet and show several samples of quartz carrying free gold. The quartz is promising in appearance and of as "lively" a character as any found on the range. Those in charge are working the lands upon their merits, and make no claims that actual results do not justify. The vein is gold-bearing, the quartz of fine appearance, and there is a good strong body of it.

THE CASE.

The above property is described as the northwest quarter of the northeast quarter or section 36, and is being explored by Mr. Julian M. Case, of Marquette, and other gentlemen of Detroit, we believe, who have lately joined with him. There is a shaft down over thirty feet and quartz bearing free gold has been taken therefrom. The quartz is similar in appearance to that further west, and those interested have every encouragement to proceed with prospecting work. There is a boarding house, blacksmith shop and supply house erected and it is the intention to give the property a thorough search for its mineral treasures.

THE GIANT

Gold and Silver Mining company is one lately organized to develop the

fact that the gold range cannot be aided by misrepresentation. Everyone cannot be successful, but the outlook for the finding of many good mines is flattering. The Ropes company has one, and it would be surprising if it were the only one.

Besides these a few other parties are getting ready for prospecting work, but have not done enough as yet to show anything of value.

To the east of the Ropes the Deer Lake company has valuable lands and has found the Ropes vein upon them, assays running high in gold. They have done work enough to assure them they have the vein, and are now awaiting the Ropes to prove what the vein is made up of. Mr. Rood, manager of the company, and of the Ropes Gold & Silver company, also, intends first to show that the Ropes is a good property, to place it on a paying basis, after which he will devote some time to the development of his own lands. The company own the mineral of a large territory in the heart of the range, and will, without doubt, reap a rich harvest therefrom in the near future.

Mr. Peter E. Gingrass owner of the fee of the Michigan, Superior, Grummett and other properties, has a whole section yet open for exploration, it being favorably located. These lands, from which the timber was mostly cut years ago, he has possessed for the past thirteen years. The taxes were a heavy drain upon his purse, and at times he feared he would have to sacrifice the lands as they yielded him little

fact that the gold range cannot be aided by misrepresentation. Everyone cannot be successful, but the outlook for the finding of many good mines is flattering. The Ropes company has one, and it would be surprising if it were the only one.

IN OUR FAVOR.

There certainly is everything in favor of the Ishpeming range as compared to gold-bearing districts of the west. There is a difference in the price of labor of at least 75 cents per day, in the cost of fuel of two dollars per cord on wood, and considerable on coal. Our freight rates are lower, and we have a sure water supply. It is shown that our rock is as rich as that upon which many western mines are paying dividends, will yield better than many of them, and if this is all so, then we ought to make money. All eyes have naturally turned to the Ropes in deciding upon the merits of this field, and upon its success or failure much depends, that it will be successful we have every reason to believe. As we are writing this a second lot of bullion comes into the city from the mine which shows the run for December will go a long way towards showing what the mine is capable of.

EVERYTHING POINTS TO A RAPID DEVELOPMENT OF THE RANGE FROM THIS TIME ON. Attracted by the rich quartz shown

OUR TOWN.

Public Institutions, Private Enterprises.

A Healthy and Thriving Condition of Things.

Mining comprises our main support; of our possessions in that direction we have devoted a liberal space, believing the subject deserving of it. There is a little farming done, good crops of hay and oats are raised, potatoes and turnips do well, and strawberries grow to immense size and are of delicious flavor. Some lumbering is done, and brings us a few dollars in the winter season, is of considerable benefit, in fact.

OUR SCHOOLS.

In its schools there is much that indicates the enterprise and influence of a city, and in that direction the eyes of the intelligent visitor are first cast. It is a plain signboard and we furnish to our readers the cuts of the buildings themselves, giving an idea of the character of the structures in which the youth of the place are taught. These show two handsome edifices that serve to ornament the general surroundings and are a source of pleasure to those interested in modern architecture.

This district was organized as a graded school in 1868 when the number of pupils was 307. The school census when last taken was 2,372, of which 1604 were enrolled last year, and an average daily attendance of about 1,000 secured.

So rapid has the growth of the town been during the past five years, the actual population now being a little over 12,000 that the school buildings are inadequate to the demand made upon them for room, many of the pupils having to be put off with half-day attendance, this being in the primary departments. More room is demanded, and in anticipation of this the taxpayers, at the last annual meeting, instructed the board to purchase seven lots near the high school building. The board has secured the ground and thus wisely, we think, provided for the future. Steps have been taken to secure a new site for a building in the vicinity of Lake Angeline and Salisbury mines, where the present edifice is much too small.

The course of study in the Ishpeming public schools embraces a period of twelve years, viz: Primary, 2 years; intermediate, 2 years; grammar, 4 years, and high school 4 years. Besides the common branches which are taught in the lower departments, the following are pursued in the high school department, viz: Higher lessons in English, U. S. history, botany, algebra, civil government, physical geography, geometry, general history, rhetoric, physiology, book-keeping, natural philosophy, astronomy, geology, English literature, Latin, and vocal music.

Since 1884 twenty-eight students have graduated from the high school and received their diplomas; of this number eight are now employed as teachers in our schools.

The number of teachers engaged for the year 1888-1889 is 21, as follows:

HIGH SCHOOL BUILDING.

- Miss A. F. Oleott, high school department.
- Miss Emma L. Bush, assistant.
- Miss Emma C. Downing, grammar department.
- Miss Annie L. Mullins, grammar department.
- Miss Miriam J. Ropes, intermediate department.
- Miss Jennie C. Ray, intermediate department.
- Miss Nellie Fisher, primary department.
- Miss Ada Milton, primary department.

DIVISION STREET BUILDING.

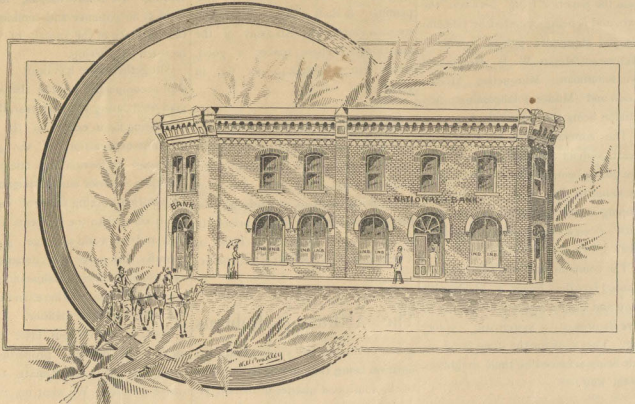
- Miss Ada McDowell, grammar department.
- Miss Josie McEnroe, grammar department.
- Miss Mary E. Gleason, intermediate department.
- Miss Lillian Fisher, intermediate department.

- Miss Ella Martin, intermediate department.
- Miss Maggie Kennedy, primary department.
- Miss Kate Connors, primary department.

district is \$25,000, which was incurred in building the high school edifice. These bonds bear interest at 5 per cent. per annum, and mature yearly in various sums from \$200 to \$500, the one of longest date being due

school board holds regular meetings on the last Tuesday of each month, in a room prepared for that purpose, at the Division street school house, and all persons interested in the business of the district are welcome.

with schoolrooms on the first and second floors and a hall, with stage and scenery upon the third. The Sisters occupy a commodious wing on the east side of the structure.

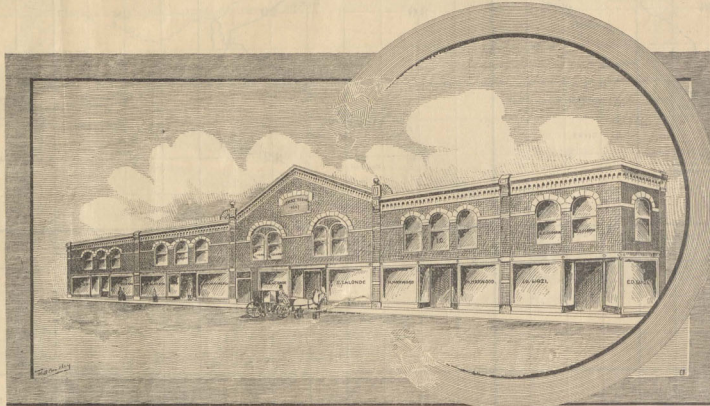


ISHPEMING NATIONAL BANK, MAIN AND BANK STREETS.

- Miss Fannie Ham, primary department.
 - Miss Nettie McCartney, primary department.
- SALISBURY SCHOOL.
- Miss Minnie M. Belcher, intermediate department.

August 2, 1886.
The trustees are: A. W. Myers, T. F. Donahoe, B. W. Wright, Wm. Sedgwick and F. P. Mills.
The officers of the board of trustees are: A. W. Myers, moderator; T. F. Donahoe, assessor; B. W. Wright,

The school buildings are conveniently and comfortably arranged and well warmed. The Division street and high school buildings are heated with Haxtun steam boilers, and are thoroughly ventilated. The high school building we consider a model



THE JENKS BLOCK, BANK STREET.

- Miss Georgina Gentry, primary department.

Miss Lizzie Adair is employed as teacher of vocal music in all the departments.

The following salaries are paid for the school year of ten months.

Superintendent	\$2000
Preceptress of high school	800
Assistant	700
Grammar department	500
Intermediate	450
Primary	400
Misc	150

As an encouragement to faithful teachers who continue in the service of the district for more than three years, the school board has resolved to increase the salary of all teachers in the grammar, intermediate and primary department, after three years teaching, at the rate of \$25 per annum, and after ten years service at the rate of \$50 per annum.

Of the 21 teachers employed two hold a state certificate, two a first grade certificate, one a normal certificate, three a second grade certificate, thirteen a third grade certificate.

Last year there was paid to the teachers the sum of \$11,088.75 For repairs, &c. 2,880.25 For other purposes 5,914.27

Leaving on hand	\$19,883.27
6,741.50	
Total	\$26,624.77

Of this sum there was raised from direct assessment voted by the taxpayers \$13,000.00 One mill tax 6,309.12 Primary school fund 2,415.89 Other various sources 471.12 Cash on hand Sept. 1887 4,228.64

Total	\$26,624.77
The cost of school property is	\$65,000.
The bonded indebtedness of the	

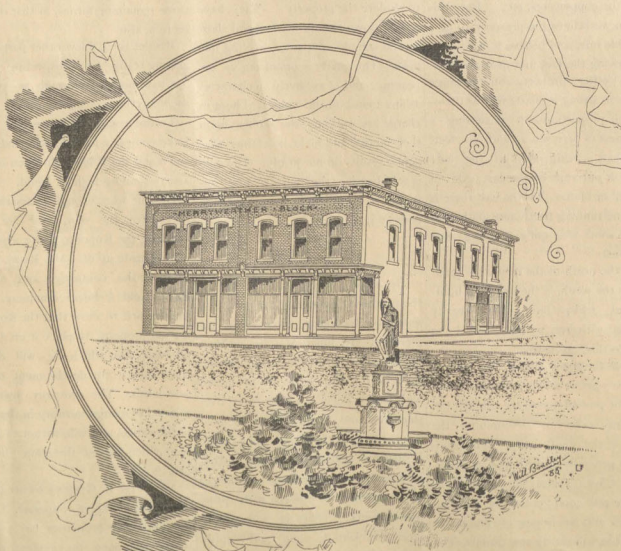
assessor; Harlow Oleott, superintendent.

Some of the members of the school board have been long in the service of the district. Mr. T. F. Donahoe has been trustee continuously since

for convenience and comfort. No expense has been curtailed where the outlay was necessary for the health and efficiency of the occupants.

THE ST. JOHN'S PAROCHIAL SCHOOL occupies a prominent place in the ed-

In connection with the department is a Gamewell fire alarm system, recognized as the best in the world. Stations are made at various points throughout the city, and an alarm bell is placed in the residence of each



THE MERRYWEATHER BLOCK, MAIN STREET.

1877, and during that time has been moderator two years, and assessor nine years. Mr. B. W. Wright was elected trustee in Sept., 1878, and director in 1879, and has held the office continuously since that time. The

educational department of the city. It is presided over by the best of teachers and has the same course of instruction as adopted by the graded schools. There is an attendance of 400 pupils. There is a fine building

fireman, insuring ready response to the call for aid in times of danger. The steamers receive their supply from Partridge Creek, a stream running through the heart of the town, and from the fire hydrants of the

Water Works System.

The latter is one of the best in the region. The supply is obtained from Lake Angeline. At this place there is a fine stone building, as shown by our engraving, in which are two 12x18, 10x10-in. Worthington pumps that force the water through the main, the latter running from twelve to two inches in diameter, according to the requirements of consumption. Up to and including the year 1887, there were laid, of all sizes of pipe 48,881 feet, divided as follows:

SIZE.	NO. FEET.
12 in.	3,390
10 in.	3,353
8 in.	3,507
6 in.	7,155
4 in.	25,453
3 in.	1,088
2 in.	3,764
1 in.	1,012
1/2 in.	169
Total	48,881

For 1888 there were laid of the different sizes as follows:

4 in.	2,087
2 in.	542
1 in.	4,316
1/2 in.	1,181

Making a total number of feet of pipe laid of 57,007. Much of the small pipe laid during the year was to supply water to the new cemetery, located at quite a distance from the principal mains.

For the year 1887 there were 617 water takers, and during the past year there were added to this number, so the clerk of the board informs us, about one hundred takers, making, all told, 717 takers. The report of the board of commissioners for 1887, showed the operating expenses to be \$6,292.24, the receipts from water consumers \$8,383.01, leaving a balance of \$2,090.77 in favor of the works. The operating expenses for the year just closed will be about the same as they were for the previous year, while there is a gain in the amount of receipts. The balance will pay the interest on the water bonds of the city, so that it can be seen that the water works system is self-supporting. The amount expended on the system to Jan. 1, 1887, was \$75,688.17.

The expense of operating our water system will compare favorably with any similar service in the country. In the item of fuel we should like to receive figures from other towns in comparison. The fuel bill here per month will average about \$145.

The pipes used are from the Michigan pipe company, Bay City, best grade of patent wood, and give excellent satisfaction. Some of it has been in service here for almost eight years and shows no sign of decay or weakness. Upon the mains, located at the most desirable points, are 54 fire hydrants, each provided with pipes for two lines of hose. During times of fire a pressure of about 100 pounds is maintained, and with which excellent results are obtained. Gates are located at the intersection of different large branches, so that in times of fire the water can be shut off from all lines except the one desired to be used, making easier work for the pumps and insuring a better supply and service. The water works have never failed yet when called upon. In fact the fire engines are rarely brought out in times of fire, as water can be secured more quickly from the hydrants.

Messrs C. H. Hall, H. H. Hildon and P. H. Devine compose the board of commissioners. Mr. Hall, the executive, having given much time to making the system a satisfactory one. Mr. Thos. H. Bargh is clerk of the board, Mr. Jas. Ames is superintendent of the water works.

THE PUBLIC LIBRARY

contains 3,200 volumes, works of the best authors, embracing a diversity of subjects calculated to please the different readers. The room is open every afternoon and evening of the week, being used as a public reading room also, and is well patronized. Dr. E. W. Fiske, the Librarian, who takes pride in his work, informs us that interest in the library is constantly increasing.

OUR BANK ACCOUNT.

Although there has been a large amount of work done during the past few years in the way of public improvement, water works, new

streets, alleys, sewers, etc., our taxes are not excessive. There is no floating debt. Our treasury contained a neat balance after paying the debts contracted during the past year. There was appropriated for city purposes, the following amounts for the different funds:

For general fund.....	\$ 4,000
" police	3,000
" interest	2,500
" sewerage	3,000
" cemetery	2,000
" water works fund.....	3,000

Less liquor taxes..... 12,000

Making total for general fund, \$ 5,500
For highways..... 10,000
For fire department..... 2,500

Total appropriation..... \$18,500
We have outstanding \$38,500 of water bonds, coming due as follows:

1882.....	\$ 7,500
1883.....	5,000
1887.....	7,500
1888.....	8,000
1902.....	7,500
1903.....	3,000

\$38,500

The original amount of these bonds was \$63,000, of which we paid:

In 1887.....	\$ 7,500
In 1888.....	17,000
	\$24,500

The maturing of \$17,000 in water bonds the past year was felt in the taxes, but we now have a rest of three years.

There are outstanding \$25,000 worth of school bonds, which mature yearly in various sums from \$2,000 to \$5,000, so that altogether we are well off financially.

WHO PAY THE TAXES.
The appraised valuation of the city property last year was:

The mines.....	\$4,065,000
Personal property mining companies.....	152,800
City real estate.....	619,838
City personal property.....	415,066

Total.....\$5,192,704

This shows the mining companies pay about three-fourths of the taxes of the city, and are a very "handy" people to have around. The companies are liberal, favor the introduction of all necessary improvement, pay their share of the burden without complaint. They are a part of us—the big end—and it is pleasing to note the harmony of action between them and the townspeople, so-called. It is a very happy condition of things, affording a pleasing contrast to many mining towns where company stores and selfish methods serve to injure business generally.

STREETS.
During the past summer the city began the macadamizing of its streets, purchasing a Gates rock breaker, which was located at one of the diorite bluffs in the eastern part of the town. A pocket was put in connection with it to hold the broken material, from which wagons were filled and the rock carried to and deposited upon the highways. This makes a splendid roadbed. Heretofore debris from the mine dumps was used and was unsatisfactory. Being mostly soap rock and rock containing considerable iron, it quickly pulverized forming a disagreeable mud or dust, according to the condition of the atmosphere. The business part of the city was originally a cedar swamp and it has taken time to secure a solid bottom, money has been used as well as time, but it is now in shape to receive a macadam, and further settling will not occur.

NEW RESIDENCES.

During the past few years Ishpeming has made rapid strides in the way of adding new dwellings. For some years there was a great scarcity, and rents were very high. As fast as the people could afford it they erected buildings of their own, and many of the neatest dwellings are owned by the miners. Nothing can better illustrate the thrift of the workmen of this city than the number of houses they own. It proves that the sober and industrious have accumulated money, and in no other town in the habitable globe is there a community of miners that have better houses, with more of the comforts of life than those of this place. Owing to the scarcity of building room progress in this direction was retarded for

some years, but of late several additions have been made giving an opportunity for a spreading out according to our size, as it were. The Cleveland Iron Mining company has laid out an extensive tract in the

Dr T A Feich,
NORTH LAKE STREET.
Andrew Anderson,
Chas Carlson,
Andrew Foss,
Aug Chisholm,
F Ralsky,
Peter Peterson,

6,500
D Sullivan,
M Griffin,
650
EAST RIDGE STREET.
1,100
Chas Farm,
1,100
Vernist Bros,
850
K L Tolonen,
850
H Asgard,
900
Magnus Hulst,

850
Chas Stenson,
A F Holmgren,
A F Stenson,
SOUTH PINE STREET.
900
H B Startevatt,
1,100
H Sherman,
1,300
Jas Kemp,
3,000
F Holeman,
1,200
Jas Jenkins,
Thos Francis,
Jno Kito,
John Francis,
Jas Trebleock,
Jos Tromethie,
Henry Martin,
J Pentilla,

850
Cleveland avenue, between First and Second streets, contains two fine stores, with pleasant rooms on the second floor, and cost the owner \$8,000.
On west Bank street, Swift & Co., the well-known meat packing house of Chicago, has erected a refrigerator at a cost of \$3,500, while Nelson Morris & Co. are finishing a similar building on Ridge street, of about the same description.
On Division street there has been erected a Finnish hall and store at a cost of \$2,000; Jas. Blackney has built a store on the corner of Second street and Division, at a cost of \$1,800; Mr. John Burke has put up a livery stable on the corner of Main and Division at a cost of \$2,000.
On Pearl street Messrs Waleeth & Tislow have built a new wagon and carriage shop costing \$2,500, and L. Meelhus has added another story to his hotel and otherwise improving it, the change costing him \$1,800.
On Main street the Ishpeming National Bank has added to the size of its building, and improved it otherwise, at a cost of \$2,000, and Mr. P. E. Gingrass has practically built a new hotel and fitted it up with steam, bath, etc., at a cost of \$9,000.
On First street, H. Asgaard has improved his store at a cost of \$1,000.
John Farm has built a 2,000-dollar barn on Ridge street, and a Finnish church has been erected at a cost of \$2,500.
Higgins Bros. have built a gas and engine house at a cost of \$6,000.
The above shows that during the past year there has been new dwellings and stores erected in the city at a cost of \$208,475. Besides this there has been considerable done in the way of additions to residences and stores that we have not figured in our report. In no other place in the peninsula are the homes of the citizens less free from debt than in Ishpeming. While other towns may have accomplished more in the way of new buildings, we can surpass them all in amount of cash payments upon the improvements.
The city is being added to in value in a steady, substantial way, and the fact that so many of the homes made are by the workmen is indicative of a healthy condition of things.



CITY WATER WORKS ENGINE HOUSE.

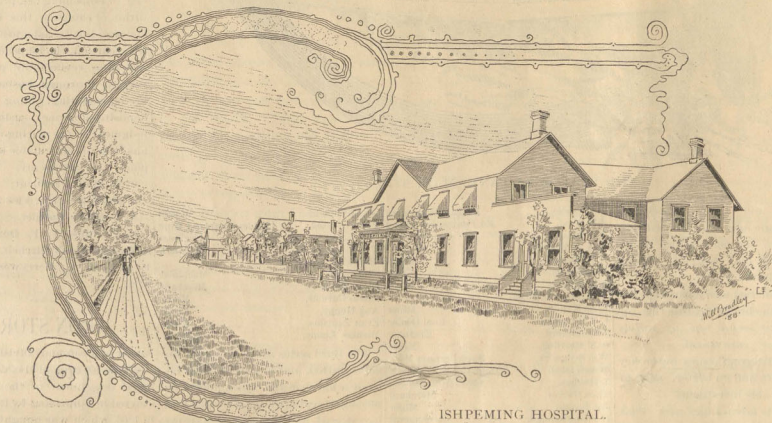
northwestern portion of town that was formerly the driving park, the Iron Cliffs company during the past summer platted and sold lots on the forty upon which is located the high school building; the Curry addition,

M Wasley,
S Eric,
Geo A Newett,
B Uren,
W S Nelson,
C R Ely,
NORTH PINE STREET.
H O Young,

1,000
Victor Holmgren,
1,300
Alex Swenson,
1,400
Lars Jerstad,
1,300
Mrs Mollen,
1,500
WEST DIVISION STREET.
W T Cole,
6,500
P McKale,

1,100
Dan Knowlen,
Jerry Sliney,
BLUFF STREET.
Jas McKutechon,
SALISBURY.
Walter Sterling,
Company cottage,
700

Total,
\$135,375
This shows that there were one hundred and fifteen residences built, having an average cost of \$1,171.17 each.
In the way of additions to the city in the line of new business blocks, the past year, has something to its credit. The Jenks' block, the largest in the city, composed of stone and brick, heated by steam, containing five elegant stores on the first floor, and many pleasant and commodious offices and suites on the second, is a handsome structure, as shown by our artist. It is due to the enterprise of Mr. Manville Jenks, one of the pioneers of the place, that the city has been thus improved. The cost of the



ISHPEMING HOSPITAL.

on the northwestern shore of Lake Hancock, has been platted and nearly every lot built upon, so that all those desirous of providing homes for themselves, of late, have been accommodated with a site. The Cleveland company has lands to the north and northwest of the Curry addition which will be available when the town desires them. Although there was no building boom here during the year just closed, yet a number of residences were erected, the following showing the name of owner and value of dwelling:

IRON CLIFFS ADDITION:	
John Skoglund,	\$ 850
John Olson,	825
F G Barck,	3,000
Jos Andrews,	850
C F Hand,	1,200
Oliver Peterson,	2,300
Chas Olerson,	975
Orto Nelson,	600
John Bestrom,	1,100
NEW YORK LOCATION:	
Jas Regan,	500
John Kowin,	550
Jacob Johnson,	650
A F Enstrom,	550
Aug Beerling,	1,450
CLEVELAND COMPANY'S ADDITION:	
J Johnson,	850
Chas Hoglund,	900
T F Peterson,	2,500
Mrs Edly,	1,400
Jno Hooper,	850
Andrew Soderberg,	950
Ben Trevall,	850
E Nyman,	700
Alex Grier,	700
Albin Jacobson,	500
Mrs Gendle,	850
Jas Bartle,	600
Thos Cornish,	675
O C Griswold,	650
Jas Hawke,	700
Chas Lay,	650
Wm Hendrickson,	650
W H Brewer,	600
Fred Handberg,	1,300
Sam'l Goodman,	800
Andrew Kalgren,	500
C Swanson,	800
NORTH OAK STREET:	
Geo W Hayden,	950
Gus Dowlle,	950
John Olson,	600
W H Downing,	1,200
I Dyson,	900
Snowshoe club	950

NORTH MAIN STREET.
P West,
NORTH FIRST STREET.
Jas McKutechon,
NORTH STREET.
Wm Malmberg,
Dan'l Johnson,
Henry Hassenger,

800
Peter Adolph,
John Edgou,
900
Peter Solein,
Martin Peterson,
F J Egan,
THIRD STREET.
7,000
F J Egan,

BANK STREET.
1,700
The Peninsula bank building, opposite the Jenks' block, on the corner of Main street and Cleveland avenue, was erected by Mr. Jno. R. Wood, of Appleton, Wis. It is a neat building,

CHURCHES.

In this respect Ishpeming is well supplied, the following denominations being represented:
Swedish Baptist, Rev. W. A. Hammer, pastor.
Episcopal, Rev. Mr. Thorpe, pastor.
Norwegian Evangelical Lutheran, Rev. G. A. Sovde, pastor.
Swedish Lutheran, Rev. M. Stolpe, pastor.
Swedish Mission, Rev. G. Gustafson, pastor.
Methodist Episcopal, Rev. J. P. Varner, pastor.
Swedish Methodist, Rev. C. J. Nelson, pastor.
Presbyterian, Rev. C. D. Jacobs, pastor.
St. John's Roman Catholic, Rev. H. J. Rousseau, pastor.
Finnish Lutheran, Rev. K. L. Tolonen, pastor.

SOCIETIES.

Ishpeming is the paradise of the society man. One inclined to be a "jiner" can here exercise his hobby to an unlimited degree. The miners find this a means of amusement that makes up for others not to be found in this mining region, and derive pleasure and profit from the social relationships formed through the medium of the different lodges. Below we print a list of the principal ones. Some may have gotten away from our reporter, but if so the members can excuse the oversight:

F. A. A.
E. E. Osborn, W. M.; H. B. Startevant, S. W.; J. N. St. Clair, J. W.; W. H. Root, Treas.; H. M. Brady, Sec'y; C. T. Fairbairn, L. D.; Jno. Burder, J. D.; Thos. Gerry, Tyler; membership 100.
L. O. O. F.
H. M. Trebleock, N. G.; Jas. Tucker, V. G.; F. B. Wasley, R. S.; J. F. Miner, P. S.; Jas. Trebleock, Treas.; membership, 110.—Excelsior Encampment, W. H. Trombath, C. P.; Jno. Manley, J. W.; F. B. Wasley, Scribe; Wm. Perry, H. P.; membership 40.

I. E. SWIFT, BANK STREET.

CLEVELAND AVENUE.
Ole Gustav Olson,
Simeon Ball,
V Wallenstein,
Gust Hagerstrom,
Aug Carlson,
Thos Richards,
Chas Williams,
Wm Richards,

1,400
MARQUETTE SIDE.
800
600
600
600
600
750
650
750

as our engraving shows, is of brick, neat in style of architecture, substantial and ornamental, and cost \$6,500.
The Nolan block, of brownstone and brick, was built by Mr. John Nolan, an old resident, a miner in former years, now one of the wealthy men of the city. It is located on

A. O. U. W.
 Jas McDowell, P. W.; J. B. Wilbur, M. W.; T. McNamara, foreman; A. W. Gibbs recorder; J. B. Tibor, Fin. Sec'y; W. J. Cocks, Treas.; membership 430.

S. K. A. O. U. W.
 A. W. Gibbs, P. C.; J. C. H. Pettor, C. P.; P. Fitzpatrick, V. C.; C. J. Byrns, Rec.; J. Thorstensen, financial sec'y; F. J. Eggan, Treas.; membership 165.

SCANDINAVIAN SOCIETY.
 C. Melly, Pres.; Jno. Ole, Sec'y; Nels Hansen, Treas.; membership 290.

A. O. F.
 Thos. Mudge, C. R.; Wm. Banford, T. R.; Jno. Dunstan, N. S.; Daniel Johnson, F. S.; membership 230.

A. O. H.
 T. J. Dundon, Pres.; M. Shea, V. P.; M. Hughes, Rec. Sec'y; T. Mulligan, Fin. Sec'y; membership 150.

UNION CANADIENNE FRANCAIS.
 H. Routhier, Pres.; Cleo Miller, F. S.; A. Savaugan, C. S.; membership 529.

ST. PATRICKS SOCIETY.
 Jas. Kehns, Pres.; Ed. Cronin, Sec'y; T. F. Donahoe, Treas.; membership 75.

L. O. R. M., G. T. B. G. U. M. N. O. 21.
 Geo. Solomon, Sachem; Wm. Waters, C. of R.; Wm. Perry, K. of W.; membership 130.

SONS OF ST. GEORGE.
 Jas. Jenkins, Pres.; J. T. Miners, V. P.; F. Wasley, Treas.; Chas. Bart, Sec.; Jos. Billings, A. S.; Jos. Richards, I. S.; John Rowe, O. S.; F. J. Boltho, W. M.; W. J. Buzzo, W. A. M.; Jas. Trebbleck, W. P. P.; membership 530.

I. N. L. OF AMERICA.
 John Garvey, Sec'y; P. H. Donahoe, Treas.; membership 400.

TEMPLE OF HONOR.
 Samuel Davis, W. C. T.; J. J. Ardie, W. V. T.; Jos. Richards, R. S.; F. B. Wasley, F. S.; J. C. Funston, Treas.; membership 100.

SWEDISH HOME.
 A. W. Lindholm, Pres.; A. W. Jernquist, Sec.; membership 35.

GOOD TEMPLARS.
 Mrs. H. Tallon, C. T.; Miss McDermott, V. T.; Miss E. Wasley, Sec.; Mrs. E. Tremethie, F. S.; W. J. Davis, Treas.; membership 45.

FINNISH TEMPERANCE SOCIETY.
 Chas. Laddi, Pres.; Lea Aho, Sec.; membership 25.

SWEDISH LITERARY AID SOCIETY.
 Daniel Johnson, Pres.; Chas. Holmgren, Sec.

Besides these there are several church societies, missions, etc., of a benevolent kind. In the way of literary societies there is one, the

SATURDAY AFTERNOON CLUB.
 It was organized ten years ago last June, is composed of twelve ladies, who meet on the afternoon of every Saturday, as their title indicates. Officers held for three months, successors being chosen in alphabetical order.

For pleasure and exercise, and a good time generally, there is

THE SNOWSHOE CLUB.
 having a membership of sixty, uniformed in the usual blanket dress, indulges in a tramp one evening of each week. They have erected a fine ice house in the suburbs of the city at a cost of \$750. It possesses a kitchen, a cloak room, and is rustic and comfortable to a satisfactory degree. The officers are: Wm. Sedgwick, president; J. Vandevanter, vice-president; W. F. Swift, captain; H. F. Sturtevant, lieutenant; H. Harwood, secretary and treasurer. Snowshoeing is largely indulged in by both sexes, and provides much amusement during the long winter.

THE ISHPEMING CLUB.
 having a membership of forty, occupies a suite of rooms in the Jenks block, and has for its object social and business advancement. The room are handsomely fitted up, possess much to make the place popular, and the club is one that will be a flourishing, permanent one. The officers are: President, W. F. Swift; vice-president, A. W. Myers; secretary, Geo. A. Newell; treasurer, H. F. Heyn, who, with John F. Armstrong, Wm. Sedgwick and E. B. Howard, form the board of directors.

THE NORWEGIAN SKI CLUB
 is one that has much fun and excitement as any other in the city. It has about fifty members, is uniformed, and has some fine skis and jumpers. The ski is very fashionable here, winning friends each winter. Officers of the club are: I. Thorstensen, president; H. Asgaard, captain; Lars Høyseth, lieutenant; P. Saltness, secretary; Ole Rye, treasurer.

THE CURLING CLUB
 has an enclosed rink, double, a full equipment of the finest imported blocks and possess many skillful players. A. W. Myers is president; J. N. St. Clair secretary and treasurer.

THE MOZART
 is the name of a musical association formed the past year with C. H. Hall president, Mrs. W. H. Root vice-president, Prof. C. A. Fuhrman musical director. It has about fifty members.

BRASS BANDS.
 We have seven. Enough, truly, to satisfy the wants of the most voracious musical appetite for baritone solos and snare drum beating. Good bands, poor ones, all kinds, some decidedly frightful, but all making excellent headway, and bound to be a credit to the city. They are ambitious and will win. The following is a list of the different ones:

Lake Angeline & Scandinavian, John Peterson leader.

Red Men, Martin G. Whitford leader.

Young Eureka, Wm. Kemp leader.

Star Cornet, Jas. Inch leader.

Bethany Church, John Ohman leader.

Finnish-Northern Eolo, — leader.

Swedish Methodist Church, Chas. Oberg leader.

Bethany Church Orchestra, Prof. Mertonson leader.

LARGE FORTUNES

except in rare instances are not made in a day. Men of wealth are generally found among those who commenced to save and invest their money in

SMALL SUMS.
 And to any person who may be inclined to accumulate in this way there can be no better or safer investment offered than the Ishpe-
 ming Nat'l Bank.



THE PENINSULA BANK, MAIN STREET.

Building and Loan Association.
 Young single men who contemplate marriage in the near future should commence at once to secure a home or a start in the world.

Young married men without homes of their own should not lose this opportunity to secure one by merely paying a few years rental.

People with good homes and money to invest can find no better, safer or more profitable investment.

Some of its advantages are: That it is a savings bank where the investor makes his own loans; where each stockholder can see his security every day; in its operation the borrower and the lender share alike in the profits; it is

BETTER
 than ordinary loans at the same rate of interest, because the borrower cannot be disturbed for eight years and the principal and interest is paid in that time with no more effort than would be required to pay monthly or yearly rent; it is just as safe and much better than

GOVERNMENT BONDS
 because the stock is always at par and the interest many times larger.

Loans are made on approved real estate first mortgages limited by law to two-thirds value; and no loan can be made until the security is approved by the association's attorney and board of directors.

It is much better than any

FOREIGN
 or outside affair, because there is no commissions or any other extra expenses attached, and properly located in a country iron-bound, copper-lined and gold

CROWNED.
 ought to be good enough to satisfy the most exacting investor.

One thousand four hundred and fifty-two shares have been issued as a first series, and 314 shares as a second series, representing a capital of \$176,000. The shares being issued in series it is perpetual, and any person can become a member by applying to A. D. Garner, secretary of the association, at the Peninsula bank, Ishpe-
 ming Mich.

Board of directors: P. H. Devine, T. H. Bargh, C. Merryweather, J. F. Armstrong, Olof Peterson, Ole Walseth, P. Fitzpatrick, E. E. Osborn, H. H. Mildon, A. D. Garner.

By permission we publish a few names of those who are members and stockholders in the Building & Loan Association.

NAME.	OCCUPATION.	NAME.	OCCUPATION.
Andrew Foss,	Assistant Hospital	Patrick Kennedy,	Miner
J. G. Welch, Jr.,	Clerk	Henry B. Hale,	Miner
J. B. Beale,	Mine Boss	M. B. Tontout,	Merchant
Herman Jaedecke,	Cigar Manufacturer	Miss Whitford Cooley	Clerk
Geo. E. Persons,	Cashier P. & L. A. Iron Co	E. B. Howard,	Clerk
A. B. Eldredge,	Attorney	C. J. Malmgren,	Merchant
John Carlson,	Clerk	E. Malmgren,	Merchant
Nicholas Matby,	Miner	Mrs. E. C. Cooley	Clerk
Mrs. Rosa Nicholas,	Miner	C. J. Akerson,	Clerk
Jno. Anderson,	Miner	E. Cronin,	Clerk
Geo. Vary,	Engineer	C. B. Johnson,	Clerk
Jno. Lehman,	Pumpman	M. Helika,	Clerk
M. A. Tibor,	City Recorder	J. E. Lalonde,	Clerk
E. Skogland,	Mason	Henry Hassonjaeger,	Clerk
		C. F. Samuelson,	Accountant
		J. Fortenson,	Clerk

generally, and the few who had formed improper habits, with reference to a loose manner of banking soon became convinced that the change was beneficial. We need say nothing further in calling the attention of our readers to the success of the enterprise than to refer them to their statement on the second page of this paper. The amount of deposits together with the neat surplus is enough to show the bank is popular, that it has succeeded. A surplus of \$120,000, accumulated within a period of five years proves that considerable business has been done.

The bank building has been remodeled the past year, now being a slightly structure, as will be seen by the engraving of it on another page. There has also been a new vault and a safe put in, the latter, which is of the Diebold pattern, being the finest in the upper peninsula. The lining is made of a thickness about three times as great as ordinary, the doors are provided with the very best burglar proof appliances, and will defy the most expert cracksmen to force. The bank furniture, of carved oak, is from the cabinet shop of H. Asgaard, this city. The building is heated by steam, and the cost of the improvements made during 1888, amounted to about \$9,000.

There is nothing that talks to the business man in looking over the standing of a town as plainly as its bank statement, and we believe the city of Ishpe-ming can present a condition of things in this respect that she need not be ashamed of. For a five-year-old, the Ishpe-ming National has done remarkably well. It has been a thorough business concern, accommodating, taking care of the depositors' money, using care and judgment in the placing of loans, and has been of incalculable benefit to the place. Its officers are:

C. H. Hall, President,
 C. Merryweather, Vice President,
 A. B. Miner, Cashier.

F. P. Mills, T. F. Donahoe, Jos. Sellwood, Sam'l Mitchell, C. H. Hall, E. R. Hall, C. Merryweather directors.

IRON STORE.
 corner of Main and Division streets, covering an area of 114x85 feet, is the lineal descendant of the first store started in Ishpe-ming by Robt. Nelson in 1826, which was bought of him by David Murray, Byron Robbins and B. S. Bigelow in 1873, who consolidated with B. W. Wright under the firm name of Myers, Wright & Co. in 1877, who were succeeded by Myers & Dousman August 7, 1882, and who were succeeded again by the present concern in October, 1882. They have had a steady and prosperous growth from the time of taking hold. The first year they did a business of about

The third series are now open for subscription, and any person can become a member and stockholder by paying 60 cents per share for the first investment, and 50 cents per share per month for all investments after the first.

Ladies can become stockholders, also miners; and membership is not limited to the city of Ishpe-ming or Marquette county. Any and every person, and from any locality can become members and share in its profits, loans and privileges.

HENRY H. MILDON, President.

rest; to work for the firm. As a result he has a strong organization, any one of whom is competent to take charge and manage the business. They carry a large stock of general merchandise, best quality goods, in the various branches. A first-class meat market is also run in connection with the Iron Store, being three doors further west on the same street.

The Ishpe-ming Hospital,

Doctors Feleh & Vandevanter, proprietors, is one of the oldest and most deserving business places in the city. From the time the city attained any prominence as a producer of ore, the mine hospital has occupied a prominent position amongst the list of public institutions—it really taking that character, although due to private enterprise, mainly. Ishpe-ming has ever been fortunate in possessing an able corps of physicians and these, we have found, have always been attached to the hospital. Dr. J. S. Vandevanter has been a resident of this mining region for fifteen years. His skill is too well known to need any praise at our hands. Dr. T. A. Feleh has also been a faithful attendant upon the sick of this community for seven years. Dr. Geo. G. Barnett, assistant, is also faithful and competent, as is assistant Dr. B. H. Andrus. The latter gentleman, with his general practice is an oculist who has earned a wide and favorable reputation since locating here, having performed many difficult operations, all of which proved successful. A mining practice is one furnishing a diversity of study that proves of great value to the ambitious physician and surgeon and to the public as well. The Iron Ore is pleased to note that the sick and wounded of Ishpe-ming are in such good hands. Traump quacks sometimes practice their impositions, but not with our consent, and their stay is usually brief.

The hospital has large well lighted and ventilated wards, can care for thirty patients, and have separate apartments for various diseases. They have all the conveniences and appliances, nurses, etc., necessary for the care and comfort of the unfortunate, and no other similar institution in the region takes better charge of its patients.

For this service the miners pay one dollar per month.

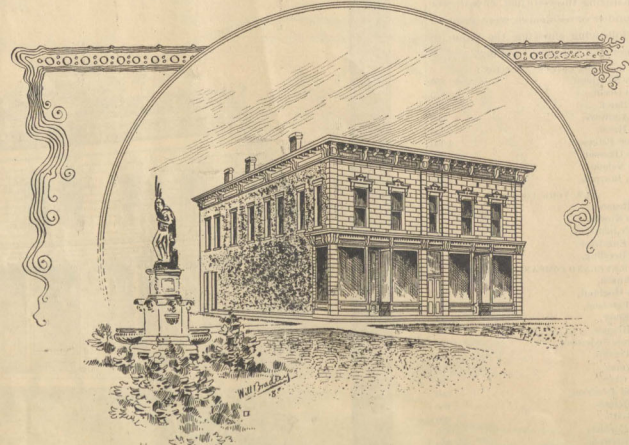
In connection with the hospital is a pharmacy under charge of Mr. E. C. Cooley one of the most thorough in his profession, whose department is a model of neatness, and who personally superintends the financial part of the hospital business. The pharmacy supplies, for medicinal purposes, the finest wines and liquors, infant foods, all kinds of appliances for the sick room, having a complete line of the very best goods.

Our engraving gives a fair idea of the size of the building, appearance, etc.

It is an institution that is a credit to the city, deserves the liberal support it receives at the hands of the residents.

BOOTS & SHOES
 will wear out despite the best of care, they will run over at the head and out of the toes, too, much to our displeasure. One way to gain the best satisfaction, is to purchase the best wear, and in this direction Mr.

C. L. MELDORON
 claims to carry the stock that will give excellent service. He has been in the boot and shoe business in this city for the past ten years during which time he has aimed to carry only first-class goods, rather than sell an inferior shoe for a small price. His Maine shoes for ladies, the celebrated Jefferson shoes for men and children are unrivalled, in their style, finish and wearing qualities. Mr. Sheldon, in the face of a sharp competition, there being some twenty-five stocks of boots and shoes in Ishpe-ming, has built up a large and lucrative business, his name being familiar to the shoe-wearing public for some distance outside of our town. It is his intention to continue in the trade, and to do so with profit to himself. Intends keeping his stock up to its former well-known standard. A cut of his building will be found on another page of this paper.



THE VOELKER BLOCK, MAIN STREET.

The Ishpe-ming Nat'l Bank
 was started in this city January 1st, 1884. It was deemed a necessity for the safety of public money and for that of private individuals. Before this time the system of banking indulged in was of uncertain kind, resulting in failure, and the organization of an institution, coming under the laws of the government, was hailed with pleasure by business men

Jno. Welch, Sr.,	Flagman, C & S W R R	Miner
J. B. Pearce,	Clerk	Machinist
A. W. Lindholm,	The Bazaar	Merchant
W. N. Gibbs,	Carriage Maker	Miner
W. N. Loth,	Ass't Postmaster	Miner
Mrs. G. R. Persons,	Cornelius Kennedy,	Justice of Peace
N. M. Nelson,	Richard Webster,	Photographer
Aug. Swanson,	H. W. Robinson,	Miner
Richard Webster,	C. R. Ely,	Accountant
H. W. Robinson,	Real Estate and Mining	Miner
C. R. Ely,	Night Policeman	Miner
Geo. Peterson,	Harness and Saddlery	Miner
H. P. Heyn,	Furniture	Miner
Robt Maxwell,	Mine Captain	Miner
James Kenny,		Miner

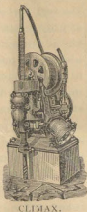
\$75,000, which has increased until now they are doing about \$150,000 per year. The firm is composed of A. W. Myers, John S. Olson, Henry E. Hosking, and Mons J. Eggan, and August Lindahl also has a small interest. The latter four all started in as errand boys, or apprentices, and have grown up with the business. It is the policy of Mr. Myers to get good boys and make thorough business men of them, and to make it an in-

Diamond Drills, Hoisting Machinery, &c.

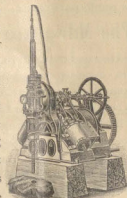
Mr. J. S. Lane (now general superintendent, of the M. C. Bullock Manfg. Co.) was master mechanic of the Lake Superior Iron Co., in this city, in 1867 and 1868, and at that time superintended the building and equipping of No. 1 engine house and the hoisting of the first skip of iron ore in Marquette county.

Afterward, in the summer of 1877, he visited Marquette county for the purpose of superintending the erection of a pair of engines at the Jackson mines. While here at that time he visited most of the leading mines of the district, and was impressed with the need of an improvement in hoisting machinery, the mines having increased in depth and output; not only the expense for fuel was becoming quite an item, but the delays for repairs was also an important consideration.

As he was leaving for home, a prominent mining superintendent said to him: "Mr. Lane, get up something better in the hoisting line and I will buy a plant of you." After studying all the evening and half of the night on the problem, being the last one in the sleeper to go to bed, he found himself so full of the subject that he was unable to go to sleep; towards morning the thought came into his head that the "Band Brake"



CLIMAX.

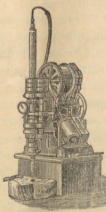


CHALLENGE.

was not only the most efficient device for holding and lowering a load, but it could be first put in motion and then tightened it could be used for hoisting. Believing the latter could be done, and saying to himself that he had the best hoist in the world, he dropped off for his now short night's repose. Many of these hoists now in operation in almost every state and territory in the Union as well as Canada, Europe, Mexico and South America are the best testimonials as to its practical use.

One secret of its success, however, has been the fact that great pains have been taken to adapt the details of each plant to the requirements of the case. Mr. Lane having visited the more prominent mines all over this country and Europe in seeking practical information regarding not only the machinery but the mines themselves in endeavoring to ascertain the requirements of the case and what practical men in charge of the mines desire and approve in the way of machinery.

The Band Friction Driver is susceptible of quite a variety of uses both in hoisting and wire rope haulage of cars, transmission of power, etc. Several hundred of these plants with drums from 2 feet to 25 feet in diameter are in daily use, and it has been demonstrated by disinterested parties, that the necessary loss of friction in most of the old machines in use was from 30 to 48 per cent., while it was less than 4 per cent. under this improvement.



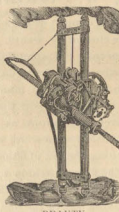
LITTLE CHAMPION.

The saving of fuel to the mining companies has been very considerable, to say nothing of the increased safety and freedom from repairs. To mention the names of the users would take up too much space. Suffice it to say that they are operated by not only the

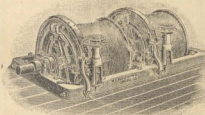
majority of the large mines, but also nearly all the smaller mines have found it to their advantage to put in this machinery.

The M. C. Bullock Manufacturing company also build improved Cornish pumping plants, machinery for man engines, and a large line of general mining machinery, and have just brought out a new design of the Bullock-Corbis engine which embodies the good points of other Corbiss engine builders as well as some original improvements.

Regarding diamond drills, when Mr. Bullock visited the Ishpeming district first in 1885, he endeavored to introduce the machines for the purpose of prospecting, and was met by a great many obstacles. One well-known mining man replied to his inquiry "if he could not sell him a diamond drill," that "he would not take a diamond drill as a gift, that they were absolutely useless, and that they had rock in their mine hard enough to cut the heart out of a diamond." Another mining man listened courteously to Mr. Bullock's remarks about the value of a diamond drill for prospecting purposes and then quietly led the way to a little eminence near the office and putting his foot on a stake that was driven into a drill hole, he remarked: "We have no use for a diamond drill, after having thoroughly tested one here several years ago, boring among others the hole into which you see this plug driven. They are entirely too expensive for our use. Some of the work in this hole cost more than one hundred dollars a foot." The two quotations above are only samples of the reception which Mr. Bullock met with at every point, and finding it impossible to interest any of the mine managers in a drill, he then took a new tack and offered to do the work by contract at a stipulated price per foot, and received his first order from J. C. Morse, then manager of the Cleveland mine. In boring the first two or three holes he found that there were indeed many difficulties to be encountered, the hardness of the rock being the least of them. He succeeded, however, in conquering every obstacle and in making his drill work satisfactorily and in 1877 he sold his first machine, a "Little Champion," to the Champion Iron Mining company, followed immediately with orders from the Lake Superior Iron Co., Saginaw mine, Cleveland mine, Standard Ore company, Shumway, Wicks & Co., Lake Superior Ship Canal company, Republic Iron com-



BEAUTY.



STANDARD DRUMS.

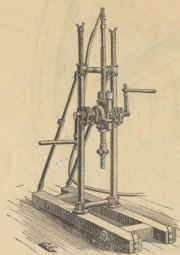
pany, Union Iron & Steel company, Davids Mining company, Argyle mine, Wheat mine, West Republic Mining company, Spear & Case, Smith & Wilkinson, Orleans, Erie, St. Clair Bros., New York mine, J. M. Longyear, Pittsburgh & Lake Superior Iron company, Detroit mine. Several of these companies purchased from two to five drills each, covering the various sizes from the "Climax," or small underground prospecting drill, to the "Challenge," the large machine used for deep hole prospecting.

One of the most notable holes bored by Mr. Bullock while doing contract work, was the "union" hole put down on the line between the properties of the Lake Superior and Cleveland mines. This was bored at an angle and necessitated the driving of casing to the depth of 105 feet. It was the first casing driven at an angle through

the jasper boulders and gravel in this district and was a very difficult undertaking. The hole was drilled successfully and settled the question that the Ishpeming district was underlain with large valuable deposits of specular ore. The Cleveland company is now driving for the body of ore cut at this point.

The diamond drill has been used constantly and with great success by most of the mines named, boring thousands upon thousands of feet of prospect holes at the lowest cost per foot and at a speed of from twenty to forty times that which can be obtained in prospecting by any other possible method.

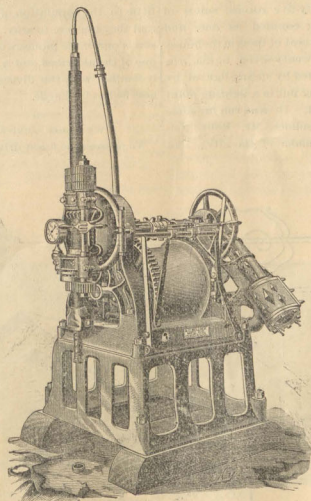
The M. C. Bullock Manufacturing company own a great many valuable patents covering and protecting the salient points of their machines. The



BRAVO.

machines themselves have told their own stories wherever they have been introduced, and are to-day without doubt the best known diamond drills in the world. They have been adopted as "standard" by the Victorian government of Australia and the company have recently shipped to them the largest machine ever made with a complete outfit for boring holes to a depth of 3,000 feet. This makes the fifteenth Bullock drill used by the Australian government. They have also shipped other machines to nearly every civilized country.

The Bullock drill has been an active assistant to the mining companies of this district, as we have shown in our description of the mines. The Cleveland Iron Mining company has found an immense mine beneath Lake Angeline with it, they keep it constantly



DAUNTLESS.

employed in their different properties. The Lake Superior could not mine as they now do without it, and the equipment of a mine is considered incomplete without one of these machines. Three new styles of drills have been lately brought out by the company: The hand or horse power drills "Bravo" and "Driver" and the "New Dauntless." Our cuts show the different machines. The Climax, Little Champion and Challenge are well-known here, there being over a hundred in this iron district alone. They have always been found capable of cutting through the hardest ground to a depth guaranteed by the makers. They have a reliable feed, one that is easy on dia-

monds, are compactly and strongly built, are made to last, and that they give perfect satisfaction the mining companies of this city will testify to. A letter addressed to the Lake Superior Iron company, or to the Cleveland, or to any of the different companies operating them will find an answer strongly in their favor.

Messrs. Bullock and Lane have done much to aid in the cheapening of the cost of finding and raising ore, they are thorough mechanics whose advice is often consulted by the companies on matters of a mining, mechanical kind, the locating of plants, character of same, etc. Their ability is unquestioned, and the quality of their machinery speaks for itself. The workmanship is of the best, nothing cheap or old-fogish about it.

Cuts of their double hoist and slide valve engine and four drum and 2-valve engine will be found on our last pages.

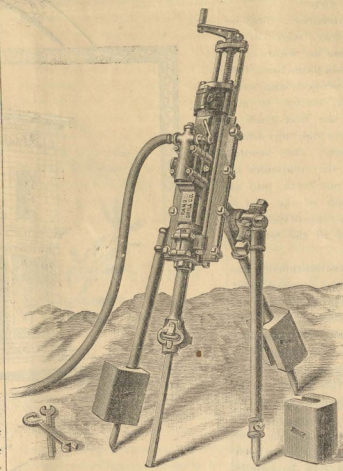
The Rand Drill.

The Rand rock drill has occupied a prominent place in the mining history of the Lake Superior country for a great many years. It was the first in the field, is pronounced the best. It has been improved from time to time, the weak parts strengthened, and every attention given to durability and effectiveness. We find them the favorite wherever we go. The Lake Superior uses none other, the Lake Angeline has but one machine of any other make, so, too, at the Cleveland. The Barnum uses only the Rand. Everywhere the Rand has the preference. There must be a reason for this as there are other machines in the market claiming to possess the cutting qualities of the pioneer, are as cheap in price, but when it comes to determining superiority, the Rand has taken the prize in every instance.

Any mine of prominence now drives its drills, sinks its shafts, stops its ground through the agency of the power drill. The old method of hand drilling is too slow and expensive in these days of active competition. The Jackson, the oldest iron ore mine in the state, has lately put in an 18x30-in.

the Ingersoll Eclipse, this resulting in the mining company's adopting the Rand.

A comparative test made at the Ludington mine last July between the Rand and Sargeant drills was decidedly in favor of the Rand, it doing much more work with less power than the Sargeant. In this test the drills were placed on columns and on tripods to show how they would operate on different supports. The test proved that the Sargeant used 18.22 more air on columns than the Rand and 40 per cent. more on tripods. The compress-



LITTLE GIANT.

or used was an 18x30 duplex, having a capacity to work 20 drills. The difference in fuel for operating a plant of Rand drills, figuring by the test made at the Ludington, would be \$3,493 per year, this being that much less than the cost for operating 20 Sargeant drills.

The company has just further perfected a machine, (as shown in the accompanying cut), the Little Giant,

No. 3 1/2, that is doing wonderful work. The Rand is not only a good drill but it is handled by a wide-awake, enterprising company. Mr. Horton, who introduced it in this region, and who met an unfortunate death a few years since at the company's works, was well known to many Ishpeming people. In this test the drills were placed on columns and on tripods to show how they would operate on different supports. The test proved that the Sargeant used 18.22 more air on columns than the Rand and 40 per cent. more on tripods. The compress-

The company has studied the ground of this mining region and has perfected a drill that will cut it.

It is an invaluable servant to the mines, cheapens the cost of the product, makes haste in the opening up of ground, and we believe it to be the best power drill under the sun. This is the verdict of mining men here who have been in the business of mining for a quarter of a century and their opinion ought to be decisive.

Representing the Rand Drill company is Mr. Fred C. Osgood, an energetic, capable gentleman, who has made friends wherever he has visited. Much of his time is spent in Ishpeming, where he is looked upon as an actual resident. He is here at present and will be glad to talk drill to all those desirous of learning more of the Rand than our description contained.

GOLD MILLS.

In the way of milling machinery Messrs. Fraser & Chalmers, of Chicago, Ills., U. S. A., take the lead of all others not only in this country but of the whole world. Their works are of immense magnitude, employing a small army of men, kept busy throughout the year filling orders from all sources. Their mills are found everywhere that gold and silver mines are being wrought. The Ropes Gold & Silver company, of Ishpeming, have them, and pronounce them perfect. They are the result of a long experience, of practical test, and no expense has been spared in making them effective. They stand the wear and tear better than other mills and, of particular importance, are the closest gold savers. The firm is composed of practical men who have made the business of gold mining and milling a careful study for a great many years, and have found out just what is needed in the different districts.

A cut of their new mill, which is a beauty, will be found on our advertising pages further on. Catalogues containing a description of the products of the firm can be secured upon application.

JULIUS ROPES,

discoverer of the Ropes gold mine, is one of the best chemists and geologists of this region. His experience covers a period of twenty years and the patronage visited upon him by those desiring careful analyses of minerals proves his competency. Much is owed to the gentleman by the citizens of Ishpeming for his perseverance and skill. No other man is better posted in the formations of this country than he, none have given the subject as much careful and intelligent study. He is looked upon as authority and sought in that capacity by those desiring reliable information regarding our district.

GEO. F. STANTON,

representing different explosive companies, advertises his specialties in another part of this paper. He has been operating in this field for some time, has erected a large magazine near this city for the storage of his goods. All kinds of blasting apparatus used in the mining business are kept in stock.

DAVID M. FORD,

who has made a reputation in this region by his connection with the Gates rock breaker and general pleasant manner, is also the representative of several other companies, a list of which will be found further on in our paper. He is enterprising, a hard worker and is bound to make a success of his different ventures in this region.

THE ATLANTIC

Dynamite company is one of the best known in this region, having done business here since mining first began. They manufacture a superior article that is a favorite with the miners. Besides doing its work well, it is comparatively safe, and it properly handled will cause no trouble. It works equally well in dry or wet ground, and never misses when rightly prepared by the blaster. Mr. Jno. Watters, of this city, is agent, and offers a lucrative business. Competition in mine explosives is active but the Atlantic meets all with a smiling face and keeps its quality up to the good old standard.

MANUFACTURERS

of mining machinery and supplies of all kinds will find the IRON ORE the advertising medium they desire to call the attention of mining men to their goods. Our paper reaches the people they seek. Those who desire to keep posted in the mines of this region should subscribe for the IRON ORE. Prices \$2 per year, in advance,

MINING SUPPLIES.

The supplying to the mining companies of this city of such implements, tools, etc., as they needed was not a very extensive business on the part of the resident merchants until of recent years, for the reason that they could not successfully compete with outside concerns who made so lively a bid for the trade that a sufficient margin of profit to secure a living to the local concern could not be secured. To meet such opposition meant the expenditure of a large amount of capital in the necessary buildings, stock, etc., and it was with a complete knowledge of the situation that

L. E. SWIFT engaged in the enterprise. They began in a modest way, were on the ground and learned the wants of the mining people, took pains to see that such wants were properly and satisfactorily supplied, strove to give their customers the best grade of goods, and to make right any defects that were apparent. They secured the attention of the companies by the honest effort put forth, and no better appreciation of the fact is needed than the increase of their trade and the extension of the territory they command.

Extensive business relationship has been created with the copper district of the Gogebic and Menominee iron ranges, of this peninsula, and with the Vermillion, Minn., iron range, this being outside of the Ishpeming field. Their name is a familiar one to the mining people of this entire northwestern territory, and favorably as well, we can add.

Recognized as amongst the foremost in their line, they have been sought by manufacturers to handle their products, and as a result have selected from the number makers of such goods as are of superior quality, combining the different features of excellence that are looked for by wide-awake mining men—and we have no sleepy ones. Their Black Diamond Steel, Washburn & Moen wire rope, their pumping engines for deep mine work, their Ludlow Gate valves, and the products of the National Tube Works, etc., have all aided in securing and holding trade. Their aim is to keep only the best.

Their Haxtun system of steam heating and ventilation is known the Union over. They have introduced it in nearly all the best buildings put up of late years in the peninsula, and kept employed, during 1888, four different crews of men on the introduction of these plants in their territory.

The firm occupies a fine building at 112, 114 and 116 West Bank street, as our engraving shows, in which is the office and general salesrooms. Besides this they possess iron and steel, pipe, wire rope, nail and oil warehouses, fronting on the Chicago & Northwestern Railroad tracks, all finely arranged for rapid and cheap handling of goods.

Mill and railway supplies are also kept in stock, as are also carpenters' tools; etc.

The firm is a solid one, enterprising, of considerable benefit to the town. Mr. W. F. Swift is one of the pioneers of Ishpeming, needs no introduction. Mr. E. H. Fowle is also well known to our readers. Mr. Jno. Burder, head of the supply department, is thoroughly conversant with every branch of the business, while Mr. "Joe" Hayden, the cashier, is as accurate as pleasant.

The firm's advertisement will be found on the last page of this paper.

OUR VOICE.

At the last presidential election we polled 1794 votes.

MINE TIMBER.

The mines of this place annually consume something like \$150,000 worth of timber for ground support. Principal in the supplying of this is

WM. WALTON,

who operates camps on the line of the Chicago & Northwestern railroad some thirty miles below this city, employing fifty men in the work of cutting the logs and bringing them to the railroad. Mr. Walton possesses a large tract of fine timber, pine, hemlock and cedar, takes pains to see that all orders are promptly filled, and meets the prices of the sharpest competition. His trade is rapidly in-

creasing and as he secures all the supplies for his camps from Ishpeming he is a benefit to us.

Besides mine timber he furnishes an excellent quality of dry hardwood, for fuel, in cartload lots.

SUNDAY DINNERS.

Sunday dinners are no more essential to the existence of a man than dinners of other days of the week, yet it is the custom despite the teaching

JOHNSTON & STARK,

operating a planing mill, sash, door and blind factory, etc.; turn out all kinds of trimmings for builders' use. They have been in business here but a short time, during which they have worked up a very satisfactory trade. Their work is first-class, their prices low, and they solicit an opportunity to furnish figures upon all work in their line needed by contractors or private individuals. They make any-

different rooms are finely finished and furnished, are attractive and comfortable at the same time.

On each floor there is a fire plug with hose attached, ready in case of danger, and every care is taken for the safety of guests. The Nelson enjoys a healthy business, of which it is certainly deserving. The building as shown in our engraving, is an ornament to the city and, as we have said before, it does much to adver-

solid business men also. The firm has been engaged in business in this city for the past sixteen years, and has earned a reputation that may well be envied. Mr. T. F. Donahoe has served as mayor of the city for many years, has held various offices of honor and trust, and has at all times shown himself reliable and efficient. He gives public affairs the same attention he does his private matters, and in this lies some of the secret of his success. Associated with him is his brother, Mr. P. H. Donahoe. They carry a large stock of general merchandise, enjoy a large and lucrative trade, secure the benefits of cash discounts, take every advantage of the markets that a long experience and ready business foresight enables them to do.

Their store is one of the finest in the place, being erected at a cost of about \$15,000. They employ a large number of men, pleasant and accommodating gentlemen; alive to the interests of the proprietor and the people.

JOHN W. JOCHIM,

whose store is located on Main street, probably carries the largest stock of hardware, heating stoves, ranges, etc., to be found on the peninsula, and that is saying considerable. He has been engaged in the business in this city for the past fifteen years, has grown and flourished and reaped the harvest for which his close attention to his establishment and the enterprise exhibited certainly entitled him to. His spacious store and ware-rooms are full from floor to ceiling with the best goods in his line the market affords.

THE RADIANT HOME heating stove is one of his specialties, and has met with a wonderfully large sale in this section, several hundred being disposed of annually. In connection with the store there is a tin shop superintended by one of the best workmen in the district. Repairing is given ready attention and it is the aim to give the best of service.

Mr. Jochim is one of the aldermen from the Third ward, is one of the representative business men of the city.

L. W. ATKINS & CO.

You cannot always tell a man by the clothes he wears, but you can generally tell something about the clothes. In these days the ready-made garment manufacturers encroach so far upon the trade of the merchant tailors as to make the latter feel somewhat uncomfortable. Among the list of Ishpeming clothiers is the firm of Atkins & Bradford, the latest to join our business ranks, occupying one of the fine scores in the Jenks' block, where they have already so well advertised themselves

who will make friends and sales. His partner, Mr. Atkins, represents one of the largest manufacturers in the country, and has been selling clothing at wholesale for the past eighteen years. On account of this association with the makers, the firm claim and say they can prove it, an advantage over other retailers, not only in the way of buying goods for the best money, but in securing the very best selections. Being constantly on the road, Mr. Atkins has the advantage such a position offers, and for the past five weeks has been at headquarters superintending the manufacture of spring stock for the store at Ishpeming. Their overcoats are all tailor made, many of their suits also, and quality of goods and honesty of manufacture are guaranteed.

Special orders for dress suits are taken, or for any style of garment not carried in stock, they being the representatives of one of the best houses in the Union.

In fine underwear they claim to carry as per a line as anyone could wish for, and intend to keep to keep their stock, in all its branches, up to the highest point of excellence. They say they are here to stay, and intend to build up a business by dint of fair work and merit.

A RAILROAD,

furnishing us another outlet to the south, southwest, east and southeast, has lately been added to this region, a live road, full of energy and enterprise, possessing qualities that are bound to make the line a popular one, and secure to it a liberal share of public patronage.

The Milwaukee Northern

is the road referred to. It has not yet reached Ishpeming, Champion being its nearest station to us, but it is coming in the near future, to make a lively bid for passenger and freight business, and we believe it will be accorded a hearty reception. The Milwaukee Northern is equipped with the best coaches, sleepers and engines being run in the northwest. Pullman sleepers, the best in the world, are run. These were made expressly for this road at a cost of nearly

TWENTY THOUSAND DOLLARS EACH. They are the only Pullman cars being run between this region, Chicago and Milwaukee.

The day coaches are finely finished, carpeted, heated by steam supplied by the engine, by which means a uniform temperature is maintained, and all danger of fire, in case of accident avoided.

The employees of the road are courteous, using every effort to make passengers comfortable, and this fact, together with the fine equipment, is fast gaining friends for the line. Each passenger becomes a walking advertisement for the road.

At Champion they occupy the same depot with the Duluth, South Shore & Atlantic road, making

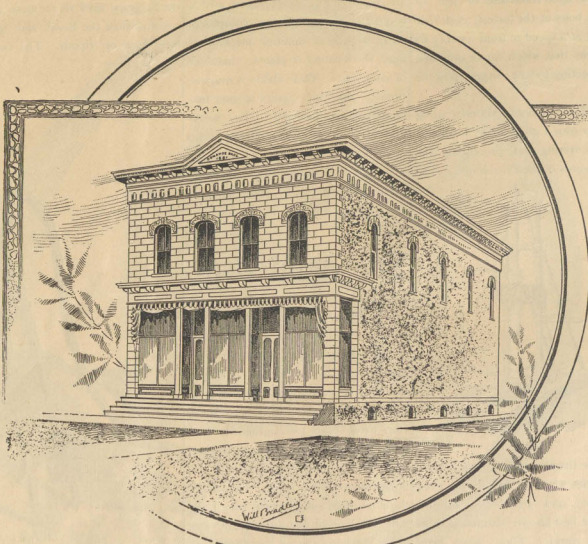
CLOSE AND SURE CONNECTIONS with all their trains. By "sure" connections we mean that if any trains are delayed on the D., S. S. & A. the Northern waits for them, and the D., S. S. & A. extend similar favors in case of delay. This depot has a ladies' and gentlemen's waiting room, lunch counter, and is always kept warm, clean, comfortable and quiet.

At Milwaukee they connect in the elegant new Union depot with the C., M. & St. P. R. R. for all Wisconsin points, also with the Wisconsin Central railroad.

At Chicago they connect in Grand Union depot with the Chicago & Alton, Chicago, Burlington & Quincy, Chicago, St. Louis & Pittsburg, Pittsburgh, Ft. Wayne & Chicago. Therefore passengers destined for points west, south west, south, southeast or east, by going by way of the Milwaukee Northern avoid a disagreeable transfer across the city. This depot has every comfort and convenience necessary for the traveling public and has recently added a

BUREAU OF INFORMATION, which is entirely a new feature, and supplies a long-felt want. Here passengers can get reliable information, can be assured a courteous reply to any question pertaining to their route, etc.

The road is known as the short



DONAHOE'S BROWNSTONE BLOCK, DIVISION STREET.

that it should be a day of rest, to provide a well-filled table for the family, to invite a friend to dine, to have the spread a little larger, to have the different articles of food well prepared. In the way of providing the structural timber for dinners,

J. F. JOHNSTON & CO.,

proprietors of the "Corner Market," have earned a reputation dear to them, important to the people. They make a specialty of carrying the best of everything in the line of meats, fruits, vegetables, and other good things, in their season. The gentlemen have had a long experience as caterers to the public appetite, know the weak points thereof, and provide long-felt wants in the way of sausage links that make agreeable companions for buckwheat cakes in the morning, tender turkeys, chickens, etc., that add flavor and satisfaction to the mid-day meal, fish, oysters and such like to fill a vacuum during the evening. There's a heap of comfort in a tender, juicy roast. We believe it tends to a softening of the human heart, adds to the flow of the milk of human kindness, makes Sunday a more peaceful day than it might be were the roast only supplied by the use of dynamite. Verily, there is much after all in having a satisfactory Sunday dinner.

MANUFACTURING.

Under this head Ishpeming can offer but little as compared to many places in the state. While possessing much that should attract the attention of capital in the way of natural resources, little has been secured, and while we deplore the fact we hope for an improvement in the near future. Gradually the iron business is moving westward, and with the strides of progress apparent in the different manufacturing industries, we hope to gain something. The wagon and carriage factory of

MESSRS. WALNETH & TISLOV,

located on the corner of Pearl and Second streets, is one of the live concerns of the place, employing several workmen in the different departments, all of which are now running to their fullest capacity. None but the best work is turned out, and it is largely due to this fact that so satisfactory a trade has been received. Their shops, which were consumed by fire a few months ago, have been rebuilt and equipped with the latest patterns of machinery, etc. Their advertisement will be found further on in this number.

thing needed in the wooden line in connection with house furnishings.

A GOOD HOTEL

does as much to advertise a town as anything else it can possess. It is either praised or condemned by a certain number of traveling men every day in the year. If an imperfect building, badly kept, the outside world knows of it. If it is commodious, convenient, with a good table, it is also talked of, and it is in the latter strain that

THE NELSON HOUSE

is mentioned. It is a fine brick structure three and a half stories in height contains forty-five rooms, suites of rooms being counted as one, and there are several of them in the house. There are twenty-seven baths, the house is heated by steam, lighted by gas, it having put in a lighting plant when erected. It was run for some time by the builder, Mr. Robt. Nelson, (also founder of the city), and

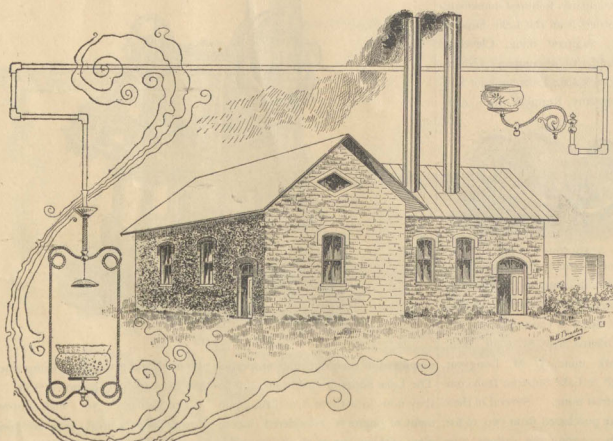
tise Ishpeming in a satisfactory manner.

S. JOHNSON & CO.

occupy spacious quarters on the corner of Second and Bank streets. During the past two years the firm has added considerably to their former buildings, erecting a meat market and clothing store. They are amongst the largest concerns regarding the amount of business done, are building up a good, solid trade, which they hold by exercising those business courtesies that always find favor with the public. They employ a large number of clerks, add not a little to the population of the place, and they are here to stay. Mr. Johnson is one of the pioneers of the city, one of the aldermen, and is thoroughly familiar with the diversified business he has in charge.

WE ENJOY A DRIVE.

We possess the finest drive of any



HIGGINS BROS. & CO.'S GAS WORKS.

was purchased, a few years since, by Mr. John P. Outhwaite, an old resident of this city, and one full of public spirit and enterprise. A few weeks since the building was leased by Mr. Geo. Voyer, who for some time served in the capacity of clerk. The building possesses a spacious office, parlors, dining room, billiard room, kitchen, etc., and has also a fine refrigerator just outside the kitchen, that is of great convenience. The

city in the northwest, the Iron Cliff, so-called. The road is partly through immense timber, birches, maples, elms, etc., by a chain of lakes, is beautiful, and much patronized in the summer season.

THE BROWNSTONE

store of T. F. Donahoe is one of the solid buildings of the city, as shown by our columns, contains one of the

that their presence is generally well known to the people of Ishpeming and surrounding country. Mr. Bradford, the partner in charge, has been in the business for many years, is quick to learn the wants of his trade and as ready to supply its needs. The store is kept up in a manner showing perfect familiarity with every detail of the business, and in Mr. Bradford is recognized a gentleman of skill, one of an accommodating disposition

line between the copper and iron districts to Chicago, Milwaukee, and other points in that direction. They have an excellent roadbed, run through a country replete with beautiful scenery, full of game and fish. In their peninsula district, a paradise for sportsmen and tourists.

The Milwaukee and Northern is bound to grow in favor. It has everything to produce this result, and we are glad to know we have a line that pays so much attention to the traveling public.

WELL UP.

H. F. HEYN

comenced business in this city seven years ago, engaging in the manufacture of harness, carrying a small line of horse-furnishing goods, and let the people know he was here. Previous to his coming the business had been but poorly represented, much dissatisfaction was manifested, and the trade had naturally turned off into other channels. From these he has rescued it, and now is the most extensive dealer in the peninsula in his line, is the only jobber. He is absent much of the time in the capacity of a wholesaler, the retailers finding he can do fully as well here as by going further away, and effect a saving of time by dealing with Mr. Heyn. Goods are sold by wholesale and retail. Everything needed in harness and horse-furnishing goods are kept in stock, none but the best goods are carried, this fact, and the further one that prices are low as can be made, having been one of the secrets of his success. Mr. Heyn personally supervises the business, employs a competent force of workmen and makes it a point to give his patrons just what they desire.

A large stock of leather and shoe findings, uppers, lasts, etc., are also carried, this being an important feature of the establishment. Our cut of Main street shows the location of the store, while our front page has an engraving of his handsome residence erected in 1887.

THE STAR.

This is the name given the clothing store of Messrs. Blumenthal & Ruttenberg, located on the corner of Cleveland avenue and Main street, in the Voelker block. The firm carries a heavy line of clothing, furnishing goods, hats and caps, boots and shoes, and has a business that is large and profitable. They are acquainted with the vocation, the wants of the public, and take every pains to please. They have grown and flourished since the time of their start, and have a reputation for square dealing that can well be envied.

T. HUGHES

located on Main street, has a general merchandise stock, and has, within the past few weeks, added a meat market for the convenience of his customers. He does a large business, does it well, keeps the best grade of goods, sells at the lowest possible figures, and intends erecting a fine stone or brick building in the near future. He is one of the "solid" men of Ishpeming, an old resident, with hosts of friends. His son, M. Hughes, assists him in the running of the stores.

The Value of Ores.

During the search for gold and other metals and ores in this region, the value of new discoveries is a matter to be determined as early as possible. Nothing can be done wisely until the quality of the find is made, and to aid you in determining this

BATTLE, NYE & MINTZ

have established a branch here, fitted it up with the best apparatus and are ready to make assays for all who desire them. A new furnace for treating gold and silver ores has just been put in, and all orders will receive prompt attention. Since locating here, Mr. Mintz, who has charge of the laboratory has had a large amount of work to do, and has things arranged to do all that is fur-

nished him. His office is in the McKee block, corner of Main and Pearl streets.

PENINSULA BANK,

has a paid up capital of \$50,000; commenced business Dec. 21, 1887. Wm. Sedgwick, president; Ole Walseth, vice president; A. D. Garner, cashier. Directors: President, Vice President, H. H. Mildon, E. E. Osborn, R. Maxwell, J. P. Outwaite, Timothy Hughes, D. McViche and John R. Wood, Pres't 1st Nat'l Bank, Iron Mountain.

Declared a dividend of 6 per cent. on capital stock payable Dec. 18, 1888. Respectfully solicits accounts of business men and individuals, in and out of Ishpeming; sells exchanges on all parts of Europe at the lowest rates; has eleven of the best fire insurance companies. There are no better burglar or fire proof vaults, safes and safety deposit boxes than the Peninsula bank's. A cut of the building will be found on another page, it is a neat structure, a new one, a credit to the builders and the town.

THE GATES,

the greatest rock breaker on earth, is fast becoming a favorite in this mining region. It possesses a simplicity of construction, surpassing all other breakers, is rapidly taking the lead, and promises to keep it. We have spoken of the Ropes machine in a description of the mine. The city also possesses a Gates, that gives perfect satisfaction. The Cleveland mine purchased one the past summer. Marquette city has a machine that also works to suit all concerned. The company has lately furnished breakers to Cambria Iron & Steel company, Johnstown, Pa., Birmingham Mining & Manufacturing company, Birmingham, Ala., New York Broken Stone Co., Kingstown, N. Y., Carnegie Bros. Steel Works, Pittsburg, Pa., and the works are kept busy supplying the demand. A No. 8 machine will take three pieces of rock 18x45 inches, at once, crushing from two to three tons per minute. Several machines have lately been sent to England.

Mr. David M. Ford is agent for this peninsula, his announcement being found on another page.

The following testimonials relate to the Gates showing what is thought of it:

CALEDONIA GOLD MINE.

TEBRVILLE, D. T., Sept. 24, 1888. *Gentlemen*—Your favor of the 4th inst. at hand and contents noted. We have one size 4 Gates. With an 80 stamp mill, it saves us in labor, power, etc. some \$27 a day. With an 80 stamp mill (which we now have) I calculate about \$30 to \$35 a day. We were using Blake breakers No. 6, receiving openings 8x15 inches. For an 80 stamp mill it requires 4 Blakes, requiring 3 men, each 11 hour shift to feed them. The Blake action is not continuous; half the time is lost in the wheel action. We ran the Blake breakers night and day to keep the mill supplied. The Gates breaker has three receiving openings, capable of receiving 11x22 inches. Our ore is very hard; the larger the receiving openings of the breakers are, the less labor we require to break up the rock in the mine. This saves us three men in the mine.

We run through the Gates breaker 250 tons of ore in 11 hours with two men feeding. This we supply the broken stone for the entire mill for 24 hours by running the Gates breaker during the day, and shutting it down at night. This is a saving of four men. By this means I am enabled to lay off all laborers at night in the mine; do no hoisting of rock at night, and save the power of the breaker, the wear of machinery, etc., and do the greater portion of my work during the day. This is an advantage.

The action of the Gates is continuous and direct. We could easily break with this breaker 30 tons more of ore during the same time. For this breaker we use about 35 or 40 horse power. The breaker has a hopper, so the ore does not have to be shoveled into it, but is dumped on it, and for the greater part falls into the openings. The wear of the concaves and head is no greater than the wearing parts in other breakers. Our ore is so very hard that the wearing of these parts here is hardly a criterion. We replace the concaves every six weeks, and the head every two months. The breaker can be set up to break the ore to any degree of fineness required.

I am highly pleased with the breaker, and consider it the greatest improvement made for years in this class of mining machinery. Any other information I can give you, I will be pleased to do.

Very respectfully,
T. L. SKINNER,
Superintendent.

ROPES GOLD AND SILVER CO.

ISHPEMING, MICH., Sept. 13, 1888. *Gentlemen*—In reply to your inquiries as to the working of the Size 2 Gates breaker at the Ropes Gold and Silver Co.'s mill, would say we have been running the breaker continuously for the past four months on very hard quartz, breaking 20 to 60 tons per day, and as to the working of the machine would say I consider it far superior to the Blake, having used both here. As to wear, the steel on the surfaces of the breaker is as long as in the Blake, and break the quartz to a more uniform size for the stamps, which we

find a great advantage. My only regret is that we did not get a larger breaker, thereby saving the amount of sledging to be done.

Yours truly,
GEORGE WEATHERSTON,
Superintendent.

NOTE—On October 20 this company purchased one of our Size 5.

GATES IRON WORKS.
IRON CLIFFS CO.
A. Mattland, Gen'l Manager.
Barrenum Special Ore.
Cliffs Shaft
Salisbury Hematite.
Ponder
Pioneer Charcoal Pig Iron.

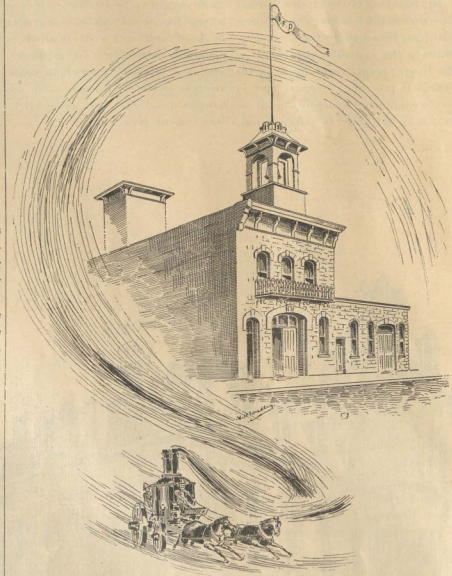
NEGAUNEE, MICH., April 8, 1888. *Dear Sirs*—Replying to your inquiries regarding the working of Size 4 breaker in use by this company, it gives me pleasure to say it has run every consecutive day for 14 months, without any stoppages for repairs or breakages of any kind. We can break

he screens his stock from first-class makers, Canadians, who know all for there is to learn about foot gear for winter sports.

Besides such articles as snowshoes, moccasins, toques, etc., a complete line of foot wear for all times, is carried, comprising stylish and serviceable goods needed by the different people composing the community. A large business is enjoyed, satisfaction always aimed at, and the popularity of the place is wide-spread.

THE MERCURY

falls to a surprisingly low point in our town at times during the average winter, although thus far during the



CITY FIRE ENGINE HOUSE, FIRST STREET.

ore much finer than with the Blake breaker, which is a great advantage to us in working our furnace. I consider your breaker far superior to the Blake.

Yours truly,
A. W. MATTLAND, Gen'l Mgr.

CARPENTER BROS.
Railroad Contractors.

PORT CHESTER, N. Y., Feb. 30, 1888.

Dear Sirs—We have been working from six to ten rock breakers for the last fifteen years. Among those used were three from the Gates Iron Works of Chicago, (one Size 3, one Size 4, and one Size 5). We have no hesitancy in saying the "Gates Rock Breaker" is far superior to all others. It has every advantage, 1st. In quantity of stone broken, about three times as much as in a flat jaw breaker. 2nd. In uniformity of size of stone broken, no spalls or flat pieces. 3rd. A saving of from 30 to 40 per cent. of power, by actual tests. 4th. A saving of from 25 to 50 per cent. to keep in repair. 5th. The continuous discharge prevents packing or pulverizing. We could enumerate many more advantages your breaker possesses, and to sum it up will say, your machine is entitled to all our claim for it.

Very respectfully,
CARPENTER BROS.



THE NELSON HOUSE.

SNOWSHOEING.

The lady or gentleman who does not possess a pair of snowshoes is decidedly out of fashion, and someone has remarked that it is just as well to be out of the world as to be excused of being behind the times. The genius secured from a snowshoe tramp is certainly beneficial, if not too excessive. To insure easy walking the shoe should be of the best make—composed of good material and properly fashioned. Well up as a judge of such things is

M. E. LALONDE,

proprietor of the well-known boot and shoe store in the Jenks' block.

injuries one. If an inferior grade of tobacco is used in a cigar, if any drugs are employed to lend it the appearance of being a genuine article, then injury must result, and the only way to avoid this danger is to buy your goods from a reliable concern. This is a reputation the

JAEDECKE BROS.

have always enjoyed. They are the heaviest manufacturers in this district, a fact we learn from Mr. D. McViche, deputy collector of internal revenue. Mr. Herman Jaedecke, who has direct charge of the business, was raised in it from boyhood. There is nothing about it with which he is not thoroughly conversant, and he has used his knowledge for the benefit of his patrons. His establishment furnishes employment for about sixteen hands, who are kept busy in filling the orders that come in. Goods are made to order to suit the taste of customers. There is every convenience, cleanliness is observed, a proper selection of stock made, the grade kept up, satisfaction is always given, and for this reason the trade is large and correspondingly profitable. Orders by mail given prompt attention.

GOLD QUARTZ

wrought in the form of jewelry, cut and polished and finely mounted, is an attraction at the store of

E. GIRZI

that has created considerable notice and met with a ready sale for several months past. Mr. Girzi is alive to every thing in his line that is calculated to please the eyes of the people. He possesses one of the finest jewelry establishments that is to be found in the upper peninsula, occupies an elegant stand in the Jenks' block. He deals in all descriptions of gold and silver watches, plated ware, sewing machines, musical merchandise, and keeps the best of everything. Has been located in this mining district for eighteen years, has grown and flourished, is here to remain.

The American Hotel.

owned and conducted by Mr. Peter E. Glogras, owner of the fee of the bonanza gold properties, to the northwest of the city, has been re-modeled during the past summer and fall, another story added, the house supplied with a steam heating plant, baths, etc., and furnishes accommodation for a large number of guests, is well patronized, the traveling public evidently appreciating the efforts of the landlord in their behalf. The house has been fitted up with an entire new lot of furniture, also, the late improvement costing \$9,000. A good table is set, everything done to make the patrons comfortable, and the popularity of the resort is fast increasing.

KAHN & SKUD,

who watch over the destinies of the Boston clothing house, at 207 south Main street, have been in business here for several years, have grown and increased in all directions, so that now their store is too small to accommodate their stock. They give personal attention to the concern, are careful buyers, know what to buy, and when, study economy in the operation of their establishment, and meet the sharpest competition. At the present time they are selling overcoats, caps and cold-weather goods at low prices, in order to make room for spring goods. They make a practice of clearing out every new year, believing it is better to sell out at cost than to carry the stock over. They are gentlemanly, accommodating, anxious to please, and succeed in their effort to do so.

The VOELKER BLOCK,

as shown by our engraving, is one of the finest in the city, its erection being due to the enterprise of Mr. N. Voelker, an old resident and well-known wholesaler of Schlitz Milwaukee beer, a beverage that is a popular one. Of late years the business has been in the hands of Geo. Voelker & Co., an enterprising firm, that has increased their trade in a steady way, keeping up with the gain in the population. They send

their goods all over this district, and one day recently during the holidays sent out five carloads. They occupy the lower half of their block, and have one of the finest saloons in the country. Mr. Voelker owns considerable property in the town and has done his share towards improving the city.

GEO. H. ARTHUR,

merchant tailor, has piled the shears in the interest of well-dressed people in this community for many years, he has a reputation for neat-fitting garments that is valuable to him, and he sees to it that his good name is not injured by any species of neglect. He occupies commodious quarters in the Heinenan block, gives employment to a large number of men, and just now is ready to take orders for spring wear, or for any season—present or future. He aims to give satisfaction in quality and style of goods, in prices of same, and solicits your attention to the fact.

ISHPEMING

has more natural wealth than any other city of its size in the Union. Those who imagine this is an uncivilized, backwoods community, are at fault. We are in town, enjoying all the dressing and the flavoring of life in a measure equal to that of any one at any place.

MINE PUMPS

Each year finds an increase in the depth of our mines, and as a greater area of ground is cut, the natural result is that there is a corresponding increase in amount of water met with. The water charges of many of the big mines forms an item of great expense, and the manufacturers of pumping engines, aware of this prevailing condition of things, have been studying to lessen the cost to the ore producer.

Foremost amongst those who have made rapid strides in this important direction is

HENRY P. WORTHINGTON.

of New York. For years the pump has been a favorite, and as it has been improved upon from time to time by the ambitious manufacturer its fame has increased until now it is found in the best mines the world over. The city of Ishpeming has a Worthington plant that has never failed, has been in operation over seven years, and has cost practically nothing for repairs. Our sister city, Negaunee, has a similar plant that gives the same gratifying service. At the Branstad mines one has just been put into operation and pronounced perfect, doing its work with ease and at a great reduction in cost from that of the former old-style plungers. The Metropolitan Land & Iron company has just placed an order for a pump of 800-gallon capacity per minute, 710-foot, single lift. They are the inventors of the duplex form of pumping, standing at the head of all others.

Their works at Brooklyn, N. Y., cover two squares, and give employment to over a thousand men. A branch at London employs 600 men. Branches are maintained at Paris and Brancas. They have a wonderful equipment of machinery, can turn out an unlimited amount of work of the finest kind. They possess superior advantages, enabling them to perfect the very best machinery at the lowest possible cost.

Their advertisement will be found on the last page of this paper.

HENRY HARWOOD,

druggist and stationer, holds forth in the Jenks' block, carries a fine line of such goods and novelties usually found in complete drug stores in lively towns. He makes a specialty of providing the best newspapers and periodicals at lowest prices, and is the only merchant in the city who handles singing birds. Keeps everything from a humming bird up to an owl—the owl is stuffed—but he has many fine singing birds, imported mostly, all warranted to be of the best. Keeps a complete stock of snowshoes' wear, toboggans, etc., is a pleasant gentleman to do business with.

PEOPLE WILL SMOKE,

and many claim the habit to be an

OUR POSTOFFICE.

The amount of business done by the postoffice of a pretty fair indication of the general business of the place, and of the number of people it contains. Through the kindness of the local officials we are enabled to present the statement of business done for the year ending December 31, 1888:

GENERAL BUSINESS.	
Received from sale of stamps.....	\$ 7,650 64
Received from sale of envelopes.....	1,898 54
Received from box rent.....	1,544 25
Total postal funds.....\$11,093 43	
REGISTRY DEPARTMENT.	
Number of letters and packages registered.....	1976
Number of letters and packages received.....	2090
Number of packages handled in transit.....	2870
Total number of pieces handled, 35356	
MONEY ORDER STATEMENT.	
To balance—cash on hand Jan. 1, 1888.....	\$ 1,158 09
To 2722 domestic orders issued.....	51,017 06
To fees on same.....	411 44
To 1379 postal notes issued.....	3,334 67
To fees on same.....	59 37
To 3407 Int. M. O. issued.....	61,087 51
To fees on same.....	694 40
Total.....\$118,362 54	
By 2933 domestic orders paid.....	\$ 46,596 50
By 779 postal notes paid.....	1,785 90
By 180 Int. M. O. paid.....	4,860 73
By 33 domestic orders received.....	377 19
By 19 postal notes repaid.....	32 87
By 13 Int. M. O. repaid.....	146 90
By amount remitted.....	64,100 00
By balance cash on hand.....	512 45
Total.....\$118,362 54	

By the above it will be seen that the institution is full of business and also that the town is entitled to free delivery by governmental aid, having a considerable margin to spare. There has been handled, received and paid a large amount of money and the amount of foreign orders issued exceeds that of any other office in the state.

The postoffice has been well run during the past year. It handles an immense amount of mail, much of it foreign, written in all languages, and the service requires the greatest care. Mr. P. H. Devine is postmaster, Mr. Wm. N. Loth head clerks.

MONEY SAVED.

To determine just what amount of money finds its way to foreign countries from the city of Ishpeming, the Iron Ore has taken the trouble to secure the figures from the different sources where foreign money orders and drafts are issued and has arrived at the following result:

Issued by postoffice.....	\$ 61,087 51
" " Hans Gunderson.....	24,171 48
" " A. W. Lindholm.....	9,607 95
" " Adam Kangas.....	3,984 80
" " Banks and Express Co.....	4,280 85

Total issued.....\$103,132 59
Here, then, has been sent by the miners and laborers of this place to the land of their nativity over one hundred and three thousand dollars in cash. It has gone to aid the families of men working in Ishpeming, a poor father or mother, brother or sister; has been sent to pay the passage of friends to this country, zone for various purposes. Some of it has been sent to the banks of the old countries. Many Swedish people send money to Sweden to be kept for them, they drawing an interest from its deposit there. Mr. Gunderson's orders have been sent to Norway, Sweden and Denmark; those issued by Mr. Lindholm have nearly all been sent to Sweden—nineteen-twentieths of them; those written by Mr. Kangas were all for Finland; those by the postoffice to all parts of Europe represented by the Ishpeming workmen.

There is no better proof that we can advance going to show the thrift of the Ishpeming miners. It is better than all the sermons that can be preached during the year in the way of political or other kind endeavoring to show the true condition of the workmen. Put this amount with what has been expended in new buildings and the supporting of thirty-two saloons and we will get a fair idea of the spare change there is in our town. We are not a community of paupers by any means. It would

have been better could this money have remained with us, gone into houses and improvement of the place, but the little ones abroad, the aged and infirm, must be aided by the sons and fathers who delve in Ishpeming mines.

We have before said in this issue that no mining region under the sun is more profitable to the workman than this, and the figures are given to prove the statement.

Ishpeming Beef Co.

Under the above name Swift & Co., the celebrated meat packers of Chicago have erected and opened a market in Ishpeming for the accommodation of the trade of this section. Business was commenced on Monday, Dec. 31st, and the machinery gotten into smooth operation by the New Year, although but one day had elapsed until such time had arrived. This firm has, throughout the country, about one hundred and fifty markets or distributing stations, so it will be seen that they are an active, wide-awake concern.

The market here is a neat building iron-clad, the refrigerator having a capacity of a car load of beef, besides room for other commodities handled by the firm. The arrangement of the

others in this peninsula in the magnitude of their operations, equal to the best in quality of work done, up to the times in the way of architectural design, and are growing every year in popularity.

Amongst the notable contracts they have secured is that for the construction of the upper peninsula state's prison building, located at Marquette, which they will turn over to the state of Michigan the coming month. It is an immense structure, costing \$160,000, and is the heaviest contract in the building way ever let in this region. The board of commissioners to whom the state left the matter of site, proper construction, etc., are unanimous in saying that the contractors have done a splendid piece of work, living up to the terms of the plans and specifications in all its detail, to the minutest portion, are highly pleased with the execution of everything pertaining to the edifice.

The mine school at Houghton, another state institution, has also been finished by the above firm at a cost of \$70,000, and is a magnificent structure. It will please be borne in mind that in securing these contracts the firm was opposed by builders from all parts of the country, both in and outside of the state of Michigan.

also built by them.

All of these were put into the hands of many contractors to bid upon, it means something in favor of the Ishpeming firm.

In the way of residences a great deal of work has been performed. In Ishpeming the houses of H. O. Young and Dr. T. A. Felch, of which we have heretofore spoken, are amongst the best.

In the way of mine buildings they have put up the concentrating works at Humboldt.

The firm employed during the past year a large number of men, their pay roll averaging \$15,000 per month. The high school building, of this city, which we show in this paper, is of their handwork, as are nearly all of the buildings and residences shown in our columns. They are reliable, trustworthy. They do as they agree, have worked up their immense business by doing first-class work at moderate prices, and by doing it promptly. They employ workmen enough to complete their contracts at the stipulated time, and this often means a great deal to the owner.

Mr. Fred Grip looks after the general business of the concern, is the main financier, also superintends the outside construction work. Mr. John Wahlman looks after the Ishpeming

and reform school, Iron Cliff company's office, Boulson's block, the residences of H. O. Young, Dr. T. A. Felch and many others. His charges are moderate and as far as the finish of his work goes none do any better, few as well. He has built up a satisfactory trade, carries an elegant line of goods that form a plumbers' stock, bath tubs, closets, boilers, fittings, etc. In 1887 he finished a handsome residence on North Oak street.

Mr. Barney deserves all the good fortune he has met with, and we hope it will continue to visit him.

LIVERY.

Mr. Gil Hodgkins, Walseh & Tislow, Nicholas Losselyng, John Farm and Jno. T. Burke all have fine stocks, all do a good business. Mr. Hodgkins does considerable in the way of contracting in the lumberwoods, rail road, mine work, etc., and all enjoy a good trade.

AL. SMITH,

proprietor of tonsorial parlors in the Mildon block, corner of Main and Division streets, has one of the neatest places in the city, is one of the best artists. His hair cutting and shaving are excelled by no one. He

building, came to the city Nov. 28, 1886, began in a small way to sell the people from a novelty stock, made up of nearly everything in the way of crockery, glassware, lamp goods, plush goods, toys, notions, etc. During the recent holidays he employed eleven clerks to wait upon the customers, these being kept busy from morning till late at night.

Before coming to this city Mr. Dawson had for fifteen years been engaged in the hardware business at Jackson, Mich., where he became perfectly familiar with the handling of many goods now carried by him. His trade has grown in a manner little short of wonderful, which must have been accomplished by giving value received to the numerous patrons—by selling at the lowest possible figure, by handling satisfactory goods.

Mr. Dawson is arranging to still further increase the size of his stock and during the present year will have considerable to say to the people of Ishpeming and vicinity that will be pleasing to them. He is bound to furnish them with goods in his line no matter what the expense of keeping up a big stock may be.

C. R. ELY,

real estate agent of this city, is authority on mine stocks of all kinds pertaining to the Ishpeming gold and iron ore ranges. He is secretary of the Ropes Gold and Silver company, of the East New York Iron company, besides filling a similar position in many other concerns. He has grown up with the town and by good judgment and earnest application to business acquired a neat fortune.

C. H. KIRKWOOD

has been engaged in the drug business in this city for the past eighteen years, during which time he has built up an excellent trade and accumulated considerable property. He handles a complete line of drugs, stationary, fancy goods, newspapers and periodicals, and no store in the region is more orderly kept. As a business manager many have to acknowledge the superiority of Mr. Kirkwood. He occupies a neat store in the Heleman brownstone block, which can be seen in our view of Main street, and during the past year made many important changes, remodeling the entire interior of his place. It is pleasant and attractive, and that it is appreciated is shown by the amount of business done.

A PEACABLE TOWN.

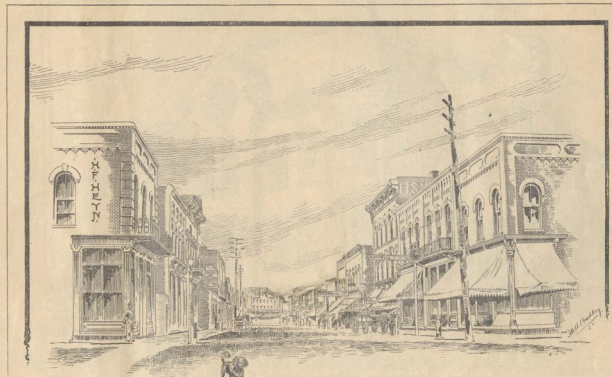
Many people, not acquainted with the true condition of things, imagine our population to contain many rough characters who make life unbearable to civilized people. They imagine because this is a mining region there must necessarily be a very rough population. They get that idea by reading dime-novel literature pretending to truthfully portray mining life. At no place in the country of similar size, and we will not exclude any village in the slowest agricultural district in the union, is better order preserved than at Ishpeming. The people are peaceable, intelligent. Arrests are of very rare occurrence, and while we have over thirty saloons, they are well kept. We have no "dives." The saloon proprietors are respectors of the law and of the feelings of the public. A public brawl is scarcely ever heard of. The miners are an intelligent, good natured people, as can be judged from the number of societies, and churches.

It is so seldom the city jail has an occupant that, while the structure is old and imperfect, the council hesitates to order the erection of a new one. There seems to be no use for it. Occasionally a drunken tramp will show up who needs attention, but he is usually headed southward and ordered to move.

The terror of the Ishpeming gutch, the red-handed so-and-so, has not yet made his appearance.

GOOD BREAD

does as much as anything else towards adding to the happiness of a home. Few know how many hearthstones have been deserted, how many happy families wrecked by a single loaf of bad bread. We have not the



VIEW OF MAIN STREET.

the building is perfect. From the car the beef is hung upon hooks that are attached to rollers, these fitting upon an iron track, and along which the halves, quarters, etc., are pushed to any desired point. By this labor saving invention the handling of a car load lot is a very small matter, and the work of filling orders can be readily executed. The refrigerator is constructed on the most modern plan calculated to keep meats in the finest shape. A regular temperature is observed and nothing neglected that will preserve the good qualities of the "raw material."

The firm is noted for the excellence of its various provisions. There is a fine stock of hams, shoulders, leaf lard, also other kinds, best rendered, sausage of different kinds, and everything a market of first-class description should keep.

The concern is one that Ishpeming people should patronize. It is the pioneer, does something towards improving the place, adds to our population, and is deserving of recognition by our merchants.

The business is managed by Mr. W. W. Gowing, who will be found an accommodating gentleman, fully posted in all that pertains to the market.

WAHLMAN & GRIP.

The above firm of contractors and builders are far in the lead of all

business and the manufacturing departments.

Mr. Jno. Mennie fills the position of draughtsman and cashier, which he performs to the satisfaction of all concerned.

Messrs. Wahlman & Grip are an enterprising firm, head and shoulders above all competitors in this region, are of great to the city, and we are glad to note their prosperity.

THE PLUMBER.

The plumber and the undertaker probably receive as much public notoriety as any other class of people, unless it may be the lawyer and the fellow who abuses the editor, but they are generally given too much credit. The plumber is a necessity. He has hard work to do, unpleasant, often, and he must be well up in his calling to satisfy those who employ him. Skill and good nature considered.

MR. RICHARD BARNEY.

of this city, is entitled to the top of the heap. He is a graduate who has finished all of the different branches, and the amount of business he does is sufficient to prove that his services are appreciated. He has worked hard since becoming a resident of Ishpeming several years ago, has made friends and a good name, and has furnished nearly all of the best buildings in this mining region erected within the past few years, these including the branch state's prison

is agent also for Campbell's steam laundry, Milwaukee.

MINE MAPS.

Mr. Olof Venstrom, of Marquette, consulting mining engineer, who was in the employ of the Swedish government for several years as a mining engineer, who earned the titles of M. G. F. S., and M. A. I. M. E., is introducing a system of map making in this field new to it, and which is sure to become a popular one. It shows, by different colorings, the formations upon the various levels, is plain, instructive, and of great value to a mining company desirous of becoming thoroughly familiar with their ground. Mr. Venstrom is Northwestern representative for the Venstrom magnetic ore separator for iron ores, this machine being the invention of his father, who is looked upon as one of the ablest engineers of Sweden. This machine will soon be in operation in this country.

Mr. Venstrom kindly contributed a highly interesting article on Swedish mines and mining for this number of our paper, which we regret came too late to find place, but will appear in the next number of the Iron Ore, and should be read by every mining man who takes an interest in his profession.

T. H. DAWSON,

proprietor of the Bazaar, occupying a neat store in the Merryweather

CHAS. HAYDEN,
BROKER,
 Mining Stock Bought and Sold
 P. O. Drawer No. 227.

NEXT!



If you should want an easy shave,
 As good as barber ever gave.
 Just call, and at my parlor find,
 A Razor's edge to suit your mind;
 I'll cut and dress your hair with grace,
 To suit the contour of the face.
 My room is neat, and towels clean,
 Scissors and razors keen,
 And everything I think you'll find
 To suit the taste and please the mind!
 And all that art and skill can do,
 If you will call I'll do for you.
 Yours Truly,
 A. L. SMITH.

GEO. J. FISHER

Wishes to announce to the public that he has laid in one of the finest stocks of
BOOTS AND SHOES
 FOR
 Fall and Winter Wear,
 that can be found in the county.

He also has a fine stock of H. R. Howard & Co.'s, of Boston, fine Ladies' and Children's Shoes that cannot be excelled.

A Full Line of Digging Boots.
 Rubbers of all kinds for the sloppy weather.

Stockholders Meeting.
 The annual meeting of the Gold Star Mining company will be held at Philadelphia hall, in the city of Ishpeming, Marquette county, Mich., on Monday the 7th day of January, A. D. 1888, at 7 o'clock P. M., for the purpose of closing up the affairs of the company and performing such other business as may properly come before the meeting.
 STEAD JOHNSON, Sec'y.
 Ishpeming, Mich., Dec. 15, 1888.

Special Stockholders Meeting.
 A special meeting of the Riverside Iron Co. will be held at the office of E. G. St. Clair, No. 102 Pearl St., Ishpeming, Mich., Wednesday, Dec. 13, 1888, at 2 P. M., for the purpose of raising funds to operate and equip this property.
 By order of Board of Directors,
 D. McCARTY, Pres. J. O. ST. CLAIR, Sec.
 Ishpeming, Nov. 22, 1888.

Stockholders Meeting.
 The annual meeting of the stockholders of the Ishpeming National Bank for the election of Directors will be held at their banking house on Tuesday, January 8th, 1889, between the hours of 10 a. m. and 4 p. m.
 A. B. MIBEL, Cashier.

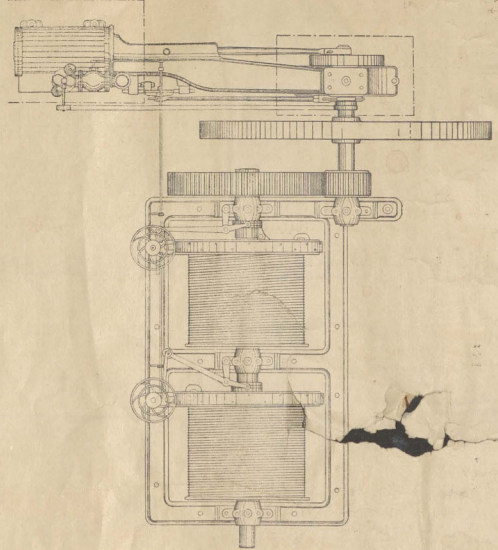
(First publication Nov. 24.)
STATE OF MICHIGAN, IN THE CIRCUIT COURT FOR THE COUNTY OF MARQUETTE, IS CHANCERY. Nels Mahanna vs. Daniel Wink, Sofia Wink, Catherine Johnson and Nels Letto. In this cause it appearing from a bill in file, that the defendant Nels Letto is not a resident of this state, but is a resident of Minnesota. On motion of complainant's solicitor, it is ordered that the appearance of said non-resident defendant, Nels Letto, be entered herein within four months from the date of this order; and in case of his appearance he be cause his answer to the bill of complaint to be filed, and a copy thereof to be served on the complainant's solicitor, within twenty days after service on him of a copy of said bill and notice of this order; and in default thereof, said bill will be taken as confessed by said non-resident defendant. And it is further ordered that within twenty days the complainant cause a notice of this order to be published in the IRON ORE, a newspaper printed and published and circulating in said county, and that said publication be continued therein, once in each week for six weeks in succession, or that he cause a copy of this order to be personally served on said non-resident defendant at least twenty days before the time above prescribed for his appearance.
 Dated November 17, A. D. 1888.
 A. B. ELDRIDGE,
 Circuit Court Commissioner,
 Marquette, Mich.
 HAYDEN & YOUNG,
 Complainant's Solicitors.

Delinquent Stock Sale.
 The following shares of the stock of the Kilworth Mining company, held by the following named persons will be sold at public vendue to the highest bidder at the office of T. J. Dunton, in the city of Ishpeming, Marquette county, Michigan, on the 26th day of January, A. D. 1889, at ten o'clock in the forenoon of said day, for non-payment of assessment on the stock, now in days overdue, or to satisfy said amount of assessment and the necessary expenses of the sale. The persons holding said stock, the number of shares held by each, per cent, and the amount due are as follows:

NAME	SHARES	AMOUNT
R. H. Mutholland,	4109	\$110 00
James Connel,	250	25 00
A. P. Schmitt,	120	5 00
Phillip Connel,	400	40 00
James Fitzgerald,	40	40 00
John Winton,	200	20 00
William R. Hullem,	800	80 00
W. J. Stern,	100	40 00

T. J. DUNTON,
 President,
 of the Board of Directors.

I.E. SWIFT
MINE MILL & RAILWAY SUPPLIES
 Iron Steel Nails
 LUBRICATING AND ILLUMINATING OILS
 HAXIVA SYSTEM OF STEAM HEATING AND VENTILATING
 112 and 114 and 116 WEST BANK STREET



DOUBLE HOIST AND SLIDE VALVE ENGINE. BULLOCK MAN'F. CO.

A. O. JOPLING & CO.,

MARQUETTE, MICHIGAN.

:- Mine, Mill and Railway Supplies, :-

Illuminating and Lubricating Oils,

Jones & Laughlin's Bar Iron.

SOLE AGENTS: Roebling's wire rope, crescent steel.
 Knowles steam pumps, Cameron steam pump.

Attention! Engineers!

SUNDAY is a day of REST. Why not spend the day with your FAMILY instead of pecking leaky rods. HOW! By using

PEERLESS PISTON PACKING.



NO NONSENSE ABOUT THIS-TRY IT.

REMEMBER. Our Agents are authorized to refund money in case it is not the best fibrous packing for steam you ever use. Manufactured only by

RAZE & DAVIS,

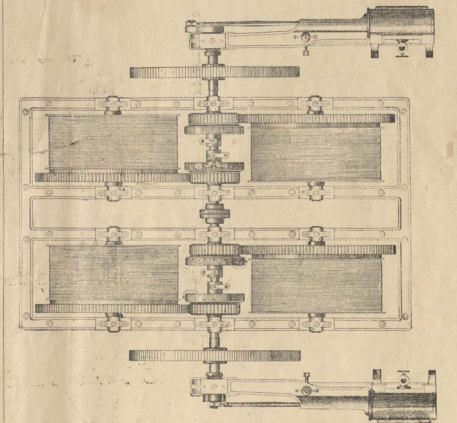
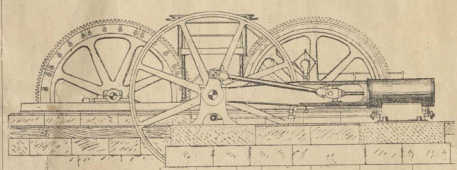
For Sale by all Dealers.

WHITE & HALL,
INSURANCE AGENTS,
 ISHPEMING MICHIGAN.

REPRESENTING:

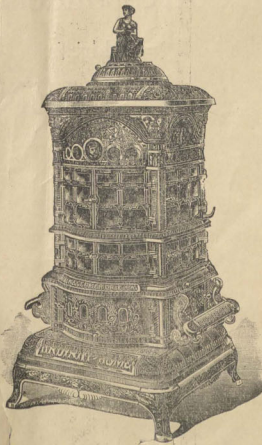
- Aetna Insurance Co., of Hartford.
- Boylston Insurance Co., of Boston.
- Home Insurance Co., of New York.
- Hartford Fire Insurance Company.
- Hartford Steam Boiler Inspection and Ins. Co.
- Insurance Company of North America.
- Liverpool and London and Globe Ins. Co.
- New York Underwriters' Agency.
- Phoenix Insurance Co., of Hartford.
- Phenix Insurance Co. of Brooklyn.
- Pennsylvania Insurance Co. of Philadelphia.
- Queen Insurance Co. of Liverpool.
- Sun Fire Office of England.
- Northwestern Mutual Life Ins. Co. Milwaukee
- Springfield Fire and Marine Ins. Co.
- Mutual Life Ins. Co. of New York.

Peter White. -- Edward R. Hall.



FOUR-DRUM HOIST AND TWO-SLIDE VALVE ENGINE. BULLCOK MANUFACTURING CO.

A RADIANT HOME



is a thing much to be desired at this season of the year. We believe we can help you acquire this happy object. We can sell you a stove that will keep you warm, save you something in coal bills, and require the least possible attention to keep it in blast. The Radiant Home is better than ever before, this season, having late improvements added, and is beside gotten up in different shapes to suit the customer. It is a beauty in every way.
 We have also all the other well-known leading makes of heaters, carry a full line of hardware, etc., and will be glad to see you.
 In ranges and cook stoves we are showing some very handsome patterns that are good as well as ornamental. They are the best bakers, built on scientific principles and give satisfaction in every instance. In stove furniture we have the finest line in the city. All the novelties can be seen here.

JOHN W. JOCHIM,
 MAIN ST., ISHPEMING.

112, 114, 116
W. BANK ST.

I. E. SWIFT,

ISHPEMING,
MICH.

Mine, Mill & Railway Supplies,

Pumping Engines, Boilers, Water Heaters,

General Mining Machinery,

Boston Belting Co.'s Rubber Goods,

Black Diamond Steel,

NATIONAL TUBE WORKS CO.'S GAS PIPE.

Send for Catalogue.



Worthington - Mine - Pumps.

High Pressure, Compound

and Condensing Patterns with

Both Inside and Outside

Packed Plungers.

Correspondence Solicited and Estimates Furnished.

Address,

HENRY R. WORTHINGTON,

NEW YORK.