

MENOMINEE RANGE HISTORY – IRON MINING – CORNISH PUMPING ENGINE, CHAPIN MINE, IRON MOUNTAIN

[Compiled and Transcribed by William J. Cummings]

ERECTION OF THE CORNISH PUMPING ENGINE AT “D” SHAFT OF THE CHAPIN MINE

Edwin Reynolds: designer of the Cornish Pumping Engine, of the E.P. Allis Company, Milwaukee, Wisconsin

Irving H. Reynolds: nephew of Edwin Reynolds and assistant designer of the Cornish Pumping Engine, of the E.P. Allis Company, Milwaukee, Wisconsin

D. Heggarty: erecting engineer for the E.P. Allis Company for the hoisting plant at “D” Shaft of the Chapin Mine

Charles Tyler: superintendent and erecting engineer in charge of erecting the Cornish Pumping Engine at “D” Shaft of the Chapin Mine, of the E.P. Allis Company, of Milwaukee, Wisconsin

Capt. Traverse: engineer of the E.P. Allis Company who managed the tackle work on the moving and placing of the heavy castings of the Cornish Pumping Engine at “D” Shaft of the Chapin Mine

Mr. Lewis: assistant to Irving H. Reynolds of the E.P. Allis Company, of Milwaukee, when the Cornish Pumping Engine at “D” Shaft of the Chapin Mine was started up in early January, 1893

Bond & Gill: painters who painted and varnished the Cornish Pumping Engine at “D” Shaft of the Chapin Mine

James MacNaughton: superintendent of the Chapin Mine during the installation of the Cornish Pumping Engine at “D” Shaft of the Chapin Mine

Edmund Kent: master mechanic at the Chapin Mine during the installation of the Cornish Pumping Engine at “D” Shaft of the Chapin Mine

Florence Mining News, Florence, Florence County, Wisconsin, Volume VI, Number

46 [Saturday, November 13, 1886],
page 1, columns 3-6

MINING NEWS.

A NEW DEPARTURE IN SHAFTS AT THE CHAPIN MINE.

“D” Shaft, Which is to be Started Down Next Spring, to be Circular and Curbed with Iron Castings – The Shaft to be Twenty-two Feet in Diameter and to Accommodate Two Cages and Two Thirty-Inch Pumps – The Present Season’s Output at the Chapin and the Product that can be Achieved in a Couple of Seasons More – The Ore Market – Work Commenced on the Breitung Property, Pine River – Byron White in This Vicinity for Angus Smith – Dr. Bond’s New Option – Exploring in Florence County – Miscellaneous Mining Notes.

While at the Chapin mine, on Tuesday, a representative of the MINING NEWS had the good fortune to run across Albert Conro, of Milwaukee, one of the owners of that great mine, and to whom is due, in a great measure, the credit for the splendid equipment of the Chapin in every respect. The new hoisting plants, just put in by the M.C. Bullock Manufacturing Company, are

MENOMINEE RANGE HISTORY – IRON MINING – CORNISH PUMPING ENGINE, CHAPIN MINE, IRON MOUNTAIN

[Compiled and Transcribed by William J. Cummings]

giving the best of satisfaction in every way. The plants consist of two pairs of conical drums, one pair furnishing power for "B" shaft and the other for "C" shaft. The drums are 10 ½ feet in diameter at the small end and 14 ½ feet at the large end. If desired, the cages can be hoisted and lowered at a velocity of 1,500 feet a minute, but at present they are operated at a speed of 1,000 feet a minute. One cage ascends while the other descends, and all of the power is compressed air, this force being employed on the brakes and in fact every place where power is utilized. The new plants are as fine as any in the world and could not be more perfect. Mr. Conro stated that a reasonable annual capacity for each would be 150,000 tons of ore, and added that they could hoist all of the ore that could be furnished. The new plants are covered by houses of red sandstone, which material is quarried adjoining the mine and which is also used for filling. The stone makes a splendid building material, and the exterior of the new engine houses is really very pretty, and of the interior, when finished, the same can be said. The buildings, two in number, are well-lighted, and a large plate glass front allows the man manipulating the hoist to see everything that is going on in the shaft house. In the rear part of each engine house a set of four boilers has been put in, which can be instantly utilized in case of any accident occurring that would cut off the compressed air supply. At present they are hoisting from "A," "B," "C" and No. 7 shafts and form the open pit, and Mr. Conro stated that the Chapin's product would reach 200,000 tons this season, if they could get cars. No. 7 and "A" shafts are equipped with skips, while "B" and "C" shafts are equipped with two cages each. The force of men employed at present, including those

underground, on the surface and engaged in the work on improvements of all kinds, numbers about 1,200. Speaking of "D" shaft, Mr. Conro said: "We will not start the work of sinking 'D' shaft until next spring, as we have enough on our hands just at present. After a great deal of drilling, we have at last determined upon the location of this shaft, which will be put down on the foot wall at the west end of the mine, where it is 100 feet to the ore. This shaft, when sunk, will be circular, 22 feet in diameter, and will be curbed with iron castings. It will be large enough for two cages and two 30-inch pumps, and we estimate that it will require nearly two years' time to sink it. When 'D' shaft is ready we shall put in another hoist, similar to our new ones, to command it, and we shall have to erect a new engine house and also a new pump house. When we get ready to hoist from this shaft we can achieve an output of 600,000 tons a season, without trouble, if called upon to do so." "B" and "C" shafts are now down 550 feet and are being sunk still deeper. On being asked the extent of the ore vein at the Chapin, Mr. Conro stated: "It is three quarters of a mile long on our property, and varies from 30 to 130 feet in width. On the property adjoining us on the east we have expended \$40,000 in exploring without finding anything. The ore seems to come to the surface and pinch out on the east, while on the west it holds its size, but dips down." The Chapin is a mammoth mine, is splendidly equipped, and when all the changes in the underground operation of the mine are made and all of the contemplated improvements are completed, it will doubtless be able to achieve the largest product in a given time of any mine in the world.

MENOMINEE RANGE HISTORY – IRON MINING – CORNISH PUMPING ENGINE, CHAPIN MINE, IRON MOUNTAIN

[Compiled and Transcribed by William J. Cummings]

The past week has been a busy one in the ore business, and there has been few features of interest to relieve the monotony of a strong but inactive market. Few transactions are reported, although there are said to be numerous buyers willing to take any lots that may offer within a certain range of prices. We hear of two transactions of about 1,000 tons each of non-Bessemer ore, ranging from 58 to 62 per cent. *[sic]* in iron on a basis of \$4.90 per ton in Cleveland. In regard to the amount of ore still in the hands of producers waiting for purchasers and the probability of a shortage in the supply that may force some furnaces to blow out before the opening of navigation next season, opinions seem to be quite varied. A gentleman well posted and prominent in ore circles expressed it as his opinion that each of the prominent sellers would have from 5,000 to 15,000 tons by the close of the season, and that while stocks were likely to be pretty well cleaned up before new ore arrived, all would be able to cover their legitimate wants, though they would of course, be compelled to pay higher prices than earlier in the season. Some other sellers seem to conide *[sic – concede]* with this view. On the other hand individual sellers claim to be entirely sold up, a few admitting, however, that they have odd lots to sell. One gentleman assured us that he believed that there was less than 50,000 tons of ore in the hands of the producers, and that several furnaces are about out of ore, and one large one alone would consume all there was left unsold. He said there were furnaces about out of ore that would be obliged to shut down before the end of the year unless they obtained new supplies, and he did not know where they could get them. While we believe that some of the sellers are practically sold up, having but

form 2,000 to 5,000 tons to offer, there are others that still have some pretty fair sized lots to dispose of, and if report is correct, there are several lots ranging from 12,000 to 20,000 tons which are being held out of the market, with the expectation of bringing better prices later on. Whether these hopes will be realized may depend somewhat on the course of the pig iron market, as furnace men claim that present prices do not warrant the paying of prices for ore that will cover the advance freight, and they may find it advantageous to shut down rather than pay them. Shipments from upper lake ports have shown a marked decrease the past week. – Cleveland Iron Trade Review.

The fourth duplex air compressor for the plant of the Hydraulic Power Company at Quinnesec Falls, on the Menominee river, was shipped from the Rand Drill Co.'s works in New York city on the 23d ult. *[of this month]*, and will ere long be in position and aiding in the great work of utilizing the immense water power at the point named for operating the mining machinery of the Chapin and Ludington mines, some three miles away. This compressor is the largest yet put in, the cylinders being 36x60, those of the three now in use being 32x60. The air compressing plant of this company is one of the finest in the world, and gives entire satisfaction in its work. – Mining Journal.

Byron N. White, of Ontonagon, who is at present engaged in the examination of the lands owned by Angus Smith in Northern Wisconsin and Michigan, was in town on Saturday last. He had just returned from a trip over the Penokee range, and exhibited some nice looking specimens taken from Mr. Smith's lands. Mr. White says the Menominee range has far better chances for the future than the Gogebic; that the

MENOMINEE RANGE HISTORY – IRON MINING – CORNISH PUMPING ENGINE, CHAPIN MINE, IRON MOUNTAIN

[Compiled and Transcribed by William J. Cummings]

show for iron ore on this range is just as good or better, and that a mine in this region, owing to greater convenience of location, with regard to shipping, is worth much more than a mine in the Gogebic district.

The Brier Hill Iron and Coal Co. has closed its negotiations with C.A. Hallett, by which it obtains full possession of the option on section 28, 39-18, Pine river region, Florence county. A crew of eight men was started to work on Tuesday, and by this time exploratory operations are under full headway. Supt. Porter has considerable faith in the property, which certainly exhibits splendid indications, and it will be given a thorough test. The camps erected by Capt. Johnson, at the time he explored on the property, will be occupied. The fee here is owned by Edward Breitung and others.

Drs. D.M. and F.L. Bond, of Iron River, have an option on the south half of the north east *[sic – northeast]* quarter of section 15, 40-30, Michigan, northeast of Lake Antoine, the fee of which is owned by the Canal Co. They will commence work on the property at once and it is said that the indications are particularly good. Their friends hope that they will strike it rich and the richer the better.

The two new plants of conical hoisting drums just put in at the Chapin mine by the M.C. Bullock Manufacturing Co., of Chicago, cost \$40,000. The drums are 10 ½ feet in diameter at the small end and 14 ½ at the large end. Finer plants of hoisting machinery cannot be found in the country.

George Fay, of Menasha, who is an old explorer on this range, will go to the Vermillion district, during the coming winter, for the purpose of tracing magnetic attractions and doing other work of an exploratory nature.

At the Mastodon mine the season's contracts are about filled. The mine has made a splendid record for the season, all things considered and will doubtless be wrought in a conservative way all winter.

John Luxmore, at the Colby, met with a painful accident from the explosion of a can of powder last Friday evening.

Wood-cutting is progressing at the Caledonia and everything is being done preparatory to active operations.

It is reported that the Menominee Mining Co., *[sic]* will thoroughly explore its lands along ***[need to finish copying this article]***

The Current, Norway, Menominee County, Michigan, Volume ____, Number ____
[Saturday, December 7, 1889], page ____, column ____

The plant now in course of construction at the works of E.P. Allis & Co., is a pumping plant which is estimated to weigh 750 tons, and which will be the largest in the country excepting the one at Bethlehem, Pa. It will consist of a "compound condensing direct acting pumping engine" the upper cylinder being 50 inches and the lower one 100 inches in diameter and 10 ft. stroke. The engine will be connected directly with the pump bob, which will weigh 50 tons. There will be a fly wheel 40 ft. in diameter and weighing about 150 tons, and the crank shaft will be 27 inches in diameter. The connecting rods will be 15 inches at the center and 11 inches at the neck. The pump rods will be of iron about seven inches in diameter calculated for a depth of 1,500 ft. The plunger will be 28 inches in diameter and ten feet stroke and the water column will be 28 inches in diameter. The capacity of the pump at regular speed will be a fraction more than 319 gallons of water per stroke

MENOMINEE RANGE HISTORY – IRON MINING – CORNISH PUMPING ENGINE, CHAPIN MINE, IRON MOUNTAIN

[Compiled and Transcribed by William J. Cummings]

and ten strokes per minute. There will be 8 upright steam boilers 8 ft. in diameter and 18 ft. high of Reynolds' patent. The estimate given of the weight of the machinery includes only that on surface.

The Menominee Range, Iron Mountain, Menominee County, Michigan, Volume XIII, Number 4 [Thursday, April 16, 1891], page 5, column 2

D. Heggarty, erecting engineer for E.P. Allis & Co., informs us that the work on the new hoisting plant at D shaft of the Chapin mine will probably be completed this week. He has been considerably detained in the work waiting for some of the pieces of machinery, but he will probably return to Milwaukee the latter part of this week.

The Menominee Range, Iron Mountain, Menominee County, Michigan, Volume XIII, Number 4 [Thursday, April 16, 1891], page 5, column 2

The ground near the west end of the open pit south of C shaft at the Chapin has been gradually giving way for some time and the old office building, afterwards used as a storehouse, which stood south of No. 2 is in bad condition, being cracked in several places. The machinery which was being placed in the house will be removed and placed under cover near No. 2 timber shaft. Should the caving continue it may become necessary to remove the sawmill to another location.

The Current, Norway, Dickinson County, Michigan, Volume VIII, Number 4 [Saturday, February 27, 1892], page 4, column 1

At the Chapin, the work west of shaft "D" at the 8th level shows a good body of ore.

The shaft at the Chapin known as the new timber shaft, *[sic]* is down to the 7th level and timbered, and preparations are being made to "raise" from the 8th to the 7th level.

Shaft "D" at the Chapin is making a good hoisting record. Although it has not reached the daily output attained at shaft "C," when necessity requires there is no doubt but that an amount can be hoisted second to nothing ever reached in this country.

The Current, Norway, Dickinson County, Michigan, Volume VIII, Number 5 [Saturday, March 5, 1892], page 4, column 1

Stockpiles at shaft "D" of the Chapin have become so large, *[sic]* that additional room must be provided for future hoistings.

The Current, Norway, Dickinson County, Michigan, Volume VIII, Number 7 [Saturday, March 19, 1892], page 4, columns 1-2

The record for "D" shaft at the Chapin, one day last week, showed that 1898 tons of ore had been hoisted and sent to stock in 24 hours. This is not as good as will be done later, and it is probable that the average output from this shaft can easily be kept at 2,000 tons.

Early this week the news that the Chapin had begun to discharge men, *[sic]* was freely circulated and the figures were variously put at from 100 to 800. The reporter has taken pains to look the matter

MENOMINEE RANGE HISTORY – IRON MINING – CORNISH PUMPING ENGINE, CHAPIN MINE, IRON MOUNTAIN

[Compiled and Transcribed by William J. Cummings]

up and finds that about 75 men have been settled with, many of them being men who were getting out mine timber and whose winter's work was done. On the other hand it is not at all certain that this is the end. The Chapin Co. has nearly if not quite 200,000 tons of ore in stock and it has become a problem whether or not the future product for the year should not be limited. At present some hoisting is done at "A" and "A 1," nothing at "B," but little at "C," and from 1700 to 1800 tons per day at "D," on the extreme west end of the mine. As an organization as large as the Chapin costs something to maintain, and a reduction of the work force below a certain limit means unprofitable mining, it is a question how much the Company will reduce its work force before it will conclude that the limit has been reached and will announce temporary suspension. We hope for a brightening in the iron industry and an avoidance of any further reduction of forces, but it is best to look the question fairly in the face and make such individual preparations as may seem best. The machinery for the new Cornish pump at this mine has begun to arrive.

The Current, Norway, Dickinson County, Michigan, Volume VIII, Number 9 [Saturday, April 2, 1892], page 4, column 1

The machinery for the new pumping plant at the Chapin is arriving regularly and is being placed. The last of it will be received in about three months and in about three months from that time or six months from now, it is expected to be in condition for duty. Preparations for the "column," in the shaft ("D") are also being made.

The Current, Norway, Dickinson County, Michigan, Volume VIII, Number 13 [Saturday, April 30, 1892], page 4, column 1

The Chapin now employs 780 men all told.

The Chapin has place its Steam *[sic]* shovel at the stock pile at "C" shaft and will load and ship the ore in stock at the east end of the mine before moving to "D." In the meantime only the ore hoisted at "D" will be shipped from the west end.

The Iron Range, Iron Mountain, Dickinson County, Michigan, Volume XIV, Number 8 [Thursday, May 12, 1892], page 4, column 1

Castings for the new pumping engine at the Chapin mine weighing about 90 tons have been received the past two weeks and are now being put in place. The heaviest pieces are the two cylinders and the cylinder heads. The large cylinder, 10 feet in diameter, weighs 33 tons, and the small one which is 50 feet in diameter, 25 tons. The bottom head of the large cylinder weighs 17 tons and the top head 12 tons. Possibly these figures will convey some slight idea of the immensity of the machine and the power plant that will be developed when it is in operation. THE RANGE will give a detailed description of this machinery in a future issue.

The Current, Norway, Dickinson County, Michigan, Volume VIII, Number 15 [Saturday, May 14, 1892], page 4, columns 1-2

At the Chapin about 2,000 tons per day is being shipped from stock piles and from

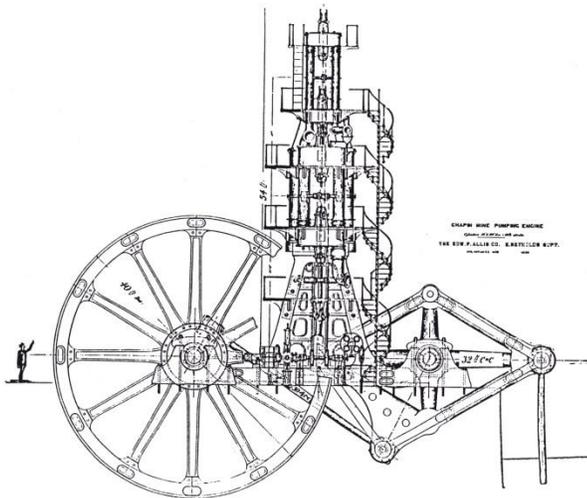
MENOMINEE RANGE HISTORY – IRON MINING – CORNISH PUMPING ENGINE, CHAPIN MINE, IRON MOUNTAIN

[Compiled and Transcribed by William J. Cummings]

1,500 to 1,600 from the mine. The working force has been slightly increased by the addition of a few stockpile men. The number now employed aggregates 800 men.

Wednesday [May 11, 1892], the big cylinder for the pumping plant at “D” shaft at the Chapin was swung into place by Supt. of erection, [sic] Tyler, [sic] and his men. The cylinder casting is just 33 tons in weight, the lower head is 17 tons and the upper one 10 tons, making the total weight of cylinder and heads, [sic] 60 tons. The machinery is being placed as fast as it arrives but it will be some months yet before it is ready for duty. The work in the shaft is all ready for the bearers which will be of steel and are being made by the King Bridge Co., of Cleveland. The putting in of the work in the shaft will begin about June 1st.

The Iron Range, Iron Mountain, Dickinson County, Michigan, Volume XIV, Number 9 [Thursday, May 19, 1892], page 1, columns 2-3 [line illustration included with this article]



THE NEW CHAPIN MINE PUMPING ENGINE.

We present to our readers this week an illustration of the mammoth pumping engine now being erected at D shaft, Chapin mine, under the supervision of Mr. Chas. Taylor, erecting engineer, and through the courtesy of the builders, The E.P. Allis Company, of Milwaukee, we are able to give the following description of this wonderful machine: This engine is what is known as a steeple compound condensing engine, and was designed by E. and I.H. Reynolds, and the contract calls for ninety million foot pounds duty. It will be capable of lifting 200 tons of water per minute, 1500 feet, 100 feet flow, which will be equivalent to 4,000,000 gallons on 24 hours. So it will be seen that the Chapin Mining Company, in putting in this machine, is providing for any contingency that is likely to arise as the mine is deepened to 1500 feet from the surface. The length from the end of the bob to the back of the fly wheel is about 75 feet and the height above foundation is 54 feet. The high pressure cylinder is 50 inches in diameter and the low pressure cylinder is 100 inches in diameter, and the pumps, to be located about 200 feet apart in the shaft, are 28 inches in diameter, with 120 inches stroke. The bob weighs about 120 tons, and the fly wheel about 160 tons. The fly wheel, as indicated in the illustration, is 40 feet in diameter. The rim of the wheel is 24 inches thick and 24 inches wide. The immensity of this machine is illustrated in the engraving in a most striking manner by the representation of a six foot man standing near the fly wheel. The shaft on which the fly wheel revolves is 27 inches in diameter. The bob is made in seven pieces and firmly held together by 21 wrought iron links shrunk on to the lugs as shown by

MENOMINEE RANGE HISTORY – IRON MINING – CORNISH PUMPING ENGINE, CHAPIN MINE, IRON MOUNTAIN

[Compiled and Transcribed by William J. Cummings]

dotted lines in the engraving. It is further strengthened by eight wrought iron tension rods, 8 x 16 inches, shrunk on to the sides and held in place by pins. The engine is fitted with a surface condenser with 1049 one inch tubes, and a Reynolds patent air pump. The mine water will be used in the condenser for cooling purposes. The boilers being once charged with water, as it is evaporated and the steam performs its office of driving the pumping engine, it exhausts into the condenser and is there cooled to a liquid state and pumped back into the boilers by a pump attached to the air pump, thereby affecting the greatest economy possible in the use of water and the making of steam. But to supply any deficiency arising from possible leakage or waste of any kind a small pipe is connected with the city water works. The boiler plant at present consists of four Reynolds patent boilers, but as the mine increases in depth four more will be added as needed. This engine is the largest and most powerful of its kind ever constructed, and the long established reputation of the builders is sufficient guarantee that it will perform the duty for which it is designed in a perfectly satisfactory manner. The E.P. Allis Company has contracts for and is building nine triple expansion engines of 165,000,000 gallons daily capacity, and among those of this type already built is one with steam cylinders of 40, 70 and 104 inches by 60 inches for the American Water Works Company, of Omaha, Neb.

The Current, Norway, Dickinson County, Michigan, Volume VIII, Number 17 [Saturday, May 28, 1892], page 4, column 1

The erection of the new pumping engine at the Chapin is making good progress. Mr.

Tyler[,] who is superintending the erection[,] has been absent for a few days on other business for his company. Capt. Traverse[,] who has managed the tackle work on the moving and placing of the heavy castings[,] has demonstrated that he “knows how” and is entitled to much credit. The steam shovel was moved to “D” stockpile, [sic] Tuesday [May 24, 1892], and has begun on a pile of considerable more than 100,000 tons.

The Current, Norway, Dickinson County, Michigan, Volume VIII, Number 17 [Saturday, May 28, 1892], page 4, column 1

Another change has taken place in the ownership and management of the Chapin. Early this week it was announced that the Schlesinger syndicate has again assumed the control of the property. The local management remains the same and there has, so far, been no new line of action announced, if indeed any is contemplated. Ferd. [Ferdinand] Schlesinger is president, William Schlesinger is vice-president, and G.H. Kent[,] who has been for some time vice pres., Secretary, and treasurer of the company, remains as secretary. It is probable that the general office of the company will be returned to Milwaukee. It is argued by many that the return of the mine to the control of the Schlesingers will inaugurate a more active season in mining, but that this can take place this year is hardly probable.

At the Chapin a few more men have been employed this week, but we cannot learn that it is the intention to make any material increase in the working force. The daily output is from 1,400 to 1,600 tons and when the cars can be secured about 2,000 tons go daily from stock piles. The present

MENOMINEE RANGE HISTORY – IRON MINING – CORNISH PUMPING ENGINE, CHAPIN MINE, IRON MOUNTAIN

[Compiled and Transcribed by William J. Cummings]

line of action at the Chapin is conservative and the ore is probably being mined as cheaply as at any time in the history of the mine. Still it cannot be denied that a mine of the magnitude of the Chapin can send out cheaper ore with a large force than with the present one of less than 850, and it may be that the new owners will, as soon as the condition of the market will warrant it, work the mine to its full capacity. The work on the new pump is progressing satisfactorily and it will probably be ready for duty late in August.

The Iron Range, Iron Mountain, Dickinson County, Michigan, Volume XIV, Number 12 [Thursday, June 9, 1892], page 5, column 2

The work of erecting the new pumping engine at D shaft, Chapin mine, is progressing rapidly under the direction of Chas. Tyler, the erecting engineer. Mr. Tyler will be through with his work in about three weeks, but there is a large amount of work to be done in the shaft, placing the pumps and water pipe, which has not been commenced, it will be months before the new machinery is put into duty. There has been a slight increase in the working force at the mine, but no material change will probably be made until there is a better demand for ore. It is at present expected that the Chapin will ship about 500,000 tons this year.

The Iron Range, Iron Mountain, Dickinson County, Michigan, Volume XIV, Number 14 [Thursday, June 23, 1892], page 5, column 2

The 40-foot fly wheel of the new pumping engine at D shaft is being put together which means that the erection of

this mammoth plant is approaching completion.

The Current, Norway, Dickinson County, Michigan, Volume VIII, Number 21 [Saturday, June 25, 1892], page 4, columns 1-2

Thursday [June 23, 1892] the first piece of the work for the big pump at Chapin was sent down to the 5th level of "D" shaft. It was a steel girder weighing about 5 tons and was lowered by the aid of the new steam winch, mention of which has been made in these columns. The winch has a capacity of 10 tons and carries 1,300 ft. of 4 x ½ steel rope. There will be 11 of these girders to send down[,] but as soon as three are in place the dropping of the column will begin. The "hitches" for the girders are cut in solid rock and cemented, and the girders themselves are of steel of a tensile strength of 60,000 pounds to the square inch, and are figured on a factor of safety of ten, or in other words, where required to carry one ton they were made to carry ten. There will be put into the shaft at different points, [*sic*] steel tanks of a capacity of 3,000 gallons, equal to about 10 strokes of the pump. In the engine room the big fly-wheel is being put together, and taking all in all the work is going on very satisfactorily, and a few weeks from now the whole thing will be ready for trial.

At the Chapin, the daily product now runs from 2,500 to 3,000 tons and the daily shipments to 5,000 tons. Nothing of a remarkable nature occurs and the work runs along very smoothly. A few men have been added here and there where it was thought best to push a section, and the policy of the present owners and management seems to be, [*sic*] the holding of the working force and product at the

MENOMINEE RANGE HISTORY – IRON MINING – CORNISH PUMPING ENGINE, CHAPIN MINE, IRON MOUNTAIN

[Compiled and Transcribed by William J. Cummings]

most economical point. This can be ascertained very closely by taking the aggregate of the forces, both under ground [*sic* – *underground*] and on surface, foremen, captains, clerks, and management and figuring from the daily output the product per capita, and this is what either makes or breaks. In a word, the fellows on surface are non-producing, necessary evils, who must be provided for by the labor of those underground, and the point aimed at is to make the underground forces large enough to keep the surface men busy and have each man underground reach the highest producing point possible.

The Iron Range, Iron Mountain, Dickinson County, Michigan, Volume XIV, Number 15 [Thursday, June 30, 1892], page 5, column 2

To look at it, the work on the pumping engine at D shaft, Chapin mine, appears to be about done. The bolts that unite the big 40-foot fly wheel were being tightened last Tuesday afternoon [*June 28, 1892*] when we were there. The piston rods are yet to be put in and shafts connected and considerable piping to be done, which will occupy some time yet. Last Thursday [*June 23, 1892*] the work of putting the 5 ton steel girders and other heavy work that is going into the shaft was commenced. It was lowered to place by the aid of the new steam winch, which is powerful enough to handle such weights with the greatest ease. The Current has the following in reference to it:

The winch has a capacity of 10 tons and carries 1,300 feet of 4 x ½ steel rope. There will be 11 of these girders to send down[,] but as soon as three are in place the dropping of the column will begin. The “hitches” for the girders are cut in solid rock

and cemented, and the girders themselves are figured on a factory of safety of ten, or in other words, where required to carry one ton they were made to carry ten. There will be put into the shaft at different points, [*sic*] steel tanks of a capacity of 3,000 gallons, equal to about ten strokes of the pump.

The Current, Norway, Dickinson County, Michigan, Volume VIII, Number 22 [Saturday, July 2, 1892], page 4, column 1

The work of dropping the steel girders into shaft “D” at the Chapin is being steadily continued and the third one was sent down Thursday [*June 30, 1892*] of this week. A break in the steam shovel delayed the loading for a few hours, Thursday [*June 30, 1892*]. The output from the mine for June averaged fully 2,000 tons per day, considerably more than two tons per man per day for every employe [*sic* - *employee*].

The Iron Range, Iron Mountain, Dickinson County, Michigan, Volume XIV, Number 17 [Thursday, July 14, 1892], page 5, column 2

Mr. MacNaughton, superintendent fo the Chapin mine, was in Ishpeming briefly a few days since. He reports that the mine is being operated in a moderate way – not as actively as they could push it was there a sale at better figures for the ore. The big pumping plant is now being placed in position and in a few weeks will be ready for business. The mine is now making about 2,000 gallons of water per minute and the time is not distant, probably, when they will have the water of the Ludington added to that which they are now lifting. – Iron Ore.

MENOMINEE RANGE HISTORY – IRON MINING – CORNISH PUMPING ENGINE, CHAPIN MINE, IRON MOUNTAIN

[Compiled and Transcribed by William J. Cummings]

The Current, Norway, Dickinson County, Michigan, Volume VIII, Number 26 [Saturday, July 30, 1892], page 4, column 1

Work on the “big pump” at the Chapin is progressing satisfactorily, but necessarily slowly. The placing and anchoring of the large steel girders and the preparations for the speedy dropping and placing of the column are parts of the work which must be thoroughly and carefully done, and the Chapin people are “making good as they go.”

Thursday [July 28, 1892] the rumor that a heavy cut in wages had been made at the Chapin became prevalent, and the reporter visited the mine to ascertain the truth, and found the facts as follows: No change has been made in the rates for contract work but a shaving has been made from the wages of company account men to make them conform more nearly to those paid other ranges and at other mines on this range. The cut will range from three to five per cent, and it is claimed will still leave the scale at the Chapin fully equal to that of any other mine on the peninsula.

The Current, Norway, Dickinson County, Michigan, Volume VIII, Number 29 [Saturday, August 30, 1892], page 4, column 1

An accident at the Hydraulic Works at Iron Mountain, [sic] this week caused the shutting down of No. 4 compressor until a broken, beveled pinion, on the turbine shaft, can be replaced. The repairs will consume the better part of a month, and in the meantime the Cornish pump and some of the hoisting machinery at the Chapin will be run by steam.

The Chapin is working along very smoothly with something more than 1,000 men. About 2,500 tons per day is being mined and between 5,000 and 6,000 tons shipped. The pumpwork in “D” shaft is being pushed as fast as the nature of the work will permit. The balance-bob which will be in the shaft, [sic] will soon be put in, and the bottom set of pumps are in place. It will perhaps take some months yet to get everything completed; in fact no very close estimate of the time required can be made.

The Iron Range, Iron Mountain, Dickinson County, Michigan, Volume XIV, Number 25 [Thursday, September 8, 1892], page 5, column 2

If necessary the new pumping plant at the Chapin mine D shaft could be put in operation in two or three weeks, but there being no need to hurry matters it will be some months before it is put to work.

The Current, Norway, Dickinson County, Michigan, Volume VIII, Number 32 [Saturday, September 10, 1892], page 4, columns 1-2

At the Chapin the stockpiles have all been shipped and the trestles and tracks are being arranged for next Winter's [sic – winter's] output. The high trestle across the railroad tracks is being raised about 10 ft. and will carry one grade of ore from “B” and “C” shafts to the stockpile grounds at “D.” The ore from “D” will be dumped on the same pile and another grade from C and B, [sic] will be piled between those two shafts. The new pump is being put in as speedily as is possible with such heavy work. The balance bob has been put in and connected. It was rumored during the early days of the week that “the Chapin had lost

MENOMINEE RANGE HISTORY – IRON MINING – CORNISH PUMPING ENGINE, CHAPIN MINE, IRON MOUNTAIN

[Compiled and Transcribed by William J. Cummings]

a level,” and investigation disclosed the fact that several hundred feet of the 7th level between “C” shaft and No. 2 timber shaft, [sic] has begun to show some signs of giving out, but this is already being provided for by the driving of a new level, although the rope haulage is still working satisfactorily in the old level, and no immediate trouble is anticipated. This dropping of levels will necessarily go on as long as the mine is wrought. The 7th level was indeed a fine one when completed, but its usefulness is about ended. The 8th level is still a good one, the 9th is equal to anything on the peninsula, and the 10th will soon be added to the list.

When it was said some years ago that there was 13,000,000 tons of ore in the depth of the big Chapin mine it was difficult to find anyone who would believe the statement. Mining men who are more competent to judge now than the projectors of the Chapin were at that time claim that there is 20,000,000 tons of ore in sight at the Biwabic[,] the leading Mesaba property. – Marine Review.

The Iron Range, Iron Mountain, Dickinson County, Michigan, Volume XIV, Number 28 [Thursday, September 29, 1892], page 1, column 5

Bond & Gill have the contract to paint the new pumping engine at D shaft, Chapin mine.

The Iron Range, Iron Mountain, Dickinson County, Michigan, Volume XIV, Number 32 [Thursday, October 27, 1892], page 1, column 3

Bond & Gill have the contract to paint the new pump at D shaft, Chapin mine, and

have had a force of men at work on the job for some time. They expect to be through about the first of December. The machine will be given four to six coats of paint and is to be a first class job in every respect.

The Iron Range, Iron Mountain, Dickinson County, Michigan, Volume XIV, Number 32 [Thursday, October 27, 1892], page 5, column 2

The foundation of the new haulage house at D shaft, Chapin mine, is completed, and the construction of the building is being pushed as rapidly as possible. The system to be operated from this point will be underground and overhead haulage from D shaft. The machinery for the new building will be moved from another portion of the mine.

The Current, Norway, Dickinson County, Michigan, Volume VIII, Number 39 [Saturday, October 29, 1892], page 4, column 1

At the Chapin the daily output is about 2,600 tons, one-half of which goes over the M. & N. and Soo roads to Gladstone and one-half to Escanaba. The column of the big pump in D shaft has reached surface and the making of the connections and the finishing up of a few odds and ends are all that remains to complete this important addition to the Chapin’s equipment.

The Range-Tribune, Iron Mountain, Dickinson County, Michigan, Volume XIV, Number 35 [Thursday, November 17, 1892], page 5, column 1

Bond & Gill have finished the work of painting and varnishing the big pumping

MENOMINEE RANGE HISTORY – IRON MINING – CORNISH PUMPING ENGINE, CHAPIN MINE, IRON MOUNTAIN

[Compiled and Transcribed by William J. Cummings]

plant at the Chapin, and it presents a very handsome appearance.

Work on the new pumping plant at the Chapin is rapidly nearing completion. The shaft fixtures are all in position. No date has as yet been fixed for the starting of the ponderous machine.

The Current, Norway, Dickinson County, Michigan, Volume VIII, Number 42 [Saturday, November 19, 1892], page 4, column 1

At the Chapin a large area has been added to the stockpile grounds at “D” and there is now room for several hundred thousands of tons. The new pump is slowly nearing the point where it will be “started up”. A visit to the scene of operations, Wednesday [November 16, 1892], found the painters busy at work in the engine room, the work in the shaft nearly completed and seemingly nearing the point where connections will be made, and the big machine put into commission.

The Range-Tribune, Iron Mountain, Dickinson County, Michigan, Volume XIV, Number 36 [Thursday, November 24, 1892], page 5, column 1

The Chapin now has 1340 on its pay roll.

Monday [November 28, 1892] is pay day at the Chapin. The roll is the largest in nearly a year, and foots up over \$55,000.

It is now thought the big pump at the Chapin will be ready for starting about the first of December.

There are about 640 married men on the pay roll of the Chapin and everyone [sic – every one] of them was presented with a nice fat turkey for his Thanksgiving dinner.

The Current, Norway, Dickinson County, Michigan, Volume VIII, Number 43 [Saturday, November 26, 1892], page 4, column 1

The Chapin continues to ship its daily product to Escanaba and Gladstone for lake shipment, but it is uncertain how long this can be continued if the weather continues to be cold.

The long water level is about completed at the Chapin and the dams are being put in. Only six feet of driving remains to be done and this is being left to hold the water back from “D” shaft.

Again the prophet or the son of a prophet at Iron Mountain has predicted an entire change of management at the Chapin, beginning Jan. 1st, 1893. The Chapin and its owners and managers have furnished unlimited food for conjecture during the past two years, but it goes on sending out ore “alle samee.”

The Range-Tribune, Iron Mountain, Dickinson County, Michigan, Volume XIV, Number 38 [Thursday, December 8, 1892], page 1, column 3

It is now expected that the mammoth new pumping plant at the Chapin will be in shape for operation about Christmas time.

The Current, Norway, Dickinson County, Michigan, Volume VIII, Number 45 [Saturday, December 10, 1892], page 4, columns 1-2

The Chapin has about finished its year’s shipments. A small amount is being shipped by all-rail. The present working force is in the neighborhood of 1,100 men.

MENOMINEE RANGE HISTORY – IRON MINING – CORNISH PUMPING ENGINE, CHAPIN MINE, IRON MOUNTAIN

[Compiled and Transcribed by William J. Cummings]

As will be seen by reference to the table in another column, the shipments of Chapin ore from Escanaba for the season of '92, aggregate 608,345 tons, the amount shipped from Gladstone we have not learned, nor the amount of all rail shipments, but venture the prediction that when all is figured up the sum total will not be far from 675,000 tons.

“When is the big pump going to start up?” is the question which has been so often propounded to Supt. MacNaughton and Master mechanic Kent of the Chapin, *[sic]* during the past few weeks, *[sic]* that either of them begins to look around for a brick-bat, when an unsuspecting reporter begins query after the usual formula. However[,] there is every reason to believe that a short time will see the ponderous machinery in motion. It seems to be the policy of the management to have everything well done and every contingency provided against, so that when the water is let on and the pump started there will be nothing undone and no occasion to stop to fix up something which has been overlooked. Speaking of letting on, or in, the water, suggests a possible necessity for an explanation. The plunger pumps which now take care of the water are at the east end of the mine while the new plant is at the west end. A long water level has been driven the whole length of the mine at the lowest point accessible, which is intended to carry the water from the whole mine to the big pump. This level has been finished except about 5 ft. towards the east end which has been left to hold the water back and send it to the east end pumps until the west end pump is ready. Besides this a dam or dams have been put into the water level towards the west end with necessary valves which may be closed and the water level be made to hold the entire water of the

mine for six hours. When everything is ready the water will be let in from the west end of the level and if everything works satisfactorily the 5 ft. barrier in the level will be blasted out and the costly but necessary undertaking will be finished, and the Chapin will have in operation the largest pump, except one, of its kind in the United States.

The Current, Norway, Dickinson County, Michigan, Volume VIII, Number 47 [Saturday, December 24, 1892], page 4, columns 1-2

We are of the opinion that the much talked of “start up” of the new pump at the Chapin, *[sic]* is near at hand and that it will occur someday *[sic – some day]* when “nobody’s lookin’.”

The Range-Tribune, Iron Mountain, Dickinson County, Michigan, Volume XIV, Number 42 [Thursday, January 5, 1893], page 1, column 6

Irving R. *[sic – H.]* Reynolds, of Milwaukee, designer of the new pumping plant at the Chapin, was here this week to witness the starting up of the ponderous machine.

The Current, Norway, Dickinson County, Michigan, Volume VIII, Number 49 [Saturday, January 7, 1893], page 4, column 1

The new pump at shaft D of the Chapin is at last doing duty. Tuesday *[January 3, 1893]* it was started up and the column partially filled with water, but owing to a slight trouble with one of the pump valves no water was brought to surface. Wednesday *[January 4, 1893]*, the trouble having been found and remedied, the

MENOMINEE RANGE HISTORY – IRON MINING – CORNISH PUMPING ENGINE, CHAPIN MINE, IRON MOUNTAIN

[Compiled and Transcribed by William J. Cummings]

ponderous machinery was again started, but owing to the slowness of the start and the weight of water in the partially filled column, the engine centered. The hydraulic crane was brought into use, the fly wheel pulled over and at 1:30 o'clock another start was made and the water soon made its appearance, coming up with such force and in such quantity that the "collar-launders" provided and thought amply large enough, were found scant in size. The pump was worked at varying speed from 4½ to 10 strokes per minute for a short time when it was found necessary to stop for want of water, as the quantity let into the sump had been exhausted and the five feet barrier in the water level toward the east had not been blasted out. The blasting out of this will give the full flow of all the water in the mine into the sump by valves in the dam. Messrs. Reynolds and Lewis of the Allis works and master mechanic Kent were conspicuous during the trial of Wednesday [January 4, 1893], loosening a nut here, tightening one there, opening one valve a little and closing another until at last everything seemed to their liking and they and Supt. MacNaughton settled down to a condition of extreme satisfaction. The big pump is a success as far as appearances and its ability to do the work assigned it, goes, but one of the bystanders remarked that though it brought up lots of water, it was the dryest affair he had ever seen. He even asserted that the whisky jacks used in some part of the construction work were dry. The new pump is built to raise if needed 3,000 gallons of water per minute from a depth of 1,500 ft., but at present less than half that duty will be required. Of the stability of the work but a glance is required to convince one who looks around on surface, while in the shaft nothing has been left undone and the steel girders which

carry the weight have a load of 3000 tons with a breaking strain of 30,000 tons. This pump has cost a good round sum of money and has many opponents on the questions of duty and economy, and we trust that at no very distant day comparisons may be made which will interest the mining public.

The Current, Norway, Dickinson County, Michigan, Volume VIII, Number 51 [Saturday, January 21, 1893], page 4, column 1

The big pump at the Chapin was started up again Thursday after a few days spent in fixing up odds and ends, and will soon be put on permanent duty.

The Range-Tribune, Iron Mountain, Dickinson County, Michigan, Volume XIV, Number 45 [Thursday, January 26, 1893], page 1, column 3

JEALOUS.

Some of the copper country papers take exception to the statement recently made in these columns to the effect that the Chapin pumping plant was the largest in the west. The Torch Lake Times comes back at us with the statement that the Calumet & Hecla company has a pumping plant with a capacity of 40,000,000 gallons every twenty-four hours. So has many cities ever larger pumping plants than the Calumet, but the fact remains nevertheless, that the Chapin plant is the largest and most powerful in the west. The Calumet & Hecla plant only pumps water forty feet, while the Chapin at present elevates water 600 feet and is designed to bring 4,000,000 gallons of water from the bottom of a 1500 foot shaft every twenty-four hours. When these facts are taken into consideration the

MENOMINEE RANGE HISTORY – IRON MINING – CORNISH PUMPING ENGINE, CHAPIN MINE, IRON MOUNTAIN

[Compiled and Transcribed by William J. Cummings]

Calumet & Hecla pump is most emphatically not “in it” with the Iron Mountain Jumbo.

The Range-Tribune, Iron Mountain, Dickinson County, Michigan, Volume XIV, Number 46 [Thursday, February 2, 1893], page 8, column 4

The big pumping plant at the Chapin will commence running regularly in about ten days.

The Current, Norway, Dickinson County, Michigan, Volume IX, Number 2 [Saturday, February 11, 1893], page 4, column 1

The Chapin is employing about the same number of men as for some months (1,000 to 1,100) and about 2,000 tons per day is going to stock. The trouble in pump shaft D has been remedied and everything is ready for the permanent operation of the big pump. The barrier in the water level has been blasted out and the level is full, so that it only remains to open the valves in the dam, let the water into the sump and start up.

The Range-Tribune, Iron Mountain, Dickinson County, Michigan, Volume XIV, Number 48 [Thursday, February 16, 1893], page 8, column 4

THE BIG PUMP.

It is now expected that the Jumbo pump at the Chapin mine will go into commission either tomorrow or Saturday.

The Current, Norway, Dickinson County, Michigan, Volume IX, Number 12

[Saturday, April 22, 1893], page 4, column 1

The Chapin began to ship ore from D shaft, [*sic*] Monday and the Pewabic, if it has not already done so[,] will begin in a day or two.

The Chapin mine has just received a large sized Marion steam shovel for loading ore from stockpiles. The large shovel of another make but which has done very good work, having been sold to the Aragon Iron Co., of Norway. The present working force of the Chapin is about 1,100 men and the daily product has, owing to a more or less crowded condition of the stockpile ground, and the disposition of the management to ship as much direct from the shafts as possible, been somewhat reduced. The big pump is working steadily and is doing good duty. D shaft has just been completed to the back of the 9th level. The mine generally is doing good work and will be heard from in the matter of production from a point very nearly if not quite at the top.

The Current, Norway, Dickinson County, Michigan, Volume IX, Number 16 [Saturday, May 20, 1893], page 4, column 1

Mr. Edmund Kent for 12 years master mechanic at the Chapin, will leave Tuesday to take charge of the machinery of the Anaconda mines. Who will succeed him has not yet become known. Mr. Kent carries with him the well wishes of everyone who knows him. Of his ability as a mechanic his record at the Chapin is sufficient evidence.

There is nothing new to report from the Chapin, the loading from stock and mine goes steadily on and the output will be a

MENOMINEE RANGE HISTORY – IRON MINING – CORNISH PUMPING ENGINE, CHAPIN MINE, IRON MOUNTAIN

[Compiled and Transcribed by William J. Cummings]

large one if the sales warrant the company in pushing production. We tried the “editorial pump” on Supt. MacNaughton, Thursday *[May 18, 1893]*, but he said that there was “a chip under the clack,” and no results worth mentioning were obtained.

The Current, Norway, Dickinson County, Michigan, Volume IX, Number 18 *[Saturday, June 3, 1893]*, page 4, column 1

At the Chapin, shipments for the week have been limited because of the damage done to the docks at Ashtabula by the late storm, and the necessity for strengthening them before any more ore was unloaded thereon, and the docks at Escanaba becoming full, loading from stockpiles had to be discontinued. About numbers 1200 men are now employed. The new pump is doing very satisfactory duty, sending all of the water (about 1500 gallons per minute) to the surface with no apparent effort.

The Current, Norway, Dickinson County, Michigan, Volume IX, Number 31 *[Saturday, September 7, 1893]*, page 4, column 1

The Chapin is at present a very quiet property. No ore is being shipped, and the water is being temporarily kept out by the old plunger pumps at “A 1.” The new pump will be kept ready for duty but whether or not the old pumps will continue to do the work is undecided. In the meantime the compressors and other machinery at the Hydraulic Works, repaired and put in good condition for future service. The office force has been reduced until cashier Lonergren is the sole occupant, and the working force of the mine all told, is only about 20 men.

The Current, Norway, Dickinson County, Michigan, Volume IX, Number 45 *[Saturday, December 9, 1893]*, page 4, column 1

The Chapin now gives employment to just 20 men all told. The water is being kept out by the “big pump” pump worked by air from the Hydraulic works. The water averages about 1500 gallons per minute. Notwithstanding, all and singular, the hundred and one plans and conjectures regarding future operation at this mine, the future is as a sealed book, as far as the public is concerned, and it is questionable whether or not the stockholders are much better informed.

DISMANTELING OF THE CORNISH PUMPING ENGINE AT “D” SHAFT OF THE CHAPIN MINE

MR. RICHARDS: Master mechanic for the Chapin Mine in charge of dismantling the Cornish Pumping Engine at “D” Shaft of the Chapin Mine

Iron Mountain Press, Iron Mountain, Dickinson County, Michigan, Volume 2, Number 17 *[Thursday, September 16, 1897]*, page 1, column 2

ABOUT THE CHAPIN.

Preparations Being Made to Hoist Ore From Hamilton No. 2 Shaft.

The work of connecting Hamilton No. 2 and D shaft of the Chapin Mining company is rapidly nearing completion. Less than eighty feet of drifting yet remains to be done, and it is expected that this work will

MENOMINEE RANGE HISTORY – IRON MINING – CORNISH PUMPING ENGINE, CHAPIN MINE, IRON MOUNTAIN

[Compiled and Transcribed by William J. Cummings]

be completed in about thirty days. This drift is eleven hundred feet long, nine feet high and ten feet wide. When finished and equipped with tramways, D shaft will be abandoned, and all ore mined in the west end of the Chapin property will be hoisted through No. 2 Hamilton. This shaft is one of the largest and best in the Lake Superior region and is sunk in the sandstone. It is a four compartment affair, two of which will be utilized in ore hoisting and the others for men and timber. To the south of the shaft a stock dock is now in course of construction. This dock will have a capacity of 200,000 tons, and will be utilized as soon as navigation closes. It is not probable that the buildings at D Chapin shaft will be torn down for some time, but they are certain to be razed in the spring. This will, of course, necessitate the dismantling of the big Allis pump.

At No. 2 timber shaft the work of preparing the room for the new pumping plant is rapidly nearing completion. The foundations are finished, but the erection of the machinery has been delayed somewhat by the necessity of placing a roof over the room to carry off the water. The machinery is all ready to send underground.

The last of the stockpile was shipped to the docks yesterday and the shovel is now idle. The existence of these mammoth piles of ore have been a menace to the business interests of the community for many moons and we can now all heave a sigh of relief that the last ton of ore is now on its way to the furnaces.

The outlook for the coming year is very encouraging, and should not Carnegie again demoralize the iron interests by the purchase of the Gogebic range properties, it is probable that the Chapin Mining company will employ a good many more men next season.

The Range-Tribune, Iron Mountain, Dickinson County, Michigan, Volume XIX, Number 41 [Saturday, February 12, 1898], page 1, column 6

WILL MOVE THE TRACKS.

The Big Chapin Pump Will Also Soon Have to be Pulled Down.

It has long been apparent to the most casual observer that the time is not distant when the tracks of the Chicago & Northwestern railroad, which cross the Chapin mine, will have to be moved to more stable ground, and speculation has been indulged in as to where the roadbed will be located. The big Chapin pump, which has been one of the admirations of visitors, will also have to be removed, and a new highway to connect the north and south part of the city will have to be constructed. Probably the present season will see all these things accomplished. The following from *The Marine Review* indicates that steps in this direction are already *[sic – already]* being taken: The Chapin Mining Co. is about to begin caving in a part of the mine that is being crossed by the main line of the Chicago & Northwestern Ry. Arrangements are being made with the railway company to move its tracks. Not long ago, when the Mesabi first came into prominence, the big Chapin mine was not regarded as a highly valuable property, but it was soon found that the discovery of the Mesabi was of special advantage to the Chapin, the ore making the best kind of mixture with the Mesabi ores. Chapin ore

MENOMINEE RANGE HISTORY – IRON MINING – CORNISH PUMPING ENGINE, CHAPIN MINE, IRON MOUNTAIN

[Compiled and Transcribed by William J. Cummings]

never sold as readily as it did during the past year.

Iron Mountain Press, Iron Mountain, Dickinson County, Michigan, Volume 3, Number 9 [Thursday, July 21, 1898], page 1, column 1

ABOUT THE CHAPIN.

The Big Allis Pump Is Being Dismantled – Connecting the Several Shafts.

The monster Allis pumping plant at D Chapin shaft is now being dismantled, the work having commenced last week. The work will take several months, only a small force being employed. As fast as removed the parts are thoroughly larded and stored away. What will be the fate of the monster machine is hard to predict, and it may yet find its way in the scrap pile. The plant is one of the most perfect and most expensive ever erected in the iron region. It has been in commission about seven years and has done splendid duty. Its abandonment was in the line of economy. Its removal to another location became necessary in order to mine the million or more tons of ore underneath, and the management decided that a new underground pumping plant, which could be operated by air, could be installed at less cost than the taking down and re-erecting of the Allis plant. This fact has since been established, and in the line of economy, made necessary by the low price of ore, a splendid piece of machinery, costing a quarter of a million dollars, becomes useless. The large stone building occupied by the plant will be permitted to tumble down in ruins as the ground caves underneath by the withdrawal of ore, but

the brick smoke stack will be taken down and the material saved.

The work of sinking Chapin B from the eighth to the tenth level, a distance of about 150 feet, has been finished. It is now the intention to drift west about 225 *[feet]* to connect with the tenth level about 500 feet east of the Chapin C shaft. This work will take several months and when it is accomplished all the shafts of the immense property, extending from Chapin B to Ludington B, a distance of over half a mile, will be connected at the tenth level. The east end of the mine is looking well, and in the future considerable mining will be done in that direction. No mining has been done for some time back in that portion of the mine. The ore will be hoisted at C shaft and the stock dock built two years ago will again be utilized.

At the Hydraulic works of the company at Quinnesec Falls, a number of important alterations are contemplated. Bids are now being received for the work. It is proposed to change the power wheels of Compressor No. 1, from single vertical wheels to a pair of horizontal wheels. It is expected that the change will result in the generating of more power and the doing away with the troubles from float ice which interfered with the satisfactory operation of the plant during the winter months. Should this prove to be the case, all the compressors will be changed.

The stock docks at Chapin D and Ludington B shafts have been cleaned up, and the steam shovel is now at work at the Hamilton dock. It is expected to see the last of this away in about six weeks. There are about 900 men on the pay roll at present.

The Daily Tribune, Iron Mountain, Dickinson County, Michigan, Third Year, Whole

MENOMINEE RANGE HISTORY – IRON MINING – CORNISH PUMPING ENGINE, CHAPIN MINE, IRON MOUNTAIN

[Compiled and Transcribed by William J. Cummings]

No. 630 [Friday, July 22, 1898], page 3,
column 4

THE CHAPIN MINE.

It Will Dismantle the Big Allis Pump- ing Plant.

The Chapin Mining Company desires to mine the immense body of ore under the Allis pumping plant, put in about seven years ago at a cost of \$250,000.

The management has estimated that it would cost more to move the plant than to put in a new underground pump. The big four-story stone engine house will therefore be permitted to settle into the mine as the ore is withdrawn. This is a pretty large item to charge to pumping expense in seven years, averaging over \$35,000 a year besides the cost of operating and is one of the expenditures which is apt not to be taken into account by the laity when figuring mining profits.

The Current, Norway, Dickinson County, Michigan, Volume XIV, Number 25 [Saturday, July 23, 1898], page 4, column 1

The large pumping plant at "D" shaft Chapin which was put in several years ago at great expense is being dismantled. It is located on the ore body and its removal is necessary before the ore can be mined.

The Chapin Mining company, whose property is located at Iron Mountain, has begun removing the big steeple-compound pumping plant at D shaft. A portion of the light work has been taken down and they will soon be getting out the heavier parts.

The settling of the surface steadily going on, necessitating the removal of the pump. Cracks show in the pump building and circular-shaped holes appear in the ground not far distant. They are taking about 500 tons of ore daily from the portion of the mine in front of D shaft, this giving the ground about the upper portion of the shaft a chance to slide down. The pump put in at this portion of the mine last year is giving excellent satisfaction. It has Reider water ends and was rebuilt in the shops of the company. It does its work economically and no stoppages for repairs have yet been necessary.

The chain haulage plant proves a good one. With the initial chain they have handled about 250,000 tons and it is good for half that amount before it will be discarded. The cost per foot is less than the wire rope formerly used. Little trouble is had with the car grips. Since the chain was installed several months ago six clutches have been broken of the eighty or more in use.

Connections has [*sic – have*] been made between the Ludington and Chapin at Chapin's 10th level. The mine continues to show satisfactory ore bodies. In the eastern end of the property a flat lens of ore is developing into a promising one. The Chapin is admirably looked after and is a fine mine. – Iron Ore.

Iron Mountain Press, Iron Mountain, Dickinson County, Michigan, Volume 3, Number 13 [Thursday, August 18, 1898], page 8, column 3

Master Mechanic Richards has about completed the work of dismantling the big Cornish pump at Chapin D shaft. A storage shed will be erected for it near the old coal dock.

MENOMINEE RANGE HISTORY – IRON MINING – CORNISH PUMPING ENGINE, CHAPIN MINE, IRON MOUNTAIN

[Compiled and Transcribed by William J. Cummings]

Iron Mountain Press, Iron Mountain, Dickinson County, Michigan, Volume 3, Number 28 [Thursday, December 1, 1898], page 1, column 1

AROUND THE CHAPIN.

At D shaft of the Chapin mine, which is now being abandoned, men are at work removing the underground and surface haulage system. The water column, of the dismantled Ellis [*sic – Allis*] pump is being taken out of the shaft, and the hoisting plant will be moved at an early date. It is only a question of a short time now when the shaft will collapse. Some ore is being stocked at the Hamilton and Ludington shafts, but shipping to the docks has not yet been suspended. Several cargoes were forwarded to Escanaba during the week and more will follow if the weather continues pleasant.

Iron Mountain Press, Iron Mountain, Dickinson County, Michigan, Volume 4, Number 3 [Thursday, June 8, 1899], page 1, column 3

EXPENSIVE WORK.

The work of filling in Stephenson avenue at the Chapin cave-in is progressing rapidly. Already over 5,000 yards of earth have been dumped into the hole and it will require 5,000 more yards to fill it to the old level. The North-Western road also has considerable filling to do in order to bring its tracks up to grade. The work is expensive, but a good job is being done.

Iron Mountain Press, Iron Mountain, Dickinson County, Michigan, Volume 4, Number 3 [Thursday, June 8, 1899], page 1, column 3

TEARING BUILDING DOWN.

The Chapin Mining company has men at work tearing down the stone engine-house at old D shaft. The four story pump-house will be permitted to tumble down. The large brick smoke stack will be taken down and as much of the material saved as possible. The work will be expensive, as it will be necessary to erect a staging to the top.

ERECTION OF THE CORNISH PUMPING ENGINE AT “C” LUDINGTON SHAFT OF THE CHAPIN MINE

Iron Mountain Press, Iron Mountain, Dickinson County, Michigan, Volume 12, Number 28 [Thursday, February 9, 1908], page 1, column 5

HOISTING ENGINE

THE LARGEST PLANT IN THE LAKE SUPERIOR IRON REGION.

The Load is 22,000 Pounds Not In- cluding the Steel Cable – Addi- tions to Pumping Plant.

A [*sic – At*] the new C Ludington shaft of the Oliver Iron Mining company there is

MENOMINEE RANGE HISTORY – IRON MINING – CORNISH PUMPING ENGINE, CHAPIN MINE, IRON MOUNTAIN

[Compiled and Transcribed by William J. Cummings]

now in course of erection one of the largest hoisting plants in the Lake Superior region.

The plant was built by the Allis-Chalmers Co., of Milwaukee, and is of a first motion design. The type of the engine is a duplex reversing Corliss with heavy duty frame. The size of the engine is 34x72 inches and the speed 50 r.p.m. The diameter of the drum is twelve feet and the face ten feet. The drum is keyed to the shaft and has turned grooves for 1.38 inch steel rope. The face of the lowering brake on the drum is fourteen inches. Type of reverse motion, Stephenson link.

The load to be hauled by the engine is 22000 *[sic – 22,000]* pounds not including the steel rope. The weight of the two empty skips is 4,000 pounds each and the weight of the ore in the skip will be 14,000 pounds. The size of the hoisting rope is one and three-eighth inches. The maximum depth for which the hoisting engine will be need *[sic – needed]* will be 3,000 feet. The engine is equipped with an automatic device for closing the throttle. It is expected to have *[the]* plant in operation in the early summer. The old engine employed at the shaft, after being rebuilt, will be shipped to Ironwood and placed in comission *[sic – commission]* at the Norrie mine.

C Ludington shaft has a total depth of 1,522 feet and it is expected to send the first ore to the surfaced early in the summer. It is probably the most modern shaft in the Lake Superior iron region and the sinking has consumed nearly three years of time. It is a steel, four-compartment shaft, measuring at the collar 21.3x10.4 feet.

The pumping engine, which performed such splendid duty at Chapin C *[sic – D]* shaft, now abandoned, is now in course of erection, but it will be many months before it will be in operation. This splendid piece

of machinery has never been called upon for full duty. It has a capacity for handling 3,000 gallons of water per minute from a depth of 1,500 ft. At Chapin C *[sic – D]* the lift was about 600 feet. Four sets of the pumps were operated *[at Chapin D shaft, and]* at the new shaft eight sets of pumps will be operated. These pumps are located about 190 feet apart except on the last, which is 170 feet.

Iron Mountain Press, Iron Mountain, Dickinson County, Michigan, Volume 13, Number 10 [Thursday, July 30, 1908], page 1, column 3

NEW CHAPIN SHAFT

**FIRST SKIP OF ORE WAS
HOISTED LAST MONDAY
MORNING.**

**Probably the Largest and Best
Shaft in the Lake Superior Region;
Practically Fire-Proof.**

The first ore was hoisted through the new Ludington shaft of the Oliver Iron Mining company last Monday.

The work on the shaft was started on May 6th, 1903.

The work of sinking was completed early last December.

It is connected with the old workings at the tenth and fourteenth levels.

The total depth of the shaft is 1522 *[sic – 1,522]* feet.

The shaft is one of the largest in the Lake Superior region and is practically fire-

MENOMINEE RANGE HISTORY – IRON MINING – CORNISH PUMPING ENGINE, CHAPIN MINE, IRON MOUNTAIN

[Compiled and Transcribed by William J. Cummings]

proof. It is surmounted by a modern steel shaft-house, and the ore pockets of which there are four are built in a steel structure.

The shaft is a four-compartment affair. The inside measurements are ten feet four inches by twenty-three feet one inch. The two hoisting compartments are each five by eight feet, the cageway five feet by ten feet four inches and the pump compartment ten feet four inches by eleven feet one inch.

The shaft is lined with steel frames from the surface to bottom lathed outside with heavy planks that are “broken” at various points in order to avoid a continuous sheet of combustible material.

At this shaft has been re-erected the big Cornish pump, formerly stationed at Chapin D shaft, which was dismantled in 1899. The plant is one of the largest in the Lake Superior country. A good idea may be gained of the size of the pump when it is stated that the upper cylinder is fifty inches and the lower cylinder one hundred inches. The stroke is ten feet. The engines are connected directly with the pumping bob, which weighs fifty tons. The crank shaft is twenty-seven inches in diameter. The connecting rods fifteen inches in diameter at the center and eleven inches at the ends. The pump rods are of iron about seven inches in diameter and calculated for a depth of 1,500 feet. The plunger is twenty-eight inches in diameter. The capacity of the pump at normal speed is a fraction more [than] 319 gallons per stroke with ten strokes to the minute. The guaranteed capacity is 3,000 gallons per minute against a head of 1,500 feet.

The hoisting plant embraces everything that is new in line of machinery. It is built for a maximum depth of 3,000 feet and the load, including skip and ore, is fully ten tons.

The height of the smokestack, constructed of tile, is 135 feet above ground and the inside diameter is seventy-eight inches.

It is the intention of the management to hoist the greater portion of the product of the mine through this shaft. There is ample room in the vicinity for stock docks and the ground is of such a nature as to insure against caving, having been thoroughly tested before the work of sinking commenced.

Iron Mountain Press, Iron Mountain, Dickinson County, Michigan, Volume 13, Number 11 [Thursday, August 6, 1908], page 1, column 4

Big Cage.

The new shaft recently placed in commission here by the Oliver Iron Mining company is equipped with a double deck steel cage with accommodations for hoisting fifty-six men at each lift. It is probably the largest in the iron country.

Iron Mountain Press, Iron Mountain, Dickinson County, Michigan, Volume 14, Number 10 [Thursday, July 29, 1909], page 1, column 3

BIG WATER TOLL

TEN TONS FOR EACH TON
ORE AT THE CHAPIN MINE.

Florence Mine Booked for a
Record Production of Ore This
Year – Boiler for Munro Mine.

MENOMINEE RANGE HISTORY – IRON MINING – CORNISH PUMPING ENGINE, CHAPIN MINE, IRON MOUNTAIN

[Compiled and Transcribed by William J. Cummings]

It may surprise the lay readers of The Press to learn that for every ton of ore hoisted at the Chapin mine the pumps bring to the surface ten tons of water. That's some water, and represents an expense met with in few Lake Superior properties. Reduced to gallons the figures become startling. Figures prepared by Chief Engineer Richards show that the pumps – and the bailers at the Hamilton shaft – bring to the surface every minute 2,700 gallons, each hour 162,000 gallons, each day 3,888,000 gallons and each month 116,640,000 gallons. The figures become more startling when taken in comparison with the 700,000 gallons which the local water works plant pumps each twenty-four hours to supply the city, railroads and manufacturing concerns.

General Manager Vogel, in an interview last Saturday, informed The Press that the Florence mine would produce more ore this season than in a single year in the history of the property. Mr. Vogel is figuring on a production of 250,000 tons. Last season the property produced about 140,000 and in 1907 about 180,000 tons. The largest shipment in a single year was in 1905, when 233,858 tons were sent to the docks, but a considerable portion of this tonnage was from old stock-piles *[sic – stockpiles]*. Manager Vogel expects to make his record shipment of 250,000 tons with a working force of about three hundred men. This indicates a very low mining cost. The property is looking healthy and is in better condition than at any time in its history. It has large reserves of ore. Under Mr. Vogel's management extensive improvements have been made on the surface and underground. Indeed, almost

the entire surface plan has been renewed and is now equal to any in the Lake Superior district. The mine location is a model – as neat and tidy as a well-kept house. The work under underground *[sic]* has been judicious and resultful and always with an eye to the future. Manager Vogel has an able and sympathetic staff of assistants at the property.

The Buffalo & Susquehanna company has placed an order with Hunt, of Marinete *[sic – Marinette]* for a large boiler for the Munro mine. The manufacturer has agreed to deliver the boiler in record time. The old boiler has been repaired and the work of unwatering the workings is now in progress. It is expected to commence shipping ore to the docks in ten days. Supt. McDermett *[sic – McDermott]* will have to hustle if he mine *[sic – mines]* the 25,000 tons allotted to the property.

Iron Mountain Press, Iron Mountain, Dickinson County, Michigan, Volume 14, Number 11 [Thursday, August 5, 1909], page 1, column 3

NEARING COMPLETION.

Big Pumping Plant at New Ludington Shaft About Ready to Start.

It is expected to have the big Cornish pump at C Ludington shaft in complete operation in a few days now. The work of installation has been in progress for many months. The plant was formerly stationed at D Chapin shaft, which was abandoned

MENOMINEE RANGE HISTORY – IRON MINING – CORNISH PUMPING ENGINE, CHAPIN MINE, IRON MOUNTAIN

[Compiled and Transcribed by William J. Cummings]

several years ago. While at D shaft the plant was never called upon for full duty. It has a capacity for handling 3,000 gallons of water per minute. At D shaft, where the lift was about 600 feet, four sets of pumps were operated. At C Ludington eight sets will be operated. These pumps are located about 190 feet apart except for the last which is 170 feet. Much has been printed about this plant, one of the largest in the Lake Superior country. It was built by the old Allis company and was dismantled in 1899 after having been in operation six or seven years. The work of re-erection was commenced a year ago last January. A good idea may be gained of the size of the plant when it is stated that the upper cylinder is fifty inches and the lower cylinder one hundred inches. The stroke is ten feet. The engines are [*sic – engine is*] connected directly with the pumping bob, which weighs fifty tons. The fly-wheel is forty feet in diameter and weighs fifteen hundred tons. The crank shaft is twenty-seven inches in diameter. The connecting rods fifteen inches in diameter at the center and eleven inches at the ends. The pump rods are of iron about seven inches in diameter and calculated for a depth of 1,500 feet. The plunger is twenty-eight inches in diameter.

Iron Mountain Press, Iron Mountain, Dickinson County, Michigan, Volume 14, Number 38 [Thursday, February 10, 1910], page 1, column 4

Pump Idle.

The immense Cornish pump at C Ludington shaft, which has been idle for several weeks pending repairs to the city sewer system, is again in operation. The big underground Reidler pump at the Hamilton shaft was operated while the

Cornish pump was idle. The Cornish pump is handling about 2,700 gallons of water each minute and is running as smoothly as a new sewing machine.

Iron Mountain Press, Iron Mountain, Dickinson County, Michigan, Volume 14, Number 46 [Thursday, April 7, 1910], page 1, column 6

Modern Dry House.

The Oliver Iron Mining company will soon commence the erection of a model sanitary dry-house. The building will be of stone and steel construction and will be erected in the vicinity of C Ludington shaft. The dimensions will be sixty-four by one hundred four feet on the ground plan. The dry will contain 660 steel lockers for the clothing of the men and it will be equipped with shower baths and enameled wash basins. The construction will be modern throughout and sanitary perfect. The cost of the structure is estimated at \$12,000.

Iron Mountain Press, Iron Mountain, Dickinson County, Michigan, Volume 15, Number 12 [Thursday, August 11, 1910], page 1, column 5

New Dry-House.

Work has commenced on the new sanitary dry-house for the Oliver Iron Mining company. It will be of stone and steel construction, making it fire-proof. The building will be 104 - 4 x 64-4 feet in size. It will contain 660 steel lockers for the clothing of the men and will be equipped with shower baths and enameled [*sic – enameled*] wash fixtures. The construction will be in accordance with the very latest ideas in dry-house erection and will be as

MENOMINEE RANGE HISTORY – IRON MINING – CORNISH PUMPING ENGINE, CHAPIN MINE, IRON MOUNTAIN

[Compiled and Transcribed by William J. Cummings]

near perfection from a sanitary standpoint as possible. The cost of the structure will be \$12,000. It is being erected near Ludington C shaft.

Iron Mountain Press, Iron Mountain, Dickinson County, Michigan, Volume 15, Number 16 [Thursday, September 8, 1910], page 8, column 6

The new dry-house at the Ludington shaft of the Oliver Iron Mining company is now enclosed. It is a substantial structure constructed of stone and steel.

Iron Mountain Press, Iron Mountain, Dickinson County, Michigan, Volume 16, Number 34 [Thursday, January 11, 1912], page 1, column 6

BRIEF CITY NEWS.

The big Cornish pump at the new Ludington shaft is disabled and it will require a month or longer to make the necessary repairs. In the meantime the mine is kept free from water by the Reidler pump at the Hamilton shaft assisted by the large bailers.

Iron Mountain Press, Iron Mountain, Dickinson County, Michigan, Volume 18, Number 19 [Thursday, September 25, 1913], page 1, column 2

PUMP IN OPERATION.

Last Saturday morning [September 20, 1913] the Oliver Iron Mining company received by express from the shops at West Allis a casting for the big Cornish pump at the new Ludington shaft that weighed over 2,400 pounds. It was much the largest "package" ever handled by a local express

agent. The work of repairing the immense pump was finished Monday [September 22, 1913] and it is again in operation. During the time the pump was idle the inflow of water was handled through the Hamilton shaft by the Riedler pump and bailers.

Iron Mountain Press, Iron Mountain, Dickinson County, Michigan, Volume 18, Number 39 [Thursday, February 12, 1914], page 1, column 1

REBUILDING SHAFT

**WORK AT THE HAMILTON IS
ABOUT TWO-THIRDS
COMPLETED.**

A Large Station for the First Set of Electrical Pumps is Now Being Cut on Twelfth Level.

At the Hamilton shaft of the Oliver Iron Mining company, [sic] the work of re-lining with reinforced concrete dividers, end plates and concrete poured walls, has been finished to a depth of one thousand feet – twelfth level – where a pumping station is now being cut out. This station is about thirty feet wide and one hundred feet long and will contain one set of the electrical centrifugal pumps. Another pumping plant will be located on the sixteenth level, about 430 feet below the twelfth level. The shaft is to be re-lined for the entire distance, the decision being to make the Hamilton a permanent outlet for the Chapin mine.

The original Hamilton shaft was sunk in 1891 by the Hamilton Ore company under the direction of John T. Jones, who was

MENOMINEE RANGE HISTORY – IRON MINING – CORNISH PUMPING ENGINE, CHAPIN MINE, IRON MOUNTAIN

[Compiled and Transcribed by William J. Cummings]

then superintendent of the property. It contained six apartments [*sic* – *compartments*]. The size was seven feet by twenty-one feet four inches. To provide for column pipes and transmission cables for the new electrical pumps, it was found necessary to increase the inside dimensions to nine feet by twenty-one feet four inches, this making the poured walls six inches thick, but this did not increase the outside measurements of the former wooden shaft. The shaft now consists of eight compartments – two for skips or bailers and two for cages, each four feet eight inches by six feet four inches, three compartments for pipes and transmission cables and one for ladder, each two feet four inches by four feet eight inches, with concrete slab partitions between cage and skip compartments, pipe and skip compartments and ladder and skip compartments.

In order to facilitate the work, a concrete mixing plant was built near the shaft. The plan consists of a crusher, bucket elevator, revolving screen, two concrete mixers, pocket divided into three divisions for sand, gravel and “over-size” and a drying-room equipped with an overhead traveling crane.

The work of re-lining the shaft is done in sections. Each section is started on permanent bearers located to support the old timber set and working upwards. The average amount of material for re-lining one six-foot vertical section of the shaft is one cord of stone for back-filling, ten cubic yards of concrete and 550 pounds of steel for re-inforcing [*sic* – *reinforcing*].

The work is carried on in three eight-hour shifts and the average time required to concrete six vertical feet is twenty-four hours, pouring concrete and removing an equal amount of forms. When the forms are removed they are taken to the surface,

thoroughly cleaned and given a coat of crude oil before being used again.

The work was started on May 3rd, 1912, at a distance about eighty-three [*feet*] below [*the*] collar of the shaft and was completed to the surface on June 29th. The average rate of progress since the work started, not deducting delays, has been between sixty and seventy feet per month. The preliminary estimate had been one hundred feet, but progress was retarded owing to the condition of the timbers in the old shaft and difficulty in removing them and avoid [*sic* – *avoiding*] accidents, and an unexpected inflow of water caused a suspension of work for nearly a month.

A force of about forty men is employed in the work in various capacities and the shaft will not be completed to the bottom level for several months.

S.W. Tarr, of Duluth, chief construction engineer for the Oliver Iron Mining company, has had general supervision of the work. Much of the information above was secured from a paper prepared by him and read at a meeting of the Lake Superior Mining Institute.

Iron Mountain Press, Iron Mountain, Dickinson County, Michigan, Volume 18, Number 41 [Thursday, February 26, 1914], page 1, column 6

Pump Pin Breaks.

The large Cornish pump at the Ludington shaft of the Chapin mine is again idle due to the breaking of a connection. In order to keep the workings free from water, the bailers at the Hamilton shaft were placed in operation yesterday morning and mining operations have not been interrupted. A connection has been ordered from the shops at Milwaukee, and it

MENOMINEE RANGE HISTORY – IRON MINING – CORNISH PUMPING ENGINE, CHAPIN MINE, IRON MOUNTAIN

[Compiled and Transcribed by William J. Cummings]

is expected to have the pump in operation before the close of the week.

Iron Mountain Press, Iron Mountain, Dickinson County, Michigan, Volume 20, Number 25 [Thursday, November 4, 1915], page 1, column 4

First Electric Pump.

While in the city recently and during a conversation relative to the new electric pumps at the Hamilton shaft of the Chapin mine, John T. Jones recalled the fact that the first plant of the kind ever constructed was delivered at the same shaft some twenty-four years ago. Mr. Jones was general manager for the Hamilton Ore company at that time and the pumping plant was built to the order of that corporation. It was never erected and was finally returned to the manufacturer. The question of a constant electrical current sufficient to operate the plant was an uncertain quantity and quality *[in]* those days. The pump was a very crude affair in comparison with those now in operation.

Iron Mountain Press, Iron Mountain, Dickinson County, Michigan, Volume 20, Number 26 [Thursday, November 11, 1915], page 4, column 3

NEWS IN PARAGRAPHS

The Cornish pump at the Ludington shaft of the Oliver Iron Mining company was in operation several days during the week, due to an accident to one of the electric pumps. The repairs to the latter plant was *[sic – were]* completed on Monday and the water is now being handled by electric pumps. The inflow of water is a little larger

than nominal *[sic – normal]*, due to the discharge from the vug, which is now being handled.

[Note: The word vug was introduced to the English language by Cornish miners, from the days when Cornwall was a major supplier of tin. The Cornish word was vooga which meant "cave".]

CORNISH PUMP SAVED FROM SCRAP METAL DRIVE DURING WORLD WAR II

Iron Mountain News, Iron Mountain, Dickinson County, Michigan, _____ Year, Number _____ [Friday, July 31, 1942], page 3, column 1

Cornish Pump To Remain As Landmark

The old Cornish pump, Iron Mountain landmark and tourist attraction, was saved, at least temporarily[,], yesterday afternoon when the board of supervisors tabled a request by Edward Chandler, commander of the Dickinson county council of American Legion posts, asking that the relic be dismantled as scrap metal for the war effort.

The American Legion, Chandler wrote[,], has entered a campaign to see "that every piece of scrap metal is made available for producing the sinews of war."

"We therefore urge you," his letter continued, "as one group of patriotic Americans to another, to dispose of the old Cornish pump. We realize that the pump is an old landmark; that it has a sentimental

MENOMINEE RANGE HISTORY – IRON MINING – CORNISH PUMPING ENGINE, CHAPIN MINE, IRON MOUNTAIN

[Compiled and Transcribed by William J. Cummings]

value and has been a source of pride to a great many of our people. However, we believe that there may be reason for far greater pride when the steel in the pump...confronts the enemy and gives a good account of itself.”

Urging retention of the pump as a tourist attraction, which has been viewed by thousands of visitors, Don Smith, secretary of the chamber of commerce and chairman of the Iron Mountain salvage-for-victory drive, told the supervisors that he did not believe the landmark should be destroyed.

Outstanding Attraction

“I’m in an embarrassing situation,” Smith told the supervisors. “I am chairman of the salvage drive, but feel I must protest the proposed destruction of the pump. It is one of the two outstanding landmarks in Iron Mountain. Thousands of tourists, if they see nothing else here, visit the ski slide and the Cornish pump.

“In time of war we may be moved by hysteria to do things we would not otherwise do. I do not think the metal situation is so desperate as to require dismantling the pump. In the correspondence I receive from the state salvage chairman, we are urged not to destroy landmarks which will be missed,” he concluded.

The board tabled the Legion’s request by a unanimous vote.

Criticized for his failure to attend the board meeting, Prosecutor Zanardi was instructed to maintain an office in the court house a half-day each business day during the week, in a resolution also adopted unanimously.

Zanardi yesterday was attending a state convention of county prosecutors at Mackinac Island.

New Fiscal Year

On recommendation of state auditors, the board adopted a fiscal year from Jan 1 to Dec. 31, to replace the current year from July 1 to June 30.

Authorized were repairs to county fair grounds [*sic – fairgrounds*] buildings at an estimated cost of \$1,000. The fairgrounds committee will purchase material and employ labor for the job. Employment of extra clerical help as needed in the clerk’s office was voted.

An appropriation of \$140 for purchase of books and equipment by the county school commissioner was approved.

Action on a proposal to merge the county and city health departments was deferred until after the city council acts. The proposal was tabled at the last meeting.

Iron Mountain News, Iron Mountain, Dickinson County, Michigan, _____ Year, Number _____ [Tuesday, August 4, 1942], page 3, column 1

Cornish Pump Becomes Civic Issue

Dismantling of the Cornish pump for scrap metal to feed the nation’s steel mills last night became a point at issue between the Kingsford commission and the county on one hand, Legion posts, and the county board of supervisors and the chamber of commerce on the other.

Commissioners voted unanimously to recommend conversation of the pump to scrap, in support of a Legion request which was tabled last Thursday by the county board. Don Smith, secretary of the

MENOMINEE RANGE HISTORY – IRON MINING – CORNISH PUMPING ENGINE, CHAPIN MINE, IRON MOUNTAIN

[Compiled and Transcribed by William J. Cummings]

chamber, protested destruction of the landmark and tourist attraction. The pump is owned by the county.

Commission action in support of salvaging the pump was urged by George Sanford, Kingsford defense coordinator, who appeared before the commission.

Eastern communities are melting down cannon which were mementoes of the Revolutionary war, Sanford told the commission, and continued: "We in this country should stand ready to do as much in the interest of the country's welfare."

Challenges Smith

"As defense coordinator in the village, I wish to enter a protest with this body concerning a recent statement by Don Smith, that the Cornish pump is needed as a tourist attraction and that it should not be salvaged for war purposes – a queer statement for one who is head of the city salvage committee," Sanford said. "Need Mr. Smith be reminded that we are at war? Doesn't he realize that nothing matters except winning the war, because if we don't win it, nothing matters."

The steel industry operates on a "half and half" basis – 50 per cent pig iron and 50 per cent scrap, Sanford went on, quoting a recent statement by Donald M. Nelson, WPB chairman. Many furnaces have been allowed to cool because of a lack of scrap metal.

"We must fill this scrap iron shortage," he continued. "A few years ago we were selling this scrap to Japan and now they are giving it back to us free – at least portions of it have landed in California and British Vancouver.

"It seems to me that if communities in the east are melting down cannon and the like – which are mementoes of the Revolutionary war days, and no doubt had considerable chamber of commerce value

form a tourist standpoint – we in this county should stand ready to do as much in the interest of the nation's welfare.

"Dickinson county boasts[,] he concluded, "of five wonders of the word [*sic* – *world*] – but the biggest wonder of all will be the Cornish pump when people ask, 'I wonder why that hasn't gone into scrap metal.'"

Fee Reduced

The license fee in a proposed ordinance regulating second-hand establishments was reduced from \$15 to \$1, and \$1 for each vehicle operated in connection with the business, after the \$15 fee was protested by Roy Munn, hardware store proprietor.

Changing the ordinance will delay its adoption until the next regular meeting. It will become effective 21 days after passage.

A village application for a priority rating to purchase two snow plows has been temporarily denied by the division of industry operations of the WPB, Manager Wagner reported. He was instructed to reapply within 60 days.

Also denied was an application for 34,000 gallons of slow-curing road oil to complete the village WA street program, Wagner reported.

Three sample ordinances for licensing of merchants were submitted to the commission, which voted to table a request by the Kingsford Retail Merchants' association for legislation restricting opening of new stores.

Iron Mountain News, Iron Mountain, Dickinson County, Michigan, _____ Year, Number _____ [Tuesday, September 29, 1942], page 3, columns 1-2

MENOMINEE RANGE HISTORY – IRON MINING – CORNISH PUMPING ENGINE, CHAPIN MINE, IRON MOUNTAIN

[Compiled and Transcribed by William J. Cummings]

Cornish Pump Not Forgotten In Scrap Drive

To all you people who are still fretting about the old Cornish pump, in the current scrap drive:

Your government has stated specifically, over an authorized signature, that it is primarily interested, right now, in the “loose scrap” lying around your yard, basement, attic, garage, etc.

Your government knows about the Cornish pump, and has set it aside, temporarily, as an “ace in the hole,” to be broken up and carted off, on call.

The Cornish pump, your government says, will be right where it is now when it's needed. Nobody's going to steal it.

Your government is now setting up a new agency to handle heavy units like the Cornish pump, which can be broken up for shipment only at considerable expense – much more than would be realized by its sale to any authorized scrap dealer.

The Cornish pump has not been overlooked. It has been inspected by the state salvage director, who has relayed all information on it to the federal salvage department, which has said: “Get out the loose scrap first. We'll get around to the Cornish pump.”

Meanwhile, there's a lot of work to be done, right here in Iron Mountain, on that “loose scrap.”

Although the fourth ward in the city came through with more than 13 tons in the first day of the drive, Location 25 and other

areas on the west side have fallen ‘way below par,[’] salvage officials said.

There's A Reason

There's a reason. Collection schedules on the west side have not been definitely set, or announced, with the result that many residents of that area, waiting for the schedule on their streets, have held onto their scrap – and the truck drivers, patrolling these districts and finding no scrap, have passed by.

Some 50 or more calls have been received by Don Smith, city salvage chairman, at his office in the chamber of commerce building, and by CCD headquarters in the city hall, advising that scrap is available if the trucks will call. As a result, trucks have shuttled back and forth over the district, picking up 50 pounds here, 100 there, but on no fixed schedule.

Starting tomorrow, it's going to be different, Smith said today. Tomorrow morning the trucks will definitely patrol the fifth ward in the city. Residents are asked, once more, to have their scrap piled at the alley line or, where there is no alley, at the curbing.

Because of this confusion, Smith added, the city-wide collection is still a long way from the 100-pounds-per-family average for the nation. Collections here to date aggregate about 20 tons, “and that is not a good showing for a town of this size,” Smith said. “However,” he added, “we know that a great many people have scrap ready to collect. They are waiting for the schedule, so they can put the stuff out. Many persons hesitate to place the metal in the alleys until they know the trucks will get it the same day. If they leave it out overnight, it may be stolen – and that has happened.

“At the same time, they don't want to be lugging it back and forth from the alley to

MENOMINEE RANGE HISTORY – IRON MINING – CORNISH PUMPING ENGINE, CHAPIN MINE, IRON MOUNTAIN

[Compiled and Transcribed by William J. Cummings]

the house, day after day. We can't blame them for that.

"Hereafter, the daily schedule will be maintained and announced."

Heap Is Growing

Despite this upset, the salvage heap near the city filtration plant is growing daily, and there is every indication a minimum of 50 tons for the city will be reached. The goal is 100 pounds per family in the city.

Suggestions where heavy scrap may be found are coming in daily, on coupons published in The News. The largest single source reported in this way, by W.J. Staple, 508 Detroit avenue, is an unused pipe line extending from Crystal Lake to the Ford filtration plant, formerly used to feed water into Crystal lake. Mr. Staple reports the line is buried not more than from six inches to a foot in the ground. Who owns it? Can it be salvaged for scrap? The line has been duly reported to salvage officials.

This, it may develop, is another project for the new agency, mentioned above, now being organized within the War Production Board.

Jack Schwei, principal of the Quinnesec high school, submits a group of pictures showing the six-ton pile of scrap collected by high school students in only two hours. It was only part of the student collection in the Quinnesec area, Schwei added.

So it goes – everywhere in the county, and will continue to go until every pound of available scrap is safely stored in the junk yards, awaiting shipment to the steel mills which are turning out plate for guns, ships and ammunition.

**CORNISH PUMP
PRESERVED FOR POSTERITY**

Iron Mountain News, Iron Mountain, Dickinson County, Michigan, Volume ____, Number ____ [Saturday, September 18, 1948] [Week-End Special], page 1 columns 7-4 [Photograph, columns 6-8 with newly-painted, exposed pumping engine and headline over photograph PRESERVED FOR POSTERITY]

Cornish Pump Still "Work Of Wonder" To Engineers

Now 58 years old, Iron Mountain's Cornish pump – the largest steel work-horse of its kind in the world and the object of wonder and admiration of every engineer who has seen it – is still being preserved as a memorial to the early mining days on the Menominee Range.

Its great engine is silent. Its mighty 40-foot flywheel is still. The pump – the "brainchild" of a man named Edwin Reynolds, who was once the chief engineer of the E.P. Allis company – stands deserted beside the collar of the abandoned "C" or Ludington Shaft of the Chapin Mine, only a short distance from the business section of Iron Mountain and within a stone's throw of the state highway leading to the famous Copper Country.

Built in 1890 by the Allis firm, which was the predecessor of the Allis –Chalmers corporation, Milwaukee, the pump was painted and repaired this week at the direction of the company. The work was done by Marshall Holland, of Iron Mountain.

Although the machinery now is owned by Dickinson county, the Milwaukee company undertook the repair and painting because of interest by company officials in the pump, since it was company-built. It was deeded to the county when the iron-ore reserves of the Chapin mine – owned by

MENOMINEE RANGE HISTORY – IRON MINING – CORNISH PUMPING ENGINE, CHAPIN MINE, IRON MOUNTAIN

[Compiled and Transcribed by William J. Cummings]

the Oliver Mining company – were exhausted.

Engineer Praises Pump

High praise for the pump was given recently by an old mining engineer who came to the offices of the Iron Mountain-Kingsford Chamber of Commerce and told Don Smith, secretary

"You have no idea what a thrill it was for me to see that old pump. For an engineer who loves tools, the feeling one has is comparable to that of an art collector who stumbles upon a great painting. I had no idea the pump really existed, although I had heard many stories about it from men who claimed to have seen it.

"It's a beautiful piece of machinery! I took measurements and pictures. I'll never forget it."

Smith said the engineer, who was unidentified, asserted that he had been in most of the world's largest mines as a mechanical engineer, and had seen several Cornish pumps, but none the size of this one.

"This community," the old engineer said, "doesn't realize what it has, in the pump. It should be preserved forever. Nothing should ever be allowed to happen to it!"

For many years the steel headframe remained in place as a companion piece of the pumping engine and was dismantled only to help meet the nation's urgent need for scrap metal during World War II. With the removal of the enclosing building, the engine was at the mercy of the elements. To protect the steel, the pump was given two coats of aluminum paint.

Many Saloons

Use of the big plant was halted in 1914, when modern engines were installed at the mine, which was closed in 1932. In 1890, the mine employed a peak of 2,400 men. About 1,500 others were employed at the

Hamilton, Ludington, Pewabic and Millie Mines, which were developed after the Chapin was discovered – making a total of nearly 4,000 employed in Iron Mountain, which was then referred to as the "Pay Roll City of the North." Since there were about 50 saloons in the city at that time, it was, according to retired miners, "a pretty hot spot."

The machine is the version of the Cornish pumping engine, which was initially used to pump water from the mines at Cornwall, England. It was developed at the same time as the earliest practical steam engines, and towers 54 feet into the air. The bottom of the flywheel is 16 feet underground, making a total height of 70 feet.

It weighed 160 tons when in working order. The low-pressure cylinder is 100 inches in diameter and the high-pressure cylinder is 50 inches. The piston stroke was 10 feet. Water was elevated in stages, and of the 10 pumping units in the shaft, eight were at intervals of 192 feet and two at 170 feet. The capacity from a dept [*sic* – *depth*] of 1,500 feet was 3,000 gallons per minute.

According to George J. Eisele, former general superintendent of the Oliver company, there is a total absence of welded joints – so common in modern machinery. The once brilliantly polished brass railing that wound majestically up the cast-iron stairs has been carried away piecemeal by vandals or curio seekers. Other acts of demolition have defaced the once-proud old lady. Yet she still stands serenely, as if she knows, somehow, that her equal in size was never seen.

"Stories Not True"

Stories persist among miners that the laminated wood rod of the behemoth, extending down 1,500 feet to link the

MENOMINEE RANGE HISTORY – IRON MINING – CORNISH PUMPING ENGINE, CHAPIN MINE, IRON MOUNTAIN

[Compiled and Transcribed by William J. Cummings]

pumping units, was provided with ladder rungs so that men could enjoy the lift of the 10-foot stroke in leaving the mine. This, however, isn't true, according to the former owners. The tale perhaps gained credence because some Cornish pumps in England are reported to be arranged so miners can ride them in ascending the shafts.

Designed for a capacity of 5,000,000 gallons of water in 24 hours, the pump has a plunger 28 inches in diameter with a 120-inch stroke; main bearings, 24 inches in diameter and 36 inches long, and crank pin, 16 inches in diameter and 18 inches long.

The steam plant which operated the pump consisted of a battery of six horizontal boilers. The annual coal consumption was 11,000 tons. The cost of the engine was \$82,500, and the portion located in the shaft cost as much more. Added installations made an approximate expenditure for the entire plant of about \$250,000.

"As one looks at the once-glistening pump, thoughts [*sic – thoughts*] drift back to the operating engineer of that early day in mining history at Iron Mountain," said Mr. Eisele. "One can picture him climbing ceremoniously up the winding stairs of his new and powerful charge to check packing glands and lubrication high above the engine-room floor. A man could be proud of a responsibility like that. The big machine certainly got the loving care she deserved."

CAPTION

PRESERVED FOR POSTERITY

[Photo by Archie]

Towering against the Iron Mountain skyline, the old Cornish pump, above, once

the property of the Oliver Mining company and since deeded to Dickinson county, is being preserved as a memorial to the early iron mining days on the Menominee Range. Situated near the old Ludington mine, the steel behemoth, extending 70 feet into the air from its below-surface base, has a 40-foot flywheel and was steam-driven. It went out of use in October, 1914, when the company installed electrical machinery to pump water from a 1,500-foot shaft. This week, the pump was painted and repaired – at the direction of the Allis-Chalmers Corporation, Milwaukee – by Marshall Holland, of Iron Mountain. The pump, manufactured in 1890 by the E.P. Allis company, Milwaukee, predecessor of Allis-Chalmers, was designed by Edwin Reynolds, chief engineer of E.P. Allis. It was abandoned in 1896, because of underground developments, and then operated again in 1907. It consumed approximately 11,000 tons of coal annually and, in 1913, ran 89 days without a halt. That year, the cost of its steam production was \$43,555, and the plant was idle only 63 hours.

The Daily News, Iron Mountain-Kingsford, Dickinson County, [Thursday, July 29, 1999], page 1, columns 5-6

Cornish Pump Ground collapse Eases – officials Berm protects sinkhole site from runoff

**By DONI-MAE B. RAUCH
Staff Writer**

MENOMINEE RANGE HISTORY – IRON MINING – CORNISH PUMPING ENGINE, CHAPIN MINE, IRON MOUNTAIN

[Compiled and Transcribed by William J. Cummings]

IRON MOUNTAIN – The collapse of the mine shaft on the grounds of the Cornish Pump museum has slowed, according to museum officials.

But that doesn't mean that all will be back to normal at the Kent Street complex in the near future.

Don Chiapusio was pleased to see city crews show up on Fairbanks Street adjacent to the Cornish Pumping Engine and Mining Museum on Wednesday afternoon. The museum grounds keeper had said that a berm to redirect storm runoff would help the situation on Kent Street, where saturated ground had slipped into the 1,600-foot [*sic* – 1,522-foot] Ludington B mine shaft on Tuesday.

Another grounds keeper, Keith Burcar, discovered the widening hole on Tuesday near the noon hour. Little by little the ground kept sliding into the depths of the shaft.

Across the street, staff and customers at several businesses didn't notice anything unusual Tuesday afternoon.

The staff at Iron Mountain Animal Hospital and at Dr. Thomas Zeni's periodontal offices didn't notice the ground shaking when the cave-in started.

They were surprised to learn of the situation within view of their Kent Street professional buildings. A gaping hole in the lawn on the building's north side opened up this week to reveal water about 100 feet below.

Underneath the water surface is another 1,400 feet of water that ends at the bottom of the former mine shaft, which once transported men and equipment in a [*sic* – *an*] elevator [cage and hoist] to the depths of the mine.

The Dickinson County Mine Inspector Frank Santini said that after examining the

damage at the museum complex early Wednesday, he spoke with city manager Jim Urbany to get crews to design a plan to divert storm runoff away from the area until repairs could be made.

The berm constructed Wednesday came in handy when .74 inches of rain fell this morning.

Until the land stops sinking inside the headframe area, museum officials can do little but wait. The rate of collapse has slowed, according to Menominee Iron Range Historical Foundation spokesperson Kathleen Fayas.

The pump museum was closed until the damage could be assessed and repair needs determined. The date of reopening will likely be discussed when the board meets Friday at noon.

Fayas said a number of artifacts were moved inside the building in case the north wall of the complex was disturbed by the movement of the earth.

Concerns developed Tuesday when it appeared that an extension on the building might lose its underground support and fall into the pit.

Santini and Chiapusio were somewhat relieved Wednesday when the extension didn't fall off the main building in the first 24 hours after the cave-in was reported.

"But that doesn't mean it still won't go," Chiapusio said.

This is not the first ground collapse at the pump area. A similar situation developed about three years ago, according to Dianne Chiapusio, Menominee Iron Range museums manager. The area that collapsed was much smaller and didn't require substantial repairs.

This time the collapse is a different story.

MENOMINEE RANGE HISTORY – IRON MINING – CORNISH PUMPING ENGINE, CHAPIN MINE, IRON MOUNTAIN

[Compiled and Transcribed by William J. Cummings]

“We need a cap on here,” Santini said, referring to a permanent cap similar to the one put on Norway’s Aragon Mine in 1990.

The Daily News, Iron Mountain-Kingsford, Dickinson County, [Wednesday, August 4, 1999], page 1, columns 2-4 with colored photograph

Cornish Pump cap would be costly Engineers preparing report on collapse; emergency funds sought

IRON MOUNTAIN – Cornish Pump officials believe it may cost \$100,000 or more to cap to [sic] a former mine shaft that collapsed at the museum site last week.

A report is being prepared by U.P. Engineers and Architects Inc. of Norway and will be reviewed soon by the museum board, according to Kathleen Fayas, secretary of the Menominee Range Historical Foundation Board of Governors.

The ground adjacent to the Cornish Pumping Engine and Mining Museum on Kent Street began collapsing a week ago, creating a huge sink hole in the area of the former Ludington B mine shaft. The problem is limited to the museum area, but the shaft has a vertical depth of some 1,600 feet [sic – 1,522 feet].

After the collapse, city police and fire departments provided protective measures, including marking off the site and keeping guard to make sure no one entered. The museum’s own personnel, Dianne Chiapusio and Domenic Chiapusio,

continued to patrol the grounds when no one else was available.

A chain link fence is now in place around the hole, which is 50 feet or more in diameter.

Harry Kleiman, a local well driller and a member of the museum board, continued to work with engineers to monitor and assess the site, Fayas said.

Joe Stevens, chairman of the Dickinson County Board of Commissioners, has written letters questioning the availability of emergency funding to Gov. John Engler and state legislators Don Koivisto and Doug Bovin. Insurance issues are also being researched, according to museum officials.

At the direction of City Manager James Urbany, public works crews have installed an asphalt curbing along Fairbanks Street to prevent rain run-offs from accumulating on the lawn.

Peter Schlitt, Dickinson County’s emergency coordinator, has submitted a report to Lansing. He is in contact with the Michigan Department of Natural Resources and mine reclamation officials, Fayas said.

The museum has also received assistance from County Controller William Marchetti, Equalization Director Larry Swartout and Clerk-Register of Deeds Dolly Cook in researching the site.

The museum remains closed.

CAPTION: A SIGN WARNS against entering the danger area outside the Cornish Pumping Engine and Mining Museum in Iron Mountain where the ground began collapsing a week ago. The area has been fenced off and city crews have installed an asphalt curbing along Fairbanks Street to prevent rain from accumulating on the pump lawn. Funding is being sought to cap the former Ludington

MENOMINEE RANGE HISTORY – IRON MINING – CORNISH PUMPING ENGINE, CHAPIN MINE, IRON MOUNTAIN

[Compiled and Transcribed by William J. Cummings]

B mine shaft, estimated to be 1,600 feet [*sic*
– 1,522 feet] deep.