

# **Ancient Mining on the Shores of Lake Superior**

Albert D. Hagar

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IN the month of March, 1848, Samuel O. Knapp and J. B. Townsend discovered, from tracks in the snow, that a hedgehog had taken up his winter-quarters in a cavity of a ledge of rocks, about twelve miles from Ontonagon, Lake Superior, in the neighborhood of the Minnesota Copper Mine. In order to capture their game, they procured a pick and shovel, and commenced an excavation by removing the vegetable mould and rubbish that had accumulated about the mouth of what proved to be a small cavern in the rock. At the depth of a few feet they discovered numerous stone hammers or mauls; and they saw that the cavern was not a natural one, but had been worked out by human agency, and that the stone implements, found in great profusion in and about it, were the tools used in making the excavation. Further examination developed a well-defined vein of native copper running through the rock; and it was evidently with a view of getting this metal that this extensive opening had been made.

This was the first instance where "ancient diggings" — as they are familiarly called in the Lake Superior region — were ever recognized as such; and this artificial cavern presents the most conclusive proofs that a people in the remote past worked those mines. Upon the discovery of this mine, attention was at once directed to numerous other cavities and depressions in the surface of the earth at this and other points, and the result was that nearly a hundred ancient pits were found, and in all of them mining-tools of various kinds. These ancient mines or pits are not restricted to one locality, but extend over the entire length of the copper region, from the eastern extremity of Keweenaw Point to the Porcupine Mountains, a distance of nearly one hundred miles.

In some of the ancient diggings, the stone hammers have the marks of hard usage, fractured or battered faces, and a large proportion of them are broken and unfit for use; but in other pits the hammers are all sound, and many of them have the appearance of never having been used. These hammers, or mauls, which are of various sizes, and not uniform in shape, are water-worn stones, of great hardness, similar in all respects to those that are found in abundance on the shore of the Lake, or in the gravel-banks of that region. They are generally trap-rock, embracing the varieties of gray, porphyritic, hornblendic, sienitic, and amygdaloidal trap, and appear to have had no labor expended upon them except the chiseling of a groove around the middle for the purpose of attaching a withe to serve as a handle. In a few instances, I have noticed small hammers, usually egg-shaped, without a groove; and the battered or worn appearance at one end was all that induced the belief that they were ever used for hammering.

These hammers are usually from six to eight inches in length, and from eight to twelve inches in circumference, and weigh from four to eight pounds; but I have measured specimens that were twenty-four inches in circumference at the groove, and would weigh thirty pounds. It seems hardly probable that one man could wield so ponderous a tool; and from the fact that some of the large mauls have two grooves around them, it is presumed that two men were employed in using them.

Stone hammers are found in all the ancient diggings, and in some instances the number is almost incredible. From the pits near the Minnesota mines it is estimated that ten cart-loads have been removed; I was informed that a well there was entirely stoned up with them, and from the great number still remaining I am inclined to believe the report. A still greater number are said to have been found at the Mesnard and Pontiac Mines, in the Portage Lake district. Farther east, in the vicinity of the Cliff and Central Mines, they are also abundant; and it would

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seem, from the circumstance of their being invariably found in the pits, that the law among the ancient miners was similar to the one adopted by the adventurers in California a few years since, who established their claims by leaving their tools upon the land or in the pits where they were digging for gold.

In addition to the stone implements, copper chisels, wedges, or "gads," are often found in the abandoned mines; and in the vicinity, as well as in places more remote, other copper relics are found, consisting of knives, spear-points, and rings, like the bracelets of the present day. In a collection at the Douglas House, in Houghton, Portage Lake, are ornaments of this kind, and also some spear-heads, nicely wrought and similar in shape and size to the blade of a spontoon. But I have never seen a copper relic that had the appearance of having been melted. They invariably appear to have been cut and hammered into shape from a mass of native copper.

Colonel Charles Whittlesey, of Cleveland, Ohio, who has examined these "ancient diggings," has several interesting relics, some of which he has figured and described in the thirteenth volume of the "Smithsonian Contributions to Knowledge." In the Vermont State Cabinet is a spear-head of native copper, about six inches long, which was found in Williston, Vermont, in 1843.

It may be proper here to remark, that the copper in these relics is tougher than that which has been fused, and so is the native copper of Lake Superior; and occasionally in these copper relics blotches and grains of native silver are found. These circumstances serve to establish the fact, that the material of which the implements were made was obtained at Lake Superior; for there, and nowhere else in America, is native silver found in grains, and sometimes in considerable masses, imbedded in a matrix of native copper. I well remember, when a boy, reading an article relating to the "Lost Arts," in which the fact was stated, that a piece of metal consisting of pure copper and silver had been found in Hamilton County, Ohio, and that a copper knife had been found in one of the ancient mounds at Marietta, which had distinct blotches of pure silver in it. The writer of the article claimed that the people who manufactured that knife were in the possession of an art, now lost, by which copper and silver could be melted and indiscriminately mixed, but upon cooling would separate and remain distinct and pure, instead of forming an alloy. The discovery of native copper and silver similarly associated in the Lake Superior mines has not only destroyed this theory, but has established beyond a doubt the locality whence that copper knife, and other relics found in the ancient mounds and elsewhere, were obtained.

Billets of wood that bear the marks of a tolerably sharp-cutting tool are often found in the old mines where water has been suffered to remain since their abandonment. In the Waterbury Mine wooden shovels were found about three and one half feet long, some of which were much worn upon the blade, and appeared as though they had been used for scraping together and throwing out the refuse rock and dirt from the mine.\* At the same locality a wooden bowl was found, the side being so worn as to show conclusively that it had been used for baling water from the mine. Similar implements have been found at the mines in the Portage Lake and Ontonagon districts. When first found, these wooden implements appear sound, and being thoroughly saturated with water are heavy and can be handled without breaking; but when dried they often crack and warp so as to retain little of their original form and appearance. It is to be regretted that but few of these wooden relics were saved and properly preserved by those who found them. In a few instances the wooden withe or handle has been found attached to the hammers, but upon being dried they usually fall to pieces.

At the Hilton Mine in the Ontonagon district, in October, 1863, as the men were removing the vegetable mould that had accumulated in one of the old pits, they found at the depth of about nine feet a leather bag, which was eleven inches long and seven inches wide. It was lying upon a mass of native copper which the ancient miners had unsuccessfully attempted to remove from its parent vein. The bag was in a remarkable state of preservation, the leather being quite pliable and as though as sheepskin. It was made up with the hair inside, was sewed across the bottom and up one side with a leather string, and near the top holes were cut and a leather string inserted to close the mouth by drawing it together. The bag was empty, but from its appearance I judged that it had been used for transporting copper or other mineral, — the leather in places showing marks of much service, and the hair being almost entirely worn off. I was unable to determine what kind of skin it was, but inclined to the belief that it was

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from the walrus, as the short, stubby hairs more closely resembled those of that animal than of any other with which I am acquainted. At the time I saw the bag, — the day after it was discovered, — it was in the possession of C. M. Sanderson, Esq., the agent of the Knowlton Mine; but I hear it has since been taken to Boston and sold.

In several of the ancient mines considerable masses of pure copper detached from the main lode have been found, which were left there by those who mined it. At the Central Mine, not far from Eagle Harbor, a mass of copper was found in one of these old pits that weighed forty–six tons. Every portion of the surface was smooth, and appeared as though it had been hammered by those who detached it from its original vein. In the Mesnard Mine, in the Portage Lake district, a detached mass of copper was found that weighed eighteen tons, hammered smooth like the mass before named.

But the most interesting specimen was found in an old pit near the Minnesota Mine. In removing the accumulated leaves and vegetable mould, the workmen, at the depth of eighteen feet, discovered a mass of copper ten feet long, three feet wide, and more than a foot thick, weighing six tons. On removing the earth around the mass, it was found to rest upon skids, or timbers, piled up to the height of about five feet. These timbers, having been constantly covered with water, were in a good state of preservation, and at the ends showed plainly the marks of the tool used in cutting them. It was thought by those who saw the billets when they were plump, that they were a species of oak; but the few remaining pieces which I have seen were so cracked and shrivelled that I have been unable to form an opinion as to the kind of wood. This mass of copper, like all others found in those ancient pits, was divested of all its ragged points, and hammered perfectly smooth. There was nothing in its appearance to show that it had ever been cut from another mass; but upon clearing out the rubbish from the bottom of the mine, which was about twenty–six feet below the surface, a vein of pure metal was found from which this had evidently been taken.

A few unfinished jobs have been found in these ancient pits, which throw some light upon the manner in which the work was carried on. In two instances there were projecting masses somewhat resembling urns, or inverted short–necked bottles, and completely smoothed by hammering, especially at the thinner portion or neck. It appears that the ancient miners first removed the rock from around the veins of copper. This was done by building fires upon or about it, and, when heated, crumbling it by throwing on water. By means of stone mauls the fragments were broken up and removed. When the vein was sufficiently exposed on all sides, a point was selected where the copper was thinner or narrower than the average of the vein. Here they commenced cutting off a mass, and by patient and long–continued hammering severed the two portions of the vein. In all the ancient mines which I have visited there is abundant evidence that fire was extensively used in the removal of rock; for not only do the rocks give proof of having been heated, but charcoal and ashes are invariably found at the bottom of all the rock excavations.

In general, the mining was done by surface openings along the line of the outcrop of the vein; but occasionally adits are driven into the rock, similar to the one first discovered at the Minnesota Mine before alluded to.

The surface mines are usually nearly filled with leaves and vegetable mould that have accumulated during the centuries that have elapsed since their abandonment, and till within a few years a heavy growth of timber covered the land; hence the numerous slight depressions that occurred along the line of the vein excited no suspicion that they were artificial excavations. By the closest observers they were regarded as natural depressions, caused either by the disintegration of the underlying rock or the peculiar manner in which the overlying drift was deposited. In many of these depressions, which have proved to be abandoned mines, trees of enormous size are found growing, some of which are ascertained, by counting their concentric rings, to be four hundred years old. At the Hilton Mine, directly over the leather bag before alluded to, there was a hemlock–tree about three feet in diameter. I noticed the stump of a tree nearly four feet in diameter in a gap near the Rockland Mine, where a hill had been actually cut asunder by these ancient miners, and a deep valley formed by the removal of the rock. Until very recently this valley was not recognized as an ancient mine; for, being ten rods in width, and cutting nearly at right angles across the strata of the rock that formed the hill, it was considered too extensive to have been made by

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human hands, and was supposed to be the result of natural causes. But about two years since, during a very dry time, a destructive fire swept through the woods, and so completely burned up all the vegetable matter accumulated there as to expose the underlying rock, and reveal its true character. After the fire had done its work, it was found that copper veins, which had been worked, ran through the rock in the gap, and that the great bank upon the south side of the hill, which was supposed to be a terraced gravel bank, proved to be a vast accumulation of "attle," or refuse stone, that had been taken from the artificial gap and deposited there. The stones forming this immense pile are generally small, and appear to have been broken up by heating to facilitate their removal from the mine, and possibly may have been again broken, with the hope of finding copper in them. In the midst of the pile I noticed several stone hammers, or mauls, some of them measuring twenty inches in girth around their grooves, and one I brought away weighing thirty pounds.

When examining this locality, I was struck with a significant fact, tending to show the long time that must have elapsed since the abandonment of these mines. I noticed in many instances that the artificial groove around the hammers was nearly obliterated upon the upper side, while upon the lower side, less exposed to the abrading agency of the atmosphere and rains, the groove presented a comparatively fresh appearance, and even the slight markings made by the tool that cut them were quite distinct. When I removed the overlying rock, and found a grooved maul in a protected spot, the groove was generally as fresh as though it had been made but a few months before. The compact nature of the stone of which these hammers are made, and their ability to resist the action of weather and moisture, prove conclusively that much time has been required to disintegrate their surface so as to obliterate the artificial work which has been expended upon them.

I feel unwilling to leave this subject without instituting an inquiry relative to the time when these mines were wrought, and the people who worked them. Many who have been taught to regard the present roving tribes of Indians as instinctively wise in matters of medicine and mining are ready to award to that race the credit of having worked these mines; but, inasmuch as even a traditional knowledge of their existence was unknown to the Indians at the time the Jesuit missionaries visited that region in the sixteenth century, we incline to the opinion that another and distinct race worked them. I am unable to see why the descendants of a people residing in the same country, and subject to the same wants, should abandon the half-worked mines which their ancestors had opened, and even fail to hand down to their posterity a tradition of their existence. If copper was in such demand that the ancestors of the present race of Chippeways were induced to work so perseveringly to obtain it, why did not the children continue to work, at least enough to finish the jobs already commenced by their progenitors? We cannot consistently attribute the Herculean labor expended on these mines to the ancestors of the indolent race of North American Indians. We incline, rather, to the opinion that the miners were the mound-builders, who resided south of the mines, and ultimately found a home in Mexico. The condition in which the mines were left favors this theory; for in many instances unfinished jobs are found, — as in the case of the mass of copper upon skids at the Minnesota Mine, and the half-severed veins in other mines. May we not reasonably suppose that the miners came from the South, and worked during the summer months, returning to their homes in winter? The circumstance that no traces of their habitations or burial-places have ever been discovered in the immediate vicinity of the mines leads to the inference that they came from a distance; and the fact that copper rings, chisels, and knives, and occasionally stone hammers, are found in the ancient mounds that extend in an unbroken line from Ohio to Mexico, induces the belief that the ancient miners and the ancient mound-builders were the same people.

It is said that artificial mounds are found in British America; and I was informed of one upon the banks of the Ontonagon River, about six miles from its mouth, but was unable to visit the spot. It is well known that they are quite abundant in Wisconsin, and extend the entire length of the Mississippi Valley.

It is a noticeable fact that as we proceed south we find the mounds generally larger and more symmetrical than those in more northern latitudes. It would seem that the people who constructed those in British America, in moving southward, (for we strongly suspect that this people originally crossed Behring's Strait from Asia,) improved in their style of building, and, on arriving at the Ohio River, had so far improved as to be able to construct those interesting works at Marietta, Moundville, and other points in that region. It was not till about the

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time they reached the Ohio Valley that they manufactured pottery. In that valley, and thence to Mexico, fragments of earthen ware are very common; and in the mounds entire vessels are not unfrequently found. Upon reaching Mexico, the mounds are seen to be still further improved in size and form, and specimens of ancient pottery are more abundant. The great mound or pyramid at Cholula, which is a fair type of the mounds in Mexico, is fourteen hundred and twenty-three feet square at the base, and one hundred and seventy-seven feet high, being larger than the celebrated pyramids of Egypt. This immense structure is said to have been built by the Toltecs, a people who, according to tradition, as communicated to the Spaniards, entered Mexico from the North in the year A. D. 648, and established their capital on the northern confines of the great valley of Mexico, at Tula, the remains of which city were visible, and a record made of them, at the time of the Conquest by Cortes.

This people were said to have possessed a good knowledge of agriculture, and were well instructed in many useful mechanic arts. They mixed gold and copper, and were experts in working these metals. For a period of four hundred years they occupied the territory of Mexico or Anahuac; but secession, and the attendant evils of war, pestilence, and famine, greatly reduced their numbers, and the race disappeared from the land to give place to their successors, the Aztecs, who also emigrated from the North. Remnants of the Toltec race are said to have migrated still farther south, and to have spread over Central America; and the remarkable correspondence of dates inclines us to the belief that the famous Manco Capac, whom the Peruvians worshipped as the founder of their empire, may have been a wanderer from that once happy, but then unfortunate people. The useful arts, which he made known to the semi-barbarous people among whom he settled, instead of originating in the great luminary of the day, and being brought to earth by a "child of the Sun," as they were taught, are far more likely to have been cultivated by the Toltecs in the days of their prosperity, and, on the dissolution of their government, transmitted by those who, fearing the result, had fled and taken refuge with the credulous Peruvians. Whether the stupendous ruins of temples found at Mitla, Palenque, and Uxmal were the work of the Toltecs or the Aztecs, is immaterial. It is sufficient for the purposes of this paper to show that a people inhabited Mexico prior to and at the time of the Conquest, who were far in advance of the roving tribes of Indians that subsisted in the more northern and eastern portions of North America.

At the time of the conquests of Mexico and Peru, numerous cities were found in those countries, and magnificent temples and palaces abounded, some of which were richly decorated with massive images of solid gold, others ornamented with fantastic and sometimes hideous figures carved out of the solid rock. But what is remarkable, no iron implements were used, nor did the inhabitants have the least knowledge of its use, notwithstanding iron ore was plentifully distributed through the country in which they lived. Not a trace of iron has ever been found in those grand ruins of Yucatan visited by Stephens and Catherwood; nor do the ruins of the holy city, Cuzco, give evidence that implements of iron were used in its construction. But the people of these countries were acquainted with many of the metals, and the Spanish invaders found numerous silver, tin, and copper mines that had been worked by them. All the deep, winding galleries of these mines were driven without the aid of iron, steel, or gunpowder. It is said that an alloy of tin and copper was used for their edge-tools; and with the aid of a silicious sand or dust, they were enabled to cut and polish amethysts, emeralds, porphyry, and other hard substances. With these implements the elaborate carving in the stone temples of Palenque and the other ruined cities of Central America was executed. The great calendar-stone, which in 1790 was disinterred in the city of Mexico, was nicely wrought out of a block of dark porphyry, that is estimated to have weighed fifty tons, and must have been transported several leagues; for the nearest point where porphyry of that character is found is upon the shores of Lake Chalco, many miles distant from the city of Mexico. In the absence of iron, some tough metal would be in requisition for the tools and machinery necessary in the execution and removal of such a gigantic and elaborate work. In many abandoned quarries in Mexico and Central America unfinished blocks of granite and porphyry are found, which are supposed to have been the work of the Toltecs, and abandoned by them at the time of the invasion of the fierce Aztec. Assuming this to be the fact, we can readily conceive why the half-raised mass of copper in the Minnesota Mine should also be abandoned; for a people suddenly scattered as the Toltecs were — so suddenly as to leave temples half finished, and blocks of stone half hewn — would have no further use for copper tools; and hence the raw material would no longer have a value. In the abandoned quarries near Mitla, amid fragments of pillars and architraves and half-finished block of granite, copper axes, chisels, and wedges

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were found in abundance; but the same inordinate love of money that prompted adventurers to flock to Chiriqui, a few years since, to rob the ancient burying-grounds of their golden idols, induced others to search the old quarries and mines of Mexico and Central America, and take from them any relics that were intrinsically valuable.

In Mexico, the mounds were built so that their summits were visible from every portion of the surrounding city, in order that the inhabitants might continually have in view the sacred fires that were ever kept burning on each side of the sacrificial altar. The same is strikingly true of the mounds at the West; for they are invariably placed so that their summits occupy a commanding position, — a circumstance that has induced many to suppose them to have been built for military purposes, and to have served as watch-towers. But when we reflect that the attacks of savage or half-civilized peoples are usually made in the night-time, we shall hardly suppose these structures were raised for any such purpose. The Pyramid of Cholula is composed of alternate layers of brick and clay, or possibly of burnt and unburnt brick; and others in Mexico are built of unburnt brick. Many of the mounds in the West are of clay, — perhaps of unburnt brick, — in situations where clay is not so abundant as other earths.

I recollect visiting Circleville, Ohio, when it was really a Circle-ville. An octagonal court-house stood upon an ancient mound, and the dwellings and stores were built upon an ancient circular wall of earth that encompassed an area around the mound. South of this circular inclosure, and joining it, was a square inclosure of several acres, surrounded by a wall about ten feet high. What is remarkable, this square wall — and we presume the same is true also of the mound and circular wall — was built of clay, perhaps of unburnt brick, that must have been transported a considerable distance; for no clay exists upon that alluvial bottom, and the nearest point where it is found is three fourths of a mile distant, across a considerable creek. On a subsequent visit to this place, I found the people using the clay from the wall of the square inclosure for making brick, and streets had been cut across the circular inclosure, so that the city is no longer entitled to the name of Circleville. In many instances, the ruined cities of Central America have inclosures resembling those at Circleville, surrounding the Teocallis, or sacred temples, which almost invariably stand upon mounds, or, as they are commonly called, pyramids.

With these many points of resemblance, the conclusion is irresistible, that the mounds of the West were but the germs of the more symmetrical pyramids of Mexico and Central America, and that the people who constructed them were, in intelligence and civilization, far in advance of the roving tribes of North American Indians who inhabited the country at the time of its discovery.

If it be true, as tradition informs us, that the Toltecs were a cultivated race, even more advanced than the Aztecs who occupied Mexico at the time of the Conquest, we may reasonably suppose that a metal so valuable to them as copper would be in great demand, and that mines of it, even at a remote distance, would be worked by a people, the construction of whose religious temples and royal palaces, and, it would seem, their nationality even, depended upon its possession.

Other evidence might be adduced to show that the extensive mining-pits on the shores of Lake Superior were not the work of the indolent and untutored race of Indians who now inhabit that region, nor of their ancestors, but of a people comparatively well acquainted with the mechanic arts. Our article, however, has already extended beyond the limits contemplated. I therefore leave the subject, with the hope that the few hints here thrown out may awaken other and abler minds to its investigation.