Michigan's Copper Country

Ellis W. Courter

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Table of Contents

Preface

Few people realize that Michigan's copper had a greater economic impact than the California Gold rush. "Michigan's Copper Country" lets you experience the excitement of the discovery and development of the copper industry. This publication is an attempt to acquaint the general public with the geology and history of the copper deposits of Michigan. Every effort has been made to present accurate information. The views expressed are those of the author and do not necessarily reflect the policies or practices of the Michigan Department of Natural Resources, Geological Survey Division.

The author, Ellis W. Courter, may not be well known in professional geological circles. Nonetheless, he was very well known by hobbyists in Michigan and surrounding areas. The National Rockhound and Lapidary Hall of Fame at the Pioneer Museum in Murdo, South Dakota, was dedicated in 1987 with the permanent installation of the first 26 names of deceased rockhounds and lapidaries who have had great influence on the hobby. The names engraved in the plaque were selected by the Pioneer Museum's Board of Consultants from a long list of names suggested from all parts of the country. The inductees included Ellis Courter. Ellis is listed as an officer in the Midwest Federation and American Federation of Mineralogical Societies and the Scholarship Foundation, author, and collector whose specialty was Michigan. He was also a past president of the Michigan Mineralogical Society and the award winning editor of the club bulletin the "Conglomerate," for ten years. He spent many summers researching material for this publication. Ellis died March 21, 1979.

Editing and printing a publication is not a small task. The resources needed to produce a book of this size and scope require the efforts of many people with different backgrounds. Thanks to the late Edward S. Wilson, of Westland, for making the Geologic Research, Investigations & Publications Committee of the Geological Survey Division aware of this manuscript late in 1986. There had been earlier attempts to ready the manuscript for publication before it was submitted to the Geological Survey Division. Thanks to Esther Clickner and Tyrone J. Black of the Geological Survey Division, Geologic Information Systems Unit. Esther Clickner converted the 500-plus page manuscript to the computer diskettes. Tyrone J. Black provided valuable assistance regarding style, editing and desktop publishing options, capabilities and output. Thanks to Elvin "Red" Evans, of Surface Water Quality Division, DNR, Lansing, who reviewed and edited an early version of the manuscript. Al Rarick of the Geological Survey provided a through edit of the manuscript. Stan Dyl, Curator of the A. E. Seaman Museum in Houghton added considerably to this work. A special thanks goes to the following members of the Midwest Mineralogical & Lapidary Society of Dearborn who reviewed and proofread this work: Kathryn Allen, Bill Baker Barr, Michael Cannaert, Margaret Collins, Hazel Feilen, Elspeth Gibbs, Joyce Hanschu, Norm Hanschu, Kathy Morris, Lillian Nadeau, Mary Whitman. Ellis would have appreciated all of the contributions and marveled at the automation and technology that helped bring his manuscript to press and now to the web.

It will be deemed a favor if readers will bring errors, omissions, incorrect information or other constructive comments to the attention of:

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The Keweenaw Peninsula

Long ago, in the dawn days of the world, Nature must have looked with admiration upon that part of our country which was to become Michigan. Apparently satisfied that this was to be a good land, Nature laid down its rocky foundation. Then, with an artistic touch, the Keweenaw Peninsula was fashioned. When the Keweenaw was satisfactorily shaped, it was endowed with a one-of-a-kind treasure of pure native copper. This is the most important commercial deposit of native copper in the entire world.

Perhaps in its understanding way, Nature knew that copper was to be entwined with the progress of civilization. That when people, in their wanderings, ventured into the Western Hemisphere, they would discover this special treasure trove of Keweenaw copper. That people would use it in new frontiers. As we now know, such did come to pass. Today, because it did, the land of the Keweenaw Peninsula is hallowed as Michigan's Copper Country.

For any who might not be familiar with this part of our homeland, look to the westernmost rooftop of the Upper Peninsula. Here, the Keweenaw Peninsula projects like a bent finger into the cold, clear waters of Lake Superior. Nearly a hundred miles long and some twenty miles wide, this rugged finger of rolling, rocky land takes in three Upper Michigan counties: Keweenaw, Houghton, and most of Ontonagon. Here, it becomes resplendent, a land of scenic beauty. A land graced with limpid inland lakes, gurgling streams, and rolling hills adorned with verdant forests. A land almost completely surrounded by the rugged shores and blue waters of Lake Superior. Long ago it became legendary as Hiawatha's Gitche Gumee.

During modern history, Michigan's Copper Country has become an intriguing storybook land with scores of fascinating legends. Some are fact, some fiction. Its history has been rollicksome, filled with adventure, discovery, boom times, a century of progressive mining, a disastrous labor strike that closed its mines, and then gloom. Today, it is withered and distressed, but not forgotten. The Copper Country is struggling on as a land of ghost towns, historic places, abandoned mines and mine dumps. Right now, its future is somewhat uncertain. Eventually, mining could be rejuvenated. But, until this comes, if it ever does, any turnabout in this famed old land will have to come from tourism. Visiting rockhounds could also provide a lift. Their boasting, active minds and bodies are ever eager to browse for mineral specimens on the old mine dumps. For many years now the Copper Country has been renowned as a rockhound's paradise.

Rockhounds say it is a veritable treasure chest of minerals. Why should not it be? It has a heart that is veined with native copper, some of which is stunningly decorated with native silver, and it hosts an underground world permeated with a myriad of gleaming gems and minerals. Some of these can still be uncovered in the poor rock piles that in yesteryear grew wherever miners plied the depths for copper. For good measure, it has miles of pebbly Lake Superior beaches, tantalizingly sprinkled with the famed Lake Superior agates, a fine agate with striking concentric banding in translucent shades of red, brown, orange, gray, and white. All this and more! No wonder it's a rockhound's favorite.

But the glories of Michigan's Copper Country do not end here. Add to its scenic beauty and its rockhounding flavor some of the oldest rocks on earth. It was the center of a vast prehistoric civilization that predated the American Indian by several thousand years. It provided the setting for the first great "mineral rush" in the Western Hemisphere and enjoyed brief fame as America's first mining capital. This is the intriguing background and historic lore associated with the Keweenaw Peninsula.

Although the picturesque scenery of the Keweenaw countryside may create the impression that it is forever new, it is an old land, very old. According to geologists, its rocky foundation first began to take shape some billion and a half years ago. It started with an episode of igneous intrusion and crustal deformation. This was known as the Penokean Orogeny which swept across the Canadian Shield. Masses of molten lava surged within the earth's crust and in places broke through to the surface. When it did, it billowed out over the land like giant blisters that quickly cooled to a glassy hardness. Time after time, over millions of years, frothing lava welled up from deep within the earth. Each flow spilled out and hardened, becoming a pavement for the next. Lava flows inched across the basin that much later was to be occupied by Lake Superior. These flows also pushed westward into what was to become Minnesota and southward into Michigan and Wisconsin. Most geologists believe these were quiet extrusions that oozed out of fissures and spread over the land. Each flow, one atop another, built a thick undulating terrain of what is called trap rock. During these long years of volcanic unrest, no advanced life forms (man or beast) ever fled before the outbursts; neither were their displays seen nor their sounds heard. This was long before anything but the most primitive kinds of life occupied the barren land. Yet the record of what happened is clear.

During the long intervals between each flows, nature's powerful erosive forces began to tear down the built-up lava. Rains soaked up the lava dusts and formed muddy streams that wound across the lava surface. Local patches of shale were built up from the silty muds that were laid down along the more gentle slopes. Bits of sand and conglomerations of pebbles, some transported from neighboring highlands, were also added to the sediments. Along the shores of this inland sea rocks were broken, tumbled and ground by the turbulent water. The water was stained red from iron compounds. Thus, the

sediments that spread along the shores and over the sea bottom likewise became red.

At the beginning of this long epoch of rock building, the lava flows occurred at short intervals, geologically speaking. The resulting interbedded patches of sediments were thin. Near its close, the periods of quiet became extended. The sandstones and conglomerates became thicker. Sometimes conglomerates formed along the base of the flows when fragments of other rocks were picked up by the lava and engulfed in its lower mass.

Geologists tell us that the lava flows were as great as any that have occurred elsewhere in the world. The total thickness of these rocks may have been as much as 50,000 feet. Layer upon layer of dark red and dark brown flat-lying lava piled up alternately with green shales made from volcanic muds, and red and green sandstones. A variety of conglomerates made from cemented lava pebbles also formed.

Eventually, after this great mass of rock material had accumulated, and likely even while it was being formed, terrific pressure pushed some of the flat-lying beds upward as more molten rock sought to reach the surface. Many of the beds were tipped sharply to the northwest. Conversely, along the western part of the flows, the layers of lava and interbedded sediments began to sag, fault and bend downward in a great arch or syncline. This further deepened the great basin that some 800 million years later was to be filled with the cold waters of Lake Superior. Likely this faulting was partly due to the emptying of so much lava from underneath.

The northern edge of this syncline, rock beds tilting in opposite directions, can be seen in the rock cliffs along the Minnesota coast and on Isle Royale. The southern edge forms the ridges of the Keweenaw Peninsula and the high lands of Wisconsin. The dip of the Keweenaw rock strata is about forty degrees to the northwest. The tilt of these beds flattens out deep beneath Lake Superior.

After the many layers of basalt and interbedded sediments had been bent and tilted, streams slowly eroded the exposed edges of the softer beds. During glacial times these valleys were further deepened by the moving glacial ice. Eventually the harder, more resistant layers were left standing as long parallel ridges. These ridges now extend the length of the Keweenaw and southward through the Porcupine Mountains. Today, as you travel about the peninsula, you can see them still rising with spectacular grandeur. Ages of weathering and erosion have only somewhat beveled their edges. These rocks have resisted many of the great forces of geology. This includes the powerful glaciers that helped gouge out the basins now occupied by the Great Lakes.

One of the unusual features of these ancient rocks is the wealth of pure or native copper that lies hidden within them. Native copper is unusual because most of the world's supply of copper is found combined with other elements. Copper typically is found as the minerals chalcopyrite, chalcocite, cuprite, or bornite. Native copper becomes a rarity when compared with the magnitude of these more common deposits. A small amount of native copper is found in association with malachite, azurite, or cuprite in the oxidized zones of most of the principal deposits of the world. This quantity is usually so small that it remains a mineralogical curiosity, not an economic source. Only one other place in the world, Corocoro, Bolivia, has native copper abundant enough to be considered economic.

Geologically, Keweenaw copper had its beginning about 500 million years ago as hot waters, rich in dissolved minerals, rose up from the depths of the earth. Not all geologists agree, but one common theory is that copper-bearing solutions were forced upward into the tilted beds of Keweenawan rocks. Here, under favorable conditions, copper was deposited in available openings. These openings were cross fissures, cracks, crevices, pores, and especially the many vesicles or gas holes prevalent in the uppermost parts of some of the lava beds. Copper was the most important economic mineral to be emplaced. Silver and a great variety of other minerals, some quite rare, were also deposited.

Discussions of the physical and chemical processes involved in the deposition of native copper raise many questions. The answers generate more debate. Commonly asked questions are: what was the source of the rising solutions, where did the copper come from, why were masses of native copper deposited here?

Several theories have been advanced which tend to explain what happened. By itself, each theory seems plausible, yet it is doubtful whether geologists will ever completely concur in their thinking about any of them.

The most popular theory suggests that both the copper and the hot water solutions originated within a deep-seated magma. Here again, there are two schools of thought about what course the copper followed before it was deposited as native metal in its final resting place.

Most geologists believe that as the underlying magma slowly cooled it gave off solutions rich in copper, arsenic, sulphur and other elements. Pushed upward under enormous pressure, these hot mineral-bearing liquids migrated through the pores and fissures of the deep-seated rock. Rising slowly and cooling as they neared the surface, they finally reached the oxidizing zone. Here, under favorable conditions, many of the minerals, including the copper, were deposited in openings in the rocks.

Another school of thought believes the copper was not a part of the hot solutions which were expelled as the magma cooled. Instead, it believes the copper was a part of the original lava flows and thus was microscopically implanted in the trap rock. Later solutions permeated the rocks and leached the copper. In support of this, it must be stated that most basaltic rocks do contain trace amounts of copper. For Keweenawan basalts there is about 0.01 percent copper. Spread through the rock, this is a minor amount. Those who advocate this theory offer

this explanation: as the hot solutions rose through the pores and fissures of the many lava layers, copper was dissolved and gradually concentrated. Again, when the solutions neared the surface and cooled, copper and related minerals precipitated, forming the copper lodes.

A somewhat older theory involves surface or groundwater. Supporters of this theory believe that as each new lava flow hardened into rock, groundwater penetrated the myriad of gas blow holes. These pockets were often spread throughout its uppermost portions. After groundwater entered each successive flow, it could have been carried to great depths as the weight of new deposits depressed the crust. At depth groundwater, under extreme pressure and temperature, became superheated. Advocates of this theory point out that temperatures at depths of 35,000 to 50,000 feet could range from 200 to 285 degrees Centigrade. Pressures could be from 2,700 to 4,000 times normal surface pressure. Under these circumstances, it is believed that the highly porous rock was crushed. The superheated water was squeezed out and forced upward. Moving through the lava rock, it began dissolving and concentrating copper from the trap rocks as it followed fissures and porous passageways upward toward the surface. Eventually, these solutions, reacting in various ways to changing conditions, deposited their load of copper in the openings through which they were moving.

Geologists' opinions differ about the source of the hot solutions and how the copper came into being. They are mostly agreed that three general environments once existed in the Keweenawan rocks, which were receptive to the contents of the original solutions. One was the cross fissures or lateral cracks and crevices, which were riven across the rock beds as they were bent downward. The second was the highly porous conglomerate beds in which the copper was formed in the spaces between rock fragments, pebbles and sand. Third was the multitude of almond-shaped vesicles created by expanding steam in the uppermost parts of some of the lava beds before the lava solidified.

The Keweenaw copper lodes with their interconnecting veins that resulted from such emplacements have long been famous for their unique character. Pure copper formed along cracks as flat, thin sheets of almost unbelievable dimensions. At other times, it has appeared like pressed leaves or masses of twigs. In some places giant masses of pure, tough copper, weighing many tons, were impounded in huge cross fissures or lateral cracks. Again, microscopic spaces between sand grains were filled with tiny, almost invisible particles of copper, while sizeable nuggets of pure copper were left in larger openings. In places copper filled the space around pebbles and cobbles of conglomerate like a close-fitting cap around a skull. The pure copper which filled the vesicles or gas bubble holes is unique. Often these lodes extend horizontally for miles and reached down to a known depth of 9,650 feet at the Qunicy Mine. How much deeper they might extend is not known.

Nature outdid itself in the diversity of the copper given to the Copper Country. Not only did it provide a wealth of pure copper in a variety of fantastic forms, but also a treasure of native silver with the copper. Though not so often mentioned, small amounts of the other ores of copper were formed, such as the black oxides, the blue and green carbonates, and the green arsenides, and other related minerals which tantalize mineral collectors. And so, eons ago, were fashioned the rocks of the Copper Country. So too were created the veins and lodes of copper which were hidden in the rocks that millennia later, an inventive people would discover and use.

PLEASE NOTE: The interpretation of the geology described above is that of the author. As such, it reflects common ideas of the time. The information does not state contemporary thinking, nor should this be considered a formal or 'official' interpretation of the geology of the area. The geology of the Copper Country, as well as the science of geology, is always ready for creative reinterpretation of "the facts" that will help us better understand and predict how nature works. (SEW)

The Primitive Miners

Copper was discovered, so it is believed, sometime during the late Stone Age. This was perhaps as early as 6,000 B.C. Both the details of the discovery and its early history have been all but obscured by the passing millennia. Nevertheless, an approximate time for this uncelebrated event has been at least temporarily established by James Mellaart, an archeologist. In 1962 he uncovered copper artifacts at Catal Huyuk, the site of an ancient village located on the Anatolian plateau near Konya in south central Turkey. Among the spectacular finds which Mellaart brought forth during this dig were many small tubes hammered from native copper which purportedly were used to decorate the fringes of string skirts. Although the exact time which this culture flourished has not been established, it is thought to have existed during the first half of the sixth millennium B.C.

Both the Egyptians and the Mesopotamians also used copper extensively, and some historians think the Egyptians were the first to extract it from its ore. The Egyptians also learned the art of making bronze by mixing tin and copper. Serving to confirm this are bronze relics claimed to be from Egypt's Fourth Dynasty, which dates back to before 4,000 B.C. These are believed to be the oldest bronze items ever found in Egypt.

It is likely that some of this copper came from the old mines of the Sinai Peninsula. A few millennia later, workers under King Solomon of biblical times, not only mined copper but, even more surprising, refined its ore and cast it as a copper alloy. The source of the smelting was not confirmed until 1940, when archeologist Nelson Glueck and colleagues from the American Schools of Oriental Research worked in this biblical land.

One of Glueck's goals was Tell el-Kheleifeh, which later turned out to be Ezion-geber, the long vanished seaport city of King Solomon's day. At the time of Glueck's arrival it was but a lonely, inland mound of rubble rising above the hot, shadeless plain near the Red Sea, but not far away were the ancient galleries which had been hewn into the rock along the wadi in order to obtain its precious store of copper ore.

Glueck's first probings at this site turned up fish hooks made of copper. Then came coarse appearing lumps with tell-tale signs of green that proved to be copper slag. Excavation continued for three years and during this time the ruins of an extensive settlement, complete with workshops and worker's dwellings, were uncovered. Among the interesting items which appeared were casting molds, earthenware smelting pots, and great quantities of copper slag.

During his work at this site Glueck was constantly puzzled about the location. Why were all the casting molds and the slag in the middle of this hot scorching plain? Why were the workshops located in the open? In the open they would have been constantly blasted by the strong winds that usually swept down the wadi from the north. If they had been located a few hundred yards farther on they could have had the shelter of the hills and the benefit of fresh water springs.

Glueck did not get his answer until the final year of excavation, when work crews uncovered the walled enclosure of a large building that had stood in the middle of the square. Its wall had been heavily stained with green, and because of this extensive discoloration, there was little doubt about the purpose the building had served. It had been a blast furnace! Two rows of flue openings and a skillfully designed system of air passages had been constructed in the mud-brick walls. They all followed a principle which but a little over a century ago was conceived, or shall I say resurrected, by Bessemer for modern industry.

The answer to Glueck's puzzle was astonishing. The flues and chimneys, which lay along a north to south line, had been so positioned to take advantage of the prevailing winds. The wind, it was clear, had served as the bellows.

This was 3,000 years ago, and at no other place in the Fertile Crescent, Egypt, or Babylonia, was another blast furnace of this great size ever found. With such smelting facilities, Ezion-geber, as the city was then called, had to be the center of the copper industry for all the ancient Orient.

From this smelter must have come the metals used on Solomon's Temple at Jerusalem which was so ornately fashioned about 950 B.C. No trace of the temple exists today, and archeologists are not permitted to dig in this hallowed ground. But, the Bible itself tells the story of its construction (1 Kings, 7:14-51). The Bible also confirms the use of bronze and shining brass (both alloys of copper) in its immense cast pillars and other fabulous ornamentation that helped make the structure so outstanding.

While such developments were unfolding in the cultures of the east, the land of North America, half a world away, was slowly recovering from the effects of the glaciers. For untold ages the glaciers had covered much of this continent. Shortly after the retreating glaciers had finished molding the landscape, a race of seemingly intelligent people, whose origin remains unknown, migrated into the Lake Superior region. These people discovered Michigan's copper, and after learning of its strength and malleability, mined and used it to make ornaments, tools, and armaments.

Quite likely these early comers first picked up loose or float copper which was then abundant in the river beds, along the beaches, and in the glacial deposits. Some anthropologists, however, have suggested that these people did not come directly to the copper country. Instead they picked up their float copper in the glacial drift much farther south. Through the years, they slowly

migrated northward as the scattered pieces of metal gradually led them to its source on the Keweenaw Peninsula and Isle Royale.

Be this as it may, these mysterious people arrived at an early date. When the more visible supply of float copper began to dwindle, these early comers began to work the solid rock for their copper, attacking it wherever larger pieces of the metal were seen. In so doing, this mysterious race became the Keweenaw's first copper miners.

Who these people were, whence they came, or when, are still controversial issues. From the known traces of the mining pits which they left behind, it can be inferred that they were an industrious, hard working people with a high degree of intelligence. Too, their manual labors must have extended through untold centuries because in the Keweenaw area alone, it has been established that several thousand of their primitive diggings once existed. These followed a band from two to seven miles wide and stretched along nearly a hundred miles of what is now Ontonagon, Houghton, and Keweenaw counties. There is also evidence of hundreds of old workings on Isle Royale, whose rocky shores rise above Lake Superior some forty miles off the tip of the Keweenaw Peninsula.

Many of the pits played an important role in the days of historic Copper Country mining and prospecting. But not until fairly recently were they thoroughly investigated by scientists. Colonel Charles Whittlesey of the Smithsonian Institution visited and made preliminary inspections of some of the pits in the Keweenaw area in 1862. But not until 1953, and again in 1955, when Professor Roy Drier headed the Michigan Technological University expedition to Isle Royale, was the true age of the pits reasonably well established. During these expeditions bits of carbon-charred wood removed from the rubble at the bottom of two pits were carbon dated. The results astonished the scientific world. It showed that the bottoms of these pits had been worked at least 3,800 years ago, and obviously they must have been started many years before that. This became the first definite indication that these mining pits and their miners were truly prehistoric. The miners may have been mining Keweenaw copper when Egyptian slaves were building pyramids.

Although this is considerably more ancient than anyone had previously suspected, it in no way contradicts any of the known facts. Nearly all the pits when found were completely filled with rubble and decaying vegetation, and most were even overgrown with trees. The decayed roots of trees which had sprouted, grown, and finally died after the pits had been abandoned, were found on many of the piles of rock rubble which lay alongside the workings.

In one pile of rubble a pine stump ten feet in circumference remained. This great tree had grown and flourished long after the earth in which it grew had been thrown from the adjacent pit. And a hemlock, growing under similar circumstances, showed 395 annual growth rings when felled. While such evidences in no way substantiate the antiquity of the pits, they do serve to show the amount of time that has passed since the early miners departed. Perhaps it was as much as a thousand years ago.

Most of these old mining pits were oblong, round, or irregularly shaped trenches of various sizes. Most were shallow, rarely exceeding ten feet in depth, though some could have been as much as twenty feet deep, and a few even deeper.

The mining methods employed by these prehistoric people naturally were very primitive. The only tools they had were fashioned from stone and copper. To extract the copper from its rocky enclosure, these early miners apparently built fires on top of the copper-bearing strata to heat it. When thoroughly heated, they doused it with cold water causing the rock to crack or fracture. Then fragments could be pried or worked loose with copper wedges and pounded with rock hammers to free the embedded copper. Obviously this was a slow and tedious task, which became more difficult as their pits became deeper. Apparently little tunneling of any consequence was ever done because the deeper rock was much too hard and massive to permit successful working with just stone tools.

The most important tool of these miners was the maul or hammerstone, and these have been found in countless thousands both in and around the old pits. Obviously they could have served no other purpose than to break up the rock and free the lumps of metal. In most of the diggings a large portion of the hammerstones observed were broken and unfit for further use. Many had battered or fractured faces and otherwise showed marks of hard usage. Only a few were sound and had the appearance of not having been used.

These hammerstones were usually oval or egg-shaped and of various sizes ranging from three to twelve inches in length and from one to eight inches in diameter. They weighed anywhere from a pound or less to as much as forty pounds, although the average was about seven pounds. Except for the chiseling of a groove or two around their midsection for the attaching of a forked stick as a handle, they were not otherwise shaped. All seem to have been carefully selected, water-worn beach stones removed from the shores of Lake Superior or the glacial debris, the most prevalent being small rounded diabase boulders. Diabase is a tough, fine-grained igneous rock. It is thought that the larger mauls may have been attached to bent-over saplings and swung like a pendulum or bounced up and down like a stamp mill, or they may have been swung by a team of two.

It is interesting to note that the hammerstones found on Isle Royale were not grooved. Apparently they were held and swung by hand. Because of this, it has been suggested that the people who worked the mines on Isle Royale might have been an earlier generation. It was thought that the mines existed before those on the peninsula. However, it is now felt that this was not the case. Hand-

held tools did not represent a lower technology. A handle makes it possible to deliver a much harder blow. A hand-held stone is easier to control and more useful in cramped quarters. Thus, the grooving and the handle may have been discontinued as a matter of efficiency.

One other point: the hammerstones used on Isle Royale did not originate on the island. Igneous, diabasic rock is not exposed on the island. Supposedly, it came from the northern shore of Superior. Miners traveled ten to fifteen miles over water, then two miles inland. Some of these stones may have been carried to the island by the glaciers. If not, this must have created a real transportation problem for the primitive workers. It has been estimated that more than three million hammerstones were involved in the Isle Royale pits. At an average of just seven pounds each, this would have amounted to upwards of ten thousand tons of stone.

In the early days of the historic Copper Country the old pits were called "ancient diggings." General interest was not sparked or fully aroused until the spring of 1848. At that time most of the old pits still lay well hidden beneath a mantle of forest debris. The story of how they were discovered and why they became objects of much concern to the early prospectors is one of the interesting and most persistent legends of the Copper Country.

One of the more accepted accounts of this legend revolves around Samuel O. Knapp, a New Yorker who in 1847 came to the Copper Country as an agent, as mine managers were then called, for what later became the Minesota Mining Company. At that time, property upstream from the mouth of the Ontonagon River was being explored. As yet there was no village of Rockland. For that matter the Minesota mine did not exist, because the rich contact zone that the company later mined had not yet been uncovered.

Knapp, or possibly one of his employees, J. B.Townsend or Albert Hughes who are also mentioned in some of the early tales, saw something odd. Early in the spring of 1848, while looking over the company-lands, an elongated depression was noticed in the three-foot deep snow on a hillside. Undisturbed by the winter's wind, the snow distinctly outlined little hollows. His curiosity aroused by the unusual nature of this singular line of slight depressions, Knapp (or whomever) followed them along the slope. Shortly he came to a small cave-like opening. One version of the legend suggests that he was led to the opening by some animal tracks. After clearing away some of the debris which partially blocked the entrance, he was able to poke his head into the opening. From what he could see, he sensed that there was something unusual about this cave. Unable to do any further exploring without some heavier digging tools, he made his way back to the company headquarters.

Later, Knapp, with two or three others, returned to the cave to begin the task of excavating the rocks and rubble beyond the opening. In the process of clearing out the debris, several porcupines, which had set up their winter home within the framework of rocks, had to be evicted. As the work progressed, Knapp began to get the feeling that the trench which was being exposed was not natural. He felt it had been created by some earlier-day people. When the group began to find an abundance of broken, crude stone hammers Knapp knew he was not the first to expose this copper. The final proof came when the bottom of the working was more fully exposed. Here, he could see that the trench was following a well-defined vein of copper with ragged projections of the metal still showing along the bedrock floor of the opening. This initial discovery was made just east of the headquarters of the old mining company.

A short time later a similar depression was found and explored to the west of the mining office. When discovered, it too was filled with debris and a matted mass of molded vegetable matter. After clearing out eighteen feet of rubble from the ancient diggings, the workers came upon a solid mass of smooth copper. When freed of its mantle of debris the boulder measured ten feet long, three feet wide, and two feet thick. Further clearing showed more. It was estimated to have weighed about six tons. Moreover, it had been raised nearly five feet above the floor of the pit, supported by oak billets and sleepers. Over the years the wood had softened so that a knife could easily be thrust into it. When dried a small piece held between the fingers could easily be rubbed into a fine powder.

The copper mass, in spite of its weight and the weakened supports, had been held in place by sifting earth packed around it. Apparently, the early miners had lifted it, stripped it of all the protruding knobs and projections and left it completely smooth. Being unable to do anything further with it, they apparently abandoned it.

Later exploration revealed still more of these ancient diggings in the Ontonagon area. Most followed visible signs of copper and some contained large masses of copper. Because of this, and because Knapp was thoughtful enough to explain their nature and significance to any prospector who would listen, a wave of enthusiasm was created and many old pits were sought out and explored. Without Knapp's words of wisdom, it is likely that many of the ancient diggings would have been overlooked because they were not readily noticeable. Often they appeared only as slight depressions in the earth as if a tree had been overthrown and the roots rotted away.

Eventually, hundreds of pits were discovered throughout the Copper Country. As historic mining progressed, in nearly every case, if not all, productive mines were established where some prehistoric miner had worked an early pit. Such was the case of the pits which Knapp discovered. Ancient pits marked the path of the rich contact lode into which the Minesota shafts were sunk. For many years these pits were successfully worked as the Minesota mine.

Unfortunately, with progress and exploration, little thought was given to the preservation of the pits or any of the evidences they contained. In time, practically every pit disappeared or became unrecognizable.

It is said that Knapp removed ten wagon loads of hammerstones from the pits he excavated. Supposedly he used them to shore up the walls of a spring well near the mine's headquarters. Other relics which turned up included battered copper wedges or gads and copper chisels. One chisel had a handle socket and contained a fragment of a wooden handle when found. After exposure, the wood disintegrated.

In another area, workmen uncovered a portion of a wooden bowl which originally was about three feet in diameter. Because of small fragments of gravel embedded in the rim, it was concluded that it had been used for bailing water from the pit.

A wooden shovel, or perhaps a canoe paddle, with a twelve-inch stub of a broken handle and a perfectly formed blade nearly five inches wide and twelve inches long, was found in one of the Isle Royale pits. Apparently it had been used to move dirt as its side was rough and battered. Arrowheads and copper knives were uncovered in some pits.

A leather thong about thirty inches long was recovered from an ancient pit in 1857 by Alvinus Brown. At the time Brown was agent for the old Huron mine. The thong was preserved by being under water. When it was found, it is claimed, it was strong and in good condition. About twenty inches of the thong was buckskin. The balance was beaver skin that had been wrapped with colored porcupine quills.

Some years later another foot-long thong was discovered in one of the Isle Royale pits by Dr. G. K. Gailey. This one, of dried caribou hide, had been tied in the middle with a square knot and a half hitch.

These thongs, and a buckskin bag found in October of 1863 in an ancient pit near Rockland, are the only relics of a more personal nature that are known to have been found in the Lake Superior area. The bag, found lying upon a large mass of native copper, which the ancient miners were trying to remove, is said to have been remarkably well preserved. About eleven inches long and seven inches wide, it had been sewed across the bottom and up one side, and had a draw string near the top. The hair, which was turned to the inside, had been worn quite thin in places, indicating that the bag had seen considerable service. When found, the bag was empty. Initially the bag was held by C. M. Sanderson, at the time agent for the Knowlton mine. Later, the bag was sold in Boston.

Remnants of charcoal found in many of the pits have led some to conjecture that fires were kindled to melt the copper. It is more plausible that they were used to heat the rock as a part of the mining process. Copper is a stubborn metal. It must be subjected to temperatures between 2,200 and 2,600 degrees Fahrenheit before it melts. To reach this high temperature normally requires a blast furnace of some kind. Ancient blast furnaces have not been found in the Copper Country.

Indeed it is unfortunate that among the artifacts left by these primitive miners there is nothing which provides any clue as to who they might have been or how they lived. Only the pits, the charcoal, the hammerstones, and implements and tools of copper provided evidence of their workings. No pottery, clay tablets, carvings or writings have ever been uncovered. And apparently they had no burial grounds on either Isle Royale or the Keweenaw as no graves or bones have ever been found. Nor were there remains of habitation or buildings of any kind. Because of this, anthropologists find it difficult to piece together much about their eating and living habits or about their religious beliefs. What is now known about the culture of these primitive miners is only surmised, based of course upon reasonable, yet circumstantial, evidence.

That theirs must have been a strong metallurgical-oriented culture is a logical inference. It seems they had little difficulty in locating and systematically following the elusive copper veins. It should be pointed out, however, that some of this success might have been due to the glaciers. The glaciers had stripped the rocks free of overburden and in their retreat left most of the debris much farther south. Glaciers retreated only a few centuries before the miners arrived. It is likely that the rocky bluffs were still reasonably free of soil and forest debris which in later years concealed the veins and outcroppings of copper. As old beach terraces indicate, Lake Superior was much higher in post glacial time. The tops of the hills stood only a couple hundred feet above the water. These hilltops had been washed clean by waves when the lake was even higher. And so, under such conditions, it is quite possible that any visiting canoeists would have had little difficulty locating the copper outcroppings.

It can be assumed that these early miners were highly successful. Estimates, from the extent and size of the pits left behind, are that upwards of 500 million pounds of copper were removed during their stay. In light of their crude methods, this is a most remarkable feat.

To carry on a mining venture of such proportions must have required many people. To support the miners a large amount of food and transportation was needed. In addition to the miners, there must have been hunters and food gatherers, and people to gather and groove hammerstones, bail water from the pits and other menial tasks. There must have been specialists who hammered and fashioned copper into finished articles.

In examining tools and other items that have been recovered from this culture, it is amazing to note the perfection, workmanship and likeness to similar tools of today. The handle sockets in spears and chisels are almost as symmetrically perfect as those produced by today's machinery.

Historians tend to agree on why the copper was mined. In carrying out a major endeavor of this scope, the collective efforts of these people were not expended just to provide copper trinkets for their personal adornment or tools or armaments exclusively for their own use. It is felt that this was an industry fabricating for general trade. This also tends to answer some of the persistent questions about what was done with all the copper that was mined and where it went.

Further supporting this belief is that the articles which they fabricated have been found in scattered profusion not only throughout most of this country but also in Mexico. These articles include axes, knives, spears, daggers, arrowheads, chisels, shields, fleshers, awls, needles and bracelets.

When Cortez entered Tuxpan in his conquest of Mexico, it was written by Bernal Diaz that, "each Indian had, besides his ornaments of gold, a copper axe which was very highly polished, with handles curiously shaped, as if to serve equally for an ornament and for the field of battle."

And across the continent and out to the Guanaja Islands where Columbus landed on his fourth voyage to the New World, occupants of a Yucatan trading canoe, according to Herrara, had, "small hatchets made of copper, and small beads and plates."

Copper seems to have been the only metal in common use among the Mound Builders. Many pieces have been found in their mounds. Copper artifacts have been found in Wisconsin, Ohio, Illinois, Iowa, Missouri and other states along the Mississippi River.

There is little doubt about the source of the copper in these many findings. Even though scattered over an immense area, most of it came from the ancient mines of Lake Superior. One of the peculiarities of the Lake Superior native copper is its association with silver. Much of it has specks or tiny points of silver scattered over its surface, though often it is not noticeable except under a microscope. Copper implements recovered from the works of the Mound Builders have shown this characteristic.

There are many deposits of copper scattered over this country. These deposits produce mostly the ores of copper. This is in contrast to the native copper of Lake Superior that does not require smelting before the copper can be freed and used. No evidence exists that the aborigines who inhabited the Western world in those days had either the knowledge or the means of reducing these ores to refined copper. And even if they had, Lake Superior's native copper is easily distinguished from smelted copper.

It seems, though, that the primitive miners of the Copper Country did know how to harden copper in order to produce a fine, yet strong, cutting edge. This is evidenced by the hardness of the edges of their axes and the points of their spears. Likely this was accomplished simply by heating the copper after it had been pounded into the desired shape and then dipping it in cold water.

Because of the harsh climate during the winter, archeologists believe that these early people worked in the area only during the summer. They migrated from a warmer clime. None but the strong and hardy made the trip. The older members of the families stayed behind to look after the children and tend their gardens. If this were the case, it would tend to solve some of the perplexities that have arisen. There would have been no need for permanent homes or settlements, and their dead, if any, could have been transported back to their southern homeland. Provisions such as jerked venison or dried vegetables could have been brought along to help supply food for the workers. When returning in the fall they could have brought the mined copper with them, and perhaps produced, and bartered, many of their copper implements during the winter months.

Obviously, their principal mode of travel must have been by boat or canoe through the Great Lakes and along the inland waterways. During the centuries the early miners were here, the Great Lakes were in their post-glacial stages, and considerably higher than today. This meant that water routes from all the lakes to the seas were then open to the south for canoe travel. Lake Superior drained to the south and into the Mississippi River system and on to the Gulf of Mexico. Lake Michigan also drained southward by way of the Chicago, Des Plaines, and Mississippi Rivers. East-going water routes were open to the Atlantic via North Bay and the Ottawa and St. Lawrence Rivers. Yet the routes these people actually traveled or the way they came and went is still unknown.

However, the most puzzling thing about these early miners is where they came from. Who were they? Many suggestions have been forthcoming. Among the possibilities are China, Europe, Egypt, Phoenicia, South America. A few have attributed the mining to the Vikings who could have come in from the east, while others have suggested that the Russians might have come from the northwest. Still others say they were the progenitors of the Winnebago Indians from Wisconsin who frequented the area before the advent of the Chippewas.

It seems, however, that the early age at which they are now known to have made their appearance rules out such possibilities as the foregoing. As far as their being the ancestors of our early Indians, the culture of the industrious miners seems to have been much higher than any of the Indians who followed. Besides, the Chippewas who inhabited this country when the whites came, had little knowledge of the mines or legends of the people who did the mining.

One authority has conjectured that it was the Egyptians coming from the other side of the world as early as 7,000 B.C. who mined the copper and he has offered some reasonably good evidence to substantiate his claim. Some have suggested that it might have been the cultured peoples of Central America or Southern Mexico, the

Aztecs, the Toltecs, or the Incas. Still others claim they were part of the Mound Builders who built their mounds so abundantly along the Mississippi River. In light of more recent archeological discoveries, this is possible. Dr. Stuart Streuver's excavations at the Koster site near St. Louis have proved that a race of people lived in the central Mississippi River valley as early as 6,500 B.C. and it has been reasonably well established that they were more than primitive savages struggling to survive.

Could these people have been the miners? Maybe they were, but no one really knows for sure. The cloud of mystery which veils the prehistoric miners of the Copper Country is still waiting to be drawn aside. What we do know is that as a race, these people reached back to a remote antiquity. All attempts to trace back to a common origin have led to a maze of conjectures.

Perhaps then, we should just call them "ancient people." Before the working of the Copper Country mines by the whites, these deposits were extensively worked by others. These people used nothing but fire, water, and hammerstones to extract the red metal which they treasured so much.

Europeans Come to the Copper Country

It may have been Christopher Columbus who carried to the Europeans the first word that there was copper in the New World. In his "First Letter" written in 1493 after his voyage of discovery, he tells of a ferocious people on the island of Quaris, who "arm and protect themselves with plates of copper, of which they have much." And in all likelihood, Columbus brought back copper artifacts to prove it. Although he probably did not know it, it is possible that the copper in those artifacts came from the Copper Country. But not until almost a century later did the first Europeans appear in the legends of the Lake Superior shores.

The written history of Lake Superior copper begins when the French explorer, Jacques Cartier, sailed up the St. Lawrence River back in 1536. During this expedition, he was met by bands of friendly Indians who gave his sailors small nuggets of pure copper. The Indians wore these nuggets as amulets and also kept them wrapped in doeskin in their tepees in recognition of their gods.

Still later, Samuel Champlain received a nugget of native copper when he founded Quebec in 1608. Along with this token piece of the red metal came fantastic tales. Tales of huge copper boulders. Tales of great hills of solid copper. Tales of a big floating island of copper out in a great freshwater lake. All to be found in a mysterious land far to the west.

The first written account about the existence of native copper on the southern shores of Lake Superior was presented in a book by Lagarde published in Paris in 1636. Unfortunately the work, which is a narration of the author's journeys among the Indians of the new world, is marred by many untruths. The errors came from second-hand material, unreliable sources, or the author's embellishment of hazy details. His mention of Lake Superior copper is brief. Yet in an alluring manner he wrote:

About eighty or one hundred leagues from the Hurons there is a mine of copper from which Truchement Brusle' showed me an ingot on his return from a voyage which he made to the neighboring nation. It is pretended, also that near Saguenay, gold, rubies, and other precious stones are found. I am assured that in the country of the Souriquois, there are not only mines of copper, but also of steel; also certain blue transparent stones, which are valuable as turquoises.

In 1640, Pierre Boucher of Paris wrote in a similar vein:

There are mines of copper, tin, antimony and lead. ... In Lake Superior there is a great island which is fifty leagues in circuit, in which there is a very beautiful mine of copper; it is found also in various places in large pieces, all refined.

References to copper were also made in the early writings of the Jesuit Fathers. To the credit of the Jesuits, they took a keen interest in the geography of the lands they traversed. They were in the area trying to lead the Indians to the cross. Their first mention of copper appears in their "Relacions" for 1659-60, a few short paragraphs amid their voluminous writings. It is a report that came to them by way of an Indian named Awatanick who some time previously had journeyed from Green Bay to Lake Superior. In a description of what he saw, he told them:

That its borders are enriched with lead mines of almost pure lead. There is copper of excellent quality that is already refined in pieces as large as the fist. ... there may also be seen great rocks which contain large veins of turquoise.

It is likely that these veins of turquoise and those alluded to by other early writers, were in reality nothing more than chrysocolla, the hydrous silicate of copper. No doubt the Indians had brought sample pieces of this blue-green material to the missionaries, who not being too familiar with minerals could easily have misidentified it.

In the latter part of the 17th century (1688), Baron Le Hontan, a French nobleman, explored the southern shore of Lake Superior. He too wrote a book relating his experiences. In it he described the native copper he saw along the shore and related how the Chippewa Indians regarded it with superstitious reverence.

Such were some of the intriguing tales that captured the imagination of early explorers, trappers and traders. Such also were the stories that stirred many European speculators, for in those days, copper was a precious commodity, and this was pure copper!

As hardy explorers continued to penetrate the natural barriers of the wilderness and to push deeper into the interior, the enticing tales about copper persisted. Yet those curious about the red metal learned very little about its whereabouts because most of the Indians were reluctant to talk about it. To the Indians this was a sacred metal surrounded by religious superstitions. To them a copper nugget was a divinity, a gift from the gods beneath the water, bestowed upon them as a pledge of good fortune.

Although the American Indians are not known to have done any work in the old mining pits, they did pick up float copper and from it they made small trinkets. The trinkets were spread far and wide over the Central Plains. Too, they had many legends involving the red metal. From them also comes the name "Keweenaw" which was derived from one of their expressions Ke-wai-wo-na, meaning Place-we-make-short-cut-on-foot. Native Americans came to the great peninsula by canoe along the southern shores of Lake Superior. They would walk their canoes over what was then the great sand barrier to the waters of Portage Lake. From here they followed the natural waterway across the peninsula to a final mile-long portage across a lowland that brought them back to Lake Superior on the

other side of the peninsula. By taking this short cut, they avoided not only the long water journey around Keweenaw Point, but also the stormy seas that often prevailed.

Father Claude Allouez is described as a tireless French mission worker who was assigned to the Lake Superior region in 1665. He is usually credited with being the first European to actually have seen native copper along the Superior shore. He was the first to duly record the incident. In 1661, Father Rene Mesnard, traveling with an unnamed guide, took the short cut across the Keweenaw Peninsula. On August 20, while the guide was conveying their canoe over the portage, the good Father wandered into the woods and never returned. Later the guide told of their having seen a great boulder of copper at the side of a hill. The guide's story was only hearsay until some two hundred years later when Boucher recorded it in his book "Histoire Veritable et Naturelle."

Probably the first pieces of Michigan copper to be turned into any contemporary, manufactured products, were censers, crosses, and candlesticks. These pieces, according to Peter Francis Xavier de Charlevoix, who visited the Great Lakes in 1721, were fashioned from pure copper by a Jesuit goldsmith who at the time was serving the mission at Sault Ste Marie.

No matter who first saw copper along the shores of Lake Superior, who used it or when, it marked the beginning of a long era of adventure and discovery. As the many rollicking days of this era unfolded and the fame of the "copper that needed no smelting" spread, they gave birth to all kinds of adventuresome tales. These stories presented both fact and fancy to all who would listen.

Many of the bizarre tales that emanated from these early days were about the Ontonagon Copper Boulder. The boulder is a mass of native copper that according to some stories weighed about five tons. Apparently torn from its birthplace during glacial times, it finally came to rest along the west branch of the Ontonagon River. Here, for many years it lay partly immersed in the rapidly flowing waters. It was here that the early Indians found it. They said it had been placed there by the Great Spirit. And so, it became an Indian shrine, known and respected by generations of Indians.

It seems but natural that any mass of native copper of the supposed proportions of the Ontonagon Boulder would catch the attention of the early explorers. It did. It was the basis for more than two centuries of rumors and legends.

Just how many early adventurers trekked up the Ontonagon River to gaze upon this big mass of red metal will never be known. Only a few maintained journals or published accounts of their adventures. One who did was Alexander Henry. Henry was an adventuresome Englishman who spent much of his time in the Lake Superior region after the British conquest of the territory. We know that Henry saw the boulder in 1766. Henry described his experiences and observations in a book called "Travels and Adventures in Canada." Of the boulder he wrote:

On my way back to Michil-Mackinac (1766) I camped a second time at the mouth of the Ontonagon River and took the opportunity of going up the river with Indian guides. The object which I expressly went to see, and to which I had the satisfaction of being led, was a mass of copper, which according to my estimate, weighed no less than five tons. Such was its pure and malleable state that with an axe I was able to cut off a portion weighing one hundred pounds. On viewing the surrounding surface, I conjectured that the mass at some period or other had rolled from the side of the lofty hill which rises at its back.

Not only was Henry a hunter and explorer, he also had ambitions as a miner. Because of this inclination, he became the first European to set up a mining venture in the Copper Country. Hoping to coax some copper from the river bed, an English company, complete with charter and royal letters of permission, was organized to do some mining near the boulder site. Henry was delegated to lead the endeavor. Interestingly enough, it is said that his Royal Highness, George III, was an official of this company. Some others who backed this regal affair were the Duke of Gloucester, Secretary Townsend and Sir William Johnson, all English.

Late in the summer of 1771 Henry took a party of miners to the mouth of the Ontonagon. They sailed in a forty-ton sloop which he had built the preceding season. This was the first covered-deck vessel to sail on Lake Superior. After setting up a camp and building a shelter near the boulder site, they tried unsuccessfully to move the copper mass from the river.

Hoping to find the vein from which the boulder might have come, Henry instructed his employees to dig into the hillside where a trickle of green copper-bearing water had been observed. With this work under way, he returned to the Sault, leaving the miners to work through the winter.

The following spring when the lake was clear of ice, Henry sent a schooner loaded with provisions. When the boat put in at the mouth of the Ontonagon River, the boatman was surprised to find the miners waiting there. The story they had to tell was an unpleasant one for Henry. During the winter, they had driven an adit into the frozen bluff for some forty feet but neglected to shore it up. In the spring when the frost went out of the ground, the tunnel caved in and several workers were seriously injured. Since nothing but float copper had been found, the miners had become discouraged and quit. Thus, the first attempts to mine copper in Michigan's Upper Peninsula ended in failure.

A dozen years later, the south shore of Lake Superior, and Isle Royale, was ceded to the United States on the signing of the Treaty of Paris. In 1783 this treaty ended the Revolutionary War. Supposedly it is to the credit of Benjamin Franklin that Isle Royale was included in this settlement. Normally the boundary line would have followed along the center of Lake Superior, to the south of

Isle Royale. Franklin, having heard some of the fanciful tales of the abundance of copper on Isle Royale, and being an astute bargainer, sensed an opportunity which might benefit the new country. Although proof is lacking, it is said that Franklin delayed signing the treaty until Isle Royale became American soil.

During the early years of American sovereignty, the activities of the young republic were mostly involved with urgent matters closer to home. The many tales of Lake Superior copper were ignored, but not for long. It is likely that on April 16, 1800, the needs of a growing navy prompted action. Congress passed a joint resolution which authorized President John Adams to employ an agent to gather information regarding the value of the Lake Superior copper. He was also to determine the nature of the Indian titles and how such might be extinguished. The agent was to report to the president before the next session of Congress. Because of the unsettled state of Indian affairs at the time, nothing ever came of this.

In 1819, General Lewis Cass was governor of the new Michigan Territory. The new territory included all the present states of Iowa, Minnesota, Wisconsin, Michigan, and a large part of the Dakotas. General Cass made a proposal to John C. Calhoun, then Secretary of War. Cass proposed an expedition to explore both the mineral lands of the Superior basin and the area around the upper reaches of the Mississippi River. He asked that an assistant mineralogist and geologist be appointed to accompany him. In due time, his trek was approved and Henry Rowe Schoolcraft, explorer, Indian authority, and mineralogist was appointed by Calhoun to help Cass.

In the spring of 1820, General Cass and Schoolcraft set out from Detroit to begin a casual tour of inspection of the southern shore of Lake Superior. They intended to select sites for one or more military posts, and as far as possible, investigate the occurrences of copper. Their route took them through Portage Lake, across the Keweenaw peninsula and then down to the mouth of the Ontonagon River. They came to view the famed Ontonagon Boulder.

While Schoolcraft was interested in minerals, he was also interested in the Indians. On this expedition he began to collect the legends which his friend Henry Wadsworth Longfellow later immortalized as the Songs of Hiawatha.

On his return, Schoolcraft made a detailed report of his findings to the Secretary of War. By order of the Senate this report was published in the American Journal of Science. This report became the first published scientific account about the geology and mineral aspects of the Upper Lakes region.

Later in his book " States>

Narrative Journal of Travels Through the Northwestern Regions of the United States", Schoolcraft wrote a similar account of his experiences and observations. In it he stated that during their journey along the Superior shore, they found specimens of copper. They found pebbles and stones containing copper particles from the size of sand to two pound lumps. They also noted many stones that were stained green. He then went on to describe in some detail the celebrated Ontonagon Boulder:

The large mass of native copper reposes on the west bank of the river at the water's edge and at the foot of an elevated bluff, the face of which appears to have slipped into the river carrying the mass of copper together with detached blocks of granite, hornblende and other rocks peculiar to the soil of that place. The shape of the rock is irregular. Its greatest length is three feet, eight inches. Its greatest breadth is three feet, four inches. Altogether it may contain eleven cubic feet. Henry who visited it in 1766, estimated its weight at five tons, but after examining it with scrupulous attention, I do not think the weight of the metallic copper exceeds 2,200 pounds. The quantity, however, may have been diminished since its first discovery, and the marks of chisels and axes upon it, with the broken tools lying around prove that portions have been cut off and carried away. The Ontonagon River at this place is broad, rapid and shallow, and filled with detached masses of rock which project above the water and render navigation extremely difficult.

The general reports of this expedition pumped new life into the enticing narratives about Lake Superior copper. But, not everyone was optimistic about a future for copper mining in the Lake district. Professor Keating of the University of Pennsylvania voiced the opinion that the copper, was too far from the market and in too wild and unsettled a country. ... If we found it, what would we do with it? The mines in Cornwall, England are producing enough copper for all the pots and pans, ornamental screens, and shipheads that the world needs. And at the time likely he was right. The advent of electricity and its great demands for copper had not yet arrived.

Neither Cass nor Schoolcraft was too greatly disturbed by such an expression of pessimism, and another expedition led by Schoolcraft was scheduled for 1831. On this one, Douglass Houghton, a young doctor and scientist from Detroit, was invited to participate. In 1830, Lucius Clay, a delegate to Congress from the Michigan Territory, asked Houghton to come to Detroit. Houghton was a native of New York. Clay wanted Houghton to lecture to the "intellectually starved" residents. Topics were to include chemistry, geology, mineralogy, and other natural science subjects. At the time Houghton was a mere lad of twenty. Besides his studies in science, he had achieved a Bachelor of Arts Degree in medicine from Rensselaer Institute. Houghton had also acquired much practical medical knowledge by following his family doctor. Besides being ambitious, Houghton was so likeable and friendly that nearly everyone made friends with him at once. It was during his first winter in Detroit that Schoolcraft met and invited him to participate in his expedition as a physician and botanist. At the time, the Indians were suffering from an epidemic of smallpox, so Houghton's principal function was to provide a vaccine for them.

A short time later, Houghton's position with the expedition was officially confirmed by the Secretary of War. He was

also asked by Governor Cass to look for evidences of copper while on the trip. Perhaps it is well that he did. Even though Houghton performed his medical duties well, he seemed more interested in the geology and mineral resources of the country. Schoolcraft was quick to observe this and wisely decided that Houghton should have the opportunity to develop this interest. This decision led to Houghton's participation in later expeditions and also to his later appointment as Michigan's first State Geologist.

When the expedition was completed in the fall of 1831, Houghton sent an immediate report to Governor Cass. Frank and to the point, he wrote, It is without doubt true that this subject has long been viewed with an interest far beyond its actual merit. The public has been misled into thinking that isolated masses of copper on the surface necessarily represent beds of it directly below the surface. This is not so. Then he added, My explorations have been too cursory to enable me to predict the mining possibilities of this ore.

In 1832, Houghton again accompanied Schoolcraft on an expedition, this time through the upper lakes regions as they explored both the Copper Country and the area in which the Mississippi River rises. On this expedition, Houghton served as a botanist, geologist, and mineralogist. When the expedition was completed, Houghton returned to Detroit and began the practice of medicine.

Five more years passed. During this time Michigan became a state, but not before an important incident took place. Before statehood, Michigan became involved in a boundary dispute. The area in question was a ten-mile wide chunk of land known as the Toledo strip. It extended westward from Lake Erie to the Indiana border. According to the boundary set for the Territory of Michigan in 1805, the disputed land belonged to Michigan. At that time the boundary was described as an imaginary line extending due east from the southern extremity of Lake Michigan. However, when Indiana became a State in 1816 this imaginary line was moved ten miles to the north so that Indiana would have frontage on Lake Michigan. Ohio, became a State in 1803 with a somewhat indefinite northern boundary. Ohio had its own ideas how to extend this ten-mile strip over to Lake Erie.

In 1835, Michigan had fulfilled all the requirements for admission to the Union except resolution of the Ohio boundary dispute. Ohio, the more powerful commonwealth, had preempted the strip, but Michigan wanted it. Petitions were sent to Congress by Michigan citizens. There were mass meetings, harsh words and down at the contested border armed men gibed at one another. These confrontations became the famed Toledo War, but it was a bloodless affair in which only one mule was shot. Hostilities ended after a compromise was proposed by the Federal government. Reluctantly and with feelings still running high the proposal was accepted. On January 26, 1837 Michigan was admitted to the Union, but the Toledo Strip still belonged to Ohio. To remove the sting of losing the disputed acreage, the new State was given the unknown land of the Upper Peninsula. At that time it was an almost impenetrable tangle of cedar and tamarack thickets, boggy swamps, bluffs and outcrops of rock.

To find out just what resources might be hidden in these wilds became the task of Douglass Houghton, who had been appointed Michigan's first State Geologist. Houghton was fired with enthusiasm about the endless possibilities of the north country and the opportunities it offered. In 1840, after spending three years surveying the Lower Peninsula, he began a careful exploration of the entire Lake Superior region. This included the then unknown iron district farther east at what was to become Negaunee.

On July 3, 1840 Houghton and his exploring party landed at the tip of the Keweenaw Peninsula and set up their camp alongside Copper Harbor. Included in the group were C. Douglas, Bela Hubbard, Frederick Hubbard, and Charles W. Penney, plus six Canadian voyageurs, three to each of their two boats. At Copper Harbor, according to the Journal of Bela Hubbard:

They engaged in exploring and blasting for copper ore. Several blasts were ready on the Fourth and we commemorated the day of the National jubilee by a discharge from the rocks. The first charge being made in hard rock made a tremendous report and the echo, resounding from the waters as a sounding board, pealed forth its corresponding reverberations for several minutes.

On July 8, the party departed from Copper Harbor and proceeded down the west side of the Keweenaw peninsula. On the 9th, they passed the Portage, and then came to the Misery River where high winds forced them to tie up for three hours.

The Houghton party reached the Ontonagon River on the 10th. After some difficulties with the Indians, they embarked up the river intent upon visiting the Ontonagon Boulder. That night they camped on a gravelly beach about six miles up the river. The following eye witness account of their experiences is from Bela Hubbard's Journal:

The great mass of copper is situated on the banks of one of the branches of this river (the Ontonagon) at about five miles above the forks. At the latter point, we left the boat and taking with us our tools and provisions for a day or more, struck off by trail through the woods. This was soon lost, so we proceeded by toilsome march near the river through tangled trees, reaching the copper about 8:00 P.M. on July 11.

Our walk gave us a fine opportunity to examine the stream. At the forks the river Ontonagon is about two hundred feet wide. This branch being half that width and is a succession of rapids for the whole distance passed over. The stream here is compressed to about two rods in width. It is shut in by high cliffs of red clay from below which appears to be the sand and trap rock of this region. At one place the stream is enclosed by over-hanging cliffs of the former, rising to a hundred and fifty feet. Broken

masses fill the river, while high hills are seen beyond. The whole view is most wild and romantic. After reaching the copper, tired from carrying our tools, we laid down beneath a cover of branches and slept soundly till morning without other cover than the forest afforded.

On the 12th, we proceeded early to the difficult labor of detaching portions of the copper rock which we accomplished with such success as to bring away some 25 pounds weight of it. The mass lies at the very edge of the stream, surrounded with boulders of trap and greenstone, and the water at this time flowed entirely around it. It had been raised and partially blocked up by Dr. Houghton some years ago, so that one end rises about a foot above the water level. It has, at first appearance, a very striking effect, resembling a mass of perfectly pure, malleable copper, its light-colored edges glittered among the black rocks and water. Its form to appearance is that of a flattened mass lying somewhat inclined to the water. Its longest measurement is four feet, four and one-half inches; greatest breadth, four feet; average apparent thickness, one foot. But Dr. Houghton, who turned it on end at a former visit, says its lower portion moves downward in an egg form and must give the mass a thickness through the center of three feet. We estimated its contents at twenty cubic feet, by far the largest proportion of which is pure copper. The metal, however, is considerably intermixed with hornblend rich stone. In parts we found the mass to have a somewhat stratified character and portions were scaled off with the chisel being in a degree interlaminated with the rocky portions. Much of the mass, however, is perfectly pure and malleable copper. One piece cut off with our chisels measured three inches thick and is pure metal, remarkably close-grained and heavy.

From Ontonagon, Houghton and his party continued to survey westward along the Superior coast. When this was completed, Houghton sent his assistants back to the lower peninsula while he undertook a survey of the Keweenaw interior during the next three months.

Returning to Detroit in the fall, he declared in an informal report to Governor William Woodbridge, "That surveys of this district should be continued in order to prevent hazardous explorations by visionary men and to attract instead permanent investments of capital." He also cautioned Woodbridge about exciting any unfounded expectations among the citizens, that such should be carefully avoided. The public also should be cautioned to avoid engaging in wild schemes with the view of gaining sudden wealth.

In a letter written to Michigan's Senator Augustus Porter on the day after Christmas, Houghton provided a more glowing picture:

Ores of zinc, lead, iron and manganese, occur in the vicinity of the south shore of Lake Superior, but I doubt whether any of these, unless it be zinc and iron, are in sufficient abundance to prove of much importance. Ores of copper are much more abundant than either of these before mentioned, and a sufficient examination of them has been made to satisfy me that they may be made to yield an abundant supply of the metal. I do not mean by this that copper is to be found in that region, as is the popular opinion, pure and without labor, but that capital may be safely invested in the raising and smelting of the ores, with profit to the capitalist.

I brought from Lake Superior on my return to Detroit this fall, from four to five tons of copper ores, and am now busily engaged in making an analysis of them. Thus far they have proved equal in value to any ores I have ever seen, and their values for purposes of reduction cannot be doubted. The average of percentage of metal is considerably above that of the ores of Cornwall. While speaking of the ores, I am reminded of the beautiful specimens of native copper which came out with the ores in opening some of these veins. They are not very abundant, but some of them are very fine. In opening a vein with a single blast, I threw out nearly two tons of ore and with this there were many masses of native copper, from the most minute specks to about forty pounds, which was the largest mass I obtained from that vein. Ores of silver occasionally occur with the copper and in opening one vein, small specks of native silver were observed. There are as yet, however, no evidences of the existence of this metal in sufficient abundance to be of practical value.

It has been my desire in all examinations connected with these important subjects to be sure and not deceive myself, and to draw no conclusions but such as are strictly based on observations.

Houghton made his official report to the Legislature dated February 1, 1841. In it he verified the Keweenaw copper riches in a glowing, yet guarded manner. Houghton provided the world with the first definite information about the occurrence and location of the native copper. The report was widely published. It was quoted by the Michigan legislature. It was quoted in newspapers and scientific journals. It was quoted in the flood of explorer's handbooks that ensued. Houghton's report was without a doubt one of the most significant documents in the history of the industrial development of the United States.

The following from the report is both pertinent and prophetic:

While I am fully satisfied that the mineral district of our State will prove a source of eventual and steady increasing wealth to our people, I cannot fail to have before me the fear that it may prove the ruin of hundreds of adventurers who will visit it with expectations never to be realized. The true resources have as yet been but little examined or developed, and even under the most favorable circumstances we cannot expect to see this done but by the most judicious and economical expenditures of capital at those points where the prospects of success are most favorable. ... I would by no means desire to throw obstacles in the way of those who might wish to engage in the business of mining this ore, at such time as our

government may see fit to permit it, but I would simply caution those persons who would engage in this business in the hope of accumulating wealth suddenly and without patient industry and capital, to look closely before the step is taken, which will most certainly end in disappointment and ruin.

As guarded as they may have been, Houghton's reports aroused many spirited Americans to a fever pitch. All the records of the times agree that its publication precipitated the turbulent copper rush that soon followed. The opportunities of this new frontier were, as the speculators saw it, unlimited. A fortune awaited them at the foot of a glowing rainbow.

Lake Superior copper was about to give birth to America's first mining boom. Its coming had been chronicled and talked about for so many years. It had been talked about by explorers, geologists, statesmen, Kings, Presidents, as well as the common citizen.

More specifically, the fuse was lighted. The stage was set. On March 12, 1843, the final treaty with the Chippewa Indians was ratified. The Chippewas relinquished all claims to some 30,000 square miles of land spread along the south shore of Lake Superior. This marked the end of a succession of land treaties between the Chippewas and the United States after talks had extended over nearly twenty years.

Whether the Indians were ever properly reimbursed for what they gave up is a matter of conjecture, but the cessation did make mining legally possible throughout the area. As long as the ownership of this land had been vested with the Chippewas, exploration, mining and settlement had been impossible. Now with ownership in the hands of Uncle Sam, the way was opened for the exploitation of all of its resources.

Like a bursting signal rocket, these events marked the beginning of a wild and crazed rush of adventuresome fortune seekers. People poured into the Copper Country in search of what they thought would be easy wealth.

The Legend of the Ontonagon Copper Boulder

One of the first copper hunters to arrive in the copper country was James Kirk Paul, a lanky six-foot woodsmen of thirty years and one of the most picturesque characters every to enter an American frontier scene. Paul was born in Virginia. He was a soldier in the Black Hawk war and a graduate of the Mississippi River frontier during the time it was developing a variety of rough and tough rivermen. Although he was wise to the ways of the wilderness, he could not read or write and was generally considered illiterate by the more civilized world. He could be a staunch friend or an formidable enemy.

Paul arrived at the mouth of the Ontonagon River on May 3, 1842, after walking, paddling and portaging from Platteville, a lead-mining town in southwestern Wisconsin. Platteville is generally regarded as being the first permanent white settlement in the area. He came like the rest, with the avowed purpose of making a fortune in copper. But more specifically, he wanted the massive chunk of copper that Nick Miniclier, his half-breed friend told him rested along the shore of the Ontonagon River. Paul found the great boulder, but it gained him little.

The story of what happened, and how, has become one of the most bizarre legends of the Copper Country. This massive piece of red metal was finally removed from its riverside resting place to become the first commercial quantity of copper shipped out of the Lake Superior District.

The mists of this legend began to form shortly after Cass and Schoolcraft viewed the boulder in 1820. The plot began to thicken in 1826. It was then that the first negotiations for a treaty with the Chippewa Indians were authorized by the government. Lewis Cass and Thomas McKenney, chief of the Indian Affairs Bureau, were appointed as special commissioners by the War Department to negotiate with the Indians.

One of the issues discussed with the Indian chiefs was that of the mineral rights to minerals found on Indian lands. Principally, of course, this meant copper. Copper included the famed copper boulder. Because the copper boulder was a divine object to the Indians, it became an obstacle during negotiation. Revered as it was by the Indians, they were not about to give it up. Chief Plover of the Ontonagon band of Indians voiced his objections this way: This, Fathers, is the property of no one man. It belongs to all of us. It was put there by the Great Spirit, and it is ours.

On the other hand, of all who in those early ages had cast an eager eye on this mass of metal, were there any who had not felt an urge for possession? Even Cass had expressed a desire to place it on display at the Capital, and earlier had written to Schoolcraft saying, "we must remove the copper rock." Ironically while at Fond du Lac waiting for the Indians from the outlying districts to assemble, the commissioners outfitted George Porter and Colonel Clemens with two barges and a detachment of men. These forces were dispatched to the Ontonagon River solely for the purpose of removing this mass of copper.

Porter's report of this expedition, one of failure, tells about the difficulties they encountered:

With two boats and twenty men, including our French and Indian guides, we proceeded up the river. About twenty-eight miles from its mouth, the river divided into two branches of equal magnitude. We continued up the right branch for about two miles farther, where we found it necessary to leave our boats and proceed by land. After traveling about five miles on foot over points of mountains from one to three hundred feet high, all separated by deep ravines, the bottoms of which were bogs and which by thick underbrush were rendered impervious to the rays of the sun, we came to the object of our search, long known as the 'Copper Rock' of Lake Superior. This remarkable specimen of virgin copper lies a little above the low water mark on the west bank of the river about thirty-five miles from its mouth.

Its appearance is brilliant wherever the metal is visible. It consists of pure copper, ramified in every direction through a map of stone in veins of from one to three inches in diameter, and in some parts, exhibiting maps of pure metal of one hundred pounds weight, but so intimately connected with the surrounding body that it was found impossible to detach them with any of the instruments we had provided.

Having ascertained that with our means and time, it was impossible to remove by hand a body weighing more than a ton, we proceeded to examine the channel of the river. We found it intercepted by ridges of sandstone, forming cataracts, with a descent in all of about seventy feet over which it was impossible to pass, while high perpendicular banks of sandstone rendered passage around them impracticable. Finding our plans completely frustrated by unforeseen difficulties, we were obliged to abandon our attempt.

Thus, another endeavor to remove the great copper boulder ended in failure. Not until after it had been visited by Houghton in 1840, were any further attempts made to remove the boulder. Houghton's greatest effect came from his inspiring report regarding the great future he forecast for the Copper Country.

One of the many individuals who had been thoroughly inspired by the contents of Houghton's report was a hardware merchant from Detroit. But this gentleman, Julius Eldred by name, was quite different from the others who rushed off to the northern wilds. He had no intent of mining any copper. His was a much simpler mission. All he wanted was the Ontonagon Boulder. Such an unusual boulder, reasoned Eldred, should be quite an attraction in the more populated world. His plan, move the mass of

copper to Detroit, set it up for display, charge an admission for viewing it, and reap a fortune.

Like so many others, Eldred was motivated by Houghton's report, but what he knew about the Ontonagon Boulder had come from another source. Some time before, Eldred had met Joseph Spencer. Spencer was one of the members of the Porter-Clemens expedition that had made the unsuccessful attempt to move the rock for Lewis Cass. His dream of placing the boulder on public exhibition for an admission fee had been born after talking with Spencer.

During the summer of 1841, Eldred put his plan into action. He left Detroit for the Copper Country. Stopping off at the Sault, he persuaded Samuel Ashman, a Justice of the Peace in northern Michigan, to accompany him. Ashman, he thought, could serve him well as he was familiar with both the language and the peculiarities of the Indians. After obtaining a trading license from Mr. Ord, the government agent, the two men journeyed to the mouth of Ontonagon River. Here, they easily negotiated the purchase of the boulder with Chief Okondokon at the Indian village which was located at the mouth of the river. The price paid was $150.00. Forty-five dollars was paid to the Chief at the time. The remainder was promised to be delivered as merchandise and would come only after the boulder had been moved down to the mouth of the river.

Quite satisfied with his deal, Eldred and his party continued up the river to look at his new possession and appraise his needs for moving it. Like others before him, he saw that the task would not be easy. He was going to need some special equipment. However, by cutting some levelers and skids, and then working one side at a time, they managed to pry the boulder up enough to get it on the skids. When no more could be done, Eldred returned to Detroit, planning to return with the needed equipment during the following summer.

At this point, history becomes confused. Some writers say that Eldred returned the following year. Others say it was in 1843. Some other things also happened around the boulder site, but here too, time has clouded the details, and now some of the pieces do not quite fit. It seems, however, that in addition to Jim Paul and Eldred, several others also had ideas about the famed copper rock.

In the early spring of 1843, a certain Colonel Hammond of Platteville, Wisconsin Territory, led a party of men overland for the express purpose of claiming the boulder. One writer says that Jim Paul and Nick Miniclier were part of this group, but this does not seem to fit either, as other accounts say that Paul and Miniclier came through the wilderness by themselves, in 1842. Yet in none is there any indication of any later encounter between Hammond and Paul or what might have transpired, but inevitably their paths must have crossed.

Also in 1843, another group headed by a Colonel White, made a bid for the copper boulder. White had obtained some of the first exploring permits issued by Secretary of War, James Porter, after the Indian treaty had been ratified. While enroute to the Copper Country to explore for Turner and Snyder, an eastern concern, he earmarked one of these permits to cover the land on which the copper boulder was located. He then journeyed up the Ontonagon River to the boulder site. When his group arrived, they found Colonel Hammond's men already in possession of the boulder. In the fracas that ensued White found out that Hammond had no government permit. Thus it is quite likely that he exchanged his valid permit to Hammond for some agreed upon consideration.

While all this was going on, Eldred was finally making his return journey to the boulder site. This time, in addition to a full crew of men, he was bringing along some special equipment. This included; wheels and castings for a flat car, two 25-foot sections of railroad track, and the necessary block and tackle, to handle the moving job. He had also secured from General Walter Cunningham, the government agent, the necessary permit covering the section of land on which the boulder rested.

Although Eldred's plans were well made, there was trouble in the air. When he arrived at the boulder site in late May or early June, he found it being guarded by Hammond's tough looking miners. Remember that Hammond had negotiated for Colonel White's permit. They were still in possession of the boulder. The fact that Eldred had previously purchased the boulder from the Indians meant nothing to Hammond or his men. They had trekked all the way from Wisconsin Territory to get the boulder. They were now in possession of it and they were not about to give it up.

Seeing that he had been outmaneuvered (maybe outnumbered) and realizing that he was still dollars ahead, Eldred gave in and once again bartered for the boulder. This time the price was high, for it is alleged to have cost him $1,365. Eldred gave Hammond a check for this amount and then with everything seemingly in order, his men and equipment went to work.

A four-and-a-half mile stretch of up-and-down roadway was cut through the thick woods from the top of the steep bluff that rose above the river in order to get around the series of rapids and cascades in the river. Then, by means of the block and tackle, came the job of hoisting the boulder from the river bed to the top of the fifty-foot cliff. Then onto the flat car. Here is where the troubles really began. The mass of copper was heavier than expected. (Its total weight was later set at 3,708 pounds.) Cables snapped and hoists broke. There was much sweating and fuming. But at last the rock was hoisted to the top of the bluff and loaded onto the flat car which had been set on one section of the track. It is said that this alone required a week of their time.

Once the boulder rested in the car, the second section of track was laid down ahead of the car. The car was then pulled forward onto this section by means of a block and tackle attached to a tree. The vacated section of track was then moved up front, and the car rolled ahead another notch. Section by section, the car was inched

over the rough terrain to the main stream of the Ontonagon. Here the boulder was shoved aboard a raft, and with some divine assistance in the form of a heavy rain which raised the level of the river, floated down to the mouth of the river.

Throughout the month of July while Eldred and his men were struggling through the woods with the boulder, their efforts were being ridiculed. They became the butt of jokes by many of the early comers to the region. Some called it a, "wild and reckless speculation," while most felt it was an impossible task. A few miners even came up the river to watch the operations and bet on the outcome.

Later Eldred told the Senate committee that arbitrated his case:

You will discover it was no small task to cut out and smooth a road, four and a half miles through the thick woods and large timber to enable us to use the railway. Transporting our provisions and every kind of tackle required for the removal of the copper rock was no small job over those heights, and through the steep and deep ravines that intervene on the route.

When Eldred and his cargo arrived at the mouth of the Ontonagon there was more trouble. He was met by Colonel Hammond who had just returned from a long trip to Detroit and back where he had endeavored to cash Eldred's check. It had not been honored. Wrathfully shaking the check at Eldred, he demanded the boulder back. With the worst part of the work now accomplished, Eldred did not want Hammond to reap the benefits. So he offered to reimburse Hammond for his expenses. Eldred also offered to go to Detroit and collect the money for him if he would let him keep the boulder. Hammond agreed. It is said that Eldred made a quick trip back to Detroit for this purpose.

He returned in August, taking the schooner Algonquin from the Sault after having arranged for it to pick up the boulder at Ontonagon. When the schooner put in at Copper Harbor, trouble again beset Eldred. He was met by General Cunningham who had received a directive from the War Department ordering him to seize the boulder in the name of the United States. If necessary, General Cunningham was to call out troops from Fort Brady to enforce the seizure. Hearing this, Eldred went into a rage and stormed that his permit was not being honored. But Cunningham had received his orders. He was to take the boulder and that was that.

Eventually, a compromise was worked out. In his seizure orders, Cunningham had been directed by the Secretary to determine the cost of moving the boulder down to Lake Superior and to authorize compensation to those who were entitled to it, but this was not to exceed $700.00. Apparently Cunningham realized that $700.00 was not adequate compensation for such a difficult removal job, so he agreed to let Eldred move the copper boulder on to Detroit pending some kind of adjustment with the War Department.

Accordingly, the Algonquin moved on to the Ontonagon River. When the schooner put in at the mouth of the Ontonagon, the boulder was still majestically reposing on its raft which floated in the river. But there was more trouble. Chief Okondokon was waiting to collect the remaining $105.00 that Eldred owed him. When his promised goods were delivered in September, Eldred's title to the boulder was cleared with everyone except the War Department.

From here the threads of the Ontonagon Boulder story, though dimmed with time, are clear, but there is another version of the first part of the story. It is related by John Forster in his "Mineral Resources of Lake Superior," and seconded by H. M.Powers, one time editor of an Ontonagon newspaper, in a paper prepared for the 1916 Escanaba meeting of the State Historical Society. They both claim that the distinction of moving the boulder from its site down to Ontonagon belongs to James Kirk Paul, though in neither narrative is there any mention of either Hammond or White. "Paul," says Forster, "located and removed the rock and afterwards sold it to Eldred."

The Powers' story, "Romance and Adventure on the Ontonagon," was written quite a few years later and was based on what Powers as a youth of less than twenty had been told by Paul. His version, similar to Forster's, goes something like this:

Paul and Miniclier arrived at the mouth of the Ontonagon on May 3, 1842. They erected a small cabin in a clearing alongside the river and then began the task of locating the boulder. They soon discovered, like the many others before them, that finding the mass was the easiest part of their proposed task. Paul, however, was not a man to be discouraged easily, so he set about preparing a way to bring the mass of copper to the mouth of the river. First, it had to be hoisted to the top of the high bluff that rose from the river's edge. Then a road had to be cut through the thickly wooded forest. The machinery he had to work with was of the crudest kind, yet with the aid of a team of mules, a capstan, and several Indians whom Miniclier had induced to assist them, they succeeded in moving the boulder to the river below the rapids. Here, they built a raft and were just getting ready to float it down the river when they were surprised by the arrival of Julius Eldred and General Cunningham, the government mining agent. Cunningham demanded that Paul hand over the treasure in the name of the government. Paul, thinking it was some kind of bluff, produced a pistol and a musket along with all the other artillery in camp and loudly declared that anyone who took the boulder would have to do it over his dead body. Fearing that Paul might slaughter the whole party or even initiate an Indian uprising, a compromise was reached. Eldred agreed to purchase the boulder, paying Paul $1,800 at the time and $400.00 at a later date.

Now then, who really brought the boulder down to Ontonagon? Certainly it was not both Paul and Eldred, unless Paul, after making his initial bid for the rock gave

way to Colonel Hammond and then later joined Eldred's workers.

Let's examine the evidence and appraise the situation. Both Forster's and Powers' stories were based upon what they had been told by Paul. Neither actually saw him move the boulder or were even in Ontonagon at the time. Forster first visited the area in 1846, three years after the boulder came down the river. He became acquainted with Paul and was impressed by what Paul told him.

Powers, as a teenager, also had heard Paul relate his adventure about the boulder, he was only twenty when Paul died and it was from what Paul had told him that he later put together his story. Thus, in both instances, the conflicting story was Paul's, and Paul was an avowed teller of yarns who often strayed a bit from the truth.

Where, for instance, did Paul get the capstan and the necessary rigging to hoist the boulder to the top of the cliff? Or the track and flat car by which it was moved through the forest? Whence came the team of mules? Paul and Miniclier had set foot on these shores only the year before and they had arrived in a canoe after trekking through miles of wilderness. All they brought with them was in the packs on their backs.

The logical inference, then, is that Paul became a part of the Eldred crew of workers and using Eldred's equipment, which had been especially prepared in Detroit, helped move the boulder. Later on he simply told the story to suit his own fancy, and of course, there was no one around who could then deny it. No matter which version you may choose to believe or how you may fit the different pieces together, Eldred finally wound up with the Copper Boulder, subject to government lien.

Eldred then shipped the boulder on the Algonquin to the head of the St. Mary's River at the Sault. Here, it was carted around the rapids, for as yet there were no locks, and put aboard the schooner Brewster and moved on to Detroit. It arrived in this early-day metropolis on October 11, 1843.

As irritating and costly as all Eldred's problems had been, nothing could have served him better from a promotional standpoint. By the time the boulder reached Detroit, it had gained notoriety. Everybody knew about it. Quick to take advantage of this, Eldred displayed a keen sense of showmanship by moving the boulder to the exhibit hall in a gayly decorated wagon drawn by four frisky black stallions. For almost a month Eldred did a land office business at 25 cents a head. And then disaster struck him down again. The federal government seized the boulder and on November 9, a revenue cutter, with Eldred aboard, shuffled it off to Buffalo, and from there to New York by way of the Erie Canal.

In Buffalo, however, there was a further exhibition of showmanship. As the boulder was moved from the cutter to the depot, it was again paraded up and down the streets. This time it was hauled in a four-wheeled truck drawn by two span of gayly decorated horses. And even in those days, there must have been some rockhounds about, for it is said that eager townsmen, using hammers and chisels, tried to obtain souvenir chips of copper as it moved along. That they were mostly foiled is due more likely to the toughness of the copper rather than any alertness on the part of Captain Heintzelman who accompanied the wagon.

As soon as the boulder left New York for Washington, Eldred hurried ahead so that he might receive the ill-fated cargo when it arrived in Georgetown. He had been promised by General Cunningham that should the copper boulder be taken away from him and sent to Washington, he could have the distinction of delivering it there. Under his direction, it was unloaded and hauled to a spot in the yard of the War Department. For some time, it remained on display there before finally fading from public interest.

And what about Julius Eldred? Regrettably perhaps, the copper nugget brought him no reward. After a two-year legal hassle in Washington, Congress finally awarded him the sum of $5,664.98 to repay him for, "his time and expense in purchasing and removing the mass of native copper commonly called the copper rock."

Some time after the Civil War, the boulder was moved from the yard of the War Department to an obscure corner of the National Museum. And it was here that in 1881 Alfred Meads, editor of the Ontonagon Miner, discovered it, dust covered and entirely unidentified. By creating a sentimental ripple, Meads had the boulder moved to a more respectable location and a fitting inscription, which he wrote himself, placed on it.

Today, it resides in the Natural History building of the Smithsonian Institution in Washington. It remains as an almost forgotten symbol of Michigan's early Copper Country. It almost seems a shame that this silent rock which for so many ages lay in its bed along the rugged shores of the Ontonagon River has not received more public acclaim. Indeed, it played a great part in directing early attention to the mineral wealth of Michigan's Copper Country and to a great extent was responsible for the copper rush that followed.

The Copper Rush

When all the copper excitement began to well up in the early 1840's there were only a few white people in the entire Upper Peninsula, probably less than a thousand altogether. There was a garrison, troops and a trading post at the Sault; a Baptist mission, a fur company at L'Anse at the head of Keweenaw Bay and a fur company and mission farther west at what is now LaPointe, Wisconsin. Except for a few transient fishing camps which came and went, there were no other white settlements. This was still Indian country.

It was to this unsettled wilderness, newly ceded to the United States by the Chippewas, that the copper hunters came. Copper hunters who, in spite of Houghton's warnings that copper could not be picked up in quantity along the beaches, would soon be shinnying up and down the craggy cliffs in search of the red metal.

American gold and silver had not as yet been discovered in quantity. The early lead mines and the other mines of the day were modest in their operations. Nature had not as yet released her tight hold on the vast mineral wealth in the frontiers of the then relatively new Western World. But now, Lake Superior copper which had stirred the minds of so many adventurous people, was about to foster the first mineral speculations in which the American people were able to participate. And they responded with vigor.

In the spring of 1843, the schooner Algonquin became the first boat going north from the Sault. Cracking through a thin shell of ice that still lay along the shores of Lake Superior, it landed in Copper Harbor near the rocky tip of the Keweenaw. The boat put ashore with about twenty would-be miners armed with picks and shovels. Hard on the heels of the Algonquin, came the Astor. The Astor carried people whose ruck sacks were well filled with salt pork and dry beans. People whose sole interest was copper.

Among these first comers was General Walter Cunningham. Shortly after the ratification of the Indian treaty he had been ordered by Secretary of War Porter to set up a government agency in the Lake Superior region. Although a part of Michigan, this land was still public domain, owned and controlled by the federal government. Porter had realized that some kind of control would be needed over the mining activities in the Copper Country. Accordingly, he had instructed General Cunningham, who was the government agent for the Missouri lead mines, to establish a similar control in Michigan.

In the lead district, this was done by an individual permit and lease system which had been authorized by Congress in 1807, the act specifically covering lead mines or salt springs. Porter's authority to extend this to copper mining was questionable, unless it might be associated with lead. Without action by Congress and knowing that something had to be done at once, he undertook to regulate the activities developing a permit and lease system.

Officially, General Cunningham opened the government agency at Copper Harbor on June 18, 1843. It was located in a log structure which had been erected on Porter's Island, a long narrow upthrust of rock which provides the harbor with shelter from the north. The name, logically, was in recognition of Secretary Porter. As agent, it was Cunningham's duty to grant permits and leases for the exploration and mining of all federal owned mineral lands in Michigan.

Under this system, permits and leases were granted to "all orderly and responsible citizens." A permit was available free from Washington or the local government agent. The permit allowed prospectors to explore and dig for "lead and other associated ores" on an unclaimed tract of not more than three miles square. This tract was reduced to a square mile in March of 1845. Furthermore, the land claimed was "located," the corners marked and then approved and registered by the government agent within a year from the permit date. When this was done, the permit holder could within the year apply for a lease on the land. To obtain this lease, a $20,000 security bond was required.

Once a lease had been obtained, the lessee was then permitted to:

Take from any part of the land leased all ores which might be found thereon, to erect such buildings, furnaces, mills and other works as might be necessary for the accommodation of themselves, their agents and workmen and for raising of the ores and extracting the metals therefrom.

The lessee was also allowed to use any timber, stone and firewood found on the tract. He was granted one year for exploration and three more years for mining and he was given the option of two renewals of three years each. This gave him a possible total of ten years for his operations. In exchange, a six percent royalty was to be paid to the government agency for all metals recovered during the first three years of mining and ten percent thereafter. At the termination of the lease, the lessee had no claim to the land or any improvements made on it.

After the government agency was opened, most newcomers to the Copper Country made it their first stop. Here they would pick up their exploration permit, providing they had not already obtained one directly from the War office in Washington.

That Copper Harbor became the first center of activities in the Copper Country is not unusual. It was largely a matter of geography and physical convenience. Because there were no roads or trails leading through the tangled back country in those days, all comers from the east traveled by boat over Superior's cold waters. As a matter of good judgment on the part of the navigators, most of them were landed near the tip of the Keweenaw peninsula. This

was a good harbor that offered safe anchorage in stormy weather. Besides, along the outskirts of the harbor there was a rocky point on which there was an obvious band of green copper ore. This had long been known to voyagers as the "green rock," a formation which had given the harbor its name long before it became the hub of the copper rush. Nor is it surprising that this exposure of copper became the first land to be covered by a Copper Country lease. Because John Hays, an easterner who landed in the Copper Country in August of 1843, became deeply involved in this venture, the rocky out-thrust soon became known as "Hays Point." A lighthouse, which for years beamed a warning light to lake-going vessels, now stands at the end of this point.

With the landing of the first prospectors, a settlement mushroomed alongside the protected waters of Copper Harbor. Another landing was soon born at Eagle Harbor on the northwestern side of the peninsula. Here lake vessels could also tie up to load or unload in the protected waters of a small, partially land-locked bay. A little later, as a result of one of the early mining ventures, still another small community came into being at Eagle River. However, the crude pier and the boats it handled were at the mercy of every Superior storm.

For quite some time these little communities were mostly tent towns. Writing home, one of the first prospectors to arrive on the scene stated that shortly after the first boats landed, the settlement at Copper Harbor consisted of nine tents with an average of six to a tent. As the summer progressed, a steady stream of prospectors moved into the settlement. The tent city boomed and spread out into the surrounding hills and the small harbor was animated with sail boats and canoes.

Among the very first to penetrate the wilderness were those with zeal and unflinching courage, people who were both willing and able to withstand privation and danger. Some were experienced miners who had some idea of what they were going to do and what they faced. But many others who followed were adventurous fortune seekers, who in spite of Houghton's warnings were looking for quick and easy riches. Included were people from all walks of life; sailors, bankers, storekeepers, farmers, mechanics and clerks, most of whom were completely lacking in mining experience. They knew little about copper, except perhaps that it was red. With visions of quick wealth, they stumbled blindly into the wilderness in search of the red metal. They did not know how to look for it. They did not know how to extract it or what to do with it even if they found it. Most of all, they did not realize that copper was not gold. No matter how big a piece they might uncover, it could not by itself create a fortune.

Little did they know about the harshness of the elements to which they would be exposed, discomforts of buffeting winds, stifling heat, drenching summer storms, devastating insects, the tortures of hunger and fatigue and getting lost. Nor did they understand the nature of the back country which they would have to penetrate. The interlacing tangle of cedar swamps, the rugged steepness of the ravines and rock-scarred hills, the treachery of the forest debris, or the thickness of the jungle-like forests which were spread over the whole country. H. Messersmith, one of the early comers, described the hills as being so "densely covered with the different species of pine, laurel, etc., that a single man cannot penetrate the country without a hatchet to cut the limbs from the trees."

Messersmith, an experienced lead miner from Mineral Point, Wisconsin Territory, analyzed these difficulties very well when he wrote to his brother: You will readily conceive that a country of this character will require a great deal of labor and privation, as well as capital and at least two years to determine its character as a copper region. It required that and more.

As prospectors continued to pour into Copper Harbor, the government office on Porter's Island became a hive of activity. Already behind in the work because of the late date the agency had been opened, everything was in a state of confusion. To make matters worse, claims were being filed with reckless abandon on land that had not as yet been surveyed.

Douglass Houghton, to whom this task had been assigned when Michigan became a State, was still working on the survey, but there had been delays. Following the financial panic of 1837, the young State had been unable to renew Houghton's appropriations for field work. The original legislation had approved funds for only four years. Houghton spent most of 1842 and 1843 preparing maps for publication and assembling and reviewing materials already collected in the field.

During this lull, William Austin Burt, Deputy United States Surveyor, had been slowly running township lines in the Lake Superior district east of the Chocolay River. At the same time, Houghton was nurturing a brilliant idea that would combine such linear surveys with a simultaneous survey of the topographical, geological and mineralogical features of the land. Trekking off to Washington while Congress was still in session in 1844, Houghton presented his plan to the Secretary of the Treasury. The Secretary was impressed, but doubted whether linear surveyors were well enough versed in the sciences to carry out such an assignment. Houghton then offered to take on the work himself and proffered his terms. The Secretary agreed and on June 17, 1844, Congress made an appropriation of $20,000 for the desired survey. Houghton was to receive $5.00 per mile, for each mile surveyed, up to a maximum of 4,000 miles.

Hurrying back to Michigan, Houghton rounded up some assistants. William Burt, an experienced woodsman and veteran surveyor of some eleven years, who was already on the job, was one and John Mullet was another. Burt's responsibility became the linear survey while Houghton assumed the geological work. Realizing the urgency of the job, Houghton had his crews in the field by August.

It was a little later in the season that Burt's group encountered the iron deposits near what is now Negaunee, the famous Township 47 North, Range 27 West, where their magnetic compasses became so unmanageable. But Houghton was not particularly interested in iron. His real interest was the Copper Country and so Burt, now at the mid point of the Upper Peninsula with his survey, must be prodded. The gap between Iron Bay, which later became Marquette and the Copper Country must be closed. Too much time had been lost at the beginning of the year. Almost apologetically at the close of the season, Houghton wrote to the Surveyor General at Cincinnati that, "he would do his best to get an early start next year."

It was during this next year, while still pushing his surveys to catch up with the copper rush, that Houghton met his tragic death. He was only thirty-six at the time and had been in the employ of the United States but slightly over a year.

On October 13, 1845, Houghton left Eagle Harbor with four voyagers in an open boat. He wanted to keep an appointment with Sam W. Hill, another of his surveyors, who was some eleven miles up the shore. His mission completed, the group began the return run, hoping to reach Eagle River before nightfall. They had gone only three miles when a northeaster sprang up. The voyagers, all experienced boatmen, wanted to put ashore at Sand Beach, but according to the account of one of the survivors, Houghton refused. "It wasn't far now. The men should row faster." In the choppy waters, the boat began shipping water. Then it began to snow and in the quick darkness that followed, the waves became monstrous. Houghton, at the suggestion of one of the voyagers, reached for a life preserver. As he did so a heavy wave crashed into the boat filling it with water. Concerned now, Houghton was the one who wanted to put ashore. It was too late, he was told. "We've passed Sand Beach and the shore along here is all rugged rocks." But Houghton insisted, "We must go ashore. Put the boat about immediately!" Just then another big wave hit, followed by a still larger billow and the boat capsized with all hands under her.

Houghton was hauled from under the water by the collar of his coat and told to hang on to the keel of the boat. Houghton's last words were: Peter, never mind me. Try to get ashore if you can. I will go ashore well enough. No sooner had these words been spoken than another heavy wave struck the boat, throwing it perpendicularly into the air. It fell over backwards and Dr. Houghton disappeared in the water.

Two of the voyagers made it to the shore, though they were badly pummeled by both the waves and the rocks. In the darkness a search for their companions was futile, so they set out for Eagle River. After stumbling over the rocks and through thickets, there being no road or trail, they finally managed to reach the little village about midnight, completely exhausted and suffering badly from cold and exposure.

Three feet of snow fell that night and though a searching party went out early the next day, no trace of Houghton could be found. The following spring, the body, half covered with sand, was discovered on the beach not far from the scene of the disaster. It started the season with a note of sadness.

Transported to Detroit by his brother Jacob, the body was interred at Elmwood Cemetery. A monument, built of typical Upper Peninsula rocks, now stands as a fitting memorial along the highway just outside of the town of Eagle River.

Douglass Houghton, identified with copper since before the rush, had at the time of his death, reached a high point in his popularity in the Copper Country. He was no less than a celebrity. In any tent settlement he visited, Copper Harbor, Eagle Harbor, Eagle River, or Ontonagon, he had been immediately hailed and surrounded by noisy miners. A likeable young fellow, he had not been too genteel for them. He had been one of them. He loved a good story and so did they. He dressed carelessly, lived in the out-of-doors and had been willing to take chances. Above all, they respected him because he knew their business, copper hunting, better than anyone else. One of them once remarked, "the little, rough looking Doctor carried more true knowledge in his cranium than all the big heads put together."

Shortly before Houghton launched his Upper Peninsula surveys, Congressmen from Michigan were under the delusion that the miners and early settlers might need protection from the Indians. The Legislators held a meeting in Washington and drew up a memorial for the establishment of a military post in the Copper Country. A few days later, General Hugh Brady at Detroit was ordered by Secretary of War, William Wilkins, to select a thousand-acre reserve at Copper Harbor. General Brady was to dispatch two companies of infantry to this site with the instructions to construct a stockade and barracks.

Company A and B of the Fifth Infantry arrived at Copper Harbor on May 27, 1844 and started the project on the following day. The new military post, named Fort Wilkins in honor of Secretary Wilkins, was completed later in the year.

The Indian agent, Robert Stuart, had felt that the troops were necessary to protect the miners from the Indians and generally to maintain order throughout the mining area. The threat of Indian trouble could not be put aside by the early settlers. The sudden rush of prospectors to the Copper Country pushed the Indians from their homeland much quicker than either the Government or the Indians had anticipated. Even though the Indians did appear somewhat resentful, uprisings did not occur.

The closest Copper Harbor ever came to having an Indian disturbance was an amusing incident related by John Barthlow Martin in Call It North Country. The incident involves Jane Masters, wife of one of the mine workers. It seems that Jane and the other women of the settlement had been warned that if they ever heard the bell at the

fort ringing, it would mean an Indian uprising. She was to take the children and what food she could grab and run into the stockade. As Martin tells it:

One day Jane heard the clamorous ringing of the bell at Fort Wilkins. Alone, she snatched up her children and what food she could lay hands on, and fled precipitously to the sanctuary of the fort. All over town she could see other women running, crying out to one another and were those Indian war-whoops mingled with the cries of the full-skirted running ladies? When finally she reached the stockade, she found a crowd of women surrounding a single, embarrassed soldier. A cow, he was trying to explain, had got its foot tangled in the bell rope; there was no alarm, only a wayward cow. Everyone went home feeling a little cheated. It was the town's only massacre.

For two years, the troops at Fort Wilkins had little to do except sit around or watch the miners. As a recreational endeavor, some of the soldiers and their wives occupied part of their idle time with picnic outings at Agate Harbor. After arriving in their sailboats, they would spend the entire day agate hunting. These people were among the Copper Country's first rockhounds! Nor was agate hunting confined to the troops. Tourists and even some of the miners, also found pleasure hunting for agates.

John R. St. John in "A True Description of the Lake Superior Country," a story of these early times, also mentions agate hunting. He says:

This is agate hunting: as all will testify who have tried it, the most fascinating and bewildering, yet certainly innocent amusement. I have seen a staid and dignified old Governor stretched at length upon the shore absorbed and lost to everything but examining agates, consuming half an hour in scrutinizing and admiring the variegated tints, the beautiful blending of shades and colors, and the regularity of the myriads of diverging and concentrating lines of different colors in an agate he gazed upon, not larger in circumference than a dime.

In 1846, the Mexican War came along and it brought a call for the two companies at the garrison to help fight. They trooped away leaving their quarters in the hands of Sergeant William B. Wright who was sent to the Fort to look after the Government property. The sutler, Charles Brush, also remained at the Fort, continuing to sell his stock of store goods to the townspeople. Some years later, the Fort was deemed unnecessary and it was officially abandoned. For our present generation, it has become Fort Wilkins State Park with the buildings and stockade carefully resurrected to serve as a museum - well worth a visit.

Although the excitement of the copper rush had mounted slowly throughout 1843 and 1844, in 1845 it burst all reasonable bounds. Copper Harbor boomed as an influx of prospectors poured in along with a host of imported mine workers for the several mines which were just beginning to function in a preliminary sort of way. It became an improvised city. Here all nationalities slept under tents and made merry while awaiting the call of duty or the action of authority from the Government House. Some were waiting for favorable winds or weather to speed them on their way. Boarding houses sprang up almost over night where people began to sleep in shifts. As in any frontier mining settlement, the town soon became crowded. There were saloons where hard working miners and prospectors abandoned themselves to drinking and gambling. In this wild environment where the restraining hand of civilization was loose, the saying was, "There's no Sunday west of the Sault."

In spite of the heavy drinking and hard carousing, the troops never had to be called out to suppress a riot or to subdue violence, nor were any vigilante committees ever needed. There were arguments, to be sure and often they were heated, but as one old timer once expressed it, "Litigation was commonly settled by a stand-up and knock-down fight between the plaintiff and defendant." Even though these early pioneers were quick to strip off the coat and fight at the slightest provocation, generally, they were honest and neighborly and ever ready to share the last biscuit with a hungry wayfarer or needy newcomer. Of fighting, feasting and fasting, there was much, but of murders and robberies there were few.

The first log structure in Copper Harbor, other than the government agency building on Porter's Island and the trim white barracks at Fort Wilkins, was the old Astor House, a rough frontier inn operated by a halfbreed named Francois. The place stood alongside the harbor some fifty feet from where the bleached skeleton of the schooner Astor lay on the rocks. The schooner had broken from its anchorage during a Superior storm in September of 1844 and was fatally dashed onto the rocky shore. It was for this wreckage that the Astor House had been named.

The owner, Francois, was cosmopolitan and spoke many languages. He also served as his own cook, waiter, dishwasher, chambermaid and clerk.

The main building, a story and a half high, was twenty-four feet long and sixteen feet wide. The loft, used for storage, also served as sleeping quarters. For twenty-five cents, customers were allowed to sleep on a pile of bagged oats. If they preferred a more deluxe arrangement buffalo skins were spread on the floor.

An attached lean-to-shanty served as a dining room and kitchen. Two boards laid upon sawhorses provided the dining table. Meals were twenty-five cents and usually consisted of baked trout, pork and beans, dried apple sauce and a choice of coffee or tea.

As the settlement grew, the Brockway House, a more respectable inn and second largest in the State at the time, was built by Daniel Brockway at the head of the little bay. Brockway, along with his wife and family, came to Copper Harbor from Father Frederic Baraga's mission at L'Anse. In the years that followed, he came to be remembered in the Copper Country.

On July 11, 1846, Copper Harbor was favored with its first newspaper, a weekly sheet called the Lake Superior News

and Miners' Journal. It was published by E. D. Burr and edited by John H. Ingersoll, both having had newspaper experience in Detroit. The first press and office, were housed in the old Astor House. The paper thrived during the summer of that first year but suffered a drop in winter. Burr had intended to change his paper to a semi-monthly during the winter season, this to conform with the twice-a-month mail service. But, he was forced to discontinue publication entirely when the mail carrier refused to transport newspaper over the winter's snow. Publication was resumed the following June, but at the Sault with Ingersoll as proprietor. The name was also changed to "Lake Superior News and Mining Journal". In 1855, the paper was again moved, this time to Marquette where eventually it became the Mining Journal, a daily that has continued to serve a large and appreciative public.

By the mid 1840's, Copper Harbor (except for the Sault), had become Upper Michigan's principle city and certainly the capital of the Copper Country. Indeed, for a while, it was the Copper Country. Again, Martin in "Call It North Country" provides a fitting description of the setting:

Here (at Copper Harbor) the oval landlocked harbor always was white with sails. Here the crisp days rang with the clatter of hammers and axes, the shouts of stevedores and teamsters, the shriek of whistles at the mines, the roar of incessant blasting in the hills.

A mile behind the village the mountains rose stern, silent, rugged, untouched as they had been when the Jesuits first beheld them. The wilderness was at Copper Harbor's back and, in the winter, at its throat. At night there was silence, the noisy silence of the north country, where wolves howl and bobcats scream like children in pain; silence and blackness in the brooding mountains.

Many men, Cousin Jacks they were called, came here direct from the tin and copper mines of Cornwall. Everything was mining here; the talk in the saloons was mining talk, the rough-handed men you passed on the straggling streets were miners, the whiskered men with packs on their backs and suspicious glints in their eyes were prospectors, the new mules unloaded from the boats and men too, were being brought in to work in the mines. The broken ribs of the old schooner John Jacob Astor stood like a stark lonely sentinel on the beach, with the big gray lake beyond, hazy at sundown.

While Copper Harbor was blossoming out at one end of the Copper Country, Ontonagon, the rallying point at the other end, was having a slower and more dismal start. Had it not been for the legendary reputation of the Ontonagon Boulder, which radiated out to just about every mining camp in the country, Ontonagon might have remained an Indian village longer than it did. But miners were anxious to visit this place. They came with the presumption that where pure copper was in such abundance, there must also be silver and perhaps gold.

The story of Ontonagon begins with none other than James Kirk Paul who on May 3, 1842 landed on the banks of the Ontonagon River with his halfbreed friend Nick Miniclier. It is likely that patches of snow still dotted the shadowy areas beneath the stately hemlocks that rose from the slopes along the shore. The winds, ever blowing in from the cold waters of Superior, must have still breathed chilling blasts, as the newcomers looked over their landing place.

Selecting a small clearing along the east bank of the river, Paul and Miniclier went about the necessary task of building a small cabin. Stretched along the western banks of the then flood-swollen river, was an Indian village. At the time, it was one of the oldest and perhaps the largest (population sixity-five or so), of the Chippewa villages in the Lake Superior region.

It was to the Indians of this village that Paul sent Miniclier to obtain information of the great copper boulder for which they had journeyed so far. But even though Miniclier spoke their language, they told him little. Whether this was because of their superstitious religious beliefs regarding copper, or because they knew their chief had already sold the boulder to Eldred the summer before, will never be known.

In spite of this, Paul and Miniclier succeeded in locating the boulder. They also built a second cabin on the high banks of the river that overlooked the boulder so that they could be near it and protect it. Thus began the episode of the Ontonagon Copper Boulder as already related. After this was all over, Paul stayed on as the first resident of the village that came to be at the mouth of the river. As "Captain Paul" he became the official greeter to the vanguard of prospectors that came this way.

Even before that first summer was over, Paul had converted his little cabin into a tavern which soon became well known as Jim Paul's Deadfall. It was a squalid affair, a small, low-roofed cabin with one door and no windows. Even though it was only eight by ten (feet), it served its purpose. Paul did a good business and the whiskey he served seemed to satisfy his customers.

A second building soon joined the Deadfall in the little clearing. It was a log structure to house the government agency where the mineral agent, an assistant to General Walter Cunningham, meted out and processed permits for the prospectors.

While Paul and Miniclier had been the first to arrive and remain in the Ontonagon region, they never mined copper. They did however, join in the search as both had obtained permits from the mineral agent. Paul had permit No. 113 and located a nine-square mile tract several miles from the mouth of the Ontonagon, while Miniclier had permit No. 3. Curiously the location of the claim registered for Miniclier's permit was at the tip of the Keweenaw. Likely both permits were sold or bartered, though neither covered minerals of any value.

Among the first miners to reach Ontonagon were two groups from Wisconsin territory. One, headed by Thomas Carrol was from Vinegar Hill, the other from Mineral Point.

Both groups came by way of Copper Harbor in the spring of 1843. Following the pattern of prospecting used by miners in the lead country, they sank several shafts along the clay banks of the Ontonagon River. But like Henry Alexander almost a century before them, they were unsuccessful in obtaining anything but a little float copper. It is likely that these were the first shafts to be sunk in the Ontonagon area during the copper rush.

Just as at Copper Harbor, the prospectors that came to Ontonagon were a mixture of people. They were a restless, yet eager and determined group that searched the Ontonagon valley. They lived hard, drank hard and died hard.

James W. Foster, a government surveyor and afterwards a State Senator, visited the Copper Country in 1846. Later he wrote about much of what he observed. Of Ontonagon, he had this to say:

The Ontonagon River is one of the largest emptying into the Lake on the south; it is about a hundred yards wide at the mouth, but much wider inside, affording a fine harbor for high draft vessels. On the right bank, near the mouth, two or three acres of land have been cleared. Two buildings are in this clearing, the Government Agency and Jim Paul's cabin. Jim is a noted character from the Southern States, half horse, half alligator, a man of much shrewdness and native wit. His cabin is a public house; chief entertainment, whiskey and tobacco. This clearing, as at Copper Harbor is covered with the tents of explorers and the river is full of their boats. They come here to rest and to replenish their store. The crews, a motley crowd of old voyagers, Frenchmen and half breed Indians, take the occasion to indulge in drinking, carousing, fighting and all manner of frontier excesses. At times the scene is like an arena of infuriated wild beasts.

But then, he lauds them by writing:

But our explorers, when the time for action came, were full of energy, courage and vim. They were bold navigators. In their frail canoes and mackinaw boats, they braved the storms of the treacherous lake and searched every bay, inlet and river. On the land they were equally adventurous. They penetrated every nook and corner, disturbing the sylvan deities in their most secluded haunts. Their camp fires blazed at night by many a trout stream and their footsteps made a broad trail through the woods. These copper hunters, were in truth with their slouch hats, flannel shirts, moccasins, iron-clad trousers and unkempt hair, eager, determined, impressionable fellows, many of them indifferent to heat, wet, cold, hunger and toil and with plenty of wild oats to sow.

As the first years of frenzied exploration and wild explorers went by, a few stragglers found things enough to their liking to stay and settle down. Perhaps was only one out of every hundred who came remained to live and die. Slowly Jim Paul's town began to take root on the land he had preempted. Daniel Cash, a Quaker farmer from Galena, Illinois, arrived in 1845, bringing with him two relatives, W. W. Spaulding and E. C. Rahm as partners. They came from the south as Paul and Miniclier had. They ascended the Mississippi River to the St. Croix. After numerous portages up this stream, reached the Brule River, descending it to Lake Superior. Then they coasted along the Superior shores to the mouth of the Ontonagon.

Cash and his partners, assisted by such halfbreed Indians as they could talk into working, cleared some farmland on the west side of the river above the Indian settlement. Here, their first cabin, a crude little structure similar to Paul's, was built. Cash became the first farmer on Lake Superior outside of the missions and it is much to his credit that he made a success of the venture. At first the land had to be cleared and worked by hand as horses or oxen were not available for farm use until after 1847. Nor were there any farm machines. Even later, when hay was needed, it was cut with a hand scythe and raked into piles with a wooden hand rake. At the start, the principal crop was potatoes, planted at random between the tree stumps.

The first dock on the river was built at the Cash farm. Until other docks were added some time later nearer the mouth of the stream, these facilities were used by smaller schooners and lake going vessels that could pass over the sand bar in the lake at the mouth of the river.

In the autumn of 1847, Cash moved his wife, Fanny, and his small son, Daniel Jr., to Ontonagon, after having built a two-story hewn log house for their benefit. She was the first white woman to live in Ontonagon. It must have been with considerable forethought that she came as, for a time, her only neighbors were Jim Paul and the carousers at the Deadfall.

In the years that followed, Dan Cash became an important figure in the affairs of Ontonagon, however, he and Jim Paul were not good neighbors, and for many years they feuded over community affairs.

By 1848 a score or more of good copper claims had been established in the hills, upstream and some distance from the mouth of the Ontonagon, and now they were being rapidly developed. To serve the needs of these growing mines some kind of transportation was necessary and river transportation, though not of the best, was most readily available. To this end, three entrepreneurs formed a partnership to cut the lumber and put together a somewhat unwieldy river barge that could be poled up and down the river. Seventy-five feet long, eight feet wide and capable of carrying sixteen tons, it was propelled by a crew of ten. At the rapids that marred the smoothness of the river farther upstream, the crew was aided by a capstan, anchored on the barge and a 700-foot line that could be attached to trees along the shore. Crude as it was, the freight it carried on its regular runs to and from the landings which served the new mines some eighteen miles upstream, was the basis for progress. Not until the steam-powered tugs, the James Carson and the Miner, later went into service to tow such barges, was this service improved.

Soon a saw mill was set up along the river and began turning logs into lumber. Captain John G. Parker, captain of his own schooner on the Lake, honored Ontonagon with a frame house built alongside the river. Shanties began to spring up in a hit and miss fashion. The town was slowly growing though one early writer claims the settlement in 1851 could boast of no more than seven substantial log houses. After this, when the mines, notably the Minesota, began to produce, Ontonagon began to boom and soon became the greatest of all Upper Peninsula towns.

In the decade that followed, log houses gave way to the more modern frame home. The great Bigelow House with its elegant grand ball room was built and became the social center of the community. The town gained a county building, a jail, a fire hall and four churches. A weekly newspaper, The Lake Superior Miner came into being. A professor from the University of Michigan was teaching school along with other seasoned teachers. A lady from the Danish West Indies taught the older girls French, embroidery and drawing. There was a Masonic lodge, a Philharmonic Society for music lovers and an Agricultural Society. The Ontonagon Mining District Association, with over a hundred members, met every week at the Bigelow House. New docks were built, the harbor improved and a plank road built to Rockland. Stores of all kinds, boarding houses and saloons were crowded in a solid line along the east side of the main street. This included Shepherd's Place, a saloon-boarding house which was the metropolitan headquarters as well as a rendezvous for miners, Cornishmen in particular, on their way to and from the mines. It was one of thirteen saloons jammed into a single block.

Indeed this became an era of prosperous times. Wages were high and merchants moved goods off their shelves rapidly and with a good profit. Unfortunately, it did not last. When the Civil War ended and the price of copper fell, the bubble burst. The inevitable slump followed and Ontonagon became a place of empty houses.

Long before all this happened, however, Paul saw the need to establish streets and bring some order to the growth of his town. Accordingly, he platted a town site, complete with a public square. And because he claimed every foot of the land by preemption, he began selling lots. Later this led to much trouble and several law suits, because the government, refusing to recognize his preemption, still owned the land. Paul refused to believe this, saying, "I don't give a damn for Congress or anybody else. The land is mine an' I'm going to keep it!" He fought in vain however. Nevertheless his plat of Ontonagon was officially recorded on January 13, 1854. Eventually, Congress authorized the State Legislature to take a suitable action so that those who had purchased land from him in good faith would not be dispossessed.

In 1849 things were drastically changed for Jim Paul. Miss Amanda Chandler came to Ontonagon, accompanying her father to this pioneer location. Amanda, thirty-five, was a proud, high-spirited woman, who being highly religious was a regular church-goer, all quite in contrast to the motley crowd who made merry in the settlement. Even though she was totally different from Paul, by 1850, only a few months after her arrival, Jim Paul and Amanda Chandler were married.

Certainly her religious aspects and her penchant for cleanliness and order, must have changed Paul and maybe Paul changed her a bit too, for she became dedicated to his cause and helped to fight his battles as well as suffer his misfortunes. She entered into the hostel business with him in his newly built Paul House. Amanda Chandler added a touch of elegance. She furnished the parlor with a, "gorgeous carpet, a divan, together with a mahogany table decked with a number of gilt-edge display books." In spite of her touch, the Paul House was still a pioneer building as evidenced by the writings of a guest who was hosted there while on a scientific mission at one of the mines. He complained that the doors could not be closed, panes of glass were missing from the windows and part of the chimney had never been completed. He also wrote that, "the wind blew so cold and searching through this two-storied board house of the back woods, that one could, without flattering the owner, call it a veritable wind castle." For many years, though, the Paul House was a popular hotel of the village even though it never came close to equaling the elegance of the five-story Bigelow House. The Bigelow House for more than a decade after 1850 became the "grand" hotel of the entire Lake Superior district.

It was Paul's custom to meet incoming schooners at the dock in order to seek out passengers who might be in need of accommodations. He would then send them to the Paul House with, "Right up the street there, ye'll see a sign rejection' out and my hotel is fastened to it."

For a while life was good for Amanda and Jim. Their town was fast becoming a growing depot for a great enterprise. They built a comfortable home on the street back of the Bigelow House. Amanda became renowned for her steamed brown bread. Her dancing parties were social events of the first order and as a matron, her hospitality was unequaled. For Paul she was a steadying influence and as he grew older, he settled down completely to the life of a tavern keeper, living contentedly with Amanda and the little hotel. He was not concerned that there were now bigger merchants in town than he had ever been. One of them was James Burtenshaw who had built a fine home overlooking the river along the new plank road that led to Rockland. Burtenshaw, a great civic-minded individual was leading others as they planted shade trees along the streets. Paul thought this was fine, it was desirable, but somehow it was beyond him. In reality he was still a pioneer in a town that was now growing away from him. Unable to read or write because he had been denied the benefit of an education, he had never qualified for public office, though there is no evidence that he ever sought it. His frontier manner of expressing himself had always been rough, particularly when he was upset. Whenever he was mad he was vicious both in words and action. In later life, however, he began to mellow. He

lost some of his old cussedness. He began to reminisce and to tell of his "arly experiences" as he called them. He was a natural teller of tall tales and no one could unfold a better story than he. Whether the experiences he related were actual occurrences or otherwise, only he knew, but he found many willing listeners and everybody respected him as the founder of the town.

One of the tales that he told many times and always with a great deal of gusto, stems from his fling with the copper boulder which seemingly instilled within him a mania for locating copper masses. It concerns an adventure he had with an young Indian whom he said was "stringin' him." H. M. Powers, who as a teenager listened to Paul unfold many of his adventures tells this one in "Romance and Adventure on the Ontonagon," a short article preserved in the Michigan History magazine. Powers relates:

This son of the forest had made Jim understand that he knew where there was a rock mass rich in copper and silver, which for a certain consideration, he would take him to. The details agreed upon, the party started out one bright morning in August with sufficient provisions for a five-day trip. When the third day out came along and their objective had not been reached, Paul became suspicious and through the interpreter whom he had brought along, demanded of the Indian what was going on. The interpreter relayed the answer saying that the Indian in his dreams the night before 'had consulted his great Manitou and he had been told not to show the white man the copper rock. I told the interpreter to tell that dammed Indian that I had "insulted" my Manitou too and he told me to give that dammed Injun the devilist lickin' he ever had. I reached for a sapling near by and that Injun took to his heels. I expect he's running yet for I never saw him since.

The party then started back for Ontonagon, but being without a compass and clouds obscuring the sun, they were soon completely turned around. They finally came out of the woods at L'Anse Bay. This, says Powers, cured Jim of the copper craze.

Early in his life his sense of adventure drove him from Virginia to Ohio and Kentucky, then to Missouri, Illinois, Wisconsin and finally the Lake Superior country. Advancing age curbed Paul's adventurous urges. The tempo of Paul's life had been slowed. Thus he counted down his final days in the quiet of his home, looking ahead to the third day of May which would mark the anniversary of another year on the river. But fate denied him this privilege by just two days. He died in the village he fostered on May 1, 1881. And he died as he began, poor.

James K. Jamison, one of his biographers eulogizes Paul with these words:

He came for copper and he got none. He suffered unbelievable hardships to find treasure that other men found easily and took away. He came to get rich quickly and depart, but he stayed and died in comparative poverty. He came like a young adventurer, a giant, indomitable, fiery and experienced Indian fighter fresh from the Black Hawk War and he doddered out his days poking up the fires and doing the chores of a village tavern.

James Kirk Paul was buried in Evergreen Cemetery out on Miner's Road, his grave unmarked except for a single iron urn and a little iron fence which Amanda set up around the plot. His name is not carved elsewhere. Nor does a single street in his town perpetuate his name to remind later generations of the day he first stepped ashore on the banks of the Ontonagon River.

Not until twenty years later did Amanda pass away. Most of her final years were spent in poverty with much of her food, fuel and clothing coming from kindly neighbors. Death came in a tar-papered cabin brightened by a worn strip of carpet and a little rocking chair. Yet because of the kindnesses of those who remembered her, she died without bitterness.

And thus Jim Paul's town came to be. A town that grew as a rallying point for copper hunters from a single log cabin in 1843 to become in the next decade the queen city of the Copper Country. A city with the inevitable name Ontonagon.

How the river and then the settlement, got its name is another of the old legends of the Copper Country. This one, so it seems, came from the Indians. According to the Chippewa language, Ontonagon means "lost cup" or "lost bowl." Many moons ago, so goes the legend, a young Indian maiden went down to the river's edge to dip up a gourd full of water. As she dipped the gourd into the water, it slipped from her grasp and quickly the current carried it beyond her reach. Seeking help from her elders, she cried out, "Onto-na-gon! Onto-na-gon!" According to interpreters this meant, "My bowl is gone! My bowl is gone!" Passed down through generations of Indians, the name remained not only for the river but also for the settlement that grew along its banks.

On an early map of the Jesuits it was shown as Nantounagon and many of the early prospectors called it "Antonagon" likely because this was the way Paul said it with his southern accent. Many a prospector working upstream from the settlement often referred to it as the "Mouth." This name become so popular that it was three quarters of a century before it drifted into complete disuse. While the settlements at both ends of the Copper Country blossomed and grew, each in its own way, the Portage Lake-Calumet district midway between Ontonagon and Copper Harbor, remained a wilderness. And it was destined to remain a wilderness for several years while prospectors continued their activities at the opposite ends of the peninsula. Ultimately, however, it was to become the richest copper land of all.

For the prospector, the first years of the copper rush were hectic ones. They were filled with an endless succession of exciting but also exhausting days when, with hopes running high and visions of quick riches, they stumbled into the woods in their quest for copper. Working as individuals or in small groups, they searched both ends of

the peninsula, scratching at the hills and poking in the ravines without plan or pattern for as yet there was little to guide them. Some dug or blasted in the rocks wherever they chanced upon float copper. Others, thinking themselves more canny, searched along streams, digging wherever tell-tale signs of green might imply the presence of the red metal.

It has been said by one of the early explorers that there were some who thought that digging copper would be like digging potatoes. Others had the idea that it would be lying around loose, in cartloads, already mined. W. W. Spaulding in an 1867 presentation before the Houghton County Historical Society, cited an instance of such foolishness:

While I was at LaPointe in the summer of 1845, I became acquainted with a Mr. Lehigh, who had been sent up as a superintendent of some exploring company. A few days after I had been introduced to him, I went down to the beach and found him with his men just ready to shove off in a mackinaw boat. I asked him where he was going and the answer was, 'Sir, there will be a vessel in port in a few days and I promised my company, when I left, that I would ship them a load of copper by the first vessel back after I arrived and I am now going after it.

Some of the prospectors found copper, but most found only disappointment, and eventually left the Keweenaw much poorer than when they came. If there were any quick riches that might be credited to copper hunting, they went mainly to the camp hangers-on. In most of the common ways they managed to keep their pockets filled at the expense of the prospectors. Particularly numerous were the "permit" dealers who stuffed their pockets with blank permits and then rather neatly mined the miners' wealth.

In reality a permit, even when filled out and recorded, was little more than a claim check, but a claim could not be recorded without one. Although free permits were readily available at the mineral agency, some prospectors did not seem to be aware of it. Also there were others who simply neglected to obtain a permit before going into the field. This all stimulated a brisk business in blank permits to accommodate, for a fee, such forgetful ones. Somehow a promoter had the knack of appearing on the scene with a blank permit just when a forgetful prospector discovered what appeared to be a good tract of copper-bearing land. To protect his discovery he had to file a claim. He needed a permit for this, yet he could not leave the site lest another claimant take over. The promoter's permit seemed to be the answer. So a deal was made, money exchanged hands for the needed permit and the promoter went on his way to look for more customers.

Or again, a slick promoter would display a few choice specimens of copper that supposedly came from his 'very special` location. Then with a few enticing words offer the prospector victim his permit covering the claim at any attractive price he thought he could manage. Needless to say his fancy price was seldom based on the actual worth of the location covered. Of course, not all such sales could be branded schemes because any number of well-founded claims changed hands in this manner, including the land on which some of the first mining ventures were established.

In many instances claims were located at random or on hearsay without field observations. Promoters or opportunists with 'big ears' made use of what they overheard to establish claims on land which they had never seen. A chance remark by a New Haven professor is said to have caused seventy permits to be filed in one area. And in another instance, when a prospector located his claim as was required under the system, innumerable permits were filed on the surrounding land. Of course, much of this was made possible because of the laxity of the government agents.

John R. St. John visited the Copper Country during the summer of 1845. He seemed to have been well versed in both the technical and business end of mining and probably an expert for that period. Later in "A True Description of the Lake Superior Country" he recorded some of his observations and experiences. In it, he comments on such irregularities of the permit system:

There have been persons lingering about the (land) office in Copper Harbor with pockets full of permits for persons never in the country and never intending to be there who came to be known by the name of "Pawnees" from their putting their paws upon the shoulder and a 'word in your ear' to every explorer who had really made examination, the moment he arrived. One would not be done with his 'one side' inquiries before another paw and, a 'word in private', each hoping to get an unguarded word on which to locate some of his 'friends' permits. I was told that some of the Pawnees have been 'awfully stuck' to use his expression 'for' said he, some of their permits are located where they can not touch land, up, nor down, nor sideways and others ain't nowhere!' This might have been true in some particulars, but usually the Pawnees, where a location was marked on the map by an explorer, located around that. Bounded from its description in making out their own, which I have no doubt in many cases will cover the spot the explorer intended.

To some extent St. John's historical book was intended to help persons with money to invest, or as he put it, to enable the capitalist, "to determine correctly between propositions now or hereafter made for investment, which are real, or which are 'kiting.'"

Speculation was uppermost in the minds of many who came to the Copper Country, and numerous avenues for making a fast buck were open, legal or otherwise. Claims were often located and companies organized involving lands on which no trace of copper was then or afterwards ever found, but for some this did not matter. Dollars were to be gained through the promotion and sale of stocks, not the sale of copper.

George Hazelton, a businessman and politician from Flint, Michigan, tells in his "Early Settlement of the Copper

Regions of Lake Superior" how he made a quick trip to the Copper Country during the summer of 1845. In less than a week without going any farther than the land office at Copper Harbor, secured all the claims he wanted. Returning to Flint, he formed the Flint River Mining Company and then sold the stock and locations to a stranger for a neat profit. Others were not so lucky.

During the latter part of the 1844 season, things at the government agency on Porter's Island began to get out of hand. Many names were duplicated on permits and, since much of the region had not as yet been surveyed to establish guide lines, boundaries were often pretty vague. There was an astonishing number of overlapping locations with two, three or more claims sometimes covering the same general area.

Some of this may have been due to the crude methods used to make each survey or location. Distances measured by pacing through the dense woods and underbrush might not always be accurate, and under such circumstances, compasses were often difficult to read. Nevertheless, the laxness and liberalism in handling permits on the part of General Cunningham disturbed the Secretary of War to no end. He was further upset to find that Cunningham had not used the printed permit forms which the Ordnance Bureau had provided him. Instead, he had added some regulations of his own and changed some of the wording because it had not seemed clear to him. As a result of these aggravations, and feeling that Cunningham had overstepped his authority, Wilkins appointed General John Stockton to replace him.

Stockton took over the administration of the Copper Country land agency on September 6, 1844. One of his first acts was to move the agency from Porter's Island to the garrison at Fort Wilkins in order that the office might be more accessible to all comers. Later on, it was again moved, this time to the Sault, however, assistants were left stationed at both Copper Harbor and Ontonagon.

Although the leasing system may have broken down at Copper Harbor, there were also disgruntled persons who raised cries of favoritism because of actions of the Ordinance Bureau in Washington. None other than Horace Greeley wrote in the Tribune:

We are informed that locations have been made and leases issued within ten days after the permits have been granted - all snug and easy in Washington city, at no expense of time, toil or travel.

On March 25, 1845, the new Secretary of War, William Marcy, decreased the size of the mining tract from three miles square to one mile square. Then on July 17, he completely suspended the issuance of permits. As he put it, permits had become too numerous and a large portion of those issued within the year had not been located. Many outraged prospectors and speculators accused Marcy of "filling the pockets of this Troy and Albany friends" with permits before they were discontinued. Up to the shut-off date about one thousand permits had been issued, of which 961 had been located.

Almost from the beginning the leasing system had been condemned, and in retrospect, it was a failure right from the start. One of the biggest objections raised was that it did not honor the preemption rights of the leaseholders. Most of the speculators, however, assumed that the whole leasing system was but a temporary thing, that preemption would follow, but it never did.

Another objection was the bond requirement for leases. It was claimed to be a disadvantage to the prospectors because some of them after locating a suitable claim were unable to put up the $20,000 security required to obtain a lease. George N. Sanders commented that:

During the past season several miners of limited means were forced to abandon their permits on Keweenaw point, being unable to give the required security. In consequence, much of Keweenaw point has been swallowed up by three or four rich companies - the actual discoverers, in some instances, losing all.

In August of 1845, Secretary Marcy sent two agents to the Copper Country to study the leasing system. They were requested to bring back a complete report about how the system worked. Returning in October, they reported their findings to the Secretary in February who in turn passed on the details to the Senate Committee on Public Lands. The report was thorough and to the point. They could not find any evidence of lead in the Copper Country, thus the leasing system was illegal and needed changing. They recommended outright sale of the land as the American way of handling the situation. They also recommended that the survey of the land be completed because there had been far too many disputes because of overlapping claims.

The Committee was also informed that during three years of activity in the Copper Country considerable sums had been expended but practically no return of rent had been received. A later report of May 4, 1846 showed administrative costs as $32,805 against a rental return of $192.00. After due consideration of the details, the Committee recommended the sale of the lands, prophesying chaos and further public loss, if leasing were continued.

Two days later all leasing of lands in the Copper Country was suspended. Under lease at the time were sixty tracts of three miles square and 317 tracts of one mile square. Of these 327 had been effected in 1845, which reflects the boom activity of that season.

While all this was going on the Michigan State Legislature and Senate had become noisy. The Michigan Senate questioned the right and propriety of the United States to grant leases under the legislation of 1807. They called it a violation of the sovereignty of the State as well as a threat to the independence of the State government. The State Legislature agreed with this view and adopted a resolution condemning the existing federal practice.

The reaction of Congress was almost immediate. An initial bill calling for the sale of the Superior lands with

preemption rights recognized was introduced, but it was defeated. On March 1, 1847, however, a bill which established the Lake Superior Land District and authorized the outright sale of the land without honoring preemption rights, was passed. The bill provided that the Lake Superior lands be offered for sale in quarter sections at the rate of not less than $5.00 per acre. All existing rights of the permittees and lessees were fully reserved. In 1850, this price was reduced to the uniform rate of $1.25 per acre for all government land. In carrying out this act, Dr. Charles T. Jackson was appointed to complete the survey of the mineral lands which Houghton had started. He pursued this work for two seasons.

Once the permit and leasing system had been discontinued the purchase of land became necessary. As a result, the glamour of competitive exploration, vital to any mining rush, was lost. The copper rush, in the sense of a rush, was over. Actually, even before this, many of the prospectors had been scrubbed out and already gone to work for some of the organized companies which had begun to emerge. Others, who heard of the California gold strike, shook the copper dust from their shoes and headed west in search of new riches.

With the purchase of Lake Superior land now possible, a suitable transition from the excitement of exploration to a duller, but more orderly process of mining came about, and from it a thriving copper industry slowly emerged.

The Pioneer Mining Companies

From discovery to the ultimate profitable use of any natural resource is usually a rocky road, and Lake Superior copper was no exception. Early in the copper rush the hard-working prospector soon found that it took more than a pick and shovel to make a copper mine. It took scientific knowledge and more than the usual run of luck. Early prospectors needed heavy machinery and enough capital to support a payroll for miners working through a year or more of unproductive labor and shaft sinking. No matter how adept he was as a miner or how good his find, unless he could acquire the needed capital, he was destine to failure.

Eastern capitalists, largely from Boston, were among the first to be enticed by potential profits and responded to the need. As news from the copper rush slowly filtered to the outside world, it brought many tales of extraordinary finds of copper and glowing accounts about the potential richness of the district. Although much of this was little more than hearsay, and often exaggerated, it succeeded in painting a very attractive picture of the copper country for all who were interested.

As a result speculators moved in and formed associations. Trading in claims and leases covering located claims became big business. Capitalists were ever eager for added dollars. This soon brought about the great union between Boston dollars and Michigan copper. This union was to prevail in the industry for over a century. As more substantial companies were formed, experienced workers were hustled off to the copper country to carry on added exploratory work.

Reliable details of these early affairs are almost impossible to gather. At least 45 companies were organized during the first year of the rush. When the end of the permit system brought the melee to a faltering halt in 1847, over one hundred and four companies had been formed. Some of these were little more than names whose company existence ended even before it became a matter of record. Many were merely stock promotions designed only for speculative dollars. More than a few represented nothing but holes in the ground. Many of the worthless claims devoured widows life savings.

Some of the companies, of course, were born with good intent. Of these a few of the larger ones were firmly organized with officers and an official board of directors whose personnel involved important business and professional people from the east. Of all the early companies formed, however, only a dozen or so existed long enough to become known as working companies with miners on their locations. The majority failed at the start and were quickly abandoned or sold to some successor. In most cases the new companys had little more luck, largely because so many of the early claims were located on land not showing copper.

As the fever of the copper rush gained momentum, two well organized pioneer mining companies emerged. Both had Boston financial backing. The two companies were, the Lake Superior Copper Company, and the Pittsburgh and Boston Company. Of these, the Lake Superior Copper Company had the distinction of being the first organized company to participate in the copper rush. The headquarters of the Lake Superior Copper Company was established up the Eagle River, a few miles from the Lake. To the Pittsburgh and Boston Company, however, goes the distinction of having put down the first mining shaft in the Copper Harbor area. This first was closely followed by a Lake Superior Copper Company shaft. By the end of 1844, both companies were engaged in actual mining operations. The claims had been acquired from the original permit holders. Several other organized groups appeared on the scene at about the same time and may be said to have grown up with the two pioneer companies. Among these were the Copper Falls Company, the Eagle Harbor Company and the North Western Company, which were located near Eagle Harbor on land acquired from the Lake Superior Copper Company. Others were the Boston Company and the Bohemian Company near Agate Bay, the Albion Mining Company at Eagle River, and the North American Company west of Eagle River.

The idea of the Lake Superior Copper Company was born in the mind of Colonel Charles H. Gratiot. Gratiot was one of the first copper explorers to arrive at Copper Harbor in the spring of 1843. But it remained for David Henshaw, one-time boss of the Massachusetts' democratic machine, to make it a reality. In 1843, Henshaw was Secretary of Navy under President Tyler. Immediately after the signing of the Indian treaty at La Pointe, he resigned his government post and teamed up with De Garmo Jones, a former mayor of Detroit, to organize a copper mining venture. Together they promoted some Boston dollars. These were the first of many Boston dollars to become involved with Michigan copper. With the money they planned to acquire some workable copper claims.

In the meantime, Colonel Gratiot, Joab Bernard and a small group of miners were methodically exploring the copper lands around Copper Harbor. From this work, Gratiot and his group located claims along Eagle River in what was then the richest of the known mineral region. On July 23, 1843, Bernard completed a government lease on a three-mile-square tract, the seventh lease to be granted under the permit system. After this, the group moved on to La Pointe, doing some exploring in the Porcupine Mountains while enroute. They also visited Isle Royale before returning home by way of the Sault.

According to Jacob Houghton ("Mineral Region of Lake Superior" 1846) it was on this trip that Gratiot and Bernard concocted the plan of forming the Lake Superior Copper Company. They may truly be said to have been the founders of this company. Be this as it may, some time

after his return, explorer Gratiot and promoter Henshaw were destined to meet. At this meeting Gratiot's claims and Bernard's lease were acquired by the Henshaw group. On February 22, 1844, the Lake Superior Copper Company was officially organized in Boston. Henshaw and Jones were named as trustees and Colonel Gratiot was retained as agent and manager. The company as formed included seven three-mile-square tracts, which after allowing for overlapping areas, covered more than 40 square miles of land in the Eagle River-Eagle Harbor area.

In the spring of 1844, Colonel Gratiot and a small group headed for the copper district. They had to take care of the work that had to be done before actual mining and living in the wilderness could begin. They first built a log cabin at Eagle Harbor which was intended as a store house for provisions that would be shipped in by lake boats. Then, some five miles inland, land was cleared. Several other log structures were erected close to what was considered the principal vein on their tract. Fortunately the material for building was readily available from the surrounding forest, with only strong and willing arms required for a speedy construction of the crude buildings.

That same summer Christopher C. Douglas, who had worked on the Houghton surveys, was employed as a field geologist to examine the company tracts in search of new locations. Some time in July, the company hired Dr. Charles T. Jackson, a prominent Boston scientist, to reexamine their tracts and report his opinions as to their value. Jackson left Boston immediately, meeting Henshaw in Detroit by appointment. Together, they arrived at Eagle Harbor on August 12, 1844.

At this early date the linear survey had not yet reached this area. The tangle of spruce and white cedar lay unbroken over all of Keweenaw Point, obstructing the banks of streams and even the rugged shores of the Lake. When Jackson arrived, numerous exploration pits had been sunk at random in the area near Eagle Harbor, but as yet nothing of consequence had been discovered.

Jackson, with the assistance of Douglas, Frederick Davis, and Joseph Kendall, used pocket compasses to determine the direction of the veins. They carefully went over each of the company locations. Most of the veins proved unsatisfactory, but one exposed in the bed of the Eagle River, which according to Jackson was eleven inches wide and traceable for a mile, looked promising. Jackson recommended that the company concentrate on this one, suggesting that drifts be driven laterally from 40 foot shafts along the river bank and that the river be dammed and the water power used to operate a stamping mill.

The rock was an amygdaloid which contained disseminated globules and leaves of copper along with some silver. At times the silver and copper were in the same globule. It was Jackson's belief that the ore might prove more valuable for its silver than for its copper. In his analysis, he placed a value of $3,036.77 on a ton of rock, $203.57 for the copper and $2,053.20 for the silver. Jackson's analysis became a part of the company's first annual report. While such a report may have been soothing to the stockholders, it was far from being typical of the general run of the rock. To his credit, however, a fissure pocket later uncovered beneath the bed of the river did produce considerable silver. This included one pure mass weighting eight and two thirds pounds.

The annual report did generate increased interest in Lake Superior copper, luring another crop of fortune seekers into the area. It also further aroused the interest of Boston's financial circle and touched off a wave of speculation in the east. With no blue sky laws in those days and not too high a standard of business ethics, the results were not always of the best.

Throughout the summer of 1844, Colonel Gratiot maintained a crew of workers on the job. About twenty of these were Cornish miners, a special breed of people from Cornwall, England. Cornish miners seemed to have had an intuitive gift. For the next 40 years or more, the Cornish were to bring their unique skills and knowledge to every mining town in the copper country.

In October three shafts were started alongside Eagle River, the principal one being sunk on a "pocket" of copper and silver. A small party of fifteen miners was held over throughout the winter to keep the work moving. For these miners, it was a rough winter as some of their provisions had been lost when the Astor was dashed on the rocks at Copper Harbor. To fill their food requirements and keep from starving, some time had to be allotted to hunting and trapping. Fortunately the winter was a mild one. According to a letter which Gratiot penned to his superiors, "There has not been one day or night but what our work has gone on." He also urged his directors to provide the water-powered stamping mill that Jackson had recommended and at least two smelting furnaces.

During an over-confident moment, Gratiot had boasted to a friend that he could use a "thousand hands" at the mine. A friend promptly relayed this to Boston. The friend added his own comment that, "There was scarcely a limit to the profit to be made from such a mine!" The company responded by sending a large number of laborers and miners as soon as the shipping season opened in the spring. They also shipped Gratiot the castings for a Cornish design stamping mill.

By the middle of April in 1845, the main shaft on the river bed had been put down to a depth of 74 feet. At this depth, however, a water problem was encountered and work was delayed until materials for pumps were shipped in from Detroit. In spite of such difficulties, the miners, working in round-the-clock shifts, had raised about 700 tons of rock to the surface by the first of June.

During the course of the summer, the stamping and crushing mill was set up and a saw mill erected. Not only was this the first stamp mill in the copper country, but for some time it was the only one. Still it was a somewhat crude affair even though it cost the company dearly in both materials and transportation.

Professor Lew Allen Chase of Marquette describes the mill in his story of "Early Copper Mining in Michigan." According to his description:

The mill was powered by an over-shot water wheel which ran thirty-six stamps, each weighing two hundred pounds. These were operated by wooden lifters six inches square and three feet long that were capable of making twenty-two blows per minute. After the ore from the shafts was broken by the stamp mill, it was placed in a trough at the bottom of which were heavy cast iron beds. Here two ponderous crushers, each a foot wide, weighing 7,000 pounds, were rolled over the beds and the ore further crushed to the necessary fineness. Water pouring over the beds forced the crushed ore through apertures when it had been reduced to about the size of kernels of corn. The ore was then placed in a large vat where it was washed. This was done by hand. Ten tons of ore could be handled in a day.

John R. St. John, whose summer trip to the copper country in 1845 included these operations, had this to say about them:

This company has one shaft about one mile back from the river. It is eighty-five feet deep with drifts from it; also five others of various depths from twelve to forty feet. They have a drift started in the hill from the bed of the creek at a lower altitude than most of their shafts, which may be an adit if necessary in the future. They have thirty buildings in all upon their location and 140 men, women and children. They have a stamping mill driven by water, with sieves and washers attached. Their saw mill is down within eighty rods of the lake. Piles of ore, estimated at 1,200 tons, broken up lay about and looked like the prepared stone for McAdamizing.

St. John also wrote that the company had "sent down" 4,573 pounds of extracted copper. However, a large quantity of broken rock was on hand and was ready for crushing because the, "machine does not perform the work estimated or required." He also prophesied that, "ultimate profits, I doubt not, will pay present loses." But they never did.

When one considers the crude methods which were used in those days, the wonder is not so much at the lack of profits, but how they obtained any copper at all. Miners dug into the earth with pick and shovel. They drilled rock with one miner holding a hand drill while one or two others with swinging sledges muscle powered it into the rock. The rock was then blasted loose with ordinary gun powder. Down in the underground drifts, the ore was loaded into wheelbarrows which were hand pushed along boards to the shafts. Here it was reloaded into an iron bucket which by means of a heavy chain and a windlass was hoisted to the surface. The windlass was first powered by hand, and later by one or more horses at a "whim", a 17th century Cornish invention used both for hoisting and pumping. How far the ore was hand pushed or how many times it was emptied and reloaded before it reached the surface is merely another expression of the crude methods of the day. Yet they persisted into the 1870's.

Horace Greeley visited the Copper Country in 1847. He seems to have correctly appraised some of the costly difficulties. Greeley called it a land, "devoid of developed facilities, docks, roads, towns, local sources of supply and possessing a rigorous winter climate." For nearly six months of every year winter left the area snow bound and completely walled in by a frozen lake. Lake transportation usually ended in November. From then until April or May only the thread of a snow-covered trail connected the copper country with the rest of the world. Because it was difficult to reach at any time of the year, cost of food and produce, and even labor, was high compared with other areas. According to Greeley, labor for ordinary purposes commanded $15 to $20 per month with the miners, who worked in eight-hour shifts, receiving twice as much. Food for people and animals had to be shipped in. Potatoes, when available, averaged $1.12 per bushel. Hay for the horses and mules cost $30 to $40 per ton. In today's age of inflated prices, all this may seem but a trifle, but in those days it was another matter.

Since there was no local market for the product, copper from all the mines had to be shipped from the Keweenaw to Buffalo, then to Boston for processing and ultimate sale. The cost of transportation alone ranged between $18 and $20 per ton and the time consumed was as much as 25 days. In 1847 the Copper Falls Company made their first shipment. The agent was advised by the trustees that the amount received for the copper had not paid the shipping costs. He was cautioned that nothing less than 40 percent metal should be shipped.

One of the important factors in the high transportation cost was the mile-long barrier at the Sault where cargoes had to be portaged around the 20 foot fall of the St. Mary's River. Boats reaching the Sault had to be unloaded, then their cargo was reloaded onto horse drawn tram cars that were hauled along the main street and then back to the St. Mary's River. Here the cargo was reloaded on other boats headed for the southern industrial centers. Not only did this take time but it presented an almost prohibitive cost barrier. The advent of a canal and the locks was still ten years away.

Not only was transportation expensive, it was also somewhat limited. After the Astor was wrecked in 1844, it left the Algonquin as the only regular boat on Lake Superior. To alleviate this situation, two small schooners, the Ocean and the Merchant, were put on rollers and hauled around the St. Mary's rapids. The materials for a larger schooner to be called the Napoleon were also carted to the head of the falls and assembled.

In mid-summer the Independence, a 280 ton steamer from Chicago, arrived at the Sault to be portaged on rollers around the rapids for service on Lake Superior. Because of its size the portage took seven weeks. Launched late in the fall, it became the first steamer on Lake Superior.

Even though it was about time for the stormy season to begin, Captain Averil was determined to complete a trip before the advent of winter. So with a few passengers and a mixed cargo that included a large number of kegs filled with blasting powder, the Independence steamed off with La Pointe as its ultimate destination. For most of the journey Lake Superior was on its best behavior, but then the wind shifted and a gale which raised mountainous waves hit the steamer. In the heaving and pitching that followed one of the small cabin stoves was tipped over, scattering its fire over the floor. To say the least, with a cargo of blasting powder on board, there were a few anxious moments.

Reverend E. H. Day, a passenger enroute to a new preaching assignment at the extreme western end of Lake Superior, describes the melee:

The waves seemed like mountains and came dashing toward the vessel as if to swallow it up; but, as if struggling for life, she would climb to the top of the wave and pitch into the trough of the sea and seem hopelessly engulfed.

Chilled by the rain I sought to go down into the cabin and succeeded in reaching the door. Holding on to the door knob I stepped into the cabin, and, thinking I had got the right motion, I let go the knob and started for my state room. But I made wrong calculations, for the vessel pitched the wrong way and laid me on the oilcloth on my back. I tried to regain my feet but my legs had slipped under the small cabin stove, and feeling I was not in a very dignified position, I scrambled to get up, but instead, upset the stove. As the oilcloth was slippery, my effort to regain my feet was a failure. The stove, as if in sport, chased me backward and forward across the floor. At this crisis the steward came out of his room to see what the fuss was. Seeing the fire scattered over the floor and I and the stove chasing each other around and neither able to get to our legs, he called out, "This is a pretty mess. Four hundred kegs of powder on board and fire all over the cabin floor." That brought the climax. Each stateroom door was opened and anything in the shape of liquids from the wash-basin or slop pail was dashed at us. My wife, hearing the noise and looking out of the door of our stateroom, and seeing me and the stove walking around, called out, "He is killed!" Just then my head came in contact with my stateroom door and my wife caught me by the collar and held on, and I got hold of the door and got up on my feet. "Are you killed?" she asked. As an answer I burst out laughing, for I was not seriously hurt, when she boxed my ears and pulled me into the stateroom and told me to stay there. Of course I obeyed.

J. D. Whitney and C. T. Jackson were both US Geological Surveyors. A few days after the discovery they visited the outcrop to appraise the situation. This would later become ore for the Cliff mine. Some time later in "Metal Wealth," Whitney described the vein:

At the summit of the bluff, when I first saw the vein, it appeared to be but a few inches wide and contained native copper and specks of silver beautifully encrusted with capillary red oxide, with a gangue of prehnite. Halfway down the cliff, it had expanded out to a width of over two feet, and consisted of numerous branches of laumontite with a small percentage of metallic copper finely disseminated through it.

Acting upon the advice of Whitney and Jackson, some of the rock talus was cleared away from the base of the cliff, as the vein seemed to widen and improve with depth. A shaft was sunk a few feet just below the edge of the bluff and a short adit driven into the greenstone, but it was without results. Nothing further was done until the rubble of talus rock was completely cleared away along the bottom of the bluff. Perhaps it was the hand of providence that guided them in this action. Two things happened. In the process not only was a small mass of loose copper uncovered which stimulated the work, but it also revealed that the vein had been faulted or heaved about twelve feet to the east where it entered the amygdaloid. Again, as Whitney later admitted:

At this time nothing whatever was known of the varying character of the lode in the different belts of rock, nor had the trap rock been suspected by the miners to be the principle metaliferous rock. It is now known that the vein could not have been worked with profit in the rock in which it was discovered, namely the crystalline trap or greenstone.

With the talus cleared away, an adit was driven into the bluff along the line of the vein. Some seventy feet in, the workers hit pay dirt; a large, solid mass of pure copper. This was the first massive copper to be found underground by systematic mining and it provided a tremendous lift throughout the copper district. This helped restore confidence. More importantly, it proved that the float copper found along the surface had not been carried in by the glaciers as some were beginning to believe. Here was proof that the copper was still locked within this craggy land.

This drift was the beginning of the Cliff mine, the first commercial mine in this country, and perhaps any other, from which native copper was extracted as its sole product.

It was not until the following spring that work at the Cliff became a full-fledged operation. Under the direction of Captain Edward Jennings, two 125 foot drifts were completed during which massive pieces of copper showed repeatedly. In July, 25 tons of copper were produced. In August, seventeen tons, and this, according to Jennings, included many copper boulders, some weighing as much as fifty pounds. Things began to look good, but by the year end, the rosy picture began to fade. During 1846 receipts from the sale of copper, after paying the expense of transporting the ore to the eastern processing plant, did not cover the costs of the growing operations. As a result, the working fund was dwindling.

An assessment of $110,000 had been made in 1844 when the company was organized but the operations at Copper

Harbor had been costly. Some $28,000 had been spent for opening and closing the mine with only a small return for the sale of the copper at the Boston smelter. Now at the Cliff, the cost of opening and working the mine exceeded $66,000 while receipts for 1846 were not quite $9,000. During the winter a meeting was called in Pittsburgh. Another assessment was requested, but the company stockholders, sobered perhaps by the failing Henshaw enterprise, refused to invest any more funds. They were ready to call it quits. Indeed, things were beginning to look gloomy.

Later, after consultation with the company geologist and then giving the matter some serious thought, Dr. Charles Avery, Chairman of the Board, came to the rescue. Convinced that the mine had possibilities, he gambled $80,000 of his personal fortune as a loan which would allow the company to open the mine to a greater depth.

When $60,000 of this had been spent without substantial improvement in the output of the mine, the directors were again ready to quit. But once more the hand of destiny prevailed. Almost as the closing orders were to be effected, rich new shoots of copper were encountered. These veins were sizeable and they soon led to others of equal value. The crisis was over!

Within a year and a half the company was able to pay off all its debts. On May 21, 1849, it paid a dividend of $10 a share on its 6,000 shares of stock. Except for 1859, it continued to pay generous dividends for the next twenty years, repaying its investors $2,518,620. More than 22 times their capital investment.

During these fruitful years at the Cliff, lack of copper never became too much of a problem. Rather it was the abundance of the huge copper masses, thick blocks a hundred feet or more long, weighing forty, fifty, or more tons, that created the big headaches. They were extremely valuable as raw copper. However, reducing them to sizes that could be conveniently handled and getting them to the surface was both time consuming and costly.

It has been said that fully one-third of all the work and money spent at the mine went for blasting out these masses and then cutting them into smaller pieces so they could be handled. At that time this still had to be done by hand. Usually three-man teams working solely with sledges and chisels. A two-inch diameter, two-foot-long steel chisel was held by one miner, while two others struck it alternately with seven pound sledges. In this way, by removing successive small, narrow chips of increasing length, the mass was eventually severed. To separate a mass eighteen inches thick and four feet across would usually require about eight days.

Horace Greeley, who in 1847 visited the Cliff mine, wrote an excellent description of what he saw for the New York Daily Tribune (July 17, 1847). Of its copper and the copper masses, he said:

Approaching the mouth of the mine, the visitor finds himself confronted by great piles of shining native metal. Chunks of pure shapeless copper from the size of an egg to that of a milk-pan, are profusely scattered around. But your gaze of wonder is speedily withdrawn from these by the spectacle of great black masses of native metal, mainly pure copper with occasional interpolations of spar, of uncouth shape and unwieldy size, weighing from one to two tons each. A reddish brightness on one end, or both, tells you that these giant masses are, after all, but fragments, the original mass having been cut in pieces with the cold chisel at an expense of $20 to $100 per cut, in order to render it moveable by human power.

Entering the drift or adit, and traveling for a short distance, you see that, though many of these giant boulders have been torn from their final resting places, far more remain within sight, partly imbedded in the rock above or below the drift, where they are to be blasted out at the proper time. They cannot be blasted, a hundred pounds of powder would hardly throw a shilling's worth of copper; but the rock may be blasted away from them on every side, freeing them so that they can be cut into such pieces as may be elevated and taken out of the mine.

The mining methods used at the Cliff were indeed crude when compared with modern ways. But for a number of years they were standard in the industry with no great changes taking place during the heyday of the company, although the horse whims, first used to raise the ore buckets, or kibbles, were replaced by steam machinery in 1850. At that time, a 45 ton engine designed by Nicholas Vivian, a Cornish engineer, was installed in a huge five-story engine house. Two years later this building was totally destroyed by fire, but fortunately, the engine was not damaged and a new structure was built at once.

The stamping process, with heavy cast-iron heads and a system of "shakers" and "buddles", which was also involved, was the first in the copper country to operate with any degree of success.

One of the inconveniences of the Cliff, in fact, of all the early mines, was the ladders which the miners had to use to get in and out of the mine. At first, they were not so bad. But as the shafts became deeper, sometimes reaching 800 to a 1,000 feet below the surface, as much as an hour of climbing was often required before the tired miner reached the surface. The ladders were firmly attached by iron staples and bolts to the rock wall along one side of the shaft and were partitioned off from the main portion by thick planking. They were made with round iron rungs, which were the most serviceable though at times they were cold to the bare hands. Each ladder rested on a platform and these were spaced at intervals of twenty, thirty, and sometimes sixty feet where a moment of rest was possible. Between each level the position of the ladder, though varying slightly, was almost perpendicular, although some used to complain that the tops were inclined outward. As disadvantageous and trying as the ladders might have been, not until 1865 when

the "man-engine" kind of lift was developed was the situation improved.

When entering the mine, the only light used by the early miners was a candle with a small lump of clay attached to it. Candles were troublesome things. The concussion from any nearby blast usually extinguished the feeble flame. Every miner carried an adequate supply of matches, an essential tool. Curiously, miners had to provide their own candles. As inconvenient as they might have been, the candle also had its merits. No miner ever unknowingly became a victim of bad air.

Accidents in the mines occurred frequently, but usually they were the result of carelessness. Reverend E. H. Day, who for a while served the spiritual needs of the people in the little community at the Cliff mine, wrote about some of his experiences. One of his tales is about a mine accident at the Cliff, though by no means was this a typical example. Day relates:

One day he was called to the doctor's office to help care for a man who had been injured in the mine. The miner, it seems had prepared a charge, lighted the fuse, and then took cover behind a convenient rock to await the blast. Somehow it did not go off as soon as he expected so he raised up to see if the fuse had gone out. It had not, and just as he raised his head, the blast let loose. It tore off his hat, filled his face with small bits of rock, fractured his skull, and broke his arm. Four men carried him into the doctor's office and laid him down on a bench, seemingly lifeless. The doctor examined him and said there was no hope, nevertheless the place was cleared of men and we went to work washing and dressing his wounds. Shortly he began to show signs of returning to life. For three hours we continued to work over him, picking out bits of stone and dirt, patching the scalp and setting the broken arm. The skull was broken between the eyes, just above the nose, but the bones only required lifting a little. The poor fellow bore it heroically until we tried to sew up a gash over one eye. This he could not bear nor could I hold him so that the doctor could do it. We finally had to draw it up with strips of adhesive plaster. When we got through with him and got him to bed, he was about the worst specimen of live humanity I ever saw. To everyone's surprise, he rallied, and in four weeks was able to drive the mule at the "wind". He was blind in one eye, and as yet not completely well, but eventually, excepting for the eye, did fully recover, but I'll venture he never again peeked above a rock to see if a blast was going off.

Day also recalled another accident at the Cliff. One day while on a lower level in the mine, he found a miner lying at the bottom of the shaft swearing, so he said, till all was blue. When asked why he did not get up, the miner said he could not as his foot was caught under a rock that weighed about two tons. He was caught so that he was held a prisoner, but not hurt. When asked how he came in such a fix, he said that they had exploded a blast, and they thought all the loose rock was down, but just as he passed under this one, it fell. The rush of air had blown him up against the wall, where he had been caught by the foot and held fast.

For his missionary work, Reverend Day was given the use of an old blacksmith shop to serve as a church. The rough building, only fourteen feet square, had been abandoned by the mine owners and needed some fixing up. Day put in an old stove, set up some rough benches around the sides and somewhere managed to find a bell that would ring. Though crude, his church, and also a school, was then complete. He said that if he had a dozen out for church on a Sunday, it was a large congregation, and when he had that many scholars at school, things were flourishing.

During its heydays the little settlement, called Cliffton, reached a population of more than a thousand people. Cliffton grew up around the Cliff mine, and the North American. The North American was eventually taken over by the Cliff mine. Cliffton was made up of miners, many of them Cornish. There was a crew of surface workers for the stamp mill. There were office workers and management. There also were teamsters, blacksmiths, carpenters, and other laborers and their families. In the earlier years most of the workers were primarily young single males.

The community was a restless one. Each year the summer months brought about changes and improvements. By 1860, when the Civil War exploded, the little settlement was at its peak. Among the new buildings that then nestled alongside the rocky bluff were a couple of churches and a new school house overflowing with children. Cultivated fields, yielding oats, potatoes, and other crops had been cleared from the surrounding forests. A firm macadam-type road had been built to Eagle River on Lake Superior.

At Eagle River, as in all the early settlements, whiskey flowed freely and fights were frequent occurrences, especially on Saturday nights after the workers had received their week's pay. In most cases, however, these were not fights fought in anger. Instead, they were but a friendly, though oft bruising, form of drink-inspired recreation. Usually they took place when miners from two or three "locations" got together for their Saturday night liquid refreshments. After a few rounds of drinks, someone was likely to step out with the challenge, "I am the best!" And another, picking up the challenge would say, "Jemmy, I will try you." The contestants stripped to the waist. A ring was formed, the miners were told to fight like gentlemen, and then with each backed both by the betting and vocal support of his own location, the round began. It continued until one of the contestants called out "enough" and then it was all over and everyone would adjourn for another round of drinks. By the end of the evening most of the miners had put away enough vile whiskey to fight the devil himself. They called the whiskey forty-rod because someone once said its aroma would kill any greenhorn at forty-rods.

Such skirmishes usually tapered off in the spring because the saloon-keepers almost invariably underestimated the winter capacity of their customers. When toward spring the stock of forty-rod began to dwindle, it became the custom to add a little water to the barrel. By doing this the supply would hold out until the first boat of spring brought more. Usually before the boat arrived the stuff became so watered down that even a neophyte could not absorb enough to acquire a "fighting load". A sort of compulsory sobriety would prevail.

Many individual homes in the settlements about the Copper Country became a sort of early-day "speak easy" where on occasion liquor was sold. At Eagle River these places were marked by a flag pole from which a flag was flown whenever they were open for business. Robert E. Clarke tells about them in his "Notes From the Copper Region" written for Harpers New Monthly Magazine in 1853 (Volume VI, Numbers XXIV and XXV). At that time Eagle River consisted of only twenty or thirty houses. Clarke said that when approaching the village he was struck by the great number of poles that seemed to rise up everywhere, "as if to rival the trees of the forest still scattered about." Almost every house on top of the hill seemed to have one of these poles to which was attached a cord, "as if for running up a flag." He goes on to say:

It was soon shown that these houses were "groceries," a sort of scrub-tavern, where cheap and very bad liquor is sold to the miners and others who would patronize them. Each one has its flag staff from which on particular occasions, as Sunday, they hoist their respective colors, like ships of different nations. He also noted that the Eagle River House where he was staying, had the tallest and most conspicuous of this sort of sign, indicating that it is a sort of man-of-war in the business.

Winter at the Cliff mine was an uncomfortable time of the year, as it was all over the copper country. It was a dreary season and as it dragged on few escaped its pains or its boredom. Along the shores of Lake Superior winter begins in November and rarely does it disappear until the last days of April. After the lake froze over and the snow began to sift down, little by little, day by day, until all the land was deeply covered, every settlement, every little cluster of cabins set in cleared pockets of the forest where mines were being opened, or worked, became snowbound until spring. For those who remained in this hinterland after the departure of the last vessel from the rocky haven at Copper Harbor, there was little chance of escape. Later they may have deeply pined for a milder, more livable clime. To fulfill such a desire, most three hundred miles of trackless wilderness without human habitation had to be overcome. It had to be done on snowshoes, carrying provisions and equipment, and sleeping at night in the pervading snow. Few had the nerve or the strength to undertake such a journey.

And so, all through the late 1840's and most of the 1850's, when winter came along, the pioneers of the copper country settled down for a long period of monotonous toil and lonely living. Sometimes the prevailing dreariness was broken by the Saturday night sprees or occasional dances where all women were undisputed belles and a calico dress was good enough for any of them. For some this pleasure may have meant a 20 mile hike in exchange for the opportunity to mingle with people and exchanging hard-earned money for whiskey.

When the last lake-going vessel departed in the fall, all ordinary means of communication with the outer world were cut off. All except one, the overland mail. If weather conditions permitted and no accidents occurred, mail was brought in monthly during the earlier days by dog sled from Green Bay. Later it came twice a month. It had to be by dog sled as this was the only practical way it could be done. No roads then existed and the few trails could not be traveled by horses because of the deep snow.

It was about three hundred miles, one way, from Green Bay to the post office at Copper Harbor and a two-week trek for the mail driver who snow-shoed along behind the sled. Averaging about twenty miles a day in good weather, the task by no means was an easy one. Most of the drivers were hardy French-Canadians who often had Chippewa or Ottawa Indian blood flowing through their veins. Usually recruited from the ranks of voyagers, these were the kind of people who penetrated the northern forests without compass or fear. When they were clad in their furs and blankets, neither the snow nor the cold bothered them.

The sleds they used were similar to toboggans, about a foot wide, eight or ten feet long, and curled at the front end. The load carried was wrapped within a large canvas and then tied down with a strong cord. The cord was tightly laced back and forth across the top of the load through loops along each side of the sled. Thus secured, the cargo could survive the roughest trail as well as the many upsets which occurred daily throughout the trek. An upset was like a log rolling over. Whenever it happened, the dogs would stop, the driver would roll the sled back to an upright position, and then to his ringing "de-dah", the dogs would again trot ahead.

The dogs used were sometimes nearly as wild as the grey timber wolf and had about the same desire to work as a gypsy. Dogs that normally were the best of friends, were, when harnessed together, inclined to fight upon the slightest provocation. All too frequently, when forced to pull a particularly heavy load or when the going was extra hard, they would sulk or become unruly. To remedy this, the driver often lightened his mail load by hanging one or two sacks of mail in the crotch of some convenient tree, intending to pick it up on a later run. But usually he was also overloaded on the next run, and sometimes, it was spring before these were picked up, and maybe they never got picked up. Usually though, in the spring there was a grand clean up of such delayed mail. All this may have been easier on the dogs but it was trying for those who were awaiting an important business letter or news from loved ones. John Forster, in "Early Settlement of the Copper Regions of Lake Superior" says he remembers walking sixteen miles through the woods on snowshoes to

the post office every mail day during the winter. Not once did he get a letter. In the spring, he had a bushel. But as he said, "Letters hidden in the mail bags all winter, even if from sweethearts, lose the sparkle of freshness."

Up until about 1860 the dog-team mail sleds were great institutions in the copper country and their arrival was an exciting event which usually completely stopped work for the entire day. The carrier was regarded as a hero and often he would sit for hours by the fire at the village store recounting the events of his journey. Newspapers weeks old were received and read with the same enthusiasm as if they were but a day old. Those who drew the prize of a letter were happy. Those who drew a blank, put their dismay aside to await the next delivery.

It is difficult to comprehend the feelings of those who were isolated for so long from the rest of the world. Today we have cars that travel a network of good roads. These roads penetrate nearly every recess of our country. We have jets that quickly transport people, cargo and mail. We have telephone, radio, and television to keep everyone abreast of the news and provide entertainment. When you realize that people did not have our modern conveniences, then you can understand why they became so aroused when the mail arrived. They became excited when in the spring, the smoke of the first incoming steamer was sighted on the horizon of the lake. For this too was an occasion that called for a general celebration.

Often a lookout was stationed on a high point of land and as soon as he sighted the vessel and brought the word, whistles were blown and bells rung. The whole town closed down, the mines, stores, and if on a Sunday, even the churches were emptied. Every man, woman and child rushed to the dock to greet the boat and storm aboard as soon as it was made fast. "Winter-starved," they rooted through the cargo like mad people, for here was the luxury of things long denied. Here was fresh produce, eggs, meat, vegetables, which after a restricted diet of fish, salt pork, and salted beef was indeed a Christmas-like luxury.

At Eagle River, a kindly captain who commanded the first vessel to arrive each spring, included in his fresh fruit, one orange as his gift for each child of the community. When the boat arrived and the whistles sounded, school was closed over at Cliffton. The children ran the entire three miles to the dock at Eagle River to get the treasured oranges. Some of the youngsters saved theirs for days, but most of them could not wait and ate them right away. And then there were a few, who rather than eat them, made pomanders from them to give their cloths a spicy odor.

Such were the goings-on when the Cliff mine was at its best. The Cliff mine extolled Horace Greeley, "Had no rival in this region nor in the world." Its stockholders were getting rich as they reaped the rewards of its regular dividends, and the community was thriving. Because of the Cliff, Eagle River had a huge new dock reaching out into Lake Superior. Here lake going vessels could be loaded and unloaded in comparative safety. A big stamp mill had been built near the lake. There were warehouses, a sizeable hotel, and streets lined with stores, boarding houses, saloons and miners' homes. Because of the Cliff mine, Eagle River was beginning to replace Copper Harbor as the boom town of the Keweenaw. Eagle River was at one end and Ontonagon was at the opposite end of the range. A group of Eastern associates had opened what was fast becoming the great Minesota mine. Just as the Cliff mine boomed Eagle River into prominence so the Minesota mine, during its hey-days, boomed Ontonagon until it became the Queen City of the copper country.

The Minesota Mining Company was the big pioneer company of the Ontonagon district, and its mine, like the Cliff, became a great producer of copper. Early attention was drawn to the Minesota because of its misspelled name. The legend about this is that late one night, soon after the lode was discovered, the name was penned on the State charter form by a weary mine engineer. In error it was written "Minesota', and, of course, it was entered in the State records that way and no one ever bothered to change it. Jim Paul, the illiterate founder of Ontonagon, once told a visitor that the, "damn fool that done the writin' didn't know how to spell!" Maybe he did not. Anyway the error was never corrected.

[Inspection of a map drawn at the time the mine was formed revealed an interesting clue. There is a fold in the map. When stretched out it says Minnesota. In its wrinkled form one "n" is obscured. If the clerk filling out the forms did not flatten out the map it would read, "Minesota" not, "Minnesota." Editor]

Even after the Michigan legislature enacted a general corporation law in 1853 and the company applied for its corporate status under this act, the spelling was left unchanged. After having done business for some five years as the "Minesota', the incorporators felt obliged to continue using the misspelled name lest possibly some of the company's legal affairs be affected. Besides there seems to have been a bit of skullduggery that clouded the beginnings of the company. At the time the company directors were not at all anxious to have these earlier affairs too closely scrutinized. Thus they left well enough alone. In spite of this, the corporate beginnings of the Minesota Mining Company became entangled with controversies. These controversies led to considerable litigation. Some of the cases ultimately wound up in Michigan's supreme court before being legally straightened out, and even then not to everyone's satisfaction.

Indeed it was a bizarre combination of events that led to the formation of the Minesota Mining Company. Although this did not formally take place until the summer of 1848, the tale begins some time in 1845. That was when an early government permit covering location Number 98 was acquired by a group from Detroit. "Good old 98", as it came to be called, covered nine square miles of countryside. Ed Hulbert in his "Calumet conglomerate" named George C. Bates, Dr. J. L. Whiting, Henry Brown, Samuel Brady, Chauncey Hulbert, and John Hulbert, his

father, banded together as the Ontonagon Mining Company. They established a camp on the property and began exploring. Dan Cash, an early settler of Ontonagon, was given temporary charge of the property.

About the same time, or perhaps a few months later, another Detroit group, headed by Jonas Titus, acquired government permits for locations number 267 and 269. Organizing as the Baltimore Mining Company with Titus as president, the group then obtained leases from the government mineral agency. They were ready to develop the locations, ready that is except for one significant detail. It was a small company and the few shareholders lacked sufficient capital to proceed with the work on their own. And so in a quest for more funds, Jonas Titus journeyed eastward where seemingly the hand of fate directed him to the New York office of one William Hickok. It was here that on November 21, 1846, the matter of things to come began to take shape.

During his visit with Hickok, Titus detailed his financial needs. He explained that his company had two good copper prospects but lacked the necessary money to develop them properly. In short, could Hickok be of any help?

Apparently Hickok was impressed with what he heard about the Baltimore claims, or had he envisioned an opportunity for personal gain? Be this as it may, after listening to the story, Hickok offered his help, but not by reorganizing the Baltimore Mining Company as Titus had suggested and hoped for. Instead he agreed to endeavor to organize a new company that would take over the leases held by the present company. It was planned that this new company have a total of 4,000 shares, 1,000 of which would be forever non-assessable. The new company, to be called the Vulcan Mining Company, was to be organized formally as soon as the 3,000 assessable shares had been subscribed. Each share cost $150.00. The $450,000 thus collected, along with 800 of the non-assessable shares was to be given to the Baltimore Mining Company in exchange for the leases it held on location numbers 267 and 269.

The necessary stock was quickly subscribed and just two days later Titus began his return trip to Detroit with $4,500 in his pocket along with an agreement signed by Hickok. Titus was satisfied that he had made a good deal, and he had, on paper. But then some uncanny things began to happen.

On November 30 the subscribers gathered to organize the new company, to be called the Vulcan Mining Company, and formally adopt its articles of association. In these documents the conditions of the agreement with Titus were fully outlined along with a declaration of the purpose of the company. At first this purpose was officially stated to be the mining operations on the two tracts covered by the leases obtained from the Baltimore Mining Company. But then after some further discussion, a significant phrase, which had not been included in the agreement with Titus nor in the formal statement that had headed the subscription list, was added. The clause read, "Or any other lands in said mineral district that may be leased, located, or bought by Vulcan Mining Company."

Seemingly in the future interests of Vulcan this was a sensible addition. At the time the Vulcan shareholders were quite unfamiliar with either the quality or extent of the copper lode covered by their two newly acquired leases. Even though Titus had provided Hickok with a glowing picture of the locations, they felt that they should not restrict their operations to just these two tracts. Who could question their wisdom?

In spite of their good judgment, it was the simple words of this amended declaration, along with the fact that it was not in the agreement with Titus, that led to some of their future entanglements. Too, these words seemingly influenced Hickok, who had been elected president of Vulcan, to cut some sharp corners of his own which he hoped might bring him some personal gain.

He was quite aware that if Vulcan did lease or otherwise acquire added lands, the Baltimore Mining Company shareholders would enjoy all the benefits of such acquisitions without added costs. This was because of the non-assessable shares received from Vulcan. So quickly and quietly, Hickok began to shop for and acquire all the Baltimore stock he could. He knew that it could be exchanged on a prorated basis for non-assessable Vulcan shares. So did Hickok's friend Sam Knapp, who was soon to become his Michigan agent. Apparently at the time, nobody else at the organization meeting seemed to have thought of this.

Since all these actions took place as winter was settling in throughout the copper country, little could be done at the locations until the spring breezes eased the winter's cold. However, as soon as the weather moderated, Hickok sent Sam Knapp and a work crew of six into Michigan's Porcupine Mountains to check out locations 267 and 269. After going over the ground quite carefully, Knapp became fully convinced that the two tracts were worthless.

Later Knapp received instructions from Hickok to examine still another copper location, but this too was deemed worthless. After this, he made the most of his time by making a cross country trek along the trap range leisurely looking around and checking copper prospects. In so doing, he came upon Location 98, which as related was then owned by the Ontonagon Mining Company. He looked around here too, and he was much impressed by what he saw, so much so that he wandered down to Ontonagon and made some casual inquiries of Dan Cash about its availability. Cash told him he thought the property could be purchased at a reasonable price either in part or in its entirety and that he should see George Bates in Detroit. After hearing this, Knapp went back up the river to old 98 and looked around some more. Satisfied with what he had seen and heard, Knapp returned to the Vulcan property, dismissed his crew, and then set out for New York to report to Hickok. By now it was September.

Enroute to New York, Knapp stopped at Detroit to call on Bates, who as authorized agent of the Ontonagon Mining Company told him the property was for sale. A deal was pending, he said, but if it did not go through, and likely it could not, he would be glad to deal with Knapp and his associates. And there the matter rested.

On September 20, 1847, the directors of Vulcan Mining Company assembled in New York to hear Knapp's report and consider what they would do. The recorded minutes of this meeting, which later were painstakingly examined in court, were somewhat confusing, a bit illogical and seemingly quite lacking in essential details. Perhaps this is not surprising considering that after Knapp presented the cold details of his report, the meeting became a disorganized affair marked by heated conversation. Everybody wanted to talk at once. From out of the confusion, though, it was generally agreed that an endeavor should he made to acquire "old 98' and that Knapp should return to Detroit and ask Bates for some details.

Most of the disagreement stemmed from how the property should be acquired. The majority, it seems, were emphatically opposed to any purchase by the Vulcan Mining Company. This would give the Baltimore shareholders of unassessable stock an interest in the intended mine without any cost to them. They insisted that the property be bought outside the Vulcan Mining Company, by the same people perhaps, but not by the Vulcan as Vulcan. Hickok who presided at the meeting had a different opinion. Owning Baltimore shares (so did Knapp) he was eager to have Vulcan Mining Company acquire the land. And so diplomatically he pursued this course. Though at the time, it is likely that no one understood why. In reality the principal argument was never consummated, only temporized until more details could be made available.

After the meeting it seems that Hickok and Knapp put their heads together. Before he left on his journey to Detroit, Hickok told Knapp that if he could make a favorable deal with Bates, he should do so. Hickok was confident that the Vulcan directors would accept it. Since Knapp had been given no specific authority to purchase Location 98, this seems a subterfuge by Hickok to get possession of the tract in the name of Vulcan Mining Company.

In Detroit Knapp called upon Jonas Titus and asked his help in negotiating with Bates. Working together, a deal was made between Knapp and Bates to buy one half of Location 98 to be paid for by Vulcan. The half of the tract eventually to be acquired was to be decided after Knapp had inspected the property more thoroughly. An

agreement covering these details was formalized in writing and mailed to Hickok in New York after which Knapp purchased supplies and started up the lakes to take possession of the property. But he never reached his destination.

At the Sault he was met by Colonel McNair, the US Mineral Agent, who advised him of some troubles among the Ontonagon shareholders. He suggested that it would be well to have his purchase fully consummated before taking possession. Believing this to be good advice, Knapp returned to New York. His arrival created a storm among the Vulcan directors with some of them insisting that he had never been authorized to make the purchase on behalf of Vulcan. The storm abated only when Hickok agreed to make the purchase in his own name as an individual. Later he assigned the property to a completely new company, the Minesota Mining Company. The Minesota Mining Company was organized in the summer of 1848. It had almost the same shareholders as the Vulcan Mining Company.

Further complicating the situation was the fact that in the fall of 1847, Knapp took possession of the tract in the name of Vulcan. For a short time he continued to operate and conduct the affairs of the mine as Vulcan. In April of 1848, he formally notified Bates that they (Vulcan) had decided to take the north half of the location. Now all this came after Hickok's purchase and before the formation of the Minesota Mining Company and Hickok's assignment of the property to this company.

As convincing as all this may have been, the Minesota Mining Company refused to recognize any interests of the Vulcan Mining Company. They also refused the claims of the Baltimore Mining Company who held one-fifth of the Vulcan shares. Because of this, both the Vulcan and Baltimore companies were denied any share of the rich dividends that eventually came from "old 98'.

Naturally Titus and his Baltimore associates brought suit and asked for an accounting, but it was all to no avail. The state supreme court finally ruled against them, and years later when the decision was appealed, it was upheld.

In spite of their verdict, the entire affair was a most sordid series of events that can be looked at with suspicion. Certainly there appears to have been some attempted double crossing and competitive throat cutting that were not exactly virtuous. Nevertheless time and the great success of the Minesota have removed most of the stain from its recorded history.

But now a word about Sam Knapp. Not only was it mostly to his credit that the Minesota came into its own, but also for several years he was one of the most intriguing characters on the Michigan copper country scene. James Jamison in his writings has called him one of the smartest operators of early copper mining. Titus knew his business and attended to it with no element of luck in his success. He lived with a purpose and was knowledgeable enough to accomplish it. And for sheer color, Jamison was regarded as an equal to old "one-eye' John Hays of the Cliff mine, or even Jim Paul of Ontonagon fame.

Strangely enough little is known about Knapp's life. He first appeared on the scene in New York when he was hired by Hickok. Where he came from or what his

background might have been has eluded all those who have searched for it. And so have his whereabouts after he retired from the copper country scene. It has been said that he was from Jackson, Michigan. Angus Murdoch in "Boom Copper" has him retiring there as an avid flower grower and leaving his money to a Jackson church, but little credit is attached to these statements.

For several years Knapp served as the local agent of the Minesota Mining Company before he stepped aside and was replaced by J. B.

J. B.Townsend. But it was Knapp who opened the rich lode and played the major role in developing the mighty Minesota mine.

The Portage Lake District

Throughout the first decade of mining in the Copper Country, most of the productive mines were located on fissure veins. Here copper had been deposited in lateral cracks and crevices rent through the rock beds. These cracks were the results of heaving, tilting, and faulting by geologic forces. It was these veins that produced the many giant individual masses of copper weighing hundreds of pounds. Some, like those from the Cliff and the Minesota mines, weighed hundreds of tons.

Although some of these early mines were self supporting, there were few dividend payers. Many companies failed because the amount of copper uncovered in the fissure veins was so inconsistent. Often the veins pinched out after extending only a hundred feet or so, thus it was either a feast or a famine. Because of these fluctuations, it was difficult to sustain a stable activity with the ratio of production and expense remaining at all constant. Nevertheless, because the Cliff and Minesota were so profitable, it became the common belief, though unjustified, that fissure veins were the areas to mine. Stamp lodes, rock containing shot to pea-size particles of copper, were known. However, the stamping equipment and methods available at that time were crude. Stamp lodes rich enough and extensive enough to support stamp mills had not been discovered. There was general skepticism and contempt for stamp lodes. Geologists and prospectors were not inclined to waste their time searching for them.

Narrow-minded thinking and blind searching did not yield the best results. Nor did this approach reveal the true extent of the copper resources. The great central portion of the Keweenaw, the Portage Lake District, was left undisturbed for nearly a decade after the rise of both the Copper Harbor and Ontonagon districts. Not because this area had not been carefully gone over by copper hunters, but simply because no fissure veins which might offer mass copper had been discovered.

Portage Lake divides the copper range almost equally from north to south. It was part of the highway, the grand portage, used by the Indians to cross the peninsula long before the coming of modern people. When the great copper rush came, its waters were navigated by the bark canoes and mackinaw boats of many prospectors. Lying low between two ranges of hills, the lake resembles a long estuary from the ocean. In places it spreads out rather broadly before the hills finally crowd together almost as if begrudging its very existence. Deep, winding, and branching, its waters fill a geological trough that perhaps was cut through the rocky range by the glaciers, thus creating a spacious and safe harbor. Unfortunately, in the pioneer days, its easterly end was still connected with Keweenaw Bay by the Portage River, a crooked, five-mile-long stream whose waters barely cleared the sand barrier at its mouth. In these early days there was a large Indian village near the mouth of this stream, and another at the Pilgrim River across the peninsula at the west end of the portage.

In 1846, John Foster traveled this route on his first visit to the Copper Country. Then the waters of Portage Lake reposed in sylvan solitude disturbed only by an occasional Indian canoe or the boat of an enterprising prospector. The following quote from Foster's journal provides an interesting contrast between those yesterdays and today:

The native forests, almost unbroken, starting from the water's edge, slope up toward the sky precipitately, presenting many pleasing shades and colors, from the soft neutral tinted maple, the lemon-colored birch and poplar, to the dark green of the hemlock and fir. Here and there, a patch has been touched by the early frosts of autumn; upon it there is a brave display of scarlet, orange and gold. The soft maple, as if blushing at the rude assaults of master Jack Frost, flutters its scarlet pennons in the breeze from every jutting point; the modest mountain ash also greets us here and there with its clusters of red berries adorning its bending branches. The surface of the lake is perfectly smooth and reflects, like a mirror, each over-hanging promontory. As we row silently along we hear no sounds except those made by dipping oars; we see no life save an occasional loon darting his anxious head above the water, uttering a shrill quavering scream and diving again; the air is balmy; the repose of nature is profound. Man with his restless spirit has as yet scarcely disturbed the scene.

How different all this is from the building-crowded hills that today mark the twin town sites of Houghton and Hancock. But everything must have its beginning. So these busy communities sprang into being when what came to be the greatest part of all the copper country, began to attract attention.

Two energetic pioneers, Christopher Columbus Douglas and Ransom Sheldon, are considered to be the fathers of the Portage Lake copper district. Eventually their names became linked to many of the early mines of this area.

Douglas, because of his work with Douglass Houghton and the Geological Survey, had become a recognized authority on the copper formations. From 1844 to 1848 before being persuaded to come to the Portage Lake district, he was associated with several early copper range companies.

Sheldon, a brother-in-law to Douglas, was induced by Douglas in 1846 to move from Bigfoot Prairie in Wisconsin. Sheldon brought with him his wife and two eldest children to the wilds of the copper country so that they might benefit from its pioneer treasures. Eventually Sheldon prospered. Along the way he suffered incalculable hardships. A tin peddler in the east and a vendor of patent medicines and essences in the west, he knew little about geology or mineralogy. His education was limited. He had a pair of strong arms, an abundance of enthusiasm, and a clear head filled with good common sense.

The Sheldons arrived in Copper Harbor without a dollar in the world. They found the settlement without potatoes, and this offered them their first opportunity. Sheldon chartered a small coasting schooner, and set out for L'Anse where he was able to pick up a cargo of potatoes on credit. Returning to Copper Harbor, he sold the entire lot, realizing a net profit of $300. With this as a start, Sheldon moved his family on to L'Anse for the winter. The following spring they moved across Keweenaw Bay to Portage Entry. At the mouth of the river Sheldon built a log dwelling along with a store and a warehouse for the purpose of trading with the Indians, voyagers and prospectors. Although the house was made of logs, the store and warehouse were built from sawed lumber. It was said that their pleasing finish gained the admiration of every Indian within trading distance.

The spring of 1847 brought only a handful of adventurers to the area. During the navigation season the steamers Napoleon and Independence occasionally anchored off the mouth of the river. By now the luster and rosy hue of copper hunting was beginning to disappear as people came to realize that there was no rainbow with its legendary pot of gold. Success depended on hard work. One by one, disheartened prospectors gave up. Unprofitable mines were abandoned. By the time the navigation season closed in the fall the population was down throughout the copper country.

The following year the California gold fever further reduced the population, but most of those who remained now settled down to steady work. In spite of such setbacks, Sheldon managed to do what some have described as a thriving business. He and his family lived at the entry for the next four years. It must have been a lonely life though. The nearest family lived in L'Anse. That was twelve miles across the waters of Keweenaw Bay, twice that far by land. Too, it was a life of privation. Often the family was strained for the necessities of life. During the long winter, they subsisted largely on fish, game, and potatoes.

During the winter months Sheldon traded in furs. In the summer, he took his pick in hand and carefully explored the trap range for its hidden wealth. On his many treks, he came upon numerous showings of copper which thoroughly convinced him that the Portage district had great possibilities. So enthused did he become over its potential that most of his thoughts as well as his midnight dreams were of this hidden wealth. Those who knew him have written that he talked of nothing else but Portage. When he visited other districts where explorers still clung to the "fissure vein" outlook, he was considered a crank. Still he did not back down. When opposed, the tempo of his remarks quickened. His language became less choice. He gave emphasis to his words by, "spitting a stream of tobacco juice with the vehemence of a small geyser." It was Sheldon's claim that there was more copper in the Portage Lake district than there was in all the rest of the Copper Country. Of course, at the time, he was alone in this opinion. Not until later did the course of events prove him right.

Completely undaunted by his opposition, Sheldon continued to spend his summers poking about the hills, searching not only for copper but studying the geology of the area. He also observed the timber and noted the agricultural possibilities of the land. He was a shrewd, practical man in action. He was a farmer and fur trader who was fast developing a keen knowledge. As the government released the land for sale, he began to purchase desirable plots as fast as he could acquire money or credit. He used this policy throughout his life.

Eventually his holdings in land became extensive. More likely, the holdings of Sheldon and Douglas were extensive. Almost from the first, they became business partners in their Portage Lake ventures. Douglas, after several disappointing flings with mines established on fissure veins, lost faith in them. At the same time, he gained respect and a growing confidence in the Portage Lake lodes. Perhaps some of Sheldon's enthusiasm for the area began to rub off on him. But, more likely it was his scientific training that led him to appreciate the importance of Sheldon's discoveries. Be this as it may, it was, without doubt, the combined efforts of Sheldon and Douglas that finally attracted attention to the Portage Lake copper district.

The first mine to be opened in the Portage Lake district is claimed to have been the Whealkate mine, its location marked by Whealkate Mountain rising prominently off to the southwest of Houghton. At one time, this upthrust was considered to be the highest point in Michigan. Being a first, however, was a somewhat dubious distinction, for the Whealkate never produced any copper even though considerable shaft sinking and drifting was done over a period of nearly two years. It was finally abandoned in 1853.

During the summer of 1847 several prospectors uncovered some bedded formations containing copper along the hill which is now over-ridden by part of Hancock. These beds, located on land owned by James A. Hicks, were not unduly spectacular, but the did look promising enough to stimulate the formation of a mining company for further exploration.

Accordingly, the Quincy Mining Company, the second mine in the area, but the first of any permanence, was organized under the direction of Samuel W. Hill. Its authorized capital was $200,000.

Samuel Hill, to whom this task had been assigned, was an adventurer, explorer, miner, and surveyor. He had worked with Douglas and Houghton on the early State survey. His judgment was respected. Although he was a rough character, he possessed a big heart and in the fall of 1847 had risked his life to help avert a threatened food shortage in the Copper Harbor district. Generally he was regarded as a hero throughout the entire Copper Country, however, he was contemptuous of all the praise that was heaped upon him. Hill also gained a reputation as being

one of the most blasphemous and obscene swearers in the Keweenaw Peninsula. Although he had a colorful vocabulary and told many a good story of his early adventures, his ubiquitous use of lurid cuss words became legendary. Whenever friends or neighbors retold his colorful tales in more polite society, they had to tame his unmentionables by substituting the sinless sounding words "Sam Hill." In time the expression, "What the Sam Hill" spread far beyond the Copper Country. Today it has become a part of the American language. Few who utter these words ever heard of Samuel Hill, or know that he was the unconscious originator of a sinless synonym for profanity.

On March 30, 1848, the Quincy Mining Company received a 30 year charter from the State. Christopher Douglas was hired to serve as its engineer. Under his direction, systematic exploration by means of shafts and drifts was begun. A little later Samuel Hill became the company's first agent. The early results were not too encouraging as only thin, poor-paying cross veins and some layers of amygdaloid copper were encountered. For several years the Quincy fussed with these poor layers. Sometimes indications of copper in quantity were found and everyone's hopes soared, but then the showing of copper would dwindle. Grimly the company hung on unwilling to admit defeat. And then in 1851, there came new hope. Prospects became very encouraging, so much so that Sheldon even moved his store business up to the Quincy. For a while things continued to look good, but finally, as before, there came another down turn. Indeed, the beginning years of the Quincy were discouraging ones.

But even as hope for the Quincy dimmed, the Portage Lake district, which up to 1852 had been graced only by the Quincy and Whealkate mines, began to stir with activity. In 1853, there came a wave of mining ventures. This sudden burst of action came about because in 1852 Douglas had located lode copper in quantity along the southern shore of Portage Lake. The existence of this lode, since known as the Isle Royale lode, was revealed by a line of ancient Indian diggings extending along the outcrop. Development work was immediately begun by the Isle Royale Mining Company which earlier had been mining at the old Siskowit mine along Rock Harbor on Isle Royale. Under the direction of Douglas two shafts were sunk. Suffice it to say, the showing of copper was good. By the following spring, the fame of the Isle Royale lode had spread. It attracted capitalists from the United States and abroad. The boom was now on. During the course of 1853, no less that seven mining companies were organized to exploit the treasures which for several years Sheldon had been insisting lay hidden in the Portage Lake area. This was only the beginning. Just two hundred feet west of the Isle Royale lode, another lode bearing good copper was uncovered. The Portage Mining Company organized to work it, the lode becoming known as the Portage lode. Also exploiting the Portage lode was the Albion Mining Company and the Sheldon Mining Company, the latter owned and operated by Sheldon and Douglas. The Montezuma Mining Company also began operations in 1853, working an epidote-amygdaloid-lode in which copper had been found, but as it turned out, not in paying quantities. During the summer, the Pewabic Mining Company began working along the side hills and ravines facing the lake. In the fall, the Huron Mining Company was organized with Boston capital to open a mine on the Isle Royale lode. Contact with the lode was not made until the following year.

With this tidal wave of new mines, Sheldon again moved his business. This time he moved to the present site of Houghton where he and Douglas had acquired the land. Here he built a log store for his business and a log house for the family. This was Houghton's first dwelling, however, with the influx of miners and their families, a village site was platted and lots sold on easy terms to builders. The village, like most pioneer mining settlements blossomed quickly. There were log cabins and "shingle palaces", finished with slabs cut from green wood, springing up on small tracts cleared of forest trees. Populated largely by a primitive as well as a mixed society, Houghton became a typical mining town. Saloons and other places of amusement were common.

Although none of the first Portage Lake mines could be called sensational, most of them progressed. They were successful enough that the future of the district was now reasonably assured. The Isle Royale mine had a large dining hall and kitchen. It also had two log bunk houses with bunks spread around the walls in tiers for the workers without families or families that had been left behind. Each bunk was supplied with three heavy mackinaw blankets. This practice soon became a standard at all the mines. Later in the summer a steam boiler with a twelve-horse horizontal engine for hoisting was set up at the mine. This was the first steam boiler in the district. When its whistle was blown the first time, everyone quit work for the rest of the day to indulge in a festive observance of the occasion.

Captain J. Bennett, was an agent for the Huron mine. He also was an agent for the Ripley mine, which had been opened on the north side of the lake. During the winter he hosted the first social event of the new community. It was a dance held at his roomy double log house at the Ripley mine. The occasion, a festive affair, offered the opportunity for much fun and feasting. Likely a bit of forty-rod, brought guests trudging in on snowshoes from both Ontonagon and Eagle River. The music was supplied by a lone violinist. In addition to being a good fiddler, he worked his regular shifts as a blacksmith at the Webster mine. Of course, there was not enough room inside the cabin for all the guests at one time, so many stood outside in the snow exchanging mine talk and experiences. Apparently though, everybody enjoyed themselves because when they passed the hat for the fiddler, it came back crammed with $62.

In the spring of 1854, the Isle Royale Company began the task of setting up a stamp mill. By October it was pounding rock. Most of the other companies followed in this respect, either that same year or during the following

summer. The first copper was shipped from the district in November of 1854. This distinction went to the Isle Royale. At the time, the steamers could not get over the sand bar at the mouth of the Portage River. This required the copper to be loaded on a scow and poled out to the entry. After a toilsome 24 hours, it was transferred to the steamer Napoleon for its long journey to a smelter.

Although the deep waters of Portage Lake offered a navigable waterway of incalculable value to the district, its use by large vessels was effectively blocked by the crooked path of the Portage River and the sandy bar at its mouth. Unfortunately, during the early growth of the mines, this barrier continued to exist for several years. All freight coming to Portage Entry by lake-going steamers or sailing vessels, had to be transferred to lighter boats or scows. These boats were then towed up river to the mine docks at Houghton.

A notable exception to this process occurred in 1854 when the boilers for the new stamp mill at the Albion mine arrived at Portage Entry. At the time, no lighters were available to carry them up the river. To avoid what could have been a long delay, J. B. Lyon, who was in charge of the shipment, had the boilers roped and planked together. All openings were plugged. He then had them lifted from the boat and set in the lake. A large sail was hoisted above them, and the boiler-catamaran, guided by a mackinaw boat, sailed into the river and on through the lake to Houghton. There the boilers were pulled ashore by oxen.

During the stormy season any transfer of freight from lake vessel to lighter sometimes took several days. Whenever a storm threatened, the lake vessel, for its own safety, was obliged to run for shelter at L'Anse across the bay. Such delays, plus the extra $4.00 per ton the lighters charged for hauling, became a rather irritating matter for the business owners of the district. Too, the barrier and the difficulties it created were equally upsetting for lake-going passengers traveling to or from Portage Entry. The arrival and departure of steamers was always uncertain and since there were no means of communication with the entry except by small boat, timing was always a gamble. An outgoing traveler arriving at the entry to find no boat, or that one had just left, was faced with an uncomfortable wait that often lasted for several days. The only shelter was a crude log cabin in the midst of black flies and mosquitoes where he bided his time, subsisted on the roughest of food, slept on a pair of blankets spread over a dirty floor, and played cards or drank bad whiskey with equally unfortunate fellow travelers.

Incoming travelers at the entry also had to await the arrival of a tug or other small boat to carry them up the river because of the dense wilderness of trees and swamps that lay between the entry and the lake. A ferry service operated by Sam Eales, an old salt water sailor, provided some relief during the earlier days, but Captain Sam navigated his yawl across the lake only when he was in the mood. So not until John Martin took over in 1857 or 1858, with a swift-moving small tug, was the service improved.

In 1860 all this changed. In 1859, the mining companies, aided by Sheldon and Douglas, organized the Portage River Improvement Company. The purpose was to deepen and widen the river, dredge out the bar and build a breakwater at its mouth. Everyone rejoiced when in November of 1860 the steamer Illinois, drawing ten and a half feet of water, sailed up the river. As soon as it came into sight, it was greeted by the loud shrieking of many whistles. During the following year, dredging was continued so that thereafter, any boat able to pass through the newly created locks at the Sault could also enter Portage Lake. With the completion of this project, a new era of shipping was inaugurated for the Portage Lake district. However, before this came about, several memorable events were to take place.

In the fall of 1854, the Albion Mining Company, came up with an empty treasury. This was a result of over-extending itself with surface developments before a suitable amount of productive mining ground was opened. As a consequence, the management had to close the mine, lay off the workers, and sell the machinery. For the people who were idled by the closing, this was most unfortunate, as there were already more workers in the area than there was work. But this was only the beginning.

In January, Eastern capitalists controlling the other mines, apparently concerned by the failure of the Albion, ordered their companies to reduce expenses. These decisions were made in the well-heated offices in the east without concern for the well being of the far-away workers. The out-of-work Portage Lake miners were homeless at the coldest and most difficult time of the year. A small panic resulted. The boarding houses could not afford to feed the idled miners until spring without compensation. They had to be paid.

Faced with starvation if they remained in the area, about four hundred idled workers started through the forest on foot, heading for Green Bay, the nearest large settlement. The winter had been unusually rough. It was intensely cold and there had been a great deal of snow. Some of these emigrants, ignorant of the hazards that lay ahead, left without snowshoes. Others failed to carry sufficient provisions. Although they started from Houghton in a group, there soon were many stragglers who fell behind. Eventually, they began arriving at Green Bay, in small groups, in pairs, or alone. Many were victims of frozen hands, feet, or faces. All told of terrible hardships. Not everyone made it. Five were known to have died along the way. Many others were never heard from again. Indeed, winter in the Copper Country was never a trifling thing.

As dismal as that fatal winter might have been, the coming of spring brought new hope to the distraught pioneers at Portage Lake. In June the long awaited shipping canal that by-passed the falls of the St. Mary's River at the Sault was done. Invigorating, new life was pumped into the struggling mining companies. The opening of the Sault locks, enabled lake traffic to move into the lower lakes

without costly transfer of cargo. This was little short of revolutionary for the budding industry throughout all the Lake Superior copper and iron country. Not only did it save lake shippers many dollars in transportation costs, but equally as important, it conserved shipping time. With Lake Superior's short shipping season, this was indeed most precious.

For sixteen years the young State of Michigan had dreamed of a canal and locks at the Sault. For equally as long they had struggled valiantly in an endeavor to persuade Congress to enact the required legislation that would make such a canal a reality. That they failed for as long as they did was largely because of the stiff opposition voiced by Henry Clay. We now see his claims as nonsense. He climaxed his arguments with his now famous, or infamous, remark, "That it contemplated a work beyond the remotest settlement in the United States, if not the moon!"

As early as 1839, Michigan was alert to the need of a canal to stimulate potential Lake Superior fisheries. Copper and iron were not factors. The State made a survey, drew up plans, and actually let a contract for the construction of a small canal around the falls. However, the plan went awry when workmen attempted to dig on the government reservation through which the canal had to pass. The workers were quickly confronted by US troops who unceremoniously hustled them from the area.

Not until August 21, 1852 was a Congressional act passed which approved the project. By the terms of this legislation, work was to begin by 1855 and be completed within ten years. It specified that the canal be at least 250 feet wide and 12 feet deep, and that there be two 60 foot-deep locks of the same width as the canal. It also granted 750,000 acres of land to Michigan which, in accord with the custom of those days, could be used to help pay for the construction. In February of 1853, the Michigan Legislature in turn authorized the work, clearing the way for actual construction.

A group of Eastern capitalists formed the St. Mary's Falls Ship Canal Company. They named Charles T. Harvey, a 24 year-old salesman and district manager for the Fairbanks Scale Company, as general agent to supervise the herculean task of building the canal. To the credit of Harvey, whose resourcefulness and driving energy never faltered as the work progressed, the job was completed in less than two years.

Harvey brought in laborers from all over the country and it is said that he even met immigrant ships as soon as they docked in order to entice workers away from competing agents of the railroads. Somehow he managed to gather as many as 2,000 workers who dug, blasted, wheeled, hauled and laid stone, as slowly but surely, the canal was created around the Falls. People worked around the clock, through the heat of the summer and the cold of winter even though at one time the temperature dropped to 35 degrees below zero.

In 1854, a siege of cholera broke out and as a result of its fatal effects, men and women died nightly in their beds. Two hundred of Harvey's laborers died, but it did not stop the work. The dead were quietly hustled away and buried at night. Those not stricken continued without interruption to lengthen the ditch and raise the canal walls under the unrelenting driving force of Harvey.

On April 19, 1855, the main work was done and Harvey personally opened the sluice gate that let the water of Lake Superior flow into the canal. Two months later the canal and locks were ready for use. On June 18, representatives of the federal and state governments, company officials and public-spirited citizens gathered for a ceremonial celebration quite in keeping with such an historic achievement.

On that memorable day, the south-going Baltimore and the north-bound Illinois became the first boats to be locked through the new canal. At last the costly transportation barrier at the Sault had been eliminated. The boost provided for Lake Superior's growing copper and iron industry, was most rewarding.

In the Portage Lake District, the following year was also a memorable one, for as the days unfolded there finally came some of the successes which it had been denied for so long. At the Pewabic mine, after three years of discouraging effort, a rich lode of amygdaloid copper was finally discovered. This lode, fittingly named the Pewabic amygdaloid lode, carried two to four percent of copper finely disseminated in the amygdaloid cavities of the rock. This almost at once, turned the Pewabic into a money maker.

The Quincy, a close neighbor of the Pewabic and as much frustrated as its neighbor, was able to tap the same lode. The copper it produced for them created a similar boom. And for the Quincy, it came none too soon. From the time of its organization in 1848 until 1856, the company had struggled valiantly without satisfactory progress. Still it had not called for an assessment. By 1856 its treasury was about empty. Just before the discovery of the new lode, George Hardie, agent for the company, attended a board meeting in New York. The report he made to the directors seemed so discouraging that they instructed him to strip out the richest veins and then prepare to close the mine. Discovery of the lode saved the company. Instead of closing, a more vigorous program of mining was begun in order to exploit the new lode to the fullest extent.

Working the Pewabic lode at the Pewabic and Quincy mines provided the first instances in which low-grade, copper-bearing amygdaloid rock returned enough profit for the companies to pay dividends to their stockholders. As such the Pewabic and the Quincy became the pioneer dividend payers of the Portage Lake district, both paying their first dividends in 1862. Altogether the Pewabic returned $460,000 to its stockholders before it was acquired by the Quincy Mining Company in 1891. The Quincy continued to pay continuous dividends until 1920, returning $10,120,000 to its stockholders. It was this

steady flow of dividends that earned the Quincy the nickname "Old Reliable."

Shortly after the discovery of the Pewabic lode, which continued to be rich in copper at all openings, the Quincy Mining Company laid out a town site on the plateau and sloping hillside overlooking Houghton from across the narrowed lake. They called the new town Hancock. It rapidly became a mecca for many adventuresome souls hoping to start some new business venture in the successful wake of the Pewabic and Quincy mines. Nor did the glow of the Pewabic go unnoticed by Boston capitalists. After a renewed flurry of explorations, several new mining companies were organized to work the extension of the lode to the north. Among the mines they opened were the Mesnard, Dorchester, St. Mary's and the Albany and Boston.

These new mines, along with the expanding Quincy, brought an influx of people seeking employment. As always, it was a motley crowd that surged into the area. Among these newcomers were a great number of Cornish and Irish, as well as a few Finns and Italians, many of them recent emigrants from the old country. The Cornish, better known as "Cousin Jacks," were natural miners and like their fathers before them, had a roving disposition. Today, their footsteps can be traced around the world. On the other hand, the Irish, who were nicknamed "Micks", disliked underground work. They enjoyed the sunshine and became versatile surface workers and handled this work well. And so at Portage Lake, perhaps even more so than elsewhere about the Copper Country, the Cornish and the Irish were soon providing most of the labor for the mining companies.

It was the Cornish, emigrating from England and the famed but dwindling mines of Cornwall, who introduced to this country many of the mining terms and mining methods. These have become generally accepted in the mining world. They also brought with them a most unusual dialect. A dialect, which simply put, was startlingly unique. Their idiomatic expressions and the strange twists and meanings, not to be found in Webster's, given to English words were curious, in fact, almost humorous to hear. For instance, "close 'one the door" meant shut the door. To light a pipe was "Touch a pipe." A mine was a "bal," a tale a "plod." And when "ayther" said "Tell she to 'eave 'ee on," it meant put the food on the table. The expression "Passel of people" meaning a crowd originated with the Cornish, as did "Tuckered out," meaning exhausted.

Well known for their mining ability, it has been said the Cornishman had a "nose for ore," an unexplainable judgment or intuitive gift as to where to look for ore veins and how to follow them in his underground meanderings. Tall and muscular, he loved the underground and, despising the duties of ordinary day-workers, often became a shift boss, superintendent, or captain. At most of the mines he worked under a contract system, each man, or more often a group of two, four, or six, termed "pairs" or a "party", made his own contract with the company. It was paid in accord with his individual skill and the amount of rock he, or his party, broke. Thus, he worked hard and usually ate well.

The early Cornish who came to the Lake Superior mining country belonged to the old school of hard drinkers and hard fighters. They loved their beer, liked to wrestle, were not adverse to a hand fight. When so engaged they fought bravely, but as a rule they were not quarrelsome. If they were guilty of any fault, it was that they hated the Irish. The Cousin Jacks and the Micks were inveterate enemies and their feuds were endless. They could work side by side all day without problems, but a night or on Sundays, they fought. At times, opposing factions would gather in force and attack each other with clubs and stones. Casualties resulting from such skirmishes were not at all uncommon, even to the extent of an occasional killing. To the miners, Sunday was a day of freedom, a day of relief from the rugged and hazardous life of mining and so it was not by mere chance that it became punctuated by hard-drinking bouts, much story telling and general hell-raising.

It was on such a Sunday, April 24, 1857, that a long brewing rumble down at the Minesota mine near Ontonagon erupted into a general brawl between the Irish and the Cornish. During the thick of the melee, Johnson Terrell, a giant Cornishman was fatally cleaved by a swinging axe as he stooped to aid a fallen comrade. Outnumbered and badly beaten, the Irish retreated to the shelter of Jim Ryan's Saloon in Rockland where they hid on the second floor. Seeking revenge the Cousin Jacks followed, smashed the windows in the saloon and set fire to the building. Fleeing smoke and flames, the Irish began to jump from second story windows and the roof, with some of the Cornish taking pot shots at them. Ryan, owner of the saloon who was said to have been the man who swung the fatal axe, disappeared forever after leaping from the roof. And to this day nobody knows what became of him. Several others also died in the fracas.

When word of the brawl reached Portage Lake, heated Irishmen immediately stopped their work at the mines. Some four hundred of them gathered at the Quincy dock intent upon marching through the woods to Ontonagon and annihilating every Cousin Jack in sight. John Martin in "Call It North Country" describes the end of this episode in a most amusing manner, though likely, except for the end result, most of it is pure fiction:

They set out, stopping now and then in the woods to swear a little more and to take a few more slugs of forty-rod. Word went ahead of them to Ontonagon. To escape the invaders, the outnumbered Cousin Jacks clambered aboard the steamer Illinois and she put out into the lake jammed with refugees. The army of angry Irishmen stormed on. But when they got three miles southwest of Portage Lake, they halted to have another drink. That one tasted all right, so they decided to have another, wondering, "How do they make it so good?" Somebody said that, look they'd only come three miles in all this time; that meant they had about 47 miles yet to go. It'd take them two or three

days to reach Ontonagon. Where would they eat, four hundred men? And where would they replenish their dwindling stock of forty-rod? And would they still feel like fighting after tramping through the woods for a couple of days? So, they straggled back to Portage Lake, took the rest of the day off to tell one another in saloons, what they'd have done to the Cousin Jacks, took the following day off to recover from their hangovers, then went back to work.

It has been said as a guess, for that is all it could have been, that as many as a thousand men participated in this brawl and that it marked the grand climax of such violence in the early days of the Copper Country. Because of its extent it may have been a climax, but it did not bring an end to the differences between the Cornish and the Irish. As long as these feuds were limited to such rival factions, the rest of the communities were not too seriously disturbed, in fact, it has been often alleged that many, in a secretive sort of way, rather enjoyed the little brushes between the Cousin Jacks and the Micks. However, after the outbreak of the Civil War, things around Portage Lake began to get out of hand. Most of the miners and mine laborers in this area were a potpourri of many nationalities. Some, newly imported to this country, had little regard for America or Americans. Addicted to beer and whiskey, they were rude and turbulent. Soon insubordination against legitimate authority became a major problem. For two years conditions around Portage Lake were rendered unpleasant by gangs of roughnecks who, maddened by liquor, preyed upon the community, beating and maiming both friend and foe, indulging in strikes. Threatening arson and even murder. And this was particularly true during the winter when isolated from the rest of the world, there was no possibility of getting assistance from the outside.

To protect themselves, it became necessary to carry arms. This included the mine managers, merchants, doctors, and artisans. Even so, they were in constant jeopardy whenever they ventured out. For better protection, a secret society was formed and in the spring of 1864, the Quincy mining people built a barracks where squads were drilled by an instructing officer furnished by the government. Suffice it to say, rowdiness abated somewhat after news of this leaked out, so no actual confrontation with the lawless ever took place.

During the time when the threat of the Civil War rumbled about the country, there was great concern among eastern investment circles that a prolonged war would ruin the copper mining industry. Particularly, the mines at Portage Lake which were just beginning an unsteady existence. For a while the resulting troubles suffered by the mining companies almost justified this prophecy of evil. But then, the dark clouds began to clear away and there came instead a period that brought spreading prosperity throughout the entire copper industry.

Civil War Times

When the Civil War finally broke out in 1861, copper was selling for only 17.5 cents per pound, its lowest point up to that time. As a result, mining, and also things in general around the Copper Country, were at a rather low ebb. The morale of the people had been greatly shaken by the outbreak of the war and both horror and dismay filled many hearts.

About thirty companies were producing copper at the time with mining going on in three well separated districts. Keweenaw County was the northern district. Ontonagon County was the southern district. Along Portage Lake, which cuts across Houghton County in the mid-section of the peninsula, was the third district. The northern and southern districts were only about thirty-five miles from the Portage Lake district. Getting from one to another was still most readily done by boat. The Copper Country was not connected by any railroad, nor were there even any wagon roads that penetrated the wilderness. The wilderness was so thick and heavily beset with underbrush that one could only see a short distance through its tangles. Some three hundred miles of mostly unbroken wilderness lay between the Copper Country and the more settled portions of the states to the south. Here, both wagon roads and railroads had become a little more common. So, without roads, the only route from the south for supplies was by boat. Ships had to pass through the locks of the Sault Canal. Everything had to be ordered. Winter supplies had to arrive during the summer, since the shipping season lasted only from May to December.

Perhaps the greatest change up to this time had taken place on the lake. The billowing sails of the schooners gave way to the boilers of much faster steamers. The frontier settlements were little changed and were still made up of various elements, the Cornish, the Swedes, and the Irish, including some of the very best and some of the worst. The saloons, the brothels and dance halls were still there, and so were the Methodist churches which, with their pioneer members, were found in every new settlement. And so were the solid merchants and good citizens who encouraged schools, introduced lectures and generally promoted a decent society.

At the beginning of the war, the merchants, artisans, miners, and laborers, were struggling. Their economic footing was none too secure. They had to fight bravely to ward off the devastating effects of a growing recession that had been brought on by the threats of war.

In an endeavor to offset decreasing revenues because of the depressed price of copper, the mines, whenever possible, had increased their production. In 1860, production reached the unprecedented total of 12,069,120 pounds of refined ingot copper. This roused the pessimists. Soon they began crying that this was too much. They claimed that the market would be flooded. This would force mines to close because supply would exceed demand.

Fortunately, the recession, though profound while it lasted, was short-lived. As the war progressed, both the demand for copper as well as its price steadily increased. The army ordinance department needed copper for cartridges and it soon wanted more copper than was being produced at the mines. This forced the mines to work at capacity and ultimately stimulated the industry beyond all precedent.

One of the adverse results of the war was the effect it had on the country's monetary system. Credit was greatly shaken in the eastern markets, and the established banking system was almost destroyed. Gold and silver, the normal money of the times, became scarce and in some places not available. Paper currency, not introduced until 1862, was also difficult to obtain and, unfortunately, it soon depreciated in value.

For a while, this created some problems in the Copper Country, because nearly all of the incoming merchandise, as well as all mining supplies, were purchased on long credits. Normally, these obligations were all cleared away when funds from the spring shipments of copper were received.

During the winter months, a credit of several hundred thousand dollars was often necessary to carry a community through this shut-in time. It had always been the custom for the last boats arriving in the fall to bring enough money to the mining companies to carry them through the winter. These funds were used to pay the miners, and this money, circulating through the community, kept things going during the long winter months.

With the advent of the war and no currency available, most of the mining companies entered the winter with an empty safe. Although the mine workers were fed and clothed from the mine stores, there soon was a clamor for hard money. Merchants and business owners, in the towns outside the mines, became pinched for funds. The worker's credits for beer and whiskey had to be met, and soon the state of affairs became critical.

To remedy the situation, the mining companies began issuing their own paper money. This was a promise to pay in the form of neatly engraved bills in denominations of one, two, five, ten and twenty dollars. After being signed by the clerk and agent of the mining company, they were used to pay the workers. While such paper money was not entirely legal, it seemed to be justified. It was readily accepted by all merchants throughout the mining districts, the only difficulty being in the fractional amounts of a dollar in making change. Not only did it tide over a great difficulty but it is likely that it also deterred some of the more restless souls from leaving the area in a time of need. It was difficult to convert "Copper Country" money into United States currency. It was not until some time

after the emergency had passed that the mine owners ceased to issue this money. In 1874 its legality was questioned by the government and to discourage its use, it was discounted 10% every time it changed hands. Finally, this was followed with an investigation by the Internal Revenue Service whose fangs, it seems, were as sharp in those days as they are now. Only then did the slightly startled mining companies discontinue its use. Eventually all of this special currency was redeemed at the main company offices in the east.

The war created a money shortage. Soon after the navigation season closed in the fall of 1861, a critical shortage of supplies also began to develop. It seemed that everything except whiskey was scarce. And of this there was plenty. It was said that there had been more barrels of whiskey shipped in during the season than there were of flour. Probably the whiskey should not have been sent in at all, as this fiery liquid was the cause of many later troubles.

Many of the mine laborers, and particularly those of the foreign segment, had been seriously affected by the war. They became restless, insolent, and sometimes even villainously aggressive. Drinking, always a means of endeavoring to escape worldly problems, became more and more prevalent. Some of the workers who had not been lured into the army, became rebellious and refused to work regularly. At times some of the workers showed up too drunk to work. Others simply stayed away. For some, their desire to fight seemed to increase, while still others found delight in all kinds of lawlessness.

At one of the mines an unruly group threatened to burn the stamp mill and even to destroy the workers who were in it. On one Sunday evening they made a move in this direction. The superintendent of the mill, forewarned, was ready. He barricaded the doors and windows of the mill. Then, he gave his small crew the appropriate "copper" missiles. Next he attached a hose to the steam boiler and then fired it up a full head of steam. They intending to meet their assailants with hot blasts of searing vapor. The rioters, however, got wind of his preparations, and withdrew from their planned attack. The cagey superintendent was thus deprived of the pleasure of testing his defensive apparatus, though, without a doubt, it would have been effective.

Soon after the war began, it became apparent that the calls for volunteer soldiers would create a shortage of miners. With business stimulated by the demand for ordinance copper, and the mines eager to capitalize on the increasing prices, wages jumped to an unheard of level. However, even higher wages failed to entice more workers to the mines. Miners who earlier had been satisfied with thirty or forty dollars a month, now considered even one hundred dollars too little.

As the pinch for workers became greater, the mining companies arranged to send a representative to Canada in an endeavor to secure workers. He was successful in obtaining a small group of mostly Scotsmen, and to their credit, they became loyal workers, some of them later becoming leaders in their communities. But these miners were not enough. So in desperation the companies joined hands and yielded to the plan of a young Swedish engineer by the name of Silverspar.

Silverspar had suggested to the management of the Quincy mine that he be sent to Sweden to recruit workers. He would be paid a fixed price for each able-bodied worker he brought back. Accordingly, a fund of $90,000 was established by several mining companies to cover the overall costs of such an importation.

While Silverspar went about his mission in Sweden, the mining companies began building houses for the expected influx of workers. These houses, at the insistence of the miners then working, were built in separate locations which were dubbed Swedetowns.

In Sweden, Silverspar was successful in recruiting about a hundred and fifty miners, a few of them with families. It has been rumored, however, that some of the workers he obtained were long term prisoners. With the blessing of the Swedish government they were released with the stipulation that they would be taken out of the country and not brought back. As a result, the Swedish government was relieved of the responsibility of having to support them any longer.

Each of the workers that Silverspar recruited signed a written contract. They agreed to work for a mining company until the costs of bringing him to this country had been repaid in small monthly payments. In turn, he was to be paid good wages. After the debt had been paid they were free. But when the contingent of, Swedes, Norwegians, and Finns, reached the Copper Country, the whole plan backfired with a big boom.

Defiantly, many reneged on their contracts. They said they were not slaves and could not be made to work. Also, they were now in America where they wanted to be and that was all that mattered. A few of them did go to work and eventually became good citizens. These were the vanguard of a Scandinavian immigration which, in later years, added many fine people to Michigan's population.

It was an unfortunate circumstance that the group arrived at a time when a call for two companies for the army was being made. Quite by chance there was a United States recruiting officer on the boat that brought the workers from Detroit. After enjoying free passage to this country at the expense of the mining companies, many were tempted by a $300.00 enlistment bounty for joining the Union army. Many of them were easily persuaded to go on a further glorious adventure which was glowingly painted by the enlisting officer. They did not even leave the boat when it arrived at Houghton. Instead , they returned at once to Detroit for their march to the front.

Of course the mining companies, for all their trouble and money, were left holding the bag, having mostly provided soldiers for the Union army. Houghton County did

however, receive credit for this number of inductees on their conscription quota.

Before the war was over copper had reached the then dizzy heights of 45 cents per pound, and at that price even the poorer mines were flourishing. The combined output of copper had exceeded all expectations and great prosperity had settled over the entire copper district.

Because of this prosperity and the high price of copper, a wave of new exploration was stimulated. In spite of the shortage of workers, nearly a dozen new mines were opened around the Copper Country. This included what were eventually to become the greatest mines of them all. The Calumet opened in 1865. The Hecla opened in 1866. They were later combined to become part of the famed Calumet and Hecla Mining Company. Also, several defunct or inoperative companies were reorganized and their mines reopened. Among these were the Manhattan, the Albany and Boston, the Sheldon and Columbian, and the Delaware. The Delaware began its stormy career in 1847 as the Northwest mine.

As the industry expanded, new towns came into being. There was a rapid population increase which included merchants, farmers, carpenters, and other newcomers who were not directly associated with the mines. Hancock, a mere hamlet in 1860 boomed rapidly and soon outranked Houghton both in population and business. Eagle River became the bright spot of the northern district while Ontonagon blossomed as the bright spot of the entire Copper Country.

But even though the towns boomed and industry prospered to gain a more substantial foothold, this was still pioneer country. It was a rough and hard land and still very much isolated, yet its people were always generous and friendly. John Forster, one of its pioneers, placed emphasis on this when writing of those times. In his words:

Those were not white kid glove days. Claw hammer coats were not known. The ladies were educated and refined. They were plainly dressed in calico or plain silks. The gentlemen wore business suits, often belted at the waist with a red scarf. Their undergarments were red or blue flannel. On their feet were moccasins or shoe packs. Health and comfort were the first considerations. Card parties and dancing parties were always in order. Concerts and lectures were also in vogue. There being few if any public halls, entertainments were held at private homes. Friendships were sincere and charity abounded. These pioneers were generous and their great benevolence reached out cheerfully to the poor and needy, in remotest corners.

Toward the end of the war, high schools and churches began to occupy prominent places in many of the villages. Wide expanses of the forest were cleared for agricultural land, and new wagon roads began to reach out into the hitherto silent wilderness.

A fairly good winter road was built from Houghton to Ontonagon and a pony trail was cut between Ontonagon and Green Bay. In 1864, a new mail service that replaced the old dog teams, followed this route, coming from Green Bay to Ontonagon in less than forty hours. In the spring of 1865 this route was abandoned. The route from Escanaba into Marquette County was adopted. From there to Houghton the winter mail again came by dog train. Ontonagon mail was then forwarded from Houghton.

Although progress was beginning to overtake the little mining villages, it was slow in coming to the mines themselves. From the very beginning of mining in 1844 until shortly after the Civil War, there was surprisingly little improvement in mining methods. Workers still carried candles stuck in clay to light their way. The method of ventilating the mines remained unchanged. Ordinary gunpowder was used for blasting, and drilling was still done by hand with chisel and sledges. Copper-bearing rock, as well as the gangue, was shoveled and carted by hand. Until the late 1860's, miners still climbed the long ladders for as much as a thousand feet to get to or from work.

O. W. Robinson, who in 1862 was a surface worker at the Quincy mine, once reminisced about these conditions to the Michigan Historical Society. Said Robinson:

In those days methods employed were very crude. There were no power drills and no rock crushers. Drilling was done by one miner holding the drill while two drove it in using sledge hammers.

After the rock was brought to the surface of the mine, it was calcined and broken up by hand. At the mouth of each shaft there was a long shed with open sides called a kiln house. In this, first was built a foundation of wood 24 feet square and 4 feet high, with arches or openings in which to start the fire. Around and over this pile of wood, mine rock was heaped to the height of four to six feet or more, and then the wood set afire. The heat cracked the rock and made it much more easily broken, which was done by hand.

These kiln houses were large enough to allow the building of three kilns in each one. While one was being burned out, another would be in the process of construction. Miners might be breaking up the rock on the third. As the rock was broken up it was sorted into two types. That which contained copper was put in cars to be sent to the stamp mill. That which did not contain copper was sent to the rock pile. Each kiln house employed thirty to forty workers. This method of breaking rock was used until the seventies.

Most of the early stamp mills were about as crude as the mining. At first, Chilean arastras such as those used for centuries at the silver mines of Potosi, were used, but they were cumbersome and inefficient. Gravity stamp mills similar to those used in the world's gold fields, were used next. Worked to capacity over a 24 hour day, a gravity stamp could crush about a ton and a half of rock.

Such stamps have been described as enormous pestles, each pestle weighing more than half a ton. Operated by a

kind of trip hammer arrangement, these pestles came down on the copper-bearing rock, cracking and pulverizing it to sand. Four pestles made up a set and normally about a dozen sets were used, which, when operating, created about as much noise as the ear drums could stand. The rock was fed into the stamps through hoppers and crushed between the pestles and an iron floor. A stream of water running across the floor carried the finer particles of ground up rock into a vat. Here, the heavier copper-bearing sands sank to the bottom while the lighter and worthless sand was washed away. The copper caught in the vat was further subjected to successive washings until little but pure copper dust remained.

Had such stamp mills been used later during the days of the growing Calumet and Hecla mine, it would have required a row of gravity stamps a mile long to have done the job. Of course it was not until after the Portage Lake mines began to work the amygdaloid lodes for the greater part of their production that the efficiency of the stamping and washing operations became of utmost importance. Eventually, powerful steam driven stamps were devised and their use became almost universal throughout the entire copper district.

At the Quincy mine, in order to improve the efficiency of its stamping process, iron was substituted for the small Cornish wooden pestles. More powerful engines were installed, and in 1862, seventy four of these stamping heads were in use, each head crushing three tons of rock per day.

The Quincy also improved the efficiency of its mine operations by installing man-engines to eliminate the increasing obstacle of the ever deepening mine shafts. Eventually these were used by nearly all of the mines. Essentially the man-engines were crude elevators consisting of two long beams with platforms fastened on them which raised up and down in counter balance. Forster describes the man-engine in these words:

The man-engine was moved by steam power. It consisted of two strong wooden rods or beams with a small platform, guarded by an iron rail, occurring every ten feet on each rod. The rods are close together, resting on rollers, having a parallel, though reverse motion. One rod goes down while the other comes up. At each stroke of ten feet the platforms are just opposite of each other. A man going down into the mine steps on a platform and sinks ten feet. He then steps onto the opposite platform which has come up. That, reversing its motion, carries him down ten feet more, and so on, until the lowest depths are reached.

It is an interesting sight to stand at the mouth of the shaft and look down into the dark abyss and watch the men emerge. When the whistle sounds for dinner and the signal bell has sounded the glad tidings throughout the mine, a point of light soon appears deep down in the shaft.

It grows larger presently so that you can see that it is a candle stuck with clay on a miner's hat. Another and another twinkling star rises. You see a long line of them swaying from right to left. The first man steps out on the platform at your side. He's likely a burly Irishman, clothed in a white duck coat and trousers, hob nailed boots and a hard miner's hat. He blows out his candle and walks off, soon followed by a hundred or more of his companions.

Moving from the mine shaft after completing their day's labor, these men walked to the "change house," a well-heated building where hot and cold baths were available. Here, after copious bathing, the workers donned their street clothes before going home. Some of the workers lived with their families in small but comfortable cottages provided by the mining company. Others made their homes in large boarding houses operated by the mines.

The dwellings, built on company land, were owned by the company and rented to the workers for as little as two dollars a month in the early days. Even later it was not more than six to eight dollars, sometimes being increased at the rate of a dollar a room. For this the company maintained the houses, painting them when necessary, replacing broken windows, and taking care of other minor details. Of course, the workers could build their own houses if they desired, either on rented land, or they could even buy the land. But few did, as such independence meant little.

Another service provided by the mines from the very early days was medical treatment. When a worker or any of his family was sick or injured, they were treated by company doctors. And too, at most mines there was a version of a company hospital, though, when compared to later ones, it was a little crude.

Dr. Arthur F. Fischer came to the Quincy mine Dispensary shortly after the end of the Civil War. The doctor was a young student fresh out of medical school at the University of Michigan. He describes his introduction to the dispensary as follows:

They pointed out the calomel bottle, the box of salts, the can of castor oil, the jug of Downer's Standard Cough Medicine, the demijohn of Liniment, a drawer containing tooth forceps (which introduced me to the fact that I was to be dentist as well as doctor), and another in which there was a bone saw, an old army tourniquet, and an assortment of knives with tortoise handles that closed like a razor's.

The dispensary consisted of two rooms, one quite large, the greater portion of which not taken up by the coal stove was devoted to a waiting room and operating arena. The other portion was supplied with a counter, back of which were shelves filled with bottles of medicine. The patients, as called, would step forward to this counter, relate their ailments before the doctor and the audience, and then receive advice and medicine according to the merits of the recital.

For this medical service, a deduction of fifty cents for a single person and a dollar for a family was deducted from the workers monthly pay.

These were just a few of the many services which the mining companies made available to the company workers. Indeed it is much to their credit that they provided such benefits. Yet it was much in their favor because it helped to keep the miners contented. This, at least partly, assured the employers of faithful service and a degree of permanency.

At the beginning of the Civil War both Keweenaw County and Ontonagon County were producing more copper than the Portage Lake district in Houghton County and each had a greater population. However, by the close of the war, Houghton County had come into its own. Not only was it the leading copper producer in the Copper Country but also it was the leader in population.

Part of this transformation can be credited to the several new mines which opened in Houghton County during the war. These were the Douglass, Arcadian, Concord, South Pewabic, Grand Portage, and the Schoolcraft. The Schoolcraft later became the Centennial. Each mine added to the production of the district as well as its population. Also greatly affecting Portage Lake production was the discovery of the Pewabic amygdaloid lode. This discovery brought a boom to the Franklin, Pewabic, and Quincy mines. All of the mines were dividend payers once they tapped into this rich lode.

Of course, Ontonagon County also had numerous mine openings generated by the high copper prices. These included the Carp Lake, Knowlton, Lake Superior, Nonesuch, Victoria, and the Concord, though few ever became too conspicuous.

In Keweenaw County, it was the Amygdaloid and the St. Clair, but neither added much to the overall production of the district. Important producers here were still the Cliff and the Copper Falls, both pioneer mines from the very first days of copper mining. Important too was the Central mine which boomed into being on a fissure vein in 1854. The Central was one of the wonder mines of the Keweenaw district. As far as can be determined it is the only mine in the Copper Country to have had more revenue than expenses during its first year of operation. Its net earnings during that first year were $7,000. Prospering from the high copper prices created by the war, it became a dividend payer in 1864. It continued to pay dividends on an annual basis until 1891. In all, it returned a little more than two million dollars to its stockholders.

Some time during the summer of 1870 the Central mine had a visitor, and while this by itself was not unusual, the visit did have an unusual twist. G. M. Steele, D. O., a disciple of the Lord, was the visitor, and he recorded for posterity a detailed account of his experiences. Early in the following year the story of his journey appeared in the Ladies Repository. This was a woman's magazine published in Cincinnati, Ohio, from 1841 to 1876 by the Methodist Book Concern. This, it would seem, was an unusual vehicle for such a story since the magazine was largely intended to provide solemn advice for the spiritual welfare of maids and matrons. Still there are always exceptions to the best rules.

Research has not produced any biographical data about author Steele. It is just possible that as a modest clergyman, his sole claim to the literacy world was vested in this single article. Or again, the name might have been a pseudonym. Be this as it may, the author was a keen observer who had an eye for significant as well as interesting details. His journey to the Copper Country took place shortly after the Civil War. It involves a descent into the depths of the Central mine which in essence, at this time was quite typical of all the mines. So here is presented a condensed version of his experiences, thus providing a first-hand, eye-account about the underground mining world of this period.

Keeping the story in the first person as it was related by Steele, the clergyman begins by saying:

I had spent a week or more wandering about the strange, wild region of Michigan's Upper Peninsula. First, I spent a few days among the iron mines at Negaunee and Ishpeming where some of the richest iron ores are found and where the supply seems inexhaustible. From Negaunee, I went to Marquette from where a short steamboat cruise by night brought us by early morning to the long crooked inlet of Portage Lake.

A stop of two days at Houghton and Hancock, twin villages of some importance curiously fastened along the sides of facing hills, began to familiarize me with the copper mining business, as here we were just entering the copper region. There are some half dozen mines in the area and several others not far away.

From Hancock to Eagle River is not a long ride, but it was over a fearfully rough road and in crude coaches. The drivers were good natured, though not very pious as they were quite generous in offering to treat their passengers at every little log tavern where they stopped to water their horses and quench their own thirst.

The copper deposits here are probably richer than almost anywhere else in the world, yet the expense of mining is so great that it requires a very rich mine and excellent facilities for the operations to be profitable. The Calumet mine where we stopped for dinner is a comparatively new mine and is one of the richest and most profitable in the world. Its copper is not, as in most mines, found in large masses. Instead it is diffused quite uniformly through the rock which yields an unusually large percent of the pure metal. This mine and the Hecla near it, along with a half dozen others, are the only ones that are paying any profit to their owners.

The last few miles of our ride were an interesting contrast to the previous experiences of the day. The road became hard and smooth, and toward night an opening in the ridge, along which we had been riding all afternoon, afforded us a picturesque passage out toward Eagle River and the western shore of the lake. The waters of Lake Superior, seemingly as boundless as those of the ocean,

provided a magnificent spectacle. The sun, declining rapidly and almost touching the water, made it glow like molten silver, while the little hamlet with its dilapidated and weather-beaten appearance, seemed to say it has a "mission" which it will accomplish as soon as the Government gets the rocks out of the harbor which it is trying to improve.

At the hotel I was met by Tom, a young college lad who with a buggy drove me to his father's at the Central mine several miles away. The drive, again up and over the long cliff, was delightful with the wild picturesque country below us, and the great inland sea stretching away to the north and west.

The Central mine is in the moderately elevated and nearly continuous ridge which forms the backbone of the Keweenaw Peninsula. The mine itself is one of those moderately prosperous ones which by economical and careful management, is kept in good condition, pays good wages to its workers, and yields a fair and steady profit to its owners. The company owns all the property in the vicinity and has built inexpensive but comfortable blockhouses of hewn logs for the miners and their families for which they pay a reasonably low rent. On the average there are about two hundred and fifty men employed. Supplies of all kinds are offered at the company store at only a slight percent over the actual cost, so there are very few families that are not in a comfortable position.

It had been my desire to go down into the mine but for one reason or another, it was delayed until the last of my visit. It had been put off from day to day and now the final day of my stay had come and I was determined that this would be it, even though when I got up in the morning I wasn't feeling well and was a little weak and dizzy. The day before Tom and I had hiked about ten miles to visit a beautiful area near Lac La Belle. While there we had climbed up a steep ridge and had also ascended a prominent elevation which rises up from the general range, becoming one of the highest points on the peninsula from which on a clear day is afforded a grand view of both land and lake. The enterprise was a little more than we had bargained for. Losing our way, we got tangled in a vast maze of fallen trees which would have been the delight of a defensive army in time of war. We barely escaped by patient and painful persistence, suffering not only in body and raiment but also in mind and moral character.

When our objective was finally reached, the view we had hoped for was much obscured by the thick smoky condition of the atmosphere, narrowing our horizon to a small circumference, giving us little more than the beautiful little lake opening out into the great inland sea, along with a few miles of rude but picturesque wild country.

Then too, we were assaulted by an army of the most villainous, and blood-thirsty and utterly remorseless mosquitoes I ever saw. They became a multitudinous torment. The handkerchiefs, with which we tried to brush them from us, were stained with blood as were our forearms, necks and hands. When we stopped to eat the lunch that Tom had thoughtfully brought along, they massed their forces and came down upon us with tenfold energy. They were hungrier than we were. We finally surrendered with discretion but were still escorted under their strong guard as we made our way down the mountain and back to the Central mine, very much dilapidated and quite sick.

Even a night's sleep had not cured me, and except for my determination to get an inside view of the copper business, I would not have left the house. As it was I dared not tell my friends of my condition, lest they should call the whole thing off.

At about nine o'clock that morning I went with Tom and the mining captain to the building entrance at one of the shafts. There are four of these at the Central, two vertical openings from different points along the side of the hill; one horizontal opening well down toward the foot of the hill; and an "incline" running at an angle of about 32 on which, when completed, it is proposed to put "man-engines." to go up and down with persons and things.

Before entering the mine it was necessary to put on a miner's garb. Taking off my own clothes, I got into a good thick pair of drawers over which I drew on stout duck trousers. I also put on a good warm undershirt and over it a coarse loose jacket. Then came heavy capacious boots at one end of my person, and at the other, a thick, clumsy helmet which was thoroughly encrusted with a coating of clay and grease. A tallow candle with a ball of adhesive clay rolled around the lower end so that in descending the ladders I could fasten it to my hat, was placed in my hand. My uniform was now complete.

The captain opened a door and a very modest hole appeared in the ground; also a ladder upon which he easily swung himself and bade me follow. The ladders are firmly fixed, their rounds made of iron. These were wet and muddy and cold to handle, but they must be handled, for it is too late to shrink from dirt once you have made up your mind to go into a mine. The ladders are not very long. It is like going down into a well of small diameter, and when you get to the bottom of it, going down into another one under that and then another, and another. The walls are dark and glistening around you and dripping with moisture.

After going down thirty or forty feet we were at the "adit." From this they begin to reckon the "levels" downward. These are horizontal cuts, four to six feet square, and some of them a half mile long. They are parallel to the adit and directly under it. There are ten of these, having a nominal distance of ten fathoms between them. The tenth level is about eight hundred feet below the main entrance.

We walked along the adit for a good many rods, then we again began to descend, now a long ladder, now a short one. Sometimes we paused in a level, and we walked along others, sometimes standing upright, sometimes

crouching and clambering with difficulty over huge piles of broken, jagged rocks.

By the time I had gone down the first few ladders, I felt weak in my limbs and there was an uncomfortable feeling in my head and chest which made me feel a little apprehensive as to the wisdom of the undertaking. What a situation, I thought, if I should get down to the bottom of the mine and find myself too exhausted to climb back out.

It was not until we were nearly half way to the bottom that I saw much work going on. Here, and at other places farther along, some men were conveying rocks in cars along the tramway to the junctions of vertical shafts where the material would be emptied into the great "skiffs" and raised to the surface by steam power.

Other men were putting in the "lagging" of massive timbers, props, and stays to keep the rock from falling in at the sides and to keep stones from rattling down from overhead. This woodwork is also used for supports to the "stopes" into which the men work from the levels above, and also for the "chutes" down which they slide the rocky fragments into cars that run along the levels. Still others were engaged in drilling and blasting to extend the levels or sink the vertical shafts or the "incline" still deeper. We did not always go down the main shafts in passing from one level to another. Sometimes we went down what are called "winzes," made partly for ventilation and partly for convenience of passage from place to place.

At one point the miners were hauling large masses of copper by a system of ropes and pulleys, as slowly and tediously they took it to a place where it could be conveniently worked. Others were cutting huge unwieldy fragments into pieces that could be handled. These masses, some of them weighing tons, have to be cut into smaller pieces by a slow and laborious process with chisels and sledges. A thin chip about three-quarters of an inch wide is chiseled from across the surface leaving a narrow furrow. This process is repeated again and again and the furrow tediously deepened until the mass is cut through. Frequently these pieces are very large even when shipped. I saw one on the wharf at Eagle Harbor which weighed nine tons, and most of it was pure copper.

It was after much toil that I reached the lowest "level," and literally this was "the last ditch." It is between eight and nine hundred feet below the entrance of the main shaft. The miners are still sinking the shaft and will make another level below the tenth. The temperature is not much lower deep in the mine than it is at the surface. At most places where we checked, the mercury was standing at 60 or 65 degrees. The lowest was 55 degrees, but here there was a strong draft.

As toilsome as I had found the descent, the climb out was much more tiring. I soon grew painfully weary and much out of breath and was compelled to sit down and rest. After much climbing, interspaced with much resting during which my companions good naturedly waited for me, we finally reached the "forty-fathom level," three hundred feet below the surface. We walked along this until we came to the incline, which the considerate captain thought I had better try "just for a change." This, it will be remembered, runs straight from the surface, crossing the levels at an angle of thirty-two degrees. Up this we began to toil. The first part of this was indescribably rough. Great heaps of broken rock had to be clambered over. It was doubtful if we had gained much by exchanging the ladders for this formidable "hill difficulty." But I consoled myself with the philosophy of Sambo, who prophesied that which ever of two roads travelers took, they would not travel far before they would wish they had followed the other.

Still my strength held out and in good time we reached a point whence there were better facilities for walking, a plank floor with brackets of plank nailed on for steps, though they were steep, and slippery.

Looking up from this point, I saw away off in the incalculable distance a glimmer of light, like the moon trying to look through a thin cloud on a stormy night. I was reluctantly made to believe that this was the opening at the entrance of the mine, but the distance seemed so immeasurable that I could hardly accept the theory, but applying myself laboriously to the ascent, I found the surface not so far away as it had seemed.

It seemed good to sit down and breathe the upper air once more. Shortly after the Civil War ended, the price of copper began to tumble, and it continued to tumble in a gradual yet wavering decline for the next quarter of a century. From a high of 55 cents per pound in 1864, it dropped to 23.75 cents per pound 1874.

For the copper industry these were peculiar years. In a sense they were critical years yet this was also a revolutionary period in which the foundation for modern mining was laid. Particularly was this true during the five-year span between 1865 and 1870 as these were the most crucial in the development of the entire Copper Country.

As prices sagged, both income and potential profits dwindled. For the mines to survive, reduced incomes had to be offset by increased production. For any hope of a profit the metal had to be turned out with less expense than ever before. This was a period in which adjustments were necessary. Enforced economy became of utmost importance. Fortunately the industry responded by introducing more efficient production methods, installing heavier machinery, and using many labor-saving devices.

Many of the mines, especially the smaller or weaker ones, encountered financial difficulties. Companies unable to overcome the rigors of steadily falling prices, soon fell by the wayside, and this was not always due to the lack of productive ore. Sometimes it was a lack of sufficient capital to make necessary improvements. Again, some lacked the courage or skill in management to cope with the changing conditions.

Among the mines that closed between 1865 and 1870 were the Norwich, Pennsylvania, Toltec, Eagle River, Bay State, Carp Lake, Garden City and Douglass. Of these, all except

the Garden City and the Douglass were located either in Ontonagon or Keweenaw County. These closings began the concentration of the industry's copper production into a 70 square-mile rectangular area of Houghton County. This greatly simplified future improvements, in particular, transportation.

Despite the decreased number of producing mines, production of refined copper increased from 7,179 tons in 1865 to 12,311 tons in 1870. Of course, it was during this period that the Calumet and Hecla mines were opened in Houghton County and they added greatly to the production of Lake copper. Without any doubt, this increase of nearly 75% in production was one of the contributing factors in the slow decline in the price of copper. Still the circle was a vicious one. In order to offset loss of income, increased production, whenever possible, was a necessary step.

Surprising as it may seem, the adversities of this five-year period with the rigid economies it required and the changes it wrought, paved the way for a decade of greater prosperity than anyone had ever thought possible. Except for a slight lapse in 1872 and another in 1887, copper production continued to rise steadily and the entire Copper Country flourished. Although there was nothing that might be considered a boom, several new mines were developed and a number of abandoned properties reopened. Population increased steadily and with it came new wealth and a corresponding advance in culture. Indeed, the Copper Country was beginning to come into its own.

The Beginning of the Calumet and Hecla

Of the many mining companies formed during the years when copper was king in the Keweenaw Peninsula, the Calumet and Hecla Mining Company is generally considered the greatest of them all. It came into being in 1871 during the critical period of mining adjustments following the Civil War. The new mine came about chiefly to consolidate the operations of two newly opened mines, the Hecla and the Calumet. These mines had just undergone some stormy days of hectic development work in a new kind of copper-bearing lode.

The discovery of this new copper lode, a hard breccia-conglomerate cemented together by copper, became a most significant occurrence in the events of the Copper Country. The riches it later yielded lifted the industry to the super position it came to occupy. As sensational as had been the famed Cliff mine during its heyday, or even the mighty Minesota, both were completely overshadowed by the wealth gleaned from this lode by the Calumet and Hecla. No other Michigan copper mine ever came close to it in richness of rock, amount of production, or in profits returned to its stockholders.

The story of the discovery and opening of this now famous lode has become one of the most interesting as well as important episodes in the colorful history of the Copper Country. Along with the development, the mine generated spectacular growth. Three people played leading roles in the early part of this exciting drama. Edwin James Hulbert discovered the lode. Quincy A. Shaw, a Boston financier, handled much of the financing. Alexander Agassiz was the administrator who led the operations through a maze of difficulties to ultimate success.

Unfortunately, in the course of events, a cloud of misunderstanding, not uncommon between people of unlike backgrounds and temperaments, led to an open dispute. The result was some unpleasant but necessary actions which aroused bitter feelings that were to linger for many years, thus marring an otherwise almost perfect success story.

To bring together the threads of this unusual drama, it becomes necessary to move back a few years in order to pick up the activities of Edwin Hulbert. He discovered the conglomerate lode and was first on the scene.

Hulbert, born at the Sault on April 30, 1829, and thus a native of the Upper Peninsula, divided his younger days between the Sault and Detroit. He was twenty-three when he headed for the still wild land of the Copper Country in search of his fortune. As an adventuresome pioneer with both virtues and the faults, Hulbert was not entirely unprepared for such an experience. He was a nephew of Henry Rowe Schoolcraft, that well known pioneer, explorer, adventurer and geologist. Ever since Hulbert was young he had acted as Schoolcraft's secretary. As such, he had learned a great deal about the Lake Superior country.

Hulbert arrived at Copper Harbor as a sad-eyed, long-faced young fellow with a beard, who had great ambitions as a surveyor and civil engineer. However, he soon found that work in his chosen field was difficult to obtain. After about a year on the peninsula, his supply of money began to dwindle. With no employment opportunities in the offing, he returned to the Sault disappointed.

At the Sault his hopes were quickly rekindled. Almost immediately he was offered a temporary job in the US Land office where he hand-copied on tracing paper some five-hundred topographic maps of township lands as recorded in the plat books of the land survey. These were used by prospective purchasers desiring to examine land sites. Not only did this work replenish his financial resources but it also provided him with a good working knowledge of the topographical and geographical nature of the mineral lands of the Lake Superior district. Later, this served him to good advantage.

His work completed and his money replenished, Hulbert returned to the Copper Country hoping that this time he might find work at his chosen profession. And he was successful. At Copper Harbor he met William H. Stevens, a veteran surveyor and explorer. He gave Hulbert a job doing instrument work on measurements, profiles and sections of the bedded system of rocks along the outer end of the Keweenaw peninsula.

Stevens, in Hulbert's words, was, "the prototype of the Lake Superior explorer." This association with Stevens provided Hulbert with valuable knowledge of the geology of the copper range. Steven's great familiarity with the rocks inspired Hulbert to emulate him. He hoped that before many years he, too, might become equally capable in this work.

During the next few years Hulbert continued to work and absorb knowledge under such veteran geologists as Stevens, Samuel Hill and Charles Whittlesey, as well as Captain Edward Jennings and Captain Joseph Paul of the Cliff mine. To his credit, his expertise as a land and mine surveyor gained him recognition throughout the Copper Country.

In 1853 while working near the forks of the Eagle River, Hulbert, quite by accident, happened upon a hand-sized fragment of a breccia-conglomerate containing copper. (A breccia-conglomerate has pebbles that are sharp and angular rather than smooth and rounded.) Because this specimen was so rich in copper, the young surveyor at once began to think about the mother lode from which it might have come. Likely it was these intriguing thoughts which kindled within him the burning desire of all prospectors, some day to discover a copper deposit. As he expressed it, "to attain the dignity of a mine engineer." This seemingly insignificant incident was the first in a

chain of events that were eventually climaxed by his discovery of the rich copper conglomerate lode.

Shortly before the Civil War, the government authorized the construction of a military road. This road was to connect Fort Wilkins at Copper Harbor with Fort Atkinson down in mid-Wisconsin. Like most government projects of those days, it was to be financed by land grants. August Coburn, John McKernan, and Samuel Hill were selected as the commissioners or prime contractors for the Copper Country portion of the road. They were to receive four sections of land for each mile of road they completed. These sections were to be selected from a three-mile-wide strip along either side of the roadway.

Because the route chosen was not a direct one, it was once hinted that if the eventual road seemed a bit winding, it might have been because the land was selected first, "following copper lodes willy nilly", thus the road that was built to embrace these lands should reflect the nature of the surrounding land. Of course the official explanation said it was deemed permissible for the road to be laid for the convenience of the mines. The mines were by no means in a straight line. Be this as it may, the commissioners promptly subcontracted the work, giving the subcontractors one section of land for each mile of roadway they built. Then they, so it was said, "got busy mining the other three!"

In 1858 Hulbert was employed to run the survey line for this road from Copper Harbor to the southwestern limits of Houghton County. It was while pursuing this work that he happened upon another fragment of copper-rich breccia-conglomerate. He found this one about midway between the Cliff mine and Portage Lake not far from the spot where Charley Mellens later established his halfway house. During the next day's work, he found still another one. These specimens, like the first he had encountered several years before, contained considerable copper. Both pieces were examined with great care and then quickly buried in the ground without attracting the attention of the laborers working with him. Since Hulbert knew from his instruments precisely where he was, he felt this was the best way of preserving his secret. Again, he began to dream about the source from which these fragments might have come. Was it nearby or had they come from some distant resting place? However, his hopes of finding this source began to fade slowly. During the remainder of his regular survey work, he failed to spot any more fragments of the conglomerate. But then came another chance!

Shortly after the original survey had been completed, it became necessary to relocate a section of the route which crossed an area of swampy lowland. While running this correction line, Hulbert again encountered the breccia-conglomerate, and this time there were several pieces, all sharp and angular. His hopes were renewed and he strongly suspected that the hidden bed of conglomerate must be close at hand. In order that he might have more time to look around, he purposely slowed the work of the survey, covering the delays with various excuses to his workers. And finally dame fortune seemed to smile on him!

One day while working out of a camp deep in the forest close to where the Hecla No. 1 shaft was later put down, he came upon an immense boulder of copper conglomerate. It was about seven feet by nine feet in area. In places it was as much as twenty inches thick. This block was completely covered with moss and lichen, thus wholly camouflaging its true nature. By carefully lifting up a small section of this natural covering, Hulbert was able to examine the edges and surface of the rock. It seemed to be as rich with its copper cementing as the previous fragments he had inspected. Curiously, there was not a particle of green carbonate of copper that he could see upon its surface or around it. Its edges were rough and sharp. This indicated that it had not been moved by glaciers. This boulder must have been lifted vertically from its natural bed underneath by the combined action of freezing heaving and sand wedging.

He felt he was now standing above the mother lode. Hulbert took his compass in hand. From his surveying experience he precisely walked the course followed by the underlying beds of the rock. Assuming that the mother lode lay below, he felt that in this manner he might encounter further evidences of its existence. About 1200 feet northeast of the boulder, he noted a large bowl-shaped depression in the cushioned floor of the forest. To him it appeared quite similar to the ancient mining pits so frequently encountered along the copper range. He was not sure.

It's sloping surface was covered with leaves and humus like that of the surrounding forest, but it was unmarred by any rocks or rock fragments. Two huge trees, a black birch at least two centuries old, and a hemlock of like age, towered above the depression like twin sentinels, their foliage entwined overhead. Carefully Hulbert inspected the depression without disturbing any of its natural cover. And then he began to look around. According to his reasoning, if this were an ancient pit, certainly the miners following the copper formation would have created other pits. Yet he could not find any other depressions.

Somewhat puzzled Hulbert finally returned to his camp leaving his secrets in the woods. He was certain that his lips must remain sealed and his discoveries unknown until he knew more about them. Later at the survey office, using the location of the boulder as a focal point, he traced the course of the bedded rock formations on the map. The line it established strengthened his beliefs about the mother lode. Not only did this line pass over the location of the depression, it also crossed the several points at which he had found the breccia-conglomerate fragments. Still this was far from being conclusive evidence. More disturbing, however, he noted that the land upon which he had discovered both the boulder and the depression was owned by the St. Mary's Mineral Land Company. Before any open explorations were feasible, ownership of this land was necessary lest all his work be for naught. As Hulbert expressed it, "they would have

held my discovery for their own benefit paying perhaps one or two brass farthings for my study and search, and then a 'good afternoon'." As yet, Hulbert's dreams were still, "castles in the air."

In the fall of the following year (1859) after completing his road survey work, Hulbert made another attempt to clear up the uncertainties surrounding his discoveries. Equipping himself with a small tent, blanket, food, compass, hatchet and a steel legged tripod, he set out on a lone hike through the forest. He was heading for the spot where the copper breccia boulder rested in the deep woods. His intentions were to study both the boulder and the ancient depression with greater care. Near the site of the halfway house, he turned away from the forest trail he was following and trudged off through the unbroken wilderness. Finally he stopped to set up a lonely camp alongside a shoulder-high amygdaloid rock. Here he thought he would be free from observation.

The next morning he moved on to the boulder site. Here, once again, he lifted the edges of its carpet of moss, "as tenderly as a mother would lift the embroidered blanket from a babe in a cradle." With great care he examined both the surface and edges of the rock. He was almost sure that it had been lifted to the surface by the action of frost and sand. In the endeavor to prove his theory, he took one of the legs from his tripod and removed the conical cap at the end. Thus he effectively improvised a drill. Using this he began to take soundings in the drift around the edge of the boulder. He reasoned that if the boulder had been lifted vertically, there would be a sand-filled cavity or nest in the underlying rock from which it came. The results obtained were not conclusive. Along one side of the boulder he was able to strike the bed rock, but not on the other side. The tripod leg was not long enough and when making the legs he had not thought to provide a means of connecting them. In spite of his failure to fully prove his theory, he remained reasonably sure that the mother lode, the red breccia he had for so long hoped to find, lay beneath his feet.

Contented with his day's work he returned to his temporary camp. Early the next day, after a sleepless thought-filled night, he moved on to the site of the large depression. In no way had it been disturbed since his last visit. Again he carefully examined the area, and again he reached the same conclusion as before, that the depression was not natural. Situated as it was, at the top of a gentle rise in the ground, it could not have been hollowed out by water. By instrument, he accurately noted its topographical location in relation to the flat boulder to the southwest. He searched diligently in all directions for signs of other pits, but again found nothing. The one beneath the two great trees was the only one. He felt sure that this was not an ancient mining pit. He concluded that perhaps it was a storage pit or cache similar to the ones that some time earlier had been found along the north shore of Portage Lake.

The next morning after he broke camp, he made his way to the head of Dollar Bay where he located, and then examined, the Portage Lake pits. They were similar in form, though smaller, than the depression in the woods. When he finally returned to his home at Eagle River, it was with the conviction that his surface depression in the woods marked the site of such a pit. He would not know for sure until he was able to open it.

A short time later Hulbert made his first move toward the acquisition of land through which, according to his reckoning, the copper conglomerate lode extended. In December he sent a request to the government land office at Marquette. He asked for a list of the unsold government lands along the copper range from the end of the peninsula down to Portage Lake. After the list had been made up it was sent to him by an Indian runner who delivered it to him on February 14, 1860. Feeling that prompt action was now necessary, Hulbert immediately reviewed the listings which covered many acres of widely scattered land. By midnight of that same day, he had made a selection of 1920 acres of land located as much as possible along the line of the hoped-for copper lode. The next morning his communication to the land office was quickly dispatched by the same Indian runner. Hulbert requested that the runner bring back the reply. He further requested that he waste no time enroute. The runner did not. Confirmation of Hulbert's purchase was handed to him on February 26. The runner made the 260-mile winter snowshoe trip to Marquette and back in only twelve days, including two days of rest. Although this first purchase was small it was, in Hulberts own words, "governed by the limits of my purse."

Shortly after his land purchase, the Hulbert Mining Company, a land holding company, was formed with Horatio Bigelow and other Boston financiers serving as directors. In order to obtain the needed financial support for any future development work, the land was deeded to this company with Hulbert being allotted 5000 shares as his interest.

For the next year or so little more was done largely because of the depressed state of business which swept the country at the onset of the Civil War. Under such conditions capitalists had little desire to enter into or even talk about any new mining ventures. And too, because surveying work became difficult to obtain, Hulbert sold his effects and departed from the Copper Country to become a soldier. He did not return to the Lake district until March 1862. For the next two years he was busily occupied with work at the Carp Lake mine in the Porcupine Mountains. Later he was occupied at Portage Lake. Here, in 1864, he accepted a position as superintendent of the Huron mine.

Although otherwise busily engaged, Hulbert never forgot about his secrets in the woods. He was constantly thinking of them and on many occasions pondered his best course of action. Yet, it was not until July of 1864 that he again visited the boulder and the pit site. And once more, except for a newly added mantle of yellowed leaves from the previous fall, he found everything completely undisturbed.

On this occasion he had provided himself with a more suitable drilling rod and was able to take satisfying soundings around the edge of the boulder. He also probed the drift along the line of the boulder and the pit to determine its depth. Not far to the northeast of the pit site his probing revealed an area where the soil covering was quite shallow. Also, the terrain sloped gradually into wet land to the east which indicated to his trained mind the possibility of an even thinner covering of soil. Because this could mean less digging he felt that here would be a good place to open his first exploration pit.

Returning to his new home at the Huron mine, Hulbert was now quite convinced that his chances of success were good. He could see no reason why he should wait any longer in making his move to prove the location of his dream lode. Accordingly he wrote to Horatio Bigelow of the Hulbert Mining Company. He asked him to purchase from the St. Mary's Mineral Land Company the needed two-hundred acre tract that would cover the exploration site he had selected. In due time he was notified that this had been done at a cost of $7,000.

It was now mid August. Calling in his brother, John, and also his trusted explorer, Amos Scott, Hulbert placed his plan for opening an exploration pit in their hands. He gave them a carefully drawn diagram and specific instrument directions which they were to follow from the corner post at the southwestern corner of Section 13, Township 56 north, Range 33 west. Upon reaching the designated point they were to, "place a post and prepare to sink a pit for the underlying rock."

These instructions were explicitly carried out and the work began. Despite the wet nature of the ground which necessitated the digging of an open drainage ditch from the pit, the underlying rock was soon bared. When this was blasted into, the copper-bearing-breccia-conglomerate was revealed for the first time. These rocks were first called the Scott lode, then the Hulbert conglomerate lode, and finally the Calumet conglomerate lode.

This conglomerate had been hidden beneath the glacial drift covering the Keweenaw peninsula very well. Even the US Surveyors had not encountered any evidences of it nor had any of the government geologists ever seen it or made notes about it. Hulbert in his patient calculations had not erred. The Calumet conglomerate lode, his red breccia, was where he said it would be.

On September 18, a formal report of the opening was sent by private messenger to Allen Weeks, secretary of the Hulbert Mining Company along with a sample of the ore. Complete plans and drawings for the opening of a mine sometime in the coming spring were included. The directors were also asked to set off lands held in Section 13 by the Hulbert Mining Company to another company to be called the Calumet Mining Company.

Before the new pit was cribbed and closed for the winter, a barrel of copper-bearing rock was taken from it and shipped to the Boston directors. This was sent to them on November 15. Along with it went a communication which asked the directors to form still another company to hold other lands that might be acquired in this vicinity. Hulbert suggested that it be named the Hecla Mining Company. The directors and stockholders promptly acceded to both of these requests.

The next spring Hulbert wrote to his Boston associates about capitalizing the Calumet Mining Company to provide funds for development work and eventual active mining. However, they were not quite so cooperative. As a result, Hulbert's next few years were to become stormy ones. It was suggested by Allen Weeks that he come to Boston so that the matter could be discussed personally. This he did, making the trip immediately. At their conference the directors acknowledged the apparent richness of the ore. But, due to the depressed condition of the industry that existed at the time they were reluctant to invest any more capital in the venture. Also, they expressed concern as to the extent of the lode. They did, however, agree to increase Hulbert's interest in the Calumet if he would contribute added lands to the venture. At the time he did not control all the land he needed. Likewise, he did not own the land on which either the breccia boulder or the ancient pit were located. As a result he accepted the proposal and agreed that he would try to develop the mine with limited capital.

With no further funds forthcoming from the Bigelow group, Hulbert, while still in Boston, must have sought out Quincy Shaw and also appealed to him for financial assistance. Just where or how Hulbert gained contact with him is not clear. Shaw, though involved with several mines in the Copper Country, including the Huron where Hulbert was employed as superintendent, had up to this time never met Hulbert. Nor did he even know of the existence of the Calumet or the Hecla Mining Companies. Nevertheless, it was here that Quincy A. Shaw, the second leading player in the Calumet and Hecla drama, entered the story. He did so by becoming the delivering angel. He loaned Hulbert the $16,800 needed to acquire the land in Section 14 where the pit site was located. The purchase was made from the St. Mary's Mineral Land Company.

As security for this loan, dated February 24, 1865, Shaw received an assignment of Hulbert's stock in the Calumet enterprise. After the newly acquired land had been deeded to the Calumet, Hulbert's share amounted to 11,833 shares of the company's 20,000 shares. There was, however, a stipulation in the loan. The agreement stating that should Shaw's financial condition necessitate it, he could dispose of this stock to gain needed cash. Apparently Hulbert was given the power of attorney to do this.

Returning to the Copper Country owning the ancient pit site, or at least having made the arrangements for ownership, Hulbert sent his brother and Amos Scott out to open up the pit. They were instructed to dig carefully. They were to preserve any relics which might have been left there by the ancient miners. At the time no one had any idea what might be found.

As Hulbert had suspected, the depression covered an ancient storage pit or cache. And it was an interesting one, for never has another ever been found with similar contents. Under a surface coating of leaves and humus lay a four-foot blanket of dirt which was free from rocks or rock slabs of any kind. Beneath this protective mantle the pit was filled with nuggets of copper and a powder of green carbonate of copper which, over what may have been centuries, had been altered from pure copper by the natural seepage of surface water through the soil. Altogether some fifty barrels of this material, weighing more than twenty tons, was removed from the pit and sent to the Portage Lake Smelting Works for processing.

Scattered among the copper debris were numerous relics of interest, including oblong baskets or "birch bark mococks", which must have been used for transporting the copper overland. Also found were skeins of "wattap" made from narrow, flat fibers of spruce root. These were possibly used as rope or binding. Also, there were sheets of birch bark, probably intended to serve as repair material for the mococks. Several pieces of tanned deer skin, some of which were in an almost perfect state of preservation, were also found. Scattered through the pit materials were numerous minerals, including many fine specimens of crystallized copper and silver. Hulbert had more than a normal interest in such relics. His interest had rubbed off on him from his uncle, Henry Rowe Schoolcraft. Hulbert was most careful to preserve all the objects that came from the pit. To his credit he presented a number of relics and several fine mineral specimens to Dr. Harold Williams of Boston for his collection.

As might be expected, no hammerstones or wedging or prying tools of any kind were found either in or around the pit, nor were there any fragments of copper from the breccia-conglomerate rock. This seems to provide convincing evidence that the pit was used only for storage. The source of the copper was elsewhere. Where is still a mystery.

It has been conjectured that perhaps a competing band of prehistoric miners may have mined the copper at Isle Royale and stored or hidden it here. This is because the pit lay along the line of the most direct water route from the island. From here it is only a short distance overland. In turn it was convenient to Torch Lake which provided a direct waterway back to Lake Superior. Why these miners never returned for their copper or what calamity might have overtaken them will never be known.

As soon as the cache had been cleared of its ancient treasure, an opening was blasted into the amygdaloid rock onto which the pit had bottomed. When this was broken out the breccia-conglomerate with its rich copper cementing was again revealed. However, the pit was not directly above the lode. Instead it was to one side of it. Two points had now been established along the line of the Calumet conglomerate lode.

Of course, it was mere coincidence that the early miners had established this pit so close to the great copper lode. It was not chance that had enabled Hulbert to plot the course of the lode so accurately. It was entirely the result of painstaking calculations and study, though later there were some who sought to discredit his work.

In spite of substantial evidence that supports his several years of careful work, somewhere along the way one of those fanciful discovery stories was born and like so many others of early mining days, it became a legend. Perhaps though, this is as it should be. What famous mine has not had a kicking mule, a thrown pick, or some other contrivance that in some way revealed the mother lode. Here, so the legend goes, it was a wandering pig that would not stay home that led to the discovery of the famed lode.

Supposedly the pig of this legend belonged to hermit Billy Royal, a wayside squatter who had cleared a little farm along the trail followed by Hulbert's survey. One day, after straying into the forest on an exploring foray of his favorite rooting spots, the wandering porker failed to return. Royal, greatly concerned over the disappearance of what likely was his most valued possession, instituted an immediate search. After considerable hunting some faint grunts and squeals were heard. The errant porker was finally found contentedly nosing the dirt amid a thick clump of blue berry bushes. The pig also had rooted up several chunks of copper. Of course, according to the legend, this turned out to be the site of the ancient pit where later digging led to the richest conglomerate lode in the world.

A slightly different version has it that the irate owner ordered the roaming pig shot to end its wandering ways. The wounded animal managed to stagger on to its favorite haunt at the pit site. The pig was later found alongside the uprooted chunks of copper. In both versions the legend has Hulbert stopping at Royal's rough cabin for a moment of relaxation from his road survey work and while there yielding to Royal's plea to help him search for his lost pig. In either case, according to one version of the legend, this friendly assistance ultimately led Hulbert to the ancient pit and the discovery of the great ore body.

Of course the pig story is plausible enough and for those who choose to believe it there seems no lack of historical confirmation from numerous sources. There are other legends as well. There's a Falling Tree Story, the Boston Buggy Story, and a Croghau-Stage Story. All suggest a different mode of discovery. All tend toward the whimsical with little regard for facts.

After the Calumet conglomerate lode had been exposed at the pit site, Hulbert invited some of his friends to visit the location. Apparently he felt secrecy was no longer needed. Before returning to Portage Lake, he also led them to the site of the large breccia boulder. He lifted its mantle of moss so they could see its rich copper content. This almost became a fatal move for as yet he did not own the land on which the boulder rested. Later he overheard

someone in the group say, "I don't believe Hulbert has purchased section twenty-three. I am going to buy it."

Although Hulbert had already dispatched a message to Quincy Shaw in Boston asking him to purchase Section 23, the remark he had overheard caused him concern. So without further delay he quickly journeyed to Boston to follow up on his request. While in Boston, Shaw completed the purchase with the St. Mary's Mineral Land Company at an alleged cost of $60,000. The land was deeded to the Hecla Mining Company. In exchange for this land, Quincy Shaw and his brother Parkman were allotted Hecla shares equal to two-thirds of this cost, while Hulbert received shares for the balance. It was on this land near the site of the boulder that the Hecla No. 1 shaft was later opened. The boulder itself providing an initial ten tons of valuable stamp rock.

Having assumed a considerable interest in both the Hecla and Calumet Mining Company, Shaw arranged with the Boston owners of the Hulbert Mining Company to activate the Calumet Mining Company. This was done on January 13, 1866 with the board of directors electing S. Parkman Shaw, president, and Quincy Shaw, secretary-treasurer. There was only a little money left in the treasury from the original assessment for mine development. Arrangements were made to work the property on a lease or tribute basis. Sweat equity was not uncommon in those days when financial problems were involved. Under the terms of the lease which was granted to Shaw and Hulbert, the company was to receive, "not less than one-eighth part of the ingot copper resulting from such work." At the same time Hulbert was named as the resident manager of the mine. With these negotiations completed and possessing a contract which seemingly would be profitable for all, Hulbert returned to the Copper Country and promptly began mining.

Almost immediately he began to experience difficulties. The Calumet lode proved to be exceedingly rich in copper. Every foot of ore seemed to be richer than the one before. However the conglomerate rock in which the copper was entwined was completely different from anything previously worked in the Copper Country. Quite in contrast to the comparatively soft amygdaloid rock, it was hard and tenacious and most difficult to crush in the stamp mills then in use. Even the more powerful steam hammers which could reduce four foot chunks of amygdaloid rock to fragments with only a few blows, were ineffective. The richer conglomerate rock, tough and interlaced with stringers of copper, merely flattened out instead of breaking. These problems came at a time when the methods of crushing rock and copper recovery were still a big stumbling block in the Lake Superior District. Progress came by trial and error. Some of the mining authorities of the day solemnly declared that the conglomerate could not be worked at a profit.

In spite of such troublesome problems all might have been well had Hulbert used better judgment in some of the methods he used. At a time when shrewdness was much needed, he seems to have lost his head. As a result he became as much of a failure as a mine operator as he had been a success as a mine discoverer.

He wanted to convert the copper rock into quick cash and to make the mine profitable. But he did not want the expense of shaft mining. So, he put aside the dictates of sound mining practice and proceeded to quarry out the steeply dipping lode by opening up a long narrow surface pit. Had this been done on a small scale and only for a limited time while there was but little overburden, it might have been beneficial. Instead, the quarrying was continued with no endeavor made to sink permanent shafts. As the pit grew deeper the work was handicapped by water during the summer and snow and ice in the winter.

During the summer of 1866 Hulbert apparently forgot about the coming winter and failed to lay in sufficient supplies for the mine. As a result he was forced to purchase his winter needs at inflated prices in Houghton and Hancock. Nor did he make any endeavor to erect a mill convenient to the mine that could crush and process the rock. Instead, he purchased horses and oxen and hauled the ore by wagons and sleighs to a mill in Hancock thirteen miles away.

Above all, he was unable to maintain a suitable amount of production and in spite of the richness of the lode, money was spent faster than it came in. If he had the technical skill to produce good tonnage, the income from the rich ore might have covered the exorbitant daily expenses. But it seemed his power to do this was no greater than his ability to keep costs down.

Dark clouds loomed on the horizon. The Calumet was not able to hold its own. The nearby Hecla, which was under the direction of Hulbert's brother, John, was still in its first stages of development. Soon, both companies were threatened with complete disaster.

In the midst of this debacle, Alexander Agassiz, son of Louis Agassiz, famed glaciologist and zoologist, paid a vacation visit to the mine. Agassiz, a graduate engineer from Harvard and Lawrence Scientific School, was Shaw's brother-in-law. Even though his visit was entirely unofficial, Shaw felt that with his engineering talents, he might be able to offer some advice that would help the stumbling venture.

Agassiz stayed only a month but during that time he gained a thorough knowledge of the muddled situation. He also was quite impressed with the richness of the lode and became convinced that with proper handling the mine could be made profitable. So great was his enthusiasm that when he returned to Boston, he was made treasurer of both the Calumet and Hecla companies.

He realized that much costly work had to be done before production could be put on a paying basis. As a result, a five-dollar assessment was called on the 20,000 shares of Calumet stock. This was done in August. The following month a three-dollar assessment was levied for Hecla. When the notice of the Calumet assessment was first made

public, it pushed the stock down to as low as a dollar a share on the Boston exchange. While the wealthy Boston stockholders were able to pay the assessment, it was a hard blow for Hulbert and others of his hard working friends in the Copper Country. As a result more than 2,000 shares were forfeited by those who were unable to meet the call.

In October the directors approved still another five-dollar assessment on the Calumet shareholders. Hulbert with 11,833 shares of Calumet stock was one of those unable to protect his holdings. His stock, some of which had been pledged to Shaw as security for his earlier loans, was then sold for far less than its real value. Why Hulbert chose to sacrifice his Calumet stock and retain stock in the Huron Mining Company, as he apparently did, is not clear. Perhaps he had particularly high hopes for the Huron, or again, his decision may have been a forced one. In either case, he emerged on the wrong horse. In July of the following year, the Huron had to suspend operations because of financial difficulties. With its closing went most, if not all, of Hulbert's resources.

After a little more than a year of such haphazard operations, the Boston owners felt that they had enough. So, with Hulbert no longer a majority shareholder he was not able to dictate his desires. The directors of the company decided to terminate the lease under which the Calumet was being worked. Instead they decided to operate the property themselves. They ousted Hulbert as manager on January 1, 1867 and placed A. C. Davis in charge of operations. In March, Agassiz returned to the Copper Country to assume the responsibility of managing both the Hecla and the Calumet.

When Agassiz arrived on the scene, things were in a deplorable condition. Everything was in a state of confusion. Supplies were about exhausted, and so was most of the cash. Lines of authority were crossed with no one wanting to accept responsibility. Apparently Agassiz had arrived none too soon.

In the face of almost complete disruption, he began the formidable task of rebuilding. In so doing he had to face both open and concealed resentment for even though Hulbert had made a few enemies who welcomed his downfall, most of the locals sympathized with him. To make matters more difficult, Agassiz was considered as a foreign intruder from Boston and regarded with distrust and suspicion. There was no one in whom he could place any trust, no one to whom he could turn for help. The daily problems were his, and his alone for Shaw was miles away in Boston.

During this critical period many letters and reports were dispatched to Boston. From these reports fragments can be gathered of the gallant efforts of Agassiz and Shaw as they struggled to keep the venture afloat. Extracts from an official report sent to Shaw shortly after Agassiz arrived at the Calumet indicate some of the conditions he found there:

It had been the intention to put on the location a small mill in order to treat cheaply our second quality of rock. For this purpose a small rolling mill had been purchased. Instructions were given to Hulbert to put up this mill on its arrival. It was to be operational by the first of January.

It was found on arrival at the mine that nothing had as yet been done towards erecting the mill except a little work on the timber. And what was still more disastrous no preparation had been made to connect the different parts of the mine. Nothing was on hand with which to build a tramway for the mine and the mill. No attempt was made to impound a sufficient supply of water, our dependence being placed entirely on a small beaver dam outside the limits of the Calumet property.

This suicidal course was carried on in January and February with Mr. Hulbert concealing the true state of things and making estimates out of all proportions with what he must have known. This deception was carried on not only with reference to expense and results of the mine work, but in regard to everything else undertaken in the way of general improvements.

Shortly after his arrival Agassiz found it necessary to discharge Hulbert's brother, John, who had been in charge of affairs at the Hecla. Although the work at the Hecla was far less advanced, its development appeared to have been as badly managed as it was at the Calumet. After disposing of Hulbert, Agassiz assumed the management of the Hecla himself, keeping Davis as his assistant and placing him in direct charge of the Calumet operations.

Agassiz realized that people must be found and trained to replace the incompetent and perhaps dishonest personnel who were running the affairs of the mine to their own advantage. At the same time he had to produce copper and convert it into money to keep the mine going. Already the operation had consumed far more money than had been anticipated. Expensive waste had to be eliminated. Order had to be restored. Momentum had to be maintained. And these were tasks that could not be delegated. In one of his letters to Shaw Agassiz wrote, "The things that I drive and look after are the only things that go."

Working day and night in the face of heavy odds and without adequate capital Agassiz struggled through many weary months. Shaw was in Boston confronted with equal, if not greater, difficulties. Pressed by his creditors, and involved in law suits, he was nearly at the end of his financial resources. Still he struggled valiantly to raise money to develop the Calumet and Hecla properties. Long afterward Agassiz wrote, "If Quin had ever known when he was beaten, we would never have pulled the thing off."

One of the first major decisions which Agassiz had to make involved machinery and the kind of stamping equipment to be used. A site for the mill, yet to be erected, had been selected on Calumet property next to a stream from which an ample supply of water could be impounded. While gravity stamps had been the accepted procedure in the district, crushers and rollers had provided a revolutionary

means of breaking the rock at the Huron mine. Only one or two units of this type would be required in contrast to many stamps. As a result, an order was placed with the Portage Lake Foundry to produce the needed rollers and crushers.

Apparently Agassiz had not been properly forewarned as to the extreme hardness of the conglomerate ore. Little did he know that its hardness was equal to that of flint. This mistake by Agassiz was probably excusable. Only after the system had been installed did he realize that a hard blow rather than constant pressure was required to free the copper. It was a costly mistake and on April 30, 1867, he wrote to Shaw:

I thought you had best be prepared for the worst as soon as possible; we cannot escape out of this mess except to pay out continually, and if this infernal roller business don't (sic) swamp Calumet, you may thank your stars. I feel perfectly frantic and so helpless, no tools to do anything, no machinery on which any dependence can be placed, nobody on the ground or in the country who has any idea what can be done with rollers.

And a month later:

We tried the mill today...and I am sorry to say I am awfully disappointed. The utmost capacity of the mill is three tons per hour and what is worse when running at that speed we have too much waste...Our mill is a hindrance to us.

Immediately after this distressing news Shaw made a trip to the mine. It was then decided to change over to ball stamp heads for both the Calumet and the Hecla mines. Accordingly two ball stamps were ordered for each mine. The Hecla mill was to be built at Torch Lake. This mill was planned to have room for two more heads when needed. There were many new expenses. The cost of developing underground workings, erecting shaft houses, building a concentrating plant and a railroad. As a result, another assessment was levied on both the Calumet and Hecla shareholders. In negotiating these assessments Shaw was greatly assisted by John Simpkins of New York who provided the venture with substantial funds at its most critical time. In all $1,200,000 was spent before the two companies were ready to produce any amount of copper.

By the end of September the two ball stamps had been installed at the Calumet and were ready for operation. Fortunately they were satisfactory from the start. Work on the railroad also progressed nicely, and by the following February, the Hecla mill was ready for its first test.

By the late summer of 1868, Agassiz, thanks to his untiring efforts and undying spirit, had things running smoothly. He had stopped the waste and had the daily work on a sensible routine. Also, he had trained a small and trustworthy management staff. Agassiz's cadre had been greatly enhanced by the addition of George Hardie who had been persuaded to leave the neighboring Quincy mine to fill the position of superintendent.

Late in September, conditions were such that Agassiz felt secure in returning to Boston, leaving Hardie in charge. For many years after, though, Agassiz returned for lengthy visits each spring and fall to give general direction to the enterprise. The valiant struggle, now over, had ended in success, championed perhaps because he had followed the advice which he had given to Shaw, "Keep up courage and never give up, we shall be all right yet." The victory, however, came at the cost of his later health.

By 1869 the Hecla had become the largest producer in the district. At the end of that year paid its first dividend of $100,000. This was a most remarkable achievement considering that the mine was less than two years old. The Calumet was slower. Here the ore was not so uniformly rich nor was the lode as wide as it was at the Hecla. Too there had been much more development work required following the haphazard trenches which were originally cut. Nevertheless, the Calumet paid a dividend of $100,000 in 1870 . For half a century thereafter, quarterly dividends from the Calumet and Hecla mines were as regular as the seasons.

On March 24, 1871, after lengthy and involved negotiations, the Calumet Mining Company and the Hecla Mining Company, along with two purchased companies, the Portland Copper Company and the Scott Copper Company, were consolidated as the Calumet and Hecla Mining Company. The directors of the new company first met on May 1. Alexander Agassiz was elected president, a position which he held until his death in 1910.

From this point on, the growth of the Calumet and Hecla was nothing short of phenomenal. Employing economic mining techniques, using well planned geological explorations, and later acquiring needed fabricating plants, the company, after its initial bonanza days, settled down to a steady production. Throughout the years it put millions of dividend dollars into the pockets of its shareholders.

And after all this glory, what happened to Edwin Hulbert, the one who made it all possible by discovering the rich conglomerate lode? Unfortunately, luck was always against Hulbert. Seemingly he was doomed to ill fortune.

After being ousted as superintendent at the Hecla and Calumet mines, and later as director of the Calumet, he continued for several months to serve as manager of Shaw's Huron mine. Here again his luck turned against him when the Huron went by the boards. Naturally, Hulbert was bitter about being discharged from the Calumet and Hecla management. He was even more bitter because of his financial reverses and particularly of his stock losses. Likewise he was not immune to the many accusations about his lack of mining ability. To his dying day he always felt that Shaw had defrauded him of his stock. Later, when he pushed the controversy into the courts, testimony confirmed that the loss of his stocks had been caused by his inability to meet the assessments that were

levied against them rather than any wrong doing on the part of Shaw. Eventually, the suit was transformed to the US Court in Detroit, and here an out-of-court settlement was finally agreed upon.

Shaw benefited immensely from the fabulous earnings gained from the lode. Apparently realizing Hulbert's plight, Shaw was generous enough to establish a trust fund and an annuity for him. Eventually, Hulbert moved on to Italy and except for occasional harsh letters and newspaper comments aimed at some of his former associates, dropped out of Copper Country affairs.

Hulbert's life in Rome where he settled must have been a comfortable one because he was able to build a luxurious villa and live a life of ease. He died on October 20, 1910, and, after his death, his estate was probated at $280,000, so he was not exactly a pauper. Yet in spite of Shaw's generosity, Hulbert always remained firm in his conviction that the fruits of his long search which led him to the rich copper lode had been taken away from him unjustly. And maybe they were. At least there's food for thought. In 1907, just three years before his death, a few shares of Calumet and Hecla stock were sold. The Boston banking house of Lee, Higginson and Company got $1,000 a share. Hulbert's original ten thousand plus shares were worth at least ten million dollars. That value did not include dividends he would have earned.

Along the Way to Maturity

Hulbert discovered the Calumet conglomerate lode. Shortly thereafter the Calumet and Hecla mines opened. This was followed by other neighboring mines. As a result, the Keweenaw began to experience one of the greatest mining booms in America - possibly the world. By 1870 this period of prosperity was just beginning to blossom. Within the decade it reached what some have called a bonanza status.

Gaining strength as the years advanced, the peak of the boom came shortly after the turn of the century. Yet the industry continued to flourish with considerable strength until the mid 1920's. Even so, although this was a healthy half century for the Copper Country collectively, the period was marked by several unfortunate situations and events. These events affected not only individual companies and communities, but on occasion, the industry as a whole. Likely the worst of the disasters came at the very beginning of the period with the closing of what had been the Copper Country's two richest mines, the Cliff and the Minesota. And yet, as much of a blow as this was to those who were immediately affected, the loss was far more than offset both in copper produced and dollars earned. The offset came from the opening of the Calumet and Hecla mines on the rich Calumet conglomerate lode.

As these new mines began producing and the boom gained in momentum, miners seeking employment began to flock into what came to be known as the Calumet area. Included were people of all nationalities and ethnic cultures. Soon a series of fledgling villages began to grow. Each had an array of pine-board houses, saloons, dance halls, and other business places. Each sprang into being wherever a shaft house marked an entry point to the copper lode.

Red Jacket was one of the first of these communities to come into being. However, its seed had been planted before the Calumet conglomerate was discovered or even a tree cut in the area. This came about in 1857 when Hulbert, then owner of the land, erected a log hut to be used as a boarding house by the Portland mine. At the time this mine, under the supervision of the Red Jacket Mining Company, was little more than a prospect property. As it turned out, the project was temporarily abandoned only a few months later when Hulbert disposed of his interests in the surrounding land.

The boarding house was first operated by Arthur Donald and then subsequently purchased by Richard Bastian who for a long time used it as a residence. In later years, it was torn down to make way for improvements. But, it was around this crude log hut that Red Jacket began to take shape. The hut stood at what is now the corner of Fifth and Portland in Calumet. A. H. Scott moved his family here in 1868, settling in a log cabin. Northrup and Butler opened the first general store and Edward Ryan the second. Others soon followed.

The growing town acquired the name Red Jacket from the mine, but it could have been called Portland just as well. The name, so it seems, was intended to honor a noted chief of the Seneca Indians. The chief had gained notoriety during the American Revolution as a scout and dispatch carrier for the British army. In recognition of his services, an English officer gave him a richly embroidered jacket that was a dazzling red. Because the courier wore it so much of the time, he was soon given the name Red Jacket. His Indian name is said to have been "So-go-ye-watha," which according to Indian translation is supposed to mean, "he keeps them awake."

One of the leading chiefs of the Six Nations, Red Jacket participated in the peace treaty negotiations between the United States and the Six Nations in 1792. Later, he became an orator of great eloquence as well as a most gracious statesman. During the War of 1812, his counsel was highly regarded by the American army. Thus, it seems fitting that the village, or more aptly the mining company, chose to honor him by using his name. Surprisingly, few people of the present municipality are familiar with the story.

After the opening of the Calumet lodes, the village of Red Jacket grew rapidly, but in 1870 it was almost completely destroyed by a disastrous brush fire. Although the loss was severe, the community was gradually rebuilt and in 1875 was officially incorporated. As the population continued to expand so did the demand for food, clothing, and supplies. Soon the village became overcrowded. In the later 1880's another community came into being, Luce to the southeast. At first this was called Calumet Village, but after 1895 it became Laurium, named after the ancient mining center in Greece.

Other villages sprang into existence at the Hecla, South Hecla, Tamarack, and Albion locations. A little later Blue Jacket and Yellow Jacket were added. Apparently these names were selected merely to conform with Red Jacket, though it has been said that Blue Jacket was a noted Shawnee Chief. Otherwise their origins have been lost with the passing years.

Raymbaultown is still another small community that came to be associated with the Calumet area. It grew up not far from where the Sacred Heart Church now stands. It was named after the intrepid missionary, Father Raymbault, who with Father Isaac Jogues, visited the Sault in 1741.

Collectively, this assemblage of villages became known as Calumet. At one time, in the years ahead, Calumet was able to boast of a population of more than 30,000. It also became known as the richest town in the world. Moreover, it became a town with paved streets and sidewalks. It became a town of culture with an outstanding theater and fine hotels. It became a town which, in the late 1880's, failed by just one vote in the Michigan Legislature of becoming Michigan's capital city.

But surprisingly, in spite of such distinctions, there was no single community that bore the name Calumet. Rather, it was an unique municipality, a puzzling arrangement which was neither a city, town, nor village. Instead it was a curious collection of villages of which Red Jacket was the center. Not until 1929 when Red Jacket was renamed Calumet, did a "Calumet" actually come into being as an official city. But by then it had acquired both fame and fortune.

An 1869 Copper Country visitor, in writing about his overland trip along the copper range, had this to say about newly born Calumet:

We reached Calumet, a village of some three hundred people, a little after midday, where the Calumet, Hecla, and Schoolcraft mines are located, and where two years ago not a house was built. The carpenters were at work upon the hotel where we dined and the first attempt at a graded street was being made as we passed through the place.

Fresh cut tree stumps are the order of the day throughout the village and are as thick as three in a bed. The good housewife hangs her clothes to dry on the stumps in her front door yard, and has stumpage enough, as they say up here, for a large washing.

The Hecla mine is now one of the richest and most valuable ever opened on Lake Superior, and is producing $90,000 worth of copper per month, fifty to sixty percent of which is clear profit.

The Calumet is also working very successfully, and the Schoolcraft, the last opened of the three, also promises well. At Allouez, some three miles distant, some very promising explorations are being made.

Such was Calumet in 1869, a small but bustling pioneer community where housing was still at a premium. But progress continued and just a year later the community was described as, "one of the most go-ahead places on the Upper Peninsula." Collectively, it soon boasted the Calumet Hotel, the Newton House, and the Red Jacket Hotel to accommodate the growing number of visitors. By 1874 there were rows of red-painted houses that reached out from the mine shafts.

When the Calumet mines opened there was no wagon road that connected them with Hancock and the Portage Lake area. A good road extended about three miles north of Hancock to Franklin, and there was a foot trail from there all the way to the Cliff mine, but that was all.

When Hulbert decided to haul the Calumet conglomerate rock to Hancock for crushing, it was necessary for him to have a crude roadway cleared through the woods. This, however, was little more than a wide path from which some of the trees and brush had been removed. Twisting around tree stumps and dodging water holes, it was practically impassable during the spring and summer months. Hulbert, of course, used it mostly during the winter and even then it is said that miners had to work nights to keep it passable. They filled the deep holes made by the oxen and loaded wagons or sleighs with snow. Then they poured water on it so that it would freeze. Thus a temporarily smooth surface existed.

Merchants and residents alike readily agreed that if business and trade were to be developed in Calumet, a good all-season road was needed. The Portage Lake Mining Gazette suggested a macadamized road between Portage Lake and the cluster of mines at Calumet and editorialized for its construction. During the Civil War, Congress had been pressed to authorize such a road, but nothing ever came of it.

In 1869 the Houghton County Board of Supervisors called a special election. They wanted a vote on a proposal to issue $10,000 in bonds to pay for a road from Franklin to the Keweenaw County line. The bond issue was approved; by the following year the road had been completed. The new road allowed both US mail and passengers to be carried by a daily stage coach from Hancock to Eagle River. Soon there were so many passengers that extra coaches had to be scheduled.

The coaches used were similar to those of the old west, closed heavy carriages with glass panels and a door on each side, and two inside seats facing each other. They were hauled by four horses while the driver sat outside on a high front seat. Baggage was loaded on top of the coach. For the passengers, a ride was rough because springs were not used to absorb the bumps. During the winter, a four seated sleigh replaced the coach. Later, a lighter, canvas-topped two horse buggy with side curtains was used. But stage coaches in the Copper Country soon gave way to progress, at least as far as the run between Calumet and Hancock was concerned.

In 1873 the Mineral Range Railroad, organized mostly by Hancock business owners, was completed and began operating between Hancock and Calumet. Soon three trains a day were running between the two towns. A little later service to Lake Linden and Gay was added. The Hancock and Calumet Railroad, developed by the Osceola mine owners, also began operations in 1873. Both of these lines were "narrow gauge."

In spite of these advances, a vital transportation gap still remained because movements south from Portage Lake were rather restricted. A fairly good winter road, known as Finnegan's Road, had been built in the early 1860's between Houghton and Ontonagon. There was a wagon road to L'Anse. But, travelers to these communities were still denied the speed and conveniences of the railroad. Both passengers and small produce still had to be moved by stage, wagon, sleigh, or boat.

Major cargo, of course, arrived and departed from Houghton and Hancock by lake freighter. Lake travel was helped significantly when, in 1873, the canal was completed that opened the upper end of Portage Lake into Lake Superior. Not only were there no railroad connections to the south, but as yet there was no bridge across Portage Lake. Although the railroad from Marquette to L'Anse was completed in 1872, it was not

until 1883 that it was extended to Houghton. But even then there remained a problem: the new railroad was "standard gauge" while those north from Hancock were "narrow gauge." And so not until 1897, when this was changed, did a "South Shore" train arrive in Calumet.

The lack of a bridge across Portage Lake had caused some inconvenience for travelers since the arrival of C. C. Douglass and Ransom Sheldon brought attention to the area back in the late 1840's. Early day adventurers and prospectors journeyed across Portage Lake as did the Indians, in bark or log canoes. Later the Mackinaw sail boats were developed. After Houghton and Hancock were born and became healthy towns, a ferry service came into being.

The first real public ferry service across Portage Lake, if it could be called such, was provided by Captain Samuel Eales. Captain Eales was an irascible old English seaman, who when he was in the mood, sailed or sculled his ship's yawl across the lake from his small dock and house in Houghton. Known as the "Ferry Man on Portage Lake," he charged his passengers two shillings for the crossing. He insisted that there had to be two or more passengers, because he stoutly refused to make the trip for less than four shillings. If one was alone, one would have to had paid four shillings or waited for someone else to come along. To ease the pain of waiting, it was always possible to obtain a shot of "Triple X Pike," if you so desired and had the price.

As the Captain aged, his dislike for the hard work of a ferryman grew. Finally, he decided to turn the whole business over to his helper and housekeeper, John T. Martin and his wife. In the course of time, as Houghton and Hancock continued to prosper, the ferry business increased until finally it outgrew the yawl. Then, as one old timer put it, "John hied himself down below to Detroit and shortly after returned bringing with him the palatial steam propelled 'Northern Light, Jr.'" The Northern Light was a 40 foot, open launch with a canvas canopy. It began making the round trip from Houghton to Hancock and back in about a half hour with a stop at the Pewabic dock. Martin also added a small scow to his equipment so he could ferry teams across the lake.

By 1863 the ever-increasing traffic had grown to the point where it even overwhelmed the "Light," so once again Martin journeyed to Detroit. This time he acquired the side-wheel schooner "Niagara" whose picture is now one of the treasures of the Keweenaw Historical Society. The "Niagara" was described as a, "floating palace of class which surely would solve for all time the problem of getting across the lake." But it did not. The problem, however, as the towns continued to grow, became centered on ferrying teams across the lake rather than people. Though the "Niagara" could carry three double teams or four singles, the time came when there were more teams waiting at the dock than the boat could accommodate in one trip. Thus, a clamor for something better arose.

The feasibility of building a bridge across Portage Lake to connect Houghton and Hancock was first discussed around 1870. It did not reach more than the talking stage for another year. In 1871 a group applied for and was granted a charter to build a wooden bridge. It was to cross the lake from the foot of Dakota Street in Houghton to the opposite shore in Hancock. A bridge company was formed. It tried to secure pledges for the $50,000 worth of shares that had to be placed to assure the financial success of the venture. Apparently, the general public considered the idea of building a bridge 1,400 feet long over water 80 feet deep too big of an undertaking for the home folks. At any rate, they did not invest and the idea languished.

In the meantime John Martin once more eased the growing demand for increased ferry facilities, this time by creating a "floating bridge" across the lake. This new service was a double-ended scow working on a cable strung between the lake shores. Called the "Leviathan", and powered by steam, the scow was 100 feet long with a driveway along the center wide enough to allow two teams abreast. It was long enough for four teams, thus easily accommodating eight teams at one time. Also, there was a cabin on each side of the center drive that extended nearly the full length of the boat. The run began from the foot of Quincy street in Houghton with the other end of the cable extended to the Quincy tailing sands on the opposite shore. It followed almost the same line as that proposed for the bridge. The round trip took twenty minutes.

In January of 1875, after some careful engineering studies had been completed, a second endeavor was made to promote and finance a bridge. With George Sheldon and James Edwards leading the way, another bridge company was organized. This time the bridge supporters had a good arguments that overtook the resistance of potential Houghton investors. After the railroads operating north out of Hancock came into being, Hancock was beginning to reap all the benefits of a port of entry. Houghton, the county seat, was playing second fiddle. The argument must have worked, for in less than two weeks the necessary finances were secured. A contract was then awarded to Fox and Howard of Chicago for the bridge construction. They were to build the bridge, that would be ready for use, for $47,000. The bridge was to be 24 feet wide and have a clearance of at least fourteen feet above the lake. At, or near, the center, the bridge was to have a turntable which would allow clearance for lake vessels sixty feet wide to pass through the span. Work on the structure was begun immediately and the completed job was accepted from the contractors in December. Unfortunately, only two weeks later, a landslide in the Quincy sands at the northern end of the bridge pushed some two hundred feet of the structure out of line. As a result, the bridge was not opened for traffic until the spring of 1876 after $5,000 had been spent in repairs.

There are some who have said that the bridge was jinxed. Maybe it was. During construction (and afterwards) some weird things occurred. The first of these adversities took

place while the pilings were being put in. Logs used for pilings were assembled as log rafts at Ashland, Wisconsin and then towed across Lake Superior by tug to Houghton. When the last raft of logs, pulled by the tug Sheldon, was on its way to Portage Lake, it encountered one of Superior's violent northeasterly storms. The storm struck when the slow-moving tug and its clumsy log raft were four or five miles east of Ontonagon. In a matter of only moments, the entire outfit was being driven backward and into the shore by the wind. It soon wound up in a tangle amidst the piers at the mouth of the Ontonagon River the tumbled remnants were effectively blocking the entrance to the harbor.

Informed of the tug's plight, the "Maythen", the largest tug at Portage Lake, was sent to the rescue. It took three days to get the log raft reassembled and back on its journey. Unfortunately, before the raft had been moved more than four miles, the wind came up again. In the gale that ensued even the "Maythen" could not handle the situation, and once more the raft was driven ashore. When the wind finally abated, two more days of hard work were spent getting things reassembled. This time the logs were put together as two rafts. With the "Maythen" pulling, half of the logs it finally arrived safely in Houghton. The Sheldon arrived two days later with the other half.

Things went smoothly from here on until the last panel of the span was being installed. More trouble was to follow. John Martin's double-ended scow, "Leviathan" struck and damaged the end of a protection pier before it had been fully secured. Under normal circumstances, the cable course of the scow was about 75 feet east of the bridge. However, when there was a wind, the length of the cable, which normally lay close to the bottom of the lake, allowed the scow to drift from its regular straight course. Apparently no one had even thought about the possible extent of this drift. If it was considered, it must have been regarded lightly or with the feeling that prevailing winds were mostly from the west which would move the scow away from the bridge. Nevertheless, on this particular September morning, there was a strong wind blowing in from the east. As a result, the ferry cable was pulled taut and the boat carried in a wide arc to the west, allowing it to strike the unfinished span. Fortunately, workmen saw the impact coming and were able to move to a safe position. There were no injuries, but considerable damage was done to the bridge.

During the following summer, after the bridge had been completed and opened, there was another incident with a ferry, this time the "Niagara." The bridge was high enough above the water to allow most of the local traffic to pass beneath it without difficulty. But, the pilot house and smoke stack on the "Niagara" were too tall for the boat to get through without opening the bridge's turntable. The regular route of the ferry took it under the bridge every twenty or thirty minutes. The passing of the ferry became a growing nuisance which taxed the patience of the bridge tender, the pilot of the ferry, and the bridge traffic.

One windy day in July, the pilot of the "Niagaran" attempted to pass through when the swing was only about three-quarters open. Unfortunately, the boat overtook the swing before it was fully out of the way. A corner of the turntable caught the top of the pilot house pulling it over and crashing it into the smoke stack, completely crushing the stack. Was the accident was caused by sheer cussedness on the part of the bridge tender? Was the accident caused by the wind slowing down the swing of the bridge? Was the accident due to carelessness by the pilot? We will never know. Little damage was done to the bridge but the "Niagaran" was put out of commission for a time. Suffice it to say some changes were made. When the ferry returned to duty, the pilot house had been cut down and the smoke stack fitted with a hinge and a counter balance so that it could easily be tipped. These changes allowed the "Niagaran" to pass under the bridge without opening the turntable.

During the first two years of bridge operations, the bridge company in collecting tolls as set by the County Board of Supervisors, did not quite break even. This was because of the strong competition from the Martin Ferries. Rates had been set at five cents for pedestrians, five cents for sheep, ten cents for hogs, fifteen cents for cattle or mules, thirty cents for a working wagon with one team, and forty cents for a working wagon with a double team. These rates were about the same, or a little less, than those charged by the ferries which after the bridge opening had also become unprofitable. To remedy the situation, the bridge company finally bought out the Martin interests in 1878. From then on the bridge began to make money.

John Mabbs was an agent for the Isle Royale mine on the south shore of the lake. About the time the idea of a bridge was getting into the news Mabbs heard about nitroglycerine. Nitroglycerine is an explosive about thirteen times more powerful than black powder, which was being used throughout the Copper Country. Needing some kind of stimulant to bolster the efficiency of his mine, Mabbs decided he wanted to try this new explosive. This was done in spite of some rumors about accidents that had occurred from its use in the Pennsylvania coal fields. Mabbs, however, thought he could handle it.

Mabbs went to New York. He had no difficulty in purchasing 4,000 pounds of pure nitroglycerine oil. The explosives were carefully stowed away in 100 tin cans weighing about 40 pounds each. Finding someone to transport the explosives back home was difficult. Tales of the terrible accidents that nitroglycerin had caused had traveled far and wide and, as a result, there had been quite an outcry against it. No one wanted to move it. Finally, after much difficulty, Mabbs persuaded a coal hauling railroad to handle the shipment. Unfortunately, when the news of the shipping plans leaked out, a mob assembled and stopped the train. The explosive was then sent back a hundred miles, transferred to another railroad, and finally by a secret, roundabout route reached Cleveland. Here Mabbs hoped to put it aboard a steamer

that would carry it to Portage Lake. But, instead, he really had troubles. No steamer wanted to accept the treacherous cargo. He pleaded, he begged, and he argued. They did not need this kind of business. He tried the sailing vessels but few were sailing this far north, and if they were, they did not want the cargo either.

And all the while that Mabbs was so feverishly seeking a boat to carry his cargo, he was expecting to be arrested. He was in violation of a Cleveland city ordinance, as his cargo was illegal within the city limits. But luckily Mabbs won out. He managed to avoid authorities in Cleveland and after much coaxing, he finally persuaded a ship master to accept his touchy merchandise for transportation to Hancock. He may have sighed with relief when the last tin of nitroglycerin was safely stowed away and the ship weighed anchor, but Mabbs soon found that his troubles were just beginning.

At Hancock, Mabbs intended to store the explosive in a powder magazine above the town. Somehow the Hancock authorities had heard about the plan and promptly ordered him to take his infernal oil elsewhere. Unable to hire anyone to handle the stuff, Mabbs and his brother unloaded the hundred cans by night. Then, one by one, they carried them to the Isle Royale mine and tenderly deposited them in an abandoned stope in the mine.

But fate was still stalking Mabbs. A few days later, even before he had time to do anything but make a few inconclusive blasts with the oil, orders came from his eastern directors to close the mine. He was undaunted, and completely unwilling to give up after all his trouble in getting the explosive half way across the country. He persuaded the agent of the neighboring Huron mine to let him do some experimental blasting. That permission was provided and he did his own blasting.

Working under the cover of darkness, he built a small magazine near the Huron and put one can of his oil there in preparation for his blasts. But, in spite of great secrecy, the miners heard about it. Furious, they stopped work. A mob gathered and were determined to ride Mabbs out town on a rail, but he had gone into hiding and they could not find him. Nevertheless, that night they located and blew up the magazine with its one can of oil. They thought this was the entire stock. Then the word leaked out that Mabbs had more hidden away. Search parties were formed and the countryside was combed in an effort to find it.

Mabbs knew that it was only a matter of time before the cache would be found in the abandoned stope of the Isle Royale. So, working by night, he and his brother moved the cans into the woods. The next day the searchers came excruciatingly close to finding it. So the Mabbs brothers, working without lights in the deep woods, again moved the cans. They cradled each can in their arms and stumbling through the darkness to a new hiding place. Still the search continued, and several times the hiding place was changed. Finally, realizing that this could not be kept up forever, Mabbs and his brother loaded the remaining cans into a yawl. They headed for Marquette, more than a hundred water miles away when a storm hit. For a while their little boat with its treacherous cargo was threatened. Finally, after some hectic moments, they managed to get to Marquette.

Here they were received with a much warmer welcome than at Hancock. Also, they readily gained permission from an iron company to demonstrate the power of the explosive on the hard iron ore. So successful were the results that the iron company willingly purchased the remainder of their stock. And thereafter, at least to a limited extent, nitroglycerine was used in the Marquette Iron Range. However, not until new methods of making it were developed was it admitted into the Copper Country.

About 1874 the Quincy began experimenting with what was called "giant powder," a product that contained about 50 percent nitroglycerine. However, to overcome the intense dislike the miners had for nitroglycerine, it was packaged under the trade name of "Hercules" and also "Excelsior." Later this mixture was replaced by dynamite. In dynamite the nitroglycerine was absorbed by wood pulp, diatomaceous earth, or some similar highly absorbent material. This procedure made it safer to use. Soon the new dynamite was being used throughout the entire Copper Country. This was a giant step forward for the industry as its rending power was far superior to the black powder which had been used up to that time.

It was around this time that the effects of the 1873 nationwide recession began to reach the Copper Country. In those days recessions were called panics. One of the most damaging consequences of the recession brought was a downward push in the price of copper which persisted over the next several years. At the beginning of 1873, refined lake copper was selling for 35 cents per pound, but by November it had dropped to 20 cents per pound. By 1878 it was down to 17.5 cents per pound.

Throughout this five-year period, most of the mines were able to increase their production. This increase, combined with greater efficiency in mining methods, tended to offset the lower prices. Increased production, however, had another effect. A general business revival had moved the price of copper back to 20.75 cents per pound in November of 1879. Increased national copper output, with large amounts now coming from the growing mines at Butte, Montana, began to drive the price down. In 1889 copper was selling for 9.875 cents per pound, the lowest recorded price until the next general recession hit in 1893.

During this period of faltering prices, unprofitable mining forced some of the smaller mines to discontinue operations. One of the larger mines that fell by the wayside and closed down for good during this period was the well known Delaware. Although it is quite likely its final closing was due to the poor quality of the rock being mined.

Located near the tip of the Keweenaw Peninsula, there was a time when the Delaware was the scene of a bustling

enterprise that was the hope of all copper seekers. But after it closed for good in 1887, the mining settlement became a real ghost town reminiscent of the earliest days in the far stretches of the Keweenaw peninsula.

The story of the Delaware with its tempestuous career of repeated shut downs and reorganizations under a score of new names is an intriguing one. It had its beginnings amid the turmoil and confusion generated by the foolish permit system during the early days of the copper rush. It was born when E. B. Wales, a copper prospector from Detroit, gained possession of Permit Number 222. He registered a claim covering one of the nine-square mile tracts granted in Keweenaw's northern extremity. Like so many others, this early permit was registered before the land survey had been completed. Later this led to several disputes concerning the boundaries of the claim, which of course, had to be settled before a government lease could be obtained. Eventually the disputed points were untangled and a lease effected. In 1845 this lease was taken over by William Bailey, who later became one of the patriarchs of Keweenaw County.

In 1847, after gaining financial backing from several easterners, Bailey founded the Northwest Copper Mining Association. William Pettit was elected president of the new company, and Horace Greeley, well known editor of the New York Tribune of those days, became one of the directors. Bailey was named the mine superintendent.

The focal point of the company's activities were three fissure veins that had been discovered along the southern slope of the trap range just south of Superior's Grand Marais Harbor. These copper-bearing veins had been exposed in several pits opened by prehistoric miners. Identified as the Kelly, Hogan, and Stoutenburgh, it was thought at the time that these veins might ultimately converge to form a single lode of considerable value. At any rate it was here, near the midpoint of what is now Section 15, Township 58 north, Range 30 west, that the Northwest, the pioneering parent and forerunner of the Delaware, opened its mine overlooking the valley of the Montreal River.

Several rough buildings were put up at the mine site and also at Grand Marais Harbor. A trail was cleared through the woods to the harbor. A road was built to Eagle Harbor, which in those early days was the closest landing point for the larger lake ships. Shafts were put down on each of the veins, the deepest eventually reaching 1,130 feet.

The principal product of the Northwest was mass copper, as it was at all of the earlier mines. Later an amygdaloid vein that cut across the fissure veins was located. Some native silver was also uncovered, particularly in the Hogan and Kelly veins. Most of the copper masses found here were small, weighing less than a ton. In no way were they comparable to those of the Cliff mine which had been opened but three years earlier. One of the largest uncovered at the Northwest was an unwieldy mass ten foot long by four inches thick.

In May of 1847, Horace Greeley, the newsman-director of the company, paid a business visit to the property. This visit came as he put it, "after coaxing several assessments from unwilling stockholders, who in their primeval innocence had expected to receive dividends from their stock instead of paying assessment thereon." Greeley's chief duty on the trip was to bring enough gold to the mine to pay the workmen for their previous winter's services. He was also to bring along a stock of provisions, a yoke of oxen, and a supply of hay and grain, all purchased in Detroit.

Putting his newly acquired possessions aboard the Samuel Ward, Greeley left Detroit on June 7, arriving at the Sault on June 11. There he transferred his cargo to the steamer Independence for the upper lake trip from the Sault to Eagle Harbor.

Just before reaching the tip of the Keweenaw peninsula the steamer encountered strong head winds of gale force. For safety's sake it took to the shelter of the jutting peninsula. There it dropped anchor and waited 28 hours for the winds to abate. When they were able to move on again, the smoke stack had become choked, necessitating a snail's pace the rest of the way to Eagle Harbor. Such hardships were the vagaries of lake travel in those days. Greeley did not reach his destination until June 15.

Because a pier had as yet been built at Eagle Harbor, Greeley's oxen were rudely pushed from the steamboat into the cold Lake Superior waters. The oxen were forced to swim toward land. Greeley and his remaining cargo were moved ashore in a small boat. In a later newspaper account of his journey, Greeley described Eagle Harbor as a small clearing of a dozen or so acres. There were two taverns where some time prior to his arrival two women, "too noble to be styled ladies" had already become well established.

The next morning, after remaining overnight at Eagle Harbor, Greeley trudged the six miles along the newly built mining road that twisted through the dense woods to the mining property of the Northwest. Here, he was housed in the agent's office where, "kegs of blasting powder were stored alongside a roaring stove." Though the kegs had rested there, "in cozy familiarity with the stove and agent for months" they were removed in, "deference to his prejudices." He goes on to describe the cabin:

It was lighted by two windows, each with six lights of eight by ten glass, one broken, the better to let in the 'musketoes.' If the light thus admitted were not abundant, there is a first-rate chance of starlight through the roof. A table, chair, and bedstead, all made on the premises with an ax, compose the bulk of the furniture, with a stove in the center for use, two trunks at the sides for ornaments, and a pair of rough board shelves resting on barked poles containing the agents spare clothing and his rather abundant specimens of native copper, gray sulphuret, red oxide, spar, silver, and the like." Greeley then added, "I don't believe there is another tenement so sumptuously

furnished among the dozen or so within a radius of three miles every way from this.

During the next few days, Greeley, accompanied by what he termed a "scientific geologist" visited ten of the neighboring companies, eight of which he said were working. These included the Bohemian on the opposite side of the point, Copper Falls, Cliff, National, and Forsyth. He departed from the workings on June 28.

In August of the following year Greeley paid another visit to the mine property. This time he found the operations "languidly pursued," the lull being caused primarily by the lack of funds. Unfortunately for the shareholders, this was to be an oft repeated condition in the years to come.

Relief came the following year on March 9, 1849, when the Michigan State legislature granted a charter to the Northwest Mining Company. The new company was formally organized in May with a capital stock of $200,000. Shares of the old company were exchanged for the new. James G. Clark was named the new president.

Under the reorganized company, the work force was increased and underground work accelerated on the Stoutenburgh vein. Although the stamp rock at the Northwest was not too encouraging, it was decided to build a stamp mill anyway. This was completed in the spring of 1850 with water power for the mill being provided by a small stream which proved to be woefully inadequate.

Between 1849 and 1851 the Northwest produced over 500,000 pounds of refined copper, which was for those days, a large output. From this mine they realized nearly $95,000. Unfortunately, getting the copper out of the ground and to the refinery cost them nearly twice that much. It became obvious that to make a profit more copper had to be produced without materially increasing the costs. In an endeavor to accomplish this goal, a new steam powered stamp mill, was installed in 1852. This was the first steam-powered mill in the district. The new mill was equipped with 24 Cornish stamp heads, but even this innovation proved disappointing, so in 1859, a third mill came into being. This one, built on the banks of the Montreal River, had a grand total of 48 Wayne stamp heads. The mill was connected with the mine by a 1,200-foot, double-track-inclined-railroad. The road grade was close to one hundred feet so that as a loaded car descended it would pull an empty one back.

For a time things went fairly smooth, but somehow this early mine never quite materialized as a profitable venture. The financial sheet began to show the situation going from bad to worse, and finally, after struggling for ten years, the Northwest went out of business. In November, 1861, a second reorganization took place. The company became the Pennsylvania with Samuel Hill lending his experience to the operation as agent for the new company. Because the old workings had been unprofitable, a decision was made to open new bedded deposits. For a while there was great activity about the property.

New buildings were erected, a new hoisting engine and drum installed, and many other surface improvements made. Another mill was erected, at Lac La Belle, and a new road built to the site. The new mill, largest in the district, was outfitted with improved equipment.

With the advent of higher copper prices which had been generated by the Civil War, prospects looked good for the Pennsylvania. So much so that in 1863 a part of the property was split off as the Delaware Mining Company. To accommodate the anticipated increase in tonnage, a second stamp mill was built at Lac La Belle and also expensive surface workings installed at the Delaware location. Although fantastic sums were spent for deluxe above-ground mining plants at both locations, no wonderful pay rock ever emerged from the mines. In spite of high copper prices, profits were not made, so available funds rapidly drained away.

To bolster their cash reserve, the New Jersey Mining Company was formed in 1863. The Maryland Mining Company was formed in 1864, followed by the Wyoming Mining Company in 1865. All of these mines were on Pennsylvania owned lands. Little in the way of mining ever took place at any of these locations. It would appear that these acquisitions were mostly a means of obtaining added working funds for the Pennsylvania during its period of stress. At the Wyoming location, about a half mile to the east, the company sold lots for a village which first became known as Wyoming. However, because so many of the buyers opened saloons on their property, it was not long before people were calling it "Hell Town." At one time the village had about seventy homes.

In 1866 the company bondholders became concerned about their investments. They had seen lavish expenditures of almost two million dollars, yet the venture remained unprofitable. After taking stock of the situation, they took over the property, but even this did not improve things, and for several years the mines were idle.

A visitor passing through this area in 1869 described the idle location as follows:

On the road from Eagle River to Lac La Belle, we passed the almost deserted village of the Pennsylvania and Delaware mines where was once a village of some 2,000 inhabitants, but now there is scarcely an occupied house.

Streets numbering nearly a hundred houses, churches, school houses, stores, and every appointment for a flourishing village are handsomely situated, but no people, and the only sign of life was the pumping engine of one shaft kept in operation to clear the mine of water.

Scores of other mines passed on the road, whose names I cannot remember, were in the same desolate condition, but we saw no deserted village so large and so expensively equipped on the surface as that of the Pennsylvania and Delaware companies, the property of which will probably be sold under the hammer.

Only a short time later this sale occurred, with Edward M. Davies of Philadelphia purchasing the bonds, but little

work was done under his ownership. And so until 1876 the property remained idle or was worked only on a haphazard basis. Seemingly, if the venture were to be continued, a complete reorganization of some kind was necessary.

This came about in 1876 when the Pennsylvania and Delaware properties were merged by a new organization under the title of Delaware Copper Mining Company. Captain A. P. Thomas from the Copper Falls mine was in charge. Under his direction the old Stoutenburgh vein was reopened. A new shaft house was built and equipped with a new hoisting engine. Railroad connections were made from the shaft house to the mill. The main shaft was deepened and new levels were opened. But once again, the results were disappointing.

But then eureka! A conglomerate lode was discovered underlying the greenstone. The prospects looked good. This lode, they said, would surely create a second Calumet and Hecla. Four shafts were begun so that the lode could be fully worked. However, there remained an obstacle: money. In order to carry on this work it became necessary to organize another new company. Thus in October, 1880, the Conglomerate Mining Company was born.

Its coffers filled with newly acquired capital, the Conglomerate Company acquired lands that included not only the old Northwest, Pennsylvania, and Delaware property. It also acquired the properties of the Mendota, New Jersey, Maryland, and Wyoming. Altogether these holdings comprised in excess of 20,000 acres (more than thirty square miles of timbered land). At the time, this was the largest land holding of any individual company in the district.

Once again huge sums of money were expended and lavish surface improvements made, even before the productiveness of the mine had been determined. New dwelling places were put up. Another stamp mill was built at Lac La Belle along with new docks and a connecting railroad. Many new rock cars were purchased along with two new locomotives to move them, all of them the very best quality. A ship canal was dug between Lac La Belle and Lake Superior. This canal provided access to the lake for lake-going vessels and permitted delivery of supplies to almost to the door step of the mine. Two hundred and fifty workers, of whom one hundred were miners, were initially employed. By 1882 this number had been increased to three hundred and fifty.

The conglomerate lode on which the work was concentrated was a fairly wide lode but its copper content was poor. The lode was fine-grained which resulted in a heavy loss at the mill. In 1883 Charles Palmer was appointed mine superintendent but the future was quite dismal. During his stay, about all he could get out of the rock was 9.5 pounds of copper per ton. This level of production is an insignificant amount for any copper mine, under any circumstances. The Directors felt that it was not economical and so they closed the property in 1884. By this time the company had already spent well over a over a million dollars more than its receipts and twice this much had been invested in equipment. Once again, except for occasional work, the mine was idle.

Four years later the company was reorganized as the Lac La Belle Mining Company. The new name did not change matters and no effort was made to resume mining. During 1888, however, the Lac La Belle Company did give an option on the property to Edward Henwood of Hancock. Henwood was almost successful in forming a company to be called the Pawnee Mining Company, but the deal fell through when a Detroiter claimed to have a prior option on the property. Henwood and his associates did, however, do some exploratory work on their own. In 1889 the Oneida Copper Company was formed with the intent of continuing work on the property but nothing was ever done. In fact, after 1887 the Delaware was never reopened though the ownership of the property did change several times. In 1923 the Calumet and Hecla, under their extensive consolidation of copper properties, took the Delaware over from the Manitou Mining Company. Later it did some exploratory work but nothing ever came from it.

The old property is now owned by Universal Oil, and still characterized by the single name Delaware just as it was through the earlier years. The Delaware remains deserted and lonely except for a few summer homes in the lee of bluffs and hills along the Montreal River.

Because the story of the Delaware is so filled with reorganizations it is necessary to elaborate on some of the associated terms. These terms include assessments, par value of shares, and full paid stock. They involve situations with which nearly all the copper companies were more or less involved, particularly in the earlier days.

When Michigan was a young State, a new company could issue a maximum of only 3,000 shares of its stock with a par value of $25.00. When fully paid in this provided the company with a working capital of $75,000. Later the number of shares allowed was increased to 10,000, then 100,000, still later 400,000. Finally, in view of the benefits derived from franchise fees, the State removed the limit entirely. Throughout these years, however, the par value of each share remained fixed at a maximum of $25.00. In many cases during the early days, only a portion of the $25.00 was paid in with the initial stock subscription. Thus when the company treasury began to run low, as it often did during mine development, an assessment was called. All shareholders were required to pay whatever portion of the unpaid balance requested. The amounts could be $1.00, $5.00, or $10.00 a share or more. Such assessments could be repeated until the repeated until the entire $25.00 subscription cost was paid. Once the shares became "full paid", the company could call for no further assessments. Should the treasury again become depleted and the company be unable to pay its obligations there were two choices. The company could go out of business, or when possible, reorganize to acquire the needed working capital.

In many cases, however, inefficient mine management would use the newly acquired funds indiscriminately. They would erect new surface structures and make other improvements entirely out of proportion to underground development and exploration. Thus, the new funds often dissipated rapidly, and again the choice between another reorganization or to discontinue company activities usually as a bankrupt venture resulted. While the Delaware was struggling through its final years several new mines sprang into being. These new mines would become important cogs in the economy of the district in the years ahead. Among these mines was the Atlantic, on the south side of Portage Lake. It was reborn in 1872 by a consolidation of the Adams Mining Company and the earlier Atlantic Mining Company. Some years before the Atlantic Mining Company had gone bankrupt after consuming its capital and another half million dollars. Benefiting from the work of its predecessors, the new Atlantic company went on to become a dividend payer and earn a reputation for its accomplishments.

And then there was the Osceola. Born 1873 in the Calumet area, in 1881 it became the Wolverine, and in 1882, the Tamarack. Both of these developments were close to the Calumet communities. Each of these mines grew and expanded to become a dividend payer, and each nurtured a productive period that continued well into the twentieth century. These new locations are mentioned here merely to record their birth in the proper time sequence. Later there will be more about them as in the years ahead they blossom into maturity.

In 1887 faltering copper prices set the stage for one of the most bizarre happenings ever perpetrated in the history of the copper industry. The setting was far from Michigan's Copper Country. However, Michigan copper along with Calumet and Hecla were to play an important part in the plot.

The fiasco began with Monsieur Hyacinthe Secretan. He was the secretary of the Société des Metaux of Paris, France Société des Metaux of Paris, France. He came up with what he thought was a brilliant idea to stimulate the faltering market price of copper, and at the same time nicely feather his own nest.

The Société was a partnership that began some twelve or thirteen years earlier. They were a manufacturer of copper novelties. Its coffers had been greatly enriched by the 1870 Franco-Prussian War, for which, among other things, they had made brass cartridges. After the war, the company continued to prosper and consolidate. By 1877 the Société was one of the largest buyers of copper in all Europe, if not the world.

In principal, Secretan's idea was relatively simple, though seemingly motivated by selfish intent. He believed that the consumption of copper was bound to increase. This was because of the potential needs of the then new and expanding electrical industry. Secretan proposed to become the world's supplier of copper by contracting to buy the entire output of all the copper mines around the world. More bluntly, he wanted to corner the market. It goes without saying that in so doing he would also be able to set his own price for the red metal.

To carry out the idea, the Société des Metaux combined with the Rothschilds, Comptoir d' Escompte, Credit Lyonnais and several other French financial interests. This group formed a gigantic pool, or trust as it would now be termed. The new group was called the Secretan Syndicate. The Syndicate had access to as much as nineteen million dollars. The Syndicate then proceeded to negotiate three-year renewable contracts with all the leading copper mines of the world. It wanted to purchase its output at a fixed price of 13 cents a pound. At the time this amount was some three cents above the prevailing price, so this price tendered an attractive deal in which the copper producers eagerly participated.

Having thus gained control over most of the world's output, Secretan and his associates launched their venture. Under the stimulus of a controlled supply, or more likely Secretan's pricing pen, the market price of copper quickly rose to 17 cents a pound. The price remained fairly stable at this figure. With this, the Syndicate's paper profits began to roll in and to multiply.

For a while everything went a splanned, but in a short time there came some troublesome effects which had not been taken into consideration. The Syndicate had failed to weigh the stimulus which the higher price would have on copper production. Both the established mines, which had firm contracts with the Syndicate, as well as the marginal mines, pushed their production to new peaks. Old mines were opened and new ones developed. Old stores of copper were pulled from dusty corners around the world. Junk copper was reclaimed. So much copper poured into the Syndicate that it began piling up twice as fast as it could be sold.

Not only had production been stimulated, but consumers, realizing that the higher price had not been brought about by natural conditions, began cutting back on use. The electrical industry, still in its infancy, and as yet quite non-essential, began to check many activities dependent upon copper to become cheaper. Several countries boycotted copper, refusing to buy new copper products. Even more damaging, some of the smelters not under contract to the Syndicate, began to take advantage of the situation selling copper at a discount. Thus, the smelters took over a significant portion of the consumer market.

And so, stimulated production combined with decreased consumption meant an ever-growing inventory of raw copper in which most of the Syndicate's available resources were soon tied up. Pressed for cash to cover their contractual obligations to buy copper, it went to the banks. Would they help? A loan of 10 cents a pound on a store of copper worth 17 cents seemed reasonable to the financial wizards. So, the banks gladly advanced some of their idle millions.

A month later the Syndicate was back asking for more money. Again the banks obliged. Within a short time this,

too, had been consumed by the constantly growing surplus of copper which the Syndicate was obligated to purchase. So they had to request more money a third time, and then a fourth, and a fifth. What at first had been delight on the part of the banks, soon turned to consternation, and finally reluctance. Much too late, the financial institutions in Paris, London, and Berlin, began to realize the gravity of the situation. Unless they loaned their money to the Syndicate, the whole thing would collapse. Yet with copper piling up so much faster than it could be sold it was like trying to fill a leaky barrel with water. The situation was getting out of control. What could the banks do? Hurriedly they conferred. Although their loans were backed by copper which was still on hand, the situation looked hopeless. There was a limit to their endurance. Accordingly, they informed Secretan that they must withdraw their support.

In the spring of 1889, the bubble of the Société des Metaux burst. But Secretan and some of his associates had foreseen the end. They had gathered together enough money to enable them to live in comfort for their remaining years, and then quickly departed from the scene. However, for the manager of the Comptoir d' Escompte, one of the original trust forming concerns, it was all too much. He committed suicide.

The banks, of course, promptly took over the copper that had been pledged as security. There were some 170,000 tons of it, enough to supply the entire world demand for at least a year. The banks, however, were not interested in becoming copper suppliers. They had had enough of copper. Their concern was how to convert this collateral into money and to do so as quickly as possible. The only way they knew of accomplishing this was to sell it on the open exchange. Although this looked promising to the bankers and might enable them to recover their funds, the action would certainly be most devastating to the copper industry. While this surplus of copper was being absorbed by world consumers, the mines would have no ready market. Likely they would be forced to close until supply and demand were again equalized. Unemployment would result in the leading copper districts bringing discomfort or even ruin to many.

Nevertheless the bankers went ahead with their plan. But when the first lots of copper were thrown onto the open market, the price of copper faltered. The price dropped so much that the value of the entire Syndicate surplus became less than their loans. Their hope now was to get out of the mess on the best terms possible, and this tack was taken. The market, however, broke repeatedly until copper reached a low of 7.5 cents per pound.

At this point an unprecedented event took place. Representatives of the world's two largest copper producers, the Calumet and Hecla from Michigan, and the Anaconda of Butte, Montana went to France. They walked into the stately offices of the French financial barons and told them what they had to do. They calmly informed the Syndicate that to avert a great disaster, it must stop selling copper, and to do so immediately.

Quite unaccustomed to receiving orders, let alone heeding them, the indignant bankers curtly asked the representatives what they proposed to do if they did not take their advice. The answer was quick, direct, and simple. They too had copper to sell, and unless they complied, their price would be 5 cents per pound the following morning. The ultimatum, sincerely directed, was unexpected. Its significance was quickly understood. The French bankers realized it was not just idle talk.

Already faced with the prospect of heavy losses, this threat, if carried out, would increase their losses by several million dollars. What could they do? Only one thing, so it seemed: to capitulate and try to effect a compromise. The bankers could see that the demand was not an unreasonable one. Perhaps in the long run a compromise might be best for all interests. Accordingly, an agreement was reached. The copper producers would restrict their output for an extended period of time. In turn, the Syndicate bankers would liquidate their copper in an orderly fashion as the market was able to absorb it.

Once made, this pact was conscientiously observed by all parties. As a result the price of copper remained fairly stable. It held at around 10 cents a pound until the Spanish American War. Natural economic pressure pushed it up to 18 cents near the turn of the century. Because of this, the Syndicate bankers eventually recovered a large portion of their loans. The two American copper companies avoided a severe setback. They also averted disastrous losses for the smaller mines. The loss and hardships for thousands of workers who were dependent upon the copper industry for their well being was eliminated.

Even as the lingering smoke from the Société des Metaux was clearing, a notable event of a different nature began unfolding in the heart of Michigan's Copper Country. This spirited affair involved the Pewabic and Franklin mines. It entailed a lapsed mining company charter, extended property liquidation, and the sale of a mine. This all led to a prolonged display of fireworks in court before the atmosphere finally cleared.

To best understand the melee that took place, it becomes necessary to go back a few years to the beginnings of the Pewabic and Franklin mines. The Pewabic mine was organized in 1853 where the rich Pewabic amygdaloid lode was discovered. These rocks became the life blood not only of the Pewabic but the Quincy as well. Both of these companies had struggled through several trying years of unprofitable mining.

After the discovery of the Pewabic amygdaloid lode, the Franklin Mining Company was organized in 1857 to work the continuing lode on the adjoining property to the north. Not only were the eastern directors of this new company the same as those of the Pewabic, but when the property of the Franklin was opened, the same local management was employed. Both mines were operated almost as if they were one company. Eventually, even the underground workings were connected.

Under this arrangement the Franklin, like the Pewabic, soon became a profitable venture. Everything went fairly well for nearly two decades. In 1866 an unfortunate shift in the financial control of the Pewabic led to many of the later problems. Under the new regime, differences of opinion began to arise over the payment of certain accounts created by the close interrelations in the workings of the two companies. So heated did these differences become that eventually a prolonged law suit with a series of claims and counter claims resulted. And then to further complicate the matter, in 1884 the officials of the Pewabic, whether by design or oversight, allowed the company charter to lapse. This brought the working days of the Pewabic to an automatic end and necessitated the appointment of trustees in order to liquidate the company assets. And with this came more disputes.

For nearly fifteen years the two companies were involved in litigation. For a time it appeared as if the legal expenses would exhaust the treasuries of both companies before it was over. As one person put it at the time, "They may come to a decision sometime during the century if the money for legal expense holds out."

One of the items to be liquidated was the mine property itself, and the long awaited sale finally took place under an auctioneer's hammer on December 24, 1890. The public auction was held at the courthouse in Houghton with some two hundred persons in attendance, most of whom were representatives of the mining world. To preserve the nostalgia of the occasion, the story of the sale is recreated here. This account appeared in the Ontonagon Herald on January 3, 1891 following the event:

Precisely at ten o'clock, the special master, Honorable Peter White of Marquette, stepped out of the court house door onto the massive stone steps and began reading the lengthy notice of sale and the description of the property.

This took twenty-three minutes. Then, as the air was frosty and many of the bidders were cold, a recess was taken until eleven o'clock.

Promptly to the minute, the special master appeared on the steps again, and for the benefit of those who might not have been present when he started, he once more stated the rules under which the sale would be conducted. Each bidder was to give his name with the bid so that it might be known who made the bid. No bid could be considered unless the bidder was prepared to deposit ten percent of the amount on the spot, the balance to be payable on the delivery of the deed, for which a reasonable time would be allowed.

'I am now ready to receive bids.'

Honorable Don Dickerson was the first bidder. He said that in order to fulfill his pledge, he would start the sale with $250,000.

In a moment Graham Pope of Houghton, who represented the Franklin, cried out in his usual powerful voice, '$275,000.'

Superintendent Harris, 'I bid $300,000 for the Quincy mine people.'

Graham Pope sung out, '$325,000.'

Captain Harris, '$350,000.'

Graham Pope, '$375,000.'

Captain Harris, '$400,000.'

Graham Pope, '$475,000.'

These bids followed each other so fast that it was not necessary for the special master to urge the bidding.

Now the auctioneer cried out, '$475,000 I'm offered. Less than half the value of the property.'

W. Hart Smith of Boston, immediately offered $500,000.

Graham Pope followed with $515,000.

Then Smith came up with $525,000; Pope, $540,000; Quincy Mining, $550,000; Pope, $575,000; Smith, $600,000; Pope $625,000.

These bids were fired after each other so lively that master White said, 'That's the talk, now you're bidding.'

Again they started, W. Hart Smith, $650,000; Graham Pope, $675,000; W. Hart Smith, $700,000.

Just seven minutes had passed since the first bid was made. Special master White cried out, '$700,000 I am offered. Just think of it, less than half the value of the property.' At this, a laugh went through the crowd. Graham Pope then came up to $701,000.

This the master kept repeating, then W. Hart Smith bid $710,000.

After repeating the bid several times, he said '$710,000 I am offered once, twice, three times, and sold to W. Hart Smith for Smith and Mason for $710,000.

The bidding had lasted just ten minutes.

There are those who have suggested that the entire Pewabic affair, including the lapsed charter, sale and all, was preconceived. After the auction Mason, who at the time was the president of the Quincy, resold the property to his company for a million dollars, netting $290,000. Whether this actually was skullduggery or not is not now to be judged. He was, however, often called an "old pirate" because of some of his behind the scenes manipulations. On the other hand, he was also regarded as the Quincy's "most potent and vital factor." In this case, as it turned out, the deal proved to be a most profitable one for the Quincy. No one ever complained. Eventually, the Pewabic mine became known as the North Quincy.

Some three years later, the hard times of the 1893 country-wide depression descended upon the Copper Country. The price of copper skidded to a low of 9.5 cents per pound. However, it can be said that in general few hardships were imposed upon the people of the copper district. The mines reduced wages by 10 percent in October of 1893. But, the price of nearly all commodities

also decreased enough so that the employees of the mines had about as much money as ever. The following year the cut was restored.

Generally the depressed condition prevailed throughout the country until 1898 when the US battleship "Maine" was blown up in Havana harbor. As a result, in April of 1898, our country was at war with Spain. And though this turned out to be of brief duration, its effects were quickly radiated into the Copper Country.

As with most wars, enormous amounts of copper were needed. To get it out of the ground, a period of rapid expansion throughout the copper district ensued. Any number of old and once active mining properties that had become moribund during the preceding period of low copper prices, were consolidated into several new operating companies. Perhaps their eventual accomplishments were not great. But, for the Copper Country, this splurge of industrial expansion brought a period of hope and confidence. The boom, which had blossomed nearly two decades earlier and filled these years with solid development, was soon to reach a glowing climax.

Down the South Range

When the twentieth century dawned, business and labor conditions around the Copper Country were at an all-time peak. The economy was flourishing evidenced by building operations, throughout much of the district, that were happening at a rapid rate. The population had reached 38,000 by 1890 and by 1900 it had nearly doubled. A large part of the increase came from heavy labor immigration from southeastern Europe. Employment at the mines, mills, and smelters was also up. Employment reached a high of between 15,000 and 16,000 workers. Although this peak did not occur until the new century was well under way. These were the years in which the greatest copper production was to be recorded.

In general, statistics seem to show that 1899 was probably the most prosperous year in the history of the Copper Country. The four years from 1898 to 1901 have often been spoken of as the golden years of the Keweenaw Peninsula. Horace Stevens in his Eighth Annual Review of the Copper Industry writes that these years were so prosperous that the, "affluent mining interests shrink at the first rude breath of adversity just as a pampered lap-dog might shiver in a cold wind that would not trouble the rugged watch dog."

In 1898 consolidation fever began to run high. Consolidation was stimulated somewhat by the Spanish war and its needs for copper. By the turn of the century, the formation of a half dozen or more newly consolidated mining companies had created an enormous stir throughout the district. Altogether these transactions involved more than 18,000 acres of land which formerly had been held by no less than two dozen concerns. Most of them, however, at one time or another, and for various reasons, had been unsuccessful in their endeavor to produce a paying mine.

The wave of consolidations began late in 1897. In that year the Osceola, planning ahead for future production, took steps to insure itself adequate mining ground for the coming years. The result was a major consolidation in which the Kearsarge, Tamarack Junior, and Iroquois properties were merged with the Osceola as a single company.

During the same year, Nathan Leopold of Chicago, succeeded in gaining control of the Huron, Grand Portage, and Isle Royale properties. These holdings were then merged as the Isle Royale Consolidated Mining Company. Two years later the Isle Royale Copper Company was formed. Isle Royale was an even more expanded venture which included the holdings of Miner's Copper Company. Miner's Copper Company was the old Frue and Dodge properties.

In Ontonagon County, the Michigan Copper Mining Company was organized in June of 1898. This reactivated the former property of the old Minesota and also merged it with lands once controlled by the Rockland and Superior mines. Later in the year, the Adventure Consolidated Copper and Mining Company was formed. This venture joined the Hilton and Knowlton with the old Adventure property. Early in 1899, the Ridge, Ogima, Merrimac, Hazard, and Mass were brought together as the Mass Consolidated Mining Company.

Meanwhile, in Keweenaw County, the long troubled Phoenix reorganized in 1899. This combined the Bay State, St. Clair, and Garden City with the old Phoenix as the Phoenix Consolidated Copper Company. A year earlier the Arcadian Copper Company, under the financial stimulus of Standard Oil Company, had been formed. Arcadian joined the old Arcadian with the Douglass, Concord, Edwards, Highland, and St. Mary's. This was supposed to be a big push to create a second Calumet and Hecla. But, alas, the push ended as a dismal failure in 1903. In fact, of all these consolidations, only the Osceola and the Isle Royale turned out to be what could be called profitable producers.

When this spree of consolidations began, there were seven major companies producing copper in significant amounts in the entire district. These were the Calumet and Hecla, Quincy, Tamarack, Franklin, Osceola, Atlantic and Wolverine. Of course, there were many small producers being worked on a hit-and-miss basis. Work resumed at a number of idle mines as well. Several newly developed mines also began to operate during this period. Important among these mines were the Mohawk, Baltic, Champion and Trimountain.

When the Golden Years began to blossom in 1897, all of the major producing mines, except the Atlantic, were to the north of Portage Lake. To the south, there remained a stretch of more than thirty miles of undeveloped mining land. Why this area had languished for so many years is puzzling to present day onlookers. The area was traversed by all the master copper-bearing lodes, and through the years an untold number of prospectors had combed its many nooks and crannies. In most cases, however, the lodes containing the red metal were well hidden by a heavy overburden which foiled their attempts. And so, except for the few mines along the south shore of Portage Lake, and the Atlantic which was only a few miles farther south, no producing mines had as yet been established along this mineralized belt.

There are some who say that had transportation facilities been made available to the area in the earlier years things might have been different. Nevertheless, every plea for a railroad that might have helped to tap the valuable timber and mineral resources of the area went unanswered.

Not until some time in the Gay Nineties was an acceptable plan conceived for the building of a railroad. This plan would help open the undeveloped part of the mineral belt that lay between Portage Lake and the mines in Ontonagon County. This idea was first presented by C. A.

Wright of Hancock and followed up by John Stanton. By this time Stanton was the main force behind several Copper Country mines. Stanton and his group had become associated with some Boston investors, one of whom was William A. Paine of the well known Paine-Weber brokerage firm. It was Paine and his moneyed group who promoted the railroad plan but several years passed before the plan was put into action. The plan organized the Copper Range Railroad Company to build a railroad. The Copper Range Company was organized to develop the mineral resources of some 7,500 acres of land which they had acquired.

It was 1900 before the Copper Range Railroad was completed and ready for use. It had 41 miles of rail between Houghton and Mass City where it made connections with the Chicago, Milwaukee, and St. Paul Line. When the trains began to roll over this stretch of road, Michigan's Copper Country had at last gained convenient travel connections with the rest of the homeland. After the railroad was opened, the Copper Range officials were toasted with such phrases as, "Your line is of equal importance with the building of the first railroad between Hancock and Calumet, and with the construction of the line between Houghton and the outside world." Without any doubt this was one of the more important industrial developments of the Copper Country. It soon brought into prominence the large area to the south of Portage Lake that is now known as the South Range.

Although the South Range may have been neglected, it had not been completely overlooked. As early as 1851 the South Range's 1500-foot high Whealkate bluff had been a place that fascinated red metal explorers. Somehow, so the legends go, they were convinced that its height was due to a rocky resistance to erosion and there very probably might be metal in this heavenly reaching land mass.

With little more than this hunch to go on, Walter W. Palmer opened up a mine along the bluff. He called it the "Whealkate" in honor of Mrs. Kate Walback, the wife of Dr. S. S. Walback who was one of his associates in the mine. When properly interpreted, the mine name comes out as the "Mine Kate" because "Wheal" is the Cornish word for mine. Financing for the project came from several New York business people who at the time were rather interested in the Albion mine at Houghton. They wanted to gain more mining property, and the 240-acre tract of the Whealkate seemed to be the answer.

The Whealkate, like most of the early mines, ended up as a dismal failure. According to Horace Stevens, author of The Copper Handbook, the Whealkate was the most unusual example of mining ever attempted in the Copper Country. He goes on to say: "The mine should be dug up bodily and preserved for engraving upon the intellect of those who would be admonished. It is probably the finest example extant of how not to do it!"

The absurdity began with the first shaft which was said to have been sunk in quick-sand. It had to be abandoned due to the presence of a great amount of water. A second shaft was then sunk in the trap rock for forty feet. From that shaft, a drift was sent south for twenty feet. Then an incline shaft was sunk fifty feet. From the bottom of this shaft, a cross cut was sent one hundred feet to a supposed copper lode. A final drift was sent south for another fifty feet. In this location a winze was sunk 540 feet. These haphazard attempts did not find any copper. Palmer's hope had been to strike a fissure vein of the type that had made the Cliff mine in Keweenaw County so fabulous. But he did not.

About 1882, Captain John Ryan made some explorations in what was called the Six Mile Hill area which was about six miles south of Houghton. Captain Ryan was the father of John D. Ryan who achieved fame as Board Chairman of Anaconda Copper Company of Butte, Montana. Like so many others his work was unproductive.

Some years later the St. Mary's Land Company that owned this land, gave a purchase option on the tract to a Major Ritchie who was an English promoter. The Major then concocted a deal with an English group. He had persuaded them to put up a 60,000 pound sterling deposit in the Bank of England while waiting for a title search to be completed. The 1896 Silver Scare came along and the potential investors hastily withdrew their money, and the deal was off.

The following year Captain W. A. Dunn of Houghton became interested in the same location. Within a short time after obtaining an option on the property, his explorations revealed enough copper to warrant a mining venture. This resulted in the formation of the Baltic Copper Mining Company in December of 1897. After opening and developing a mine, the company produced their first stamp copper in August of 1899 by means of a leased stamp head at the Atlantic mill.

Few mines in their early stages have created as much general interest and excitement as did the Baltic. Almost from the very beginning it caught the public's fancy and became an engrossing topic of conversation. Partly, of course, because the Baltic was the first of the new mine endeavors in the South Range at the time. But more than this, much of the enthusiasm stemmed from the great possibilities of the property because the lode as opened was so remarkably rich in copper.

Within less than eighteen months after the Baltic began working, the deep wilderness from which it was born had been cleared enough to allow a bustling hamlet to grow around the mine. With some 38 buildings on the property, it possessed all the necessary facilities of a workable mining community, including work shops, residences, and even a tidy school house.

The Copper Range Company was created in 1899. One of the first moves the company made was to invite Dr. L. L. Hubbard to joint the new venture. At that time Dr. Hubbard was the State Geologist of Michigan. He was to take charge of all explorations for potential copper developments on their properties. Hubbard resigned his

position with the State and accepted the offer of the Copper Range Company. To his credit, after only a few months in the Copper Country, he located what turned out to be one of the richest showings in the district. Some say it was exceeded only by the famed Calumet conglomerate lode.

To develop and work the new discovery, Copper Range and the St. Mary's Land interests joined together to form the Champion Copper Company. This was set up as a closed corporation with each controlling 50 percent of the stock. Almost immediately the Champion became a most important facet in the new district. The mine proved to be most profitable and the company began paying healthy dividends almost as soon as the mine reached a productive level. And so from its earliest days, the Champion proved it had a right to exist, that it was a winner and a champion in every respect. Over the years its production was consistently good. The years 1915 and 1916 were its best. Each of these years it topped 33,000,000 pounds of refined copper. During its lifetime, 822,827,890 pounds of copper were produced and $32,170,260.95 in dividends were paid out. All of this was accomplished before it became a part of Copper Range Company in 1930. The mine closed in 1968.

One of the monuments that keeps the memory of the Champion alive is the weathered No. 4 shaft house which stands over the mine. The once neighboring No's. 1, 2, and 3 shaft houses have been effaced. But, the No. 4 still stands as it rises over a shaft from which several Portage Lake communities obtain their water supply. In about 1937 community water mains were laid to tap the 1700-gallon per minute flow of water, which originates from a lower level of the mine. No. 4 shaft is 5,600 feet deep, having been bottomed at the 56th level. Little drifting was done from the bottom level, though, as in 1945, work was shifted to upper levels where it continued until the mine closed in 1968.

Another tract of land which lay between the Champion and the Baltic also became the scene of much activity during the initial days of development in the South Range. Thomas W. Lawson, a Bostonian, gained control over this property and in 1902 began mining operations as the Trimountain Mining Company. Lawson was a hard-headed financial schemer. Not only did he have a controlling interest in the Trimountain but he used the authority given to him to dictate company policies with adamant power. His ideas or methods were not always in conformance with the best mining practices.

Unlike the Baltic or the Champion, the Trimountain experienced some early difficulties. Firstly, the lode proved difficult to locate because it was deeply covered with overburden. And then, as it turned out, when an entry shaft was sunk, it went through a hundred feet of quicksand, an antagonizing experience for all concerned. Not until 1902 did the first copper-bearing rock from the Trimountain reach a stamp mill. And when it finally reached a leased head at the Arcadian mill, the copper did not prove to be excitingly rich. Finally, during the following year when the venture was still around $800,000 in debt, Lawson unleashed one of his "frenzied schemes." Unexpectedly, he paid a $300,000 dividend. Fortunately, for the good of the Trimountain, the mine was acquired shortly after by the Copper Range people, and to their credit, its operations soon became profitable.

Two years before this, the directors of the Copper Range changed the corporate structure of their company to make it a securities-holding corporation. In the reorganization, the Baltic Copper Mining Company was acquired and then consolidated with the Copper Range Consolidated Company. At the same time the capitalization of the new company was greatly increased and about 10,000 acres of land brought under its control.

In 1903 when the controlling interest in the Trimountain was acquired, capitalization of the company was again increased. The following year it acquired an interest in the Michigan Smelting Company on Portage Lake. Some years later in a series of separate moves, Copper Range acquired not only the remaining stock of the Trimountain but also the other half of the Champion stock from the St. Mary's Land Company. Copper Range also acquired 97 percent of the stock of the Atlantic Mining Company.

With such holdings of valuable mining properties, extensive lands, a smelter, and the Copper Range Railroad, the Copper Range Company soon became one of the major enterprises of the Copper Country. Copper production and profits were second only to those of the great Calumet and Hecla. Even later the Copper Range lived on as the parent company of the White Pine Copper Company.

In 1905 everything was hustle and bustle in the South Range. Copper mining was beginning to boom with the Atlantic still producing, and the Baltic, Champion, and Trimountain as the big new mines of the area. In the center of all this activity, the independent little village of South Range sprang into being in Adams Township. It was not born as a mining town nor was it ever intended as such. Rather it was chartered and platted to be the community hub of the South Range area just as Calumet had become the center for the mines north of Portage Lake. That it did not reach the regal status of Calumet should not discredit its founders.

A flurry of activity saw trees cut down and streets and residences appear amid the stumps. Later, a host of commercial buildings came into being along the single main street. The community matured and through the years it managed to cling to life. Today, South Range is the principal town of the South Range district. It coexists with the remnants of neighboring mine towns that likewise have clung to a sleepy existence. Among these are Atlantic, Baltic, Trimountain and Painesdale, the latter is the same town that grew up near the Champion mine.

There are some who claim that the town of South Range was incorrectly named, saying it should have been called Stanton. So named it would have recognized John Stanton, who did so much for the copper industry

throughout the district. That honor is what was intended, but there happened to be another town of Stanton in the Michigan. So, the idea was discarded and the hastily conceived name of South Range was used instead.

But, what about John Stanton, who was thought of so highly in those days some seventy-odd years ago? Who was he and what did he do? Born February 25, 1830, in Bristol, England. John Stanton was the son of a mining engineer who moved his family to the Pennsylvania community of Pottsville about a hundred miles from Philadelphia. John was then but five years old. He spent most of his early life in the coal region, but later his thoughts turned to copper. By the time he was thirty he had ventured into the Copper Country where he became interested in the Central mine in Keweenaw County. Shortly there after, he became one of its officers.

Two years later he became identified with the South Pewabic, a marginal mine on the south shore of Portage Lake, which later became a part of the Atlantic firm. From this point Stanton's associations with Lake Superior copper mines multiplied, and during the ensuing years, nine mines were to come under his sway. Besides the Central and Atlantic, these were the Allouez, Wolverine, Mohawk, Baltic, Globe, Winona, and Michigan. All of these mines were in addition to his association with the Copper Range. Stanton was held in high esteem throughout the entire Copper Country. Before his days came to an end he was recognized as one of the most important copper tycoons in the Keweenaw Peninsula. He was known as the financial genius who aided in the organization of mining companies and, in this respect, was often called the "Nestor" of the mining industry.

Mrs. Thomas Davey, one of the area old timers and a former resident of Atlantic often reminisced about Stanton and her younger days in this little mining town. She held Stanton in high regard and recalls he initiated Atlantic's annual Fourth-of-July celebration. He helped make the event famous. Partly by giving it his personal attention and in many instances financial support as well.

Mrs. Davey also tells about a copper statue of Stanton that was unveiled in 1907 at the then new Paine Memorial Library a year after Stanton's death. The statue, a bust of Stanton, had been fashioned from copper representing the mining areas with which the tycoon was identified. It now rests in the archives of the Houghton County Historical Society. At the unveiling, she recalls, Fred Jeffers, renowned orator and superintendent of the Adams Township schools, who delivered the main address of the day. He told how the statue was to have been placed in Atlantic, but because there was no appropriate place for it there, it was placed in the Paine Library at Painesdale. And then, in language which only Jeffers could use so well, he detailed Stanton's many accomplishments. He did not forget to tell of Stanton's many mine affiliations. He told how Stanton had become associated with the preliminary Atlantic as early as 1864. During Stanton's days, he had held shares in nearly every mine in the Copper Country. He summarized by saying that it would be difficult to find anyone who did so many worthwhile things for the good of the economy of the red metal district.

Stanton's first venture in the South Range had a disconcerting twist, in that the South Pewabic Mining Company failed to make good. The mine, opened in 1865 with William Frue as superintendent. It started on what was thought to be the southerly extension of the Pewabic lode. This was the lode on which the Pewabic and the Quincy mines had begun to prosper. The geology proved to be different. Instead, it was an ashbed lode that afterwards became known as the Atlantic ash bed. Even though the ore was not rich, a fair amount of copper was produced, but not enough to cover production costs. After five years and a large deficit, the stockholders lost interest and the company went into bankruptcy. The property was sold to the people who in 1872 put together the Atlantic Mining Company.

Once again, the formation of the Atlantic involved John Stanton, the "Nestor" who became the secretary-treasurer of the new company. Joseph Gay, after whom Gay in Keweenaw County was named, became its president.

The Atlantic was a merger of the old South Pewabic property with the former Adams mine. The Adams mine had not been in use for many years. Initially the new company controlled 1,280 acres of land, although considerably more acreage was acquired later.

After calling for an assessment of two dollars a share to provide sufficient working capital for the company, the work of dewatering the old Adams mine was begun. When completed in 1873, an expanded force of 150 workers were employeed immediately. Since the rock was not overly rich in copper, the new management realized that for the mine to become profitable it must be mined and processed on a large scale. Close attention would have to be given to the economy of all operations.

Although the sucess of the mine presented numerous obstacles, it also offered a combination of circumstances that were favorable for economical mining. To the credit of the mine management, within five years of its opening, the Atlantic had developed into an important dividend-paying property. In so doing it gained an enviable reputation and at one time held the record for profitably exploiting the lowest grade ore in the Copper Country. Frequently only a scant 12 pounds of copper were extracted from a ton of rock. This was delivered and sold in New York for a mere 9 cents per pound. It was indeed a remarkable achievement that any profit was forthcoming.

The Atlantic built its first mill on the Portage Lake channel near what is now Cole's Creek about two miles west of Houghton. The company also built its own small railroad that connected the mine with the mill, warehouses, and coal docks on the lake. Sometime in 1894 the stamp sands from the mill began to intrude upon the channel. The government, which had assumed command over the Portage water way, prohibited further dumping of sand at this location. A new mill site was immediately selected on the banks of the Salmon Trout River where a few miles to

the west it emptied into Lake Superior. A new mill that would accommodate three stamping heads was begun at once. A large log and earth dam was built near the mouth of the river to impound the needed water supply. A railroad was constructed to the mine and also the docks on Portage Lake. All were completed in 1895.

Up to this time the entire area of the Salmon Trout River had been one of virgin forests and dense cedar swamps. It was a land untouched by the axe and saw. In 1888 the only human inhabitants were a few Indians who lived in three wigwams nestled cozily along the base of the steep cliff where the Salmon Trout River emptied into Lake Superior.

The quiet, rustic setting of the Salmon Trout River area did not survive for long. Soon, the primitive land was disturbed by the chips from an axe and the crack of a rifle as surveyors, geologists, and workmen invaded the area. They came to create the new dam and mill. It was here that the little town of Salmon Trout came into being along the banks of the river. The town was populated by the employees of the new stamping facility. Salmon Trout grew by leaps and bounds, and when it was about to burst its seams, its name was changed to Redridge. Some folks say the reason for this change in name is best explained by pausing on the hill that overlooks the town site and watching the setting sun dip into the shimmering waters of Lake Superior.

When the Baltic mine began producing in 1899, the company leased one of the stamp heads at the new Atlantic mill. A year later it took over a second one. Eventually, the Baltic erected its own mill on the other side of the Salmon Trout River. When the building of this mill was contemplated, an agreement was effected between the Atlantic and Baltic companies. They were to build a new dam across the river just below the old dam to supply the water for both mills. Each company paying for half the construction costs.

The new dam, designed by J. F. Jackson, was the first of its kind in the country. It was a steel gravity design that was anchored in place by its own weight and used a cut-off to prevent seepage around the steel and concrete abutments. The dam itself was 1,006 feet long, 464 feet wide, and 74 feet high. After it was completed, engineers came from all over the country to study its engineering techniques. Of course, when the water finally built up behind the new and higher steel dam, the old log and earth dam became completely water covered.

When 1904 dawned, things were humming at the two mills in Redridge and prospects for the Atlantic had never seemed brighter. Preparations were being made to sink some of the shafts deeper so the mine could be worked at greater depths, and the hoisting equipment was changed accordingly. But then came some very serious troubles. Underground caving and "air blasts" or what some have described as artificial earthquakes due to the movement or settling of the unsupported hanging walls, began to occur in the mine. As the year progressed, these disturbances occurred more frequently. During 1905, the falls became so frequent and the intensity of the blasts so great that work became intermittent and production schedules seriously effected. Finally, after a huge cave-in on May 17, 1906, operations were suspended and the mine closed.

Fortunately, this big blast happened on a Saturday after all the miners had left the mine, so no one was injured or killed. As one old timer put it, "Everyone thought the whole town was going under." Another wrote, "The air blast sounded like a deep roaring thunder. Houses trembled and windows rattled and even dishes fell from their cupboard shelves." So came the sudden and dramatic end of the Atlantic mine, but not until it had produced more than a 100,000,000 pounds of copper. The Atlantic mine paid just under a $1,000,000 in dividends.

After the mine closed, the little community that had grown up around the workings began to fade away as families started to move on to other places. Rather quickly, its population which had grown to nearly 3,000 during the glory days of the mine, dwindled away to only a few hundred. Fortunately for Atlantic, the D. A. Stratton Company began operating a saw mill in the area shortly after the mine closed. This mill, in all likelihood, helped to preserve it so that today, despite its long years of inactivity, the pulse of a community continues. However, while traveling through the area, should you miss the "Atlantic Mine" highway sign or the few scattered buildings that mark its location, you might never know it was there. Vestiges of the old mine do not exist as all the shaft houses and other mine buildings have been torn down. The poor rock piles which once surrounded them were crushed to pebbles and used to resurface township roads back in the 1920's. Before these roads were resurfaced with macadam in later years, many bits of pure copper could be seen shining in the sunlight. At one time, because of such resurfacing, many of the roads about the Copper Country and also many of the streets in its towns gleamed with fragments of the red metal which was quite an attraction for tourists. Most of this glamour, however, has since disappeared under an asphalt cover as the roads and streets were gradually improved in later years. About the only reminder of the by-gone era in Atlantic is a 300-pound mass of pure float copper. The boulder, at the last accounting, rested in front of the building that is used as a post office.

When the Atlantic closed its mill at Redridge, the unfortunate event severely shook the town too. However, with the Baltic mill still in operation, the community was able to rally. Eventually, it resurged to reach a population of around 700. During the first decade of the 20th century, a new school house was built, along with several churches, and also a Woodman Hall. The town also had the distinction of fathering the first Boy Scout troop in the Copper Country. Brass bands were extremely popular during this era and through the years Redridge also boasted of several well known bands. The community

seemed fortunate to have among its citizenry a number of outstanding band leaders throughout most of these years.

While Redridge was enjoying its better days, neighboring Freda, now nothing more than a name on some maps, was reigning supreme as a popular recreation park. The park, which came into existence slightly before 1910, soon became a favorite place for picnics and dancing. It was conveniently equipped with swings and other entertainment devices for both adults and children. There was a popular dance pavilion commodious enough not only for dancing but also for those who just wanted to watch or listen to the orchestra.

In those days the area was served by the Copper Range Railroad. On Sundays special trains, some with as many as four or five passenger coaches, made a round trip run to Freda from Calumet, Houghton, and the South Range area. Usually the earliest train would carry picnickers who expected to return home about six or seven in the evening. The later train brought the orchestra and those who planned to spend the evening dancing.

Freda Park became a Copper Country entertainment center during an age when this kind of recreation popular. White City at Portage Entry, Electric Park in the Calumet area, and Crestview Center near Eagle River were all similar or even more glorified fun centers. They were all in their prime at about this same time. At Freda, interest began to wane around 1918 at about the time the automobile was becoming popular. Today, once joyous Freda Park exists only in the memories of the fast diminishing older generation. To most of today's Copper Country people, it is almost entirely unknown,. Thus, they are unable to visualize either the park or the route of the Copper Range line that served it.

The big calamity at Redridge struck in September of 1922 when the Baltic Copper Mining Company closed its mill. To Redridge this was a death blow as the exodus of citizens was quick and almost complete. Today, the old hamlet is a mass of ruins with only two or three families lingering on. The big steel dam is still there with the rusted tracks still threaded across its dilapidated top. No longer though does it hold back any water. For safety reasons, the water level was lowered some years ago. A lake still exists behind the remnants of the older dam which was uncovered as the lake level was lowered and the water retreated behind it. The tall concrete stack of the old Baltic mill yet rises regally over the area and from Lake Superior it can be seen for miles. One of the few remaining stacks in the Copper Country, it stands sturdy and seemingly modern in appearance almost as if waiting for another chance to serve. The foundations of the old stamps at the mill are still in place, perhaps because they were among the most massive ever set. The concrete was made to withstand the heavy pounding and terrific blows of the stamp heads.

And though Redridge has slipped completely away, its history lingers on amid the scattered landmarks of the past like a legendary Sleepy Hollow. Each summer a few visitors stop by to enjoy the cool breezes from the lake and to be enticed by the nostalgia of the ruins. Photographers wander along the mossy paths snapping scenes of the historic site. Artists sit on the hill above the lake and capture on their paintings the glorious colors of the setting sun as it slowly dips into Superior. A picturesque "covered road" existed for several miles between Atlantic and Redridge. The road was a narrow one-lane strip that wound through a shadowy swampland. The cover was a darkened tunnel formed by the dense roadside trees whose branches are thickly entwined overhead. Originally this was the route of the railroad that carried copper-bearing rock from the Atlantic mine to the mill at Redridge. After the mine closed, the officials of Stanton Township had the old railroad bed converted into this unusual attraction for vacationers. It's a rustic treat for those who know just where the road leads, but a scary experience for those who are not sure of the destination.

In Ontonagon County

Houghton County received a big boost from industrial expansion in the Copper Country at the end of the Gay Nineties and the opening decade of the twentieth century. These positive economic effects were not confined to this area alone.

Keweenaw County also surged ahead to reach a population of some 10,000 people. With the advent of the Keweenaw Central Railroad to serve its related mines the county anticipated even further expansion and economic development.

Likewise, Baraga County, always closely associated with the Copper Country, was climbing the industrial ladder. The Heber Lumber Company, a young but growing timber giant whose waves were spilling over into the Houghton-Hancock area, had boomed into high gear. This new company was contributing much to the search for iron, graphite and other valuable earth products of the day.

Ontonagon County had seen a fluctuating history of good and bad times. It too was experiencing a feeling of revived prosperity brought on by the surge of mining redevelopments and consolidations.

Just before the new century dawned, the old Winona, midway between the new South Range and Ontonagon mines, shook off the dust of nearly ten years of inactivity. Under the stimulus of the Stanton and Paine interests it was making a comeback effort in copper production.

It was in 1864 that the Winona had first been opened upon what then promised to be a lode of great richness. Primitive miners had worked the lode rather extensively and the veins of copper were clearly marked by a line of ancient pits. J. A. Hubbell represented a Philadelphia based concern. So it was with great anticipation, quite in contrast to the more normal Boston set up, that operation began by sinking a shallow shaft on the lode. This produced a fair amount of barrel and mass copper.

However, due to the isolated location of the mine, the cost of moving machinery and supplies in and the ore out by wagon teams was expensive. As yet there was no railroad, and overhead was just too great for the operation to be profitable. As a result the company work soon ceased although mining was continued on an intermittent basis by tributors until just prior to 1890. The amount of mass copper recovered could not support their efforts.

When the price of copper rose sharply in the spring of 1898, William Paine obtained an option on some 1,480 acres of land that surrounded the old property. Development work was begun at once under the direction of Captain John Welton. A new exploratory shaft was sunk. The results were so assuring that, with the Copper Range Railroad about to become a reality, the Winona Copper Company was organized and the property purchased. John Stanton was named president of the new venture and John Denton, mine superintendent. Work was begun at once on an enlarged scale. A new company office, boarding house, saw mill, carpentry and blacksmith shops, and barns were erected. The town site of Winona was platted and during the following summer a number of new houses were built.

Ultimately, Winona became quite a town. Finally, after the Copper Range Railroad was completed, the Winona depot became a most active station. Its patronage moved not only to Houghton and Calumet, but also to Ontonagon and McKeever for transfer to the Chicago, Milwaukee, and St. Paul line. In those days nearly everything that moved in or out of Winona was transported by train. Usually, there were boxcars at the depot where the merchandise was unloaded and then drayed to the stores and mine. During its heyday, Winona became the proud possessor of a twelve-grade school, the only one in Elm River Township. The school remains to this day, but now has but eight grades.

During its lifetime the Winona produced over 17,600,000 pounds of refined copper. Even though it absorbed the neighboring King Phillip Copper Company in 1911, the operation never reached the dividend stage.

For a time the company had no mill so its stamp rock had to be shipped to other locations. Later, the company built a mill, but it never proved successful. The smelting was usually done at the Quincy in Ripley or at the Michigan on Cowl's Creek.

Following World War I when copper began selling for abnormally low prices, it became impossible for the company to make ends meet. It endured for a while but finally in 1920, all operations were discontinued, and there has been no productive mining since. After the mine closed many of Winona's citizens moved on to more fertile ground. Those who remained suffered not only the loss of wages or a declining business but also the virtual end of their utilities. The town's electricity was shut off with the closing of the mine. For a time in those early days, lamps and lanterns were forced upon those who stayed.

Today, Winona's feeble breath of life is kept astir by the few tourists, hunters, fishermen and other visitors who travel the highway that now passes near its door. Those who still claim Winona as home hope that some day the copper industry will be revived. To this end, the Lake Superior Mining Company was organized in comparatively recent times with the intent of working the property. They even went so far as to dewater the old King Phillip. But as yet nothing more has come of it.

A little to the south of Winona, in Ontonagon County, there exists another early day mining area that has seen almost as many mines as Keweenaw County. Some of the mines were worked rather extensively. The mines were the Lake mine and the nearby Algomah, South Lake and North Lake. In 1912 they underwent a mining spurt. Some thought this might be destined to match the output of the area between Painesdale and Atlantic. Production never even came close.

During the early twentieth century the Lake mine was operating two shafts in the Knowlton lode. The little mining community it fostered was almost a carbon copy of nearby Winona. It had its mine buildings, rows of company houses, stores, school and a depot, and like Winona, Lake Mine became a busy little flag station on the Copper Range Railroad. Everything went well for the Lake Mine during the busy days of World War I, even though dividends were not forthcoming. Then the market for copper took its big price tumble after the war, and for its own good, the company closed the mine.

Today the once active mining community is but an empty space. Just about every trace of what once existed there is gone. Two, or maybe three, residences, including the former Veeker domicile, mark the site of the old mine. All of these are not far from where the Algomah Trading Post sits alongside the highway junction that leads to Houghton from Greenland and Mass.

Although Lake mine is now gone, it has left in its wake an interesting background of early mining activities. Usually the Lake Mine has been thought of as the Lake mine group for its property absorbed a number of early day mines. Also because of their close proximity, but not because of common ownership, the Indiana and its acquisitions, all to the north, can be considered a part of the same neighborhood.

The mining story here goes right back to the early days of the copper rush. Some of it started when "Josh" Joseph Chandler first began poking around in the surrounding wilderness in search of the red metal. What followed through the years was a complicated entanglement of mining companies. Some were merely paper companies. Others were active. A maze of reorganizations was created by takeovers, organizations and reorganizations, many of which eventually wound up as part of the Lake mine property.

One of the first to makes its appearance, not only in this area, but the entire Ontonagon district, was the Douglass Houghton. The original property goes back to one of the

old government mineral permits. It was operated from 1846 until 1851. Under this permit the early work was done on a bluff overlooking the Firesteel River in the northwest quarter of Section 15, Township 51 North, Range 37 West. In 1851 this 480 acres of land was purchased from the government. The company, organized by Detroiters, became known as the Douglass Houghton Mining Company. By 1852 some 25 acres of land had been cleared for farming, and a saw mill, barn, boarding house, ten dwellings, and other necessary mining buildings were erected. A dam and a stamp mill had also been built on the east branch of the Firesteel River. Four shafts were sunk and several tons of barrel and mass copper were shipped to the Waterbury Smelting Works in Detroit.

Three years later the company absorbed the Firesteel Mining Company which since 1852 had been working unprofitably about a half mile to the south. Although the Douglass Houghton Company did not continue the operations at the original Firesteel workings, it did extend their efforts into this property.

Ontonagon is where supplies and ore were shipped by lake boat to the smelter. To move supplies and ore, a crude wagon road was built through the forest to Greenland where it connected with the early Ontonagon plank road. Although passable during the winter months, it provided a most difficult as well as an expensive route during the rest of the year. This lack of reasonable transportation, coupled with the crude ore extraction methods during the early years, became a reoccuring problem of profitable operations for most early mines. The Douglass Houghton was no exception. Still the company kept at it for a good ten years before finally yielding and selling out to Henwood mines, in 1864 for $90,000.

Before purchasing the property, the Henwood Company sent William J. Henwood to the Copper Country to examine the mine. Henwood, from Boston, but having Cornwall connections, reported the Houghton workings as a, "fair and promising venture." In spite of this appraisal, the Henwood people did little work at the Houghton after acquiring the property, and one has to wonder why the purchase was made. Not too much later they sold out their holdings, partly to the Indiana Mining Company and partly to the Bohemian Mining Company.

Both the Indiana and the Bohemian came into being in the early days but their existence through the years was not as a continuous company. Of the two, the Bohemian was the larger and certainly the older as its recorded articles of association date back to 1848. The Indiana was not opened until 1854.

The Indiana was located in Section 21, Township 51 North, Range 37 West just west of the Firesteel River. In some manner the company acquired this entire section of land for only $1,600, a bargain even in those days. Development began at once. Two shafts were sunk and provided with connecting levels. A good stamp mill was also built. Work, however, was continued only on an interrupted basis until 1862 because of poor returns. After 1862, the mine operated steadily until 1865. After spending $200,000 without profit during these three years, a pressing debt forced the company to sell the equipment and call it quits. In 1909 the company underwent a reorganization. No rock was ever milled by the new company, nor for that matter was any production of copper ever recorded for the Indiana mine.

On the other hand, the Bohemian and the old mines it took over along the way marked the beginning of what eventually became the Lake mine group. The original property of the Bohemian was much more extensive than that eventually acquired by the Lake. The original Bohemian property began in Greenland facing on Miner's Road which was then Greenland's main street. In fact, a part of the old Bohemian property was once leased to Greenland's school district for its school grounds. From Greenland the property extended eastward to what became the Lake mine site in Section 31, Township 51 North, Range 37 West.

To what extent, or whether at all, the Bohemian might have been active in the Greenland area is not now known. It is known that the company was active at the Lake mine location. It is said some $180,000 was spent over a half dozen years to produce $13,000 worth of copper. Not exactly a paying proposition.

In 1864 a new crop of investors was found and the company reorganized, retaining the name Bohemian Mining Company. In the reorganization, the International, located in the northeast quarter of Section 31, was taken over. The International represented a reorganization of the old Piscataqua, which apparently at one time had been referred to as the Pioneer. Since no record of any such company has ever been found, this, in all likelihood, was merely an expression to indicate the first work in the area. At the time the so-called Pioneer was under the management of Porter B. Eastman who was also the agent for the National mine near Rockland.

As might be expected, the initial operations of these early mines were all unprofitable, nor could the Bohemian do any better, thus company operations ceased in 1866. After some tribute work, the mine was reopened in 1870, but closed again in 1871. Then in 1880, the Belt Copper Mines, Limited, entered the picture. They negotiated the purchase of some 2,000 acres of mineral and timber land that gathered together some of the non-producing, non-paying ventures of the earlier days.

Generally referred to as the Belt pool, the company was an English promoted concern that had been organized to acquire a chunk of mining property in the area. Included in the Belt purchase were the Bohemian properties and the Algonquin Mining Company. These properties had been put together mostly as a paper company in 1860 and then reorganized in 1863 by Clement March as the Penn Mining Company. The Penn was some distance north of the other mines. It was never worked by the Belt organization, nor did the Penn or its predecessor ever do any mining on the property. Also included in the Belt

purchase was the Great Western Mining Company, first organized in 1863 by Curtis Hussey and Thomas Howe of Pittsburgh. This was another inactive property as all they ever did was call in enough money to purchase the land and then sit tight.

The English interval in this area created quite a sensation. While the pool was being organized, some British mining experts were sent over to examine the property. Just where they looked or what they looked at is hard to say. In view of the past performances of any of the old mines, their report was both exaggerated and misleading. An enticing prospectus, also a bit on the whimsical side, was prepared to lure English investors. Francis Ellerhausen, Esq., who had the distinguished sounding address of Palace Chambers, City of Westminster, England, did the promoting on the far side of the ocean. He collected $256,000 for the coffers of the company with James Mercer of Ontonagon serving as the local trustee.

After the company had been officially set up, an English manager was sent over to handle the workings. Apparently he did not fit in. He is "credited" with the copper district record for gross mismanagement of a mine. Whether this was a matter of prejudice or a reality is now merely conjecture. At any rate, by 1884, a big stamp mill and an expensive mining plant had been built. This was before enough ground had been opened to supply an ample amount of rock for economical operation of the mill. Three shafts had been sunk on the Knowlton Vein, the most northerly of the Evergreen Range. One was put down only three levels, while the other two were but slightly deeper, though they were connected at the second and fourth levels. During the sinking and drifting of these shafts, the vein showed more than ordinary richness and seemingly its promising appearance should have warranted deepening the shafts by several hundred feet. This would have gained enough openings to supply the mill with sufficient selected rock to enhance the operation of the mill. Instead, the English directors became discouraged. Their high hopes had been badly shaken. Operating on borrowed capital, their funds were nearly exhausted and copper had just dropped from 20 cents to 10 cents per pound. Already it had cost them about $5.00 per pound for what little copper they had produced. Indeed, the rosy glamor of the operation had just about been swept away. And so, the English concern, prematurely perhaps, decided to call it quits. The mine which they had opened in February, was closed in August and the whole fiasco dumped into the laps of the bondholders who immediately foreclosed the mortgage. By 1885 all had been abandoned and the machinery, which was still in good condition, was gathering dust. Eventually the bond holders sold the idle equipment to a newly formed company that had obtained a purchase option on the property.

Nathan Leopold of Chicago was among those who became interested in the new Belt venture. The mine was reopened in 1901 as the Arctic Copper Mining Company and, of course, under a management that was completely different. This group continued work at the Belt until it was acquired in 1905 by the Lake Copper Company. The property thereafter was known as the Lake mine.

The acquisitions of the Lake Copper Company also took in several other early day properties which had not been a part of the Belt pool. Among these was the Chippewa Mining Company. The Chippewa Mining Company involved land which a group of New Yorkers had purchased from Joseph Chandler in 1853. However, this group never did any mining on the property. Also included was the Aztec. Located in the same section, it later became the South Lake.

What began as the Aztec Mining Company, the venture was reorganized under general law in 1863 and passed on to P. T. Rogers in 1871. Rogers in turn sold it to the Hussey interests in 1880, who closed the mine in 1882. During these years about 700,000 pounds of refined copper were produced. About the only bright light in the history of the Aztec was the discovery of a 100-ton chunk of mass copper. By the turn of the century the company had become so lifeless that the responsible officers neglected to pay taxes on the property and it was sold at a tax sale. It is rather doubtful whether any endeavor would ever have been made to redeem the property. But when a potential buyer suddenly appeared, things took on a different aspect. A court suit was instituted, a technicality seemingly uncovered, and their title regained.

Both the South Lake and what became the North Lake were operated as subsidiaries of the Lake even though they were controlled by the same group of owners. In developing the South Lake, its underground workings were connected with those of the Lake. The North Lake was the last to be developed in this area. Neither the North or South Lake were overly active. Their operations were confined mostly to the World War I days when favorable copper prices prevailed. They closed when the market declined.

In 1972, the mining rights at the South Lake were obtained by the Lake Superior Mining Company, the Winona based concern, for possible re-opening. As yet, nothing has come from it.

The Algomah, which adjoined the Lake to the north, was also a part of the acquisitions of the Lake Company. It first began to operate in 1852 as the Algomah Mining Company and was one of the few early companies with a locally based office in Ontonagon. Five shafts were opened on what was known as Algomah Hill and work continued for two years. Although some $65,000 was spent in an endeavor to create a productive property, the results were negative. In 1905 the Aztec-Algomah Development Company was formed. This included the land of the old Aztec which earlier had produced the 100-ton mass of copper. In 1910 the property was taken over by a reorganized Algomah Mining Company with P. M. Edwards of Houghton as president and general manager. Operations were continued in a meager way until 1917 when the mine was closed.

In 1910 the founders of the new company located outcrops of chalcocite on the Algomah property not far south of the Lake mine. It was announced as a sensational discovery which the company said: " ... eclipses any other discovery made in the broad Lake Superior district. It consists of an extremely rich deposit of copper ore composed of copper glance (chalcocite), copper silicate (chrysocolla), and copper carbonate (malachite and azurite)." The discovery, however, came at a time when emphasis was still on native copper, so little was done about it.

Not until 1953 when the Algomah was revived by Gary Warrener and James Robb was any experimental work done with the new ore. Robb and Warrener acquired a long term lease on the property from the State of Michigan. It had reverted to the State when the previous Algomah Company failed to meet its tax obligations. The success of their operations, which were carried out some distance from the original workings, hinged upon finding a satisfactory smelting process. The process had to chemically extract the copper which was contained in the chalcocite. Although this type of ore is uncommon in the Lake Superior district, it is one of the most colorful in all the Copper Country. Its bright iridescent coloring is especially brilliant when placed in water. Normally native copper was not associated with these chemical deposits.

During the summer of 1955 about fifty tons of this ore was extracted from surface outcrops and old stock piles. This material was then sent to a pilot furnace which had been set up at the old brick plant in Ontonagon. A series of experiments followed during which two tons of copper were produced. Unfortunately before further experiments could be undertaken, the temporary furnace operator was called back to his former job, so the furnace had to be shut down. Subsequently crushed ore was shipped to the American Metal Company in Carteret, New York. Although Warrener admitted that this, "amounted to one grand freight bill," he indicated that a profit had been made.

But all this was in 1955. It seems that Warrener must have found smelting and transportation problems impossible with which to cope. In spite of his glowing forecasts and all of the work that was done in the area, he did not remain at the site for long.

Still later, in 1970, Sterling Bartlowe of Houghton obtained the mining rights on the old diggings. He intended to rework the tailings. But as of now, nothing has happened.

A little over a mile to the west, is another group of copper penetrations. They begin in the vicinity of Greenland and continue down the mineralized ridge that stretches to the southwest through Mass and Rockland. It was this group of old mines which in the early days headlined copper mining in Ontonagon County. It was here that the famed Minesota mine was located.

Altogether there were no less than fifty separate mining companies that in one way or another operated in this area. The Minesota was the most famous all, because no other mine in the district ever came close to matching its success. Of the lesser lights, the National, Rockland, Flint Steel, Caledonia, Mass, Ridge, and Adventure, all relatively near neighbors, had their better moments and a brief fling at success. Of these, the Adventure, located near the present community of Greenland, became the largest in the northern end of this area.

The original Adventure was one of the oldest mining properties in the Ontonagon district. The ground upon which the mine was opened must have been a favorite of the prehistoric miners. It was well marked by ancient pits, both large and small. Here, too, were found many evidences of the early mining operations including a large number of the primitive stone hammers.

The modern Adventure mine came into being in 1850 when Clement March, an eastern capitalist, became the motivating force in the organizing of the Adventure Mining Company. Curtis Hussey of Cliff mine fame, became the president of the concern and even had a branch office at the Cliff. The principal office, however, was in Pittsburgh, but there was still a third branch office in Boston, so it all began with quite a flourish.

Early work at the Adventure was rather desultory as it was done under the primitive conditions and methods that prevailed until some time later. Its peak production came in 1857, when 23,200 pounds of refined copper were produced. With the problems that existed in those days, this was hardly enough to provide a profit. As a result company operations ceased a few years later and the mine was turned over to tributors who continued to work intermittently for nearly thirty years. This provided a trickle of revenue that continued to filter into the company treasury until about 1890.

In most cases the tributors worked on a share basis, usually with one-eighth of the copper produced going to the company. Of course throughout the Copper Country there were variations in the agreements with tributors. In some instances, tributors at the mines paid so much a pound for the copper they produced. They then sold it for whatever they could get. In the majority of cases such agreements made it possible for the miners to make the equivalent of fair wages, as long as mass or barrel copper was available in the mine being worked. The miners themselves referred to tributing as "gophering" or "mine robbing." Some preferred robbing because an exact report about the amount of copper extracted could not be rendered.

The copper yielded by the Adventure was just about all mass or barrel copper, and this made it particularly attractive to tributors. The Adventure also produced a considerable amount of silver, but no one knows how much. Here, as elsewhere, most of the silver left the mine in dinner pails.

The tale has been told of two daring tributors who crawled beneath sagging timbers to dig out some $3,000 worth of silver nuggets, by candle light. Here too, it is doubtful whether the company ever received any share of the find. In fact, it is doubtful whether these fellows should even be

called tributors. It seems, "Adventurers," would be more appropriate.

The present community of Greenland was born as a result of the early mining in the area, however it was not called Greenland until after the turn of the century. It was first platted as Maple Grove, the townsite extending along the old Miner's Road which became the main street of the village. Because of the nearby Adventure mine, it grew into a small village with a cluster of buildings, a variety of stores, and the usual saloons. It also served as a community center for the score or more of mine settlements scattered about in the surrounding hinterlands.

The post office which served the mines of the area was established in Maple Grove. It is likely the village would have remained Maple Grove, however, somebody thought it would be more appropriate to call the post office Greenland since in reality it served Greenland Township. And so Maple Grove became Greenland. Of course, had it not been for the Adventure mine there would not have been any village in the first place.

For years, the community of Maple Grove, now Greenland, had its ups and downs that escalated with the well being of the Adventure. When the activities at the mine became stagnant in the 1880's, the little village began to wilt away. Copper enthusiasm, however, has always been somewhat contagious in Ontonagon County. The Spanish American War brought about a boom and a wave of mine consolidations in 1898. Not only was new life breathed into the village, but the entire district was given a second chance as old mines were reactivated.

Thomas Henry Mason was the son of Thomas F. Mason, the aging president of the mighty Quincy at Hancock. Thomas Henry Mason saw possibilities in the silent deaths of the old Adventure and some of its elderly neighbors. Seizing the financial torch from the hands of his dying father, he became a leader in the promotion of the Adventure Consolidated Copper Mining Company. In 1898 T. H. Mason brought the idle properties of the Knowlton, Hilton, and Merchants into a union with the Adventure. Altogether, the new company, which began its operations with a capitalization of $2,500,000, acquired over 1,500 acres of mineral land. None of the properties absorbed in the consolidation, however, left behind any outstanding records.

The Merchants, the oldest of the mines acquired, was located on a 160-acre tract adjoining the Adventure. It had been patented in 1851 to Henry Wick of Lisbon, Ohio. A couple of years later Wicks sold it to the Merchants Mining Company. Although it is said that Merchants did some exploring on the land, nothing was ever developed on the property.

The Knowlton had a little better record in that during its working years it produced nearly 1,000,000 pounds of copper. Although the mine was first opened in 1853 little seems to be known about its early workings. It was 1860 when the Knowlton Mining Company was organized under the stimulus of J. B. Townsend who at that time was the agent for the Minesota mine.

The Knowlton Company opened up three shallow shafts and its first production was recorded in 1862. Some two score miners were employed at the mine with most of them living in structures which the company built at the mine site. A stamp mill was erected in 1864. Altogether over $400,000 was spent in developing the property but according to some reports the outlay for surface developments was far out of proportion to the underground work. By 1867, the Knowlton officials had had enough and operations were discontinued. Tributing occurred irregularly until 1879 only. A small amount of copper was recovered each year.

The Hilton, which functioned as a horse operated whim, was at best only a limited producer with only a small amount of refined copper to its credit. It was organized as the Hilton Mining Company in 1863 at which time it absorbed the neighboring Ohio mine, which has an interesting background.

The story of the Ohio goes back to Josh Chandler who got the land by patent from the government. Josh, as we have already seen was involved in numerous early land deals, and I suppose one could say this was his occupation. Anyway, Josh came to the Copper Country around 1849, and he brought his daughter Amanda Chandler with him. It it was Amanda who married Jim Paul, the hardened pioneer founder of Ontonagon. So Josh is further distinguished by being Jim Paul's father-in-law. He also was a good woodsman and explorer who tramped the woods around the Greenland area looking for copper showings. Better yet, he had connections.

One of his associates was August Coburn, an Ontonagon business owner of means, who also had several moneyed friends. So, whenever Josh came across something that looked good, he would report to Coburn. Coburn or his associates would then buy the land. They gave Chandler a fourth interest for his part in the deal. In this manner quite a bit of land was picked up by patent from the government for only $1.25 per acre. After holding it for a while it usually could be sold to some aspiring mining concern for $60 or more an acre.

It was in this manner that Josh and his friends acquired land in Section 36, Township 51 North, Range 38 West. Later the property was sold to the Ohio Mining Company for $9,000. In those days the 25 percent that Josh received from this and the other completed deals, was not exactly peanuts. Indeed Josh Chandler did all right. He very wisely refrained from putting any of his growing stake into the company shares of mining concerns that purchased his discoveries. Instead, some time in the 1850's he took his money back to his homeland in Indiana, where he bought a good farm and presumably lived comfortably for the rest of his life.

The Ohio mine in its early days produced a little copper but much of it was extracted by tribute work. In 1863 the Ohio Company sold out to the Hilton, reportedly for

$8,000. The Hilton, however, did not fare too well. The amount of copper it handled may have been produced by tributors. Years later when the Adventure Consolidated people came along, it is reported that the new concern paid only $500 for both the Hilton and Ohio mines.

When the Consolidated people began their venture they did so on a big scale using modern machinery and methods. By 1900, the new company had 140 workers on the job. Four shafts, equipped with efficient hoists, had been opened. A long tunnel was under way by which a greater amount of ore could be moved to the surface. A 1500-ton daily capacity stamp mill with powerful crushers was built on the shore of Lake Superior in Houghton County near Freda. According to mine officials, this site was selected because in their words, "they would have all of Lake Superior to pile their tailings in." Unfortunately, they did not need that much room.

When 1906 rolled around, nearly two and a half million dollars had been spent to create a profitable mine. Yet the only thing that ever materialized was an annual deficit that varied from $19,000 to $90,000. To make matters worse, the financial upset that swept across the nation in 1907 hit the company a low blow and the whole operation almost petered out.

In desperation a fifth shaft to bolster production was sunk in 1909 and another $55,000 spent, but it was all to no avail. The stockholders finally rebelled, and as a result, the stamp mill was closed and all work at the mine discontinued. World War I brought about better times with higher copper prices. In 1916 the mine was reopened. The great depression came along in the 1930's and cut it down again. This time it closed for good.

For eighty years the welfare of the Adventure under the hand of both company and tributor had fluctuated with the times as copper prices rose and fell. There were good times, lean times, and times when activities ceased altogether. Throughout all these years no shareholder, no miner, nor any tributor ever got rich from the operation. Never was there a dividend, but during this time it provided a livelihood for many of the area people. Although no one seems to know who named the mine or why, for eighty years it was little more than a big adventure.

The old mine is still generating adventure. In 1973 some parcels of the old property came under the control of Mr. and Mrs. John Neff, who wanted to preserve some of the history and sentimentalism ascribed to the Adventure. In acquiring the property, it was the intention of the Neffs to create a tourist attraction. They planned to offer a tour through some of the old workings. This is similar to the Arcadian Copper mine tour at Ripley. This, after doing considerable work at the mine entrance to make things more accessible, has become a reality.

The Neffs, whose home base is in Oxford, Michigan, became interested in the mine partly because of their mineral hobby. Both being rockhounds, they are always on the alert for something new. However it was Mrs. Neff, the former Margaret Crinian, who had the most sympathetic interest in the area. Her dad had worked here as a miner and it was during these younger years that she became so greatly attached to the Greenland-Mass region.

Neff himself grew up in the Whitefish Bay area near the Sault. As an Upper Peninsularite, he easily acquired an admiration for the many shafted mine property that once played such a crucial part in the life of the area.

But back in the beginning of the century, the spawning of the Adventure Consolidated revived the wilting village of Greenland. So too the creation of the Mass Consolidated Mining Company in 1899 spread new life through the end of Greenland Township that extends south of Greenland.

The Mass Consolidation brought together several of the older mining properties that had played a part in the earlier development of Michigan's copper industry. Mines included in this merger were the original Mass, the Ridge, Ogima, Merrimac, and the Hazard. Collectively, these properties covered a little more than 2,500 acres of land which took in most of the area immediately west and south of the present village of Mass.

Of course at the time of the consolidation there was no Mass City, or even Mass as it is now called. This was to come a little later when the new venture got its activities under way. The miners who had worked the old Mass or other mines lived either in Greenland or occupied other mine locations.

Establishing a town site and a town for the employees of the new Mass Consolidated became a subsidiary operation that was turned over to "Colonel" P. C. Scott, a booming, energetic kind of individual who has been described as a figure right out of Hollywood. Scott was a first rate promoter and had a natural flair for this kind of work. Although the new community was given the propitious name of Mass City, at no time, in spite of the optimism of its founders, did it ever quite achieve city status.

As the head of the Mass City Townsite Company, the Colonel pushed the town's development with steady vigor and guidance. With employment getting into high gear at both the Mass and the Adventure mines, he succeeded in selling a multitude of lots. By 1905 the new community had acquired nearly a thousand residents.

As the many new families moved in, a host of new business ventures and services were also established to serve the community. Included among the incoming concerns were four or five general merchandise and food stores, a confectionery store, two hardwares, two paint shops, a millinery shop, several barber shops and pool halls, a cheese factory, brick company, lumber yard, and a saw mill. A village photographer also arrived on the scene, and Dr. William B. Hanna became the first and only physician in town. He administered to the sick and ailing until his death in 1932.

The Mass City bank, established at the very beginning, handled the financial needs of the populace. The Twin

City Miner, edited by Adam Bower of Greenland, published the local news and gossip. Four churches also came into being along with a Temperance Union. Likely the latter was considered necessary in order to combat the evils that stemmed from the dozen or more saloons which immediately mushroomed at the very beginning of things.

Street fights and barroom brawls became frequent. For those who drank too much hard liquor or otherwise broke the law, Judge Willette held court in his tonsorial parlor. Under normal circumstances he trimmed the hair and cut the whiskers of the area's workers. Big Tom Cooney was the first town Marshall to rule over the little brown jail that was built alongside Adventure Creek. His was a busy job, too, as usually these penal quarters were well blessed with law breakers of one sort or another. Big Tom was also the town's Fire Chief. Although it has been said that the department had only a dozen or so rubber buckets and three or four ladders in the way of equipment, a response was made to all calls with speed and abandon.

As the town grew, five hotels came to be and these provided ample food and lodging for the traveling public. A livery barn with a string of horses and buggies for hire provided the needed transportation. And 'tis said that for the benefit of the young gaffers who wanted to take their dream girls for a leisurely swing about the countryside, the wise owner had a pokey red mare called "Bird." She knew her way home from all the side roads and lover's lanes of the day.

Mass City eventually came to be served by three railroads, the Copper Range, the Mineral Range, and the Chicago, Milwaukee, and St. Paul. During the heyday of Mass City, no less than sixteen trains a day from the Milwaukee road alone stopped at the Mass Station. The Mineral Range Railroad was built at a cost of $750,000. It was used to haul copper bearing rock from the Mass mine to the company mill which was put up on Keweenaw Bay, 24 miles away. This was the longest stretch of railroad ever used to connect a copper mine and its mill. In 1916 the line made the headlines when the trestle over the Firesteel River collapsed, dumping eight loaded ore cars into the ravine. Fortunately, no one was injured.

When the new Mass Consolidated began operations, it was at the No. 3 shaft of the old Ridge mine. The reason was obvious. The Ridge had been one of the best mines in the area, and only a few years before, had rewarded its shareholders with dividends totalling $100,000. Too, of all the mines acquired in the consolidation, the Ridge was the best developed, with its No. 3 shaft reaching a depth of slightly over 700 feet.

The early history of the Ridge is somewhat obscure. Supposedly, the original property was acquired in 1850 for a mere $800. Then, just ten years later, sold for $200,000. If such is true, then indeed it was a speculator's dream. Its production record begins in 1853. So undoubtedly, the mine was opened in 1852 or late 1851. Apparently the initial company worked the property from 1850 to 1855 and then leased it for several years.

According to the dusty records, Frank F. Mason of the Quincy purchased the property in 1860 for the sum of $200,000. Then when the Ridge Mining Company was re-organized in 1863 under his guiding hand, he resold it to them for the same amount. Whether Mason was involved in the earlier affairs of the Ridge is a matter of conjecture. It is known, however, that in 1863 Mason also purchased the old Atlantic mine property which had been patented to Benjamin Rogers in 1855. He paid $2,000 for the property and immediately deeded it over to the Ridge, which as part of the Ridge also went to the Mass Consolidated in 1899. Nothing but exploratory work, however, had ever been done on the property.

The Ridge was worked almost constantly. It operated either on company account or by tribute from the time it was opened until 1896. Then the owners apparently lost their title to the property because of nonpayment of taxes. Throughout these years it was credited with nearly five and a half million pounds of refined copper as well as a considerable amount of silver. Its best year was in 1874, with dividends being paid in 1873, 1874, 1875, and 1881. While the Ridge was the best of the old mines picked up by the Mass consolidation, the Merrimac and the Hazard were of the least value.

Little is known about the Hazard other than the name, and but slightly more about the Merrimac. No production was ever recorded for either. Apparently no articles of association were ever filed for the Hazard, but the Merrimac Mining Company was incorporated in 1863 with New York capital. At any rate it had a New York address, but that is about all. No mine buildings of any consequence were built on the property and apparently little or no work was ever done. Seemingly both the Hazard and the Merrimac were speculative properties, the owners just waiting for something like the Mass consolidation to take them over.

This leaves the Ogima and the old Mass for review. Of these two, the Ogima, its name supposedly derived from a Chippewa word meaning "fruitful wife" was anything but fruitful to its shareholders.

It was Daniel S. Cash and his nephew, William Spaulding, both early Ontonagonites, that promoted the Ogima. After they had succeeded in interesting New York investors in the venture, the Ogima Mining Company was organized in 1860. The mine opened at once on ground well marked by prehistoric mining pits. By 1868 not only had the company sunk two shafts, but also $140,000 of its money. It brought them less than 500 tons of copper, which for the eight-year effort was hardly profitable. So the mine was closed and turned over to tributors who worked it in a desultory manner until 1887. From then until 1899 and the consolidation, it was completely inactive.

Of all the mines taken over by the Mass Consolidated, the old Mass has provided the greatest amount of historical interest. It also had a productive background which, though up and down, was better than many.

In a sense the historical story of the Mass begins some time in 1849. Noel Johnson, a fugitive black slave from Missouri, succeeded in making his way into Ohio. Here he came under the protective wing of Cyrus Mendenhall, an abolitionist, and one of the Copper Country's first prospectors. Apparently Mendenhall brought Johnson to the Copper Country where he turned prospector, probably the only black of the entire copper rush. But what is more important, Johnson actually came up with a likely looking prospect on a site just west of where Mass City eventually was born.

Noel Johnson's discovery posed a problem. At the time a slave could not, under federal law, own property. Johnson could not patent his claim through the US Land Office. At this point it occurred to Mendenhall that it might be possible to buy Johnson's freedom, providing he could locate the owner of his black protege. A little sleuthing led to one William Pemberton of Missouri as the person who had owned Johnson, but having since died, the ownership had passed on to his estate. Negotiations with the principals of the estate followed. As a result, Mendenhall purchased Johnson's freedom for $250. More costs were involved for political considerations in Washington for assistance in Noel's behalf at the US Land Office.

When the issue was finally cleared and the patent on the land set up in Johnson's name, the property was leased to the original mining company to operate it. The original company was purportedly the Mass Mining Company. It has been said that Johnson received $10,000 from the transaction but what else is not clear. In 1853 after his death, his estate was inventoried at $18,000.

As in so many other cases, the early days of the old Mass are rather obscure. Records show the Mass Mining Company as being organized in 1856. Whether this involved the same people or was the same concern that began the operations earlier is uncertain. The first shipment of ore was not made until 1857. The first shipment of ore totalled some eight and a quarter tons. The company did not work the mine long thereafter. Charles Holland of Ontonagon and William Spaulding figured in the early workings of the Ogima. In 1858 they contracted with the company to take over the operations of the mine. Under this contract, which in reality was no more than a variation of tributing, Spaulding and Holland were to receive three-quarters of the refined copper that came from the smelter. All this lasted until 1860 when low copper prices forced everyone to quit.

When copper prices boomed to 55 cents per pound in 1864, the mine was reopened. Then when prices took a tumble a short time later, it was closed again.

In 1874 the mine was reopened under the steady hand of Ben Chynoweth who placed his emphasis in developments on the Knowlton Vein. By 1880 the Mass had become recognized as the largest producer in Ontonagon County. This spurt lasted only until 1886 when the mine was again closed although tribute was continued until the consolidation took over in 1899.

During these earlier years the Mass, under both company and tribute operation produced well over five million pounds of copper along with a considerable amount of silver. At no time did its shareholders receive a dividend, nor did its consolidated successor do much better.

By May in 1901, the development work at the Ridge mine under the leadership of Mass Consolidated was rapidly moving ahead. In June a new six-ton skip began operation. This was the first such big device to see service in Ontonagon County. The mine officials were jubilant, and the week was heralded as a banner one in the history of the firm.

At the time Superintendent Wilcox was anticipating the opening of the new company mill on Keweenaw Bay and he wanted a mine production large enough to supply it. The mill was to have a daily capacity of 900 tons but when shipments to the mill began in mid summer, it saw much less than this. For a year or more the mill produced but a little over 500 tons a day, and not until 1909 did it get up to 850 tons. Of course, nearly half of the copper mined by the company was mass copper that never saw the mill.

In 1911, or thereabouts, Mass Consolidated purchased the old Evergreen Bluff property in an endeavor to add to its production. The Evergreen Bluff mine was opened in 1853 by a Detroit firm. In its earlier days it had been a promising operation. However, like most of the early mines, it had been a red ink venture.

By 1916 the Evergreen Bluff had been dewatered and put into operation. In spite of the added production it provided, the low copper prices after World War I brought an end to the days of the Mass Consolidated. It was closed in 1919. Miners are still hopeful that some day the now idle mine may again start producing. Many are quite convinced that a wealth of unmined copper still exists underground.

Today the old Mass-Greenland road connects the remnants of these two communities. This once was the crooked stage route from Ontonagon to the property of what is now remembered as the Mass mine. In reality though, this was the land of the old Ridge which was taken over by the Mass Consolidated. The old Ridge road that once connected the old Ridge and the Minesota locations, has long been obsolete.

Currently the Mass lands, in the main, are under the control of Universal Oil Company. Universal Oil was the successor to the Calumet and Hecla. During the mid 1950's it became active in the area when they carried on considerable work at the nearby Caledonia mine. Calumet and Hecla were active at the Caledonia from 1951 to 1959, but the work turned out to be non-profitable. Largely this was due to the lack of an available mill in the nearby area. Hauling the ore to a distant mill added to the costs. High grade ore was trucked from the Caledonia to the railroad at Lake mine. Here a special ramp had been built over a

spur of the Copper Range tracks so that the ore could be dumped from the trucks directly into waiting ore cars. From here it went to the Calumet and Hecla mill on Torch Lake. The copper from the Caledonia was a little unusual in that it was highly resplendent, having a most attractive pinkish color. The color in no way added to the success of the venture.

All of this brings up the question, what and where was the Caledonia? The property was located some two miles south of Greenland toward Rockland along the route of the old military road. In the early days the road was supposed to have extended a winding way from Fort Howard in Green Bay to Fort Wilkins at Copper Harbor. Beyond the village of Mass, this is now just a lonely lane. Still it is reasonably passable by conventional car to the Caledonia area, however, the motorist who tries to continue toward Rockland is likely to get into difficulty.

The story of the Caledonia is closely associated with that of the Flint Steel mine. The two ventures were close to each other, and were consolidated in 1871.

The Caledonia began operations in 1853 as the Nebraska Mining Company but little is known about it. It became the Caledonia in 1863 when Thomas F. Mason and other New Yorkers, organized as the Caledonia Mining Company, took it over. The mine was located on the western side of a high bluff. At this point the bluff is cut by a yawning gap through which flow the waters of the Flint Steel River.

The Flint Steel was located on the eastern extremity of this bluff with the Flint Steel River winding its peaceful way several hundred feet below. This land had been set off from the old Minesota in 1855 when the Flint Steel Mining Company was organized. Work was started by opening some prehistoric pits in which several shafts were sunk and a moderate amount of drifting done.

Each of the concerns had built its own stamp mill on the Flint Steel River though they were not used much in the earlier days. The Caledonia mill burned in 1870. After this, although both mines were soon closed, they contributed to the same mill by long trestles.

The trouble which tormented both mines from their earliest days was the irregularity of the deposits. Considerable quantities of isolated copper would be found, disappear, then found again in added quantities. One 35-ton mass was uncovered at the Flint Steel location in 1865. This was the mines biggest year during which 152 tons of copper were mined. Collectively the combined production of the two mines from start to finish was just over 600 tons.

One of the peculiarities of the Caledonia was that the adits on the north side were driven along cross fissures which produced copper. This marks the only instance in Ontonagon County where copper was found in cross fissure veins. At the Norwich, another Ontonagon County mine, long drifts were made in cross fissure veins but they were all devoid of copper.

At the turn of the century it was proposed to reorganize the Caledonia. The new organization would include the Caledonia, Flint Steel, and the old Lake Superior. The new consolidated group was called the Caledonia Mining Company. The Lake Superior was about a mile east of the old Minesota. The Minesota first belonged to the Lake Superior Mining Company. The main office was to have been on Broadway in New York City. W. H. Mason and W. R. Todd of the Quincy were to have been two of its important officers. The proposed Caledonia Mining Company was to have included a mill site on Lake Superior next to the existing Adventure mill. The new company also was to control all mineral lands between the Adventure and the several Michigan tracts which were brought together by the 1898 consolidation. For some reason the deal failed to materialize.

The Michigan Consolidation was a revival of the former Minesota which at one time was the toast of Rockland, and in fact, of all Ontonagon County. It brought together the once active Minesota, the Rockland and the Superior. The Rockland had absorbed the National and produced nearly 6,000,000 pounds of copper. The Superior in its earlier days did not create waves. These properties all fell in the deep shadow of the Minesota. The mine was pretty much controlled by the same poeple. The area involved more than 5,000 acres which made it the largest consolidation of this period. The Michigan venture was not a small project. It was organized and capitalized at $2,500,000 with $1,000,000 paid in. It had been set up to do things in a big way.

Its organizers were also well aware of the misspelled "Minesota." To rectify the error, the new concern was called the Michigan Copper Mining Company and henceforth the property became known as the Michigan. The principal company office was established in New York and a local office set up in Rockland. Most of the shareholders were from Detroit.

The Michigan began its activities by opening three shafts on the old Minesota property. Eventually these were worked on fourteen levels. The mine employeed 350 miners. New houses were built and plans for a new stamp mill on Keweenaw Bay were in the works.

By 1906 prospects looked good for the Michigan and the State Mineral Statistics report for that year credited it as being the most important mine in the Ontonagon district. During the year it produced 1,437 tons of refined copper. The year was really only seven months. A labor shortage had restricted operations for the remainder of the year. Even the mighty Minesota in its best year had produced only 1,976 tons, but of course, this had been accomplished under entirely different conditions. Nevertheless, the Minesota had paid lush dividends on this amount of production. Should not the Michigan do as well?

As the work of the mine surged ahead, the village of Rockland began to boom again. Just as in the early days when the Minesota was in its prime. But it was all too good to last. Even though the Michigan went strong for a

few years, by 1907 some clouds were beginning to appear on the horizon. Production was still good, but the report for both 1908 and 1909 showed a deficit.

Construction work at the new mill on Keweenaw Bay, which had been started in 1906, was suspended. This had been expected to be a life saver for the firm. At first the ore was stamped at the mill near Redridge, and then at the new Mass mill on Keweenaw Bay. Nearly $175,000 had been poured into the construction work on the mill and a 1200-foot tunnel through which water was to have been taken from Keweenaw Bay. But neither were ever used. Not even a ton of Michigan rock was stamped here as in 1910 the directors decided to terminate all mining operations and turn the mine over to tributors. Several years later company work resumed and continued until 1920. Like so many other copper firms, it gasped its last when hit by the after effects of World War I.

In 1923 the Calumet and Hecla and the Mohawk Mining Company took over, but little more than analytic work ever took place. The property remains in virtually the same "stopped-mining" condition as it was in 1920. The property is now owned by Universal Oil Company. In recent years it has picked up extensive mineral rights and mining rights should they desire to resume mining.

A over fifty years have now passed since the Michigan shut down its shafts for the last time. Once again Rockland is quiet, much as it was in 1895 before the Michigan came to be. Rockland is quiet, peaceful, and perpetually looking ahead. Today, very few visible evidences of Rockland's red metal past have withstood the elements of time. Little remains to remind current visitors of the days of yesteryear. However, a dedicated historical group has done much to remedy this. It has gathered together a broad variety of historical gems that now are on display at a village museum. Everything here, including the building, has been donated by appreciative admirers of the town. The museum which houses the exhibits was once the Gus Ericson residence. It stands on the main street of the village directly across from the pretentious Stannard house. It was donated as a museum site by Mrs. Thomas Hawley, daughter of the late Mary Reagon, who years ago purchased the residence from the Ericsons. Both Mrs. Hawley and Mrs. Reagon have deep roots in the area. It was Mrs. Reagon's father, Ben Jeffs, who shortly after the Minesota became a defunct organization, put up some money in an endeavor to preserve its integrity. He lost out on the deal and later had to take over the old mine in lieu of his cash.

Currently the little museum exists mainly on donations. The donations come from people who are glad to be identified with the Stannards, Jeffs, Reagons, and other early families that called Rockland their home.

One of the things the museum likes to glorify both in writing and narrative is the historic Ontonagon Copper Boulder. The boulder was hoisted from the Ontonagon River just as the copper rush was starting. The actual spot where it once reposed is only four miles from Rockland, though it is now covered by the water behind the Victoria Dam. The general location, however, has been fairly well marked by the Upper Peninsula Power Company that now owns the surrounding land.

Too, there's another claim to fame that rightfully belongs to the Rockland-Victoria area. It's almost a certainty that it was somewhere in this same neighborhood that Alexander Henry's English Company attempted to open this country's first copper mine back in 1771. Even though the attempt failed, as has already been recounted, it created quite a splash in the pages of history. Nor was this the last attempt at mining in the area.

In 1849 a group began some exploratory work along a high bluff overlooking the Ontonagon River, near the spot that on most modern maps is still shown as Victoria. During its exploratory stage this mine was called the Cushin. The next year it became the Forest and as such soon became one of the best known mines in Ontonagon County.

The Forest, officially organized as the Forest Mining Company, sank four shafts along the bluff and built a stamp mill on the west bank of the Ontonagon River. For its workers, three frame houses were erected to complement five log structures which had been built earlier. The company also built a sizeable warehouse. It was a small frame structure that served as a mine office, and a river dock equipped with a crane for handling merchandise, machinery, and ore between river boats, dock, and warehouse. Sixty workers were employed here at the time. This little settlement along the river soon became known as Forest Landing.

At the time, the Forest Mining Company possessed a large tract of land that spread out over what is some of the most rugged ground in the Copper Country. As did so many of the early companies, corporate offsprings were set off to work various portions of this land. These included the Glen, Sylvan, Oneida, Shirley, Arctic, Tremont, and Devon. The names need not be remembered as not one of these exploration sites ever amounted to anything. Eventually, all were reabsorbed by the Victoria Mining Company when it was organized in 1858 to take over the Forest interests. After this the mine was known as the Victoria.

During its earlier years, work at the Victoria mine was spasmodic and without any substantial production. Nor was the luck of the company very good. The first stamp mill was burned to the ground when a fast-moving forest fire raged along the river valley. In an endeavor to have better fire protection, the second mill was built closer to the river. Again disaster struck. This time an unprecedented river flood swept the mill away.

Nevertheless, in spite of such hardships, coupled with several periods of idleness, the company hung on until finally it was reorganized in 1899 as the enlarged Victoria Copper Company. Even so, not until several years after the turn of the century did the venture show any great improvement. Then the clouds seemed to clear away. For the next fourteen years the mine became a steady

producer. It yielded more than nineteen million pounds of copper between 1905 and 1920. The company finally ceased operations in April 1921. In 1913, the Victoria was the only major mine in the Copper Country that continued to work without a break during the tragic strike of that year.

It was the Victoria Copper Company that perfected one of the most remarkable engineering achievements of the Copper Country, the successful installation of an unique hydraulic air compressor at its mine. This power plant was built at Glen Falls on the west branch of the Ontonagon River about a mile from the mine proper. The plant included a dam, diversion canal, and a hydraulic air compressor. It cost the Victoria people something like $250,000 to do this, but it proved a most worthwhile investment.

The river, near the mine, dropped about 110 feet in a series of rapids and small falls in less than a mile. It was this natural descent which, to a great extent, helped to make the installation practical.

In simple terms, the system worked something like this. Water from the dam flowed along a canal or fore bay where a seventy-foot header was used as an intake. Here, water drawn into the top of vertical shafts or cylinders, began a 334-foot free fall to a 360-foot-long horizontal tunnel. Air was also drawn into the cylinders through a large number of small pipes that projected into the top of the cylinders. This air, imprisoned in the water as bubbles, was pulled down the cylinders by suction. It was then swept along the long horizontal tunnel by the superior force of the falling water. The falling water also prevented any of the air bubbles from escaping back up the cylinders. As the myriads of air bubbles moved along the horizontal tunnel they rose to the top of the water in the vaulted chamber. Coming to the end of the tunnel the released air entered a large fan-shaped compression chamber lined with boiler plate. Here, just as in a conventional air compressor, a tremendous amount of air pressure was quickly built up by the incoming air. The air was forced into the chamber by the hydraulic action of the water. Suitable headpieces and a 24-inch pipe line conveyed this air pressure to the mine and mill. The tail water in turn left the chamber through an inclined shaft that rose 260 feet to the surface.

Under a full head of water this hydraulic operation was able to provide from four to five thousand horse power. All the machinery at the mill and shops, and the hoisting equipment and drills at the mine, were operated by this compressed air. The simplicity and economy of this arrangement was most remarkable. There was no moving machinery to get out of order or wear out, and the operation required no attendants as it was entirely automatic. There was not a pound of waste nor a gallon of oil used.

People traveled for miles to visit the installation. There were many who came not to inspect the plant, but to view one of its side effects.

The compression chamber was designed to allow an air pressure of 123 pounds per square inch to be built up within the chamber. Whenever this pressure was exceeded, the added pressure forced the water level in the bottom of the chamber below the mouth of a 12-inch blow-off pipe or safety vent that lead to the surface. Venting occurred frequently even when the power was being used. When it vented a mixture of compressed air and water spray was discharged with tremendous force through the blow-off pipe. Each time a great roar was sent skyward for hundreds of feet. It was a most spectacular phenomenon. It was this Old Faithful simulation of Yellowstone's famed geyser that so many people traveled so many miles to see.

Quite some years back, a tourist asked if it still existed. For the proper answers, he was referred to William Cahoon. Cahoon was general superintendent of the Upper Peninsula Power Company that now operates the dam to generate electric power for the district. Said Cahoon, "Oh, I can presume we can say it is still there, but debris has slowed action in the tunnel chamber and for all practical purposes it is inoperative."

Brief and concise, that is the how big air pop-off eruptions work. The Victoria blow-off was seen by thousands and thousands of people. Even though the eruptions have been stilled, even though the Victoria mine is now idle, the area is a most picturesque one. This is one of the most scenic areas of the entire Copper Country.

West of the Ontonagon

A rugged range of humped back trap rock hills marks the continuing course of the copper belt. These hills stretch west of the Ontonagon River and generally parallel the Lake Superior shoreline. Reaching out in a southwesterly direction, this range passes several miles to the north of Lake Gogebic from which point a spur veers to the northwest, to become part of the Porcupine Mountains.

Early prospectors penetrated the wilds and eagerly dug for red metal along these hills. It was the Ontonagon River, cutting its course through these hills near what is now Rockland, that provided the only convenient access to the area. The area came to be known as the Norwich Copper district.

It was a wild and rugged wilderness in the days of the copper rush. Today, this land west of the Ontonagon is still wild and lonely with only a few inhabitants. Today but a single modern highway from Silver City to Bergland spans the area. In so doing it follows somewhat the same general course as did an old cross country trail of the Chippewa Indians. The trail threaded through the wilderness to Lake Gogebic, then called Agogebic, and on to Lac View Desert. It was over this early trail that the Indian pelts of the fur trade came. Beyond the reaches of this present day roadway there are miles of forest covered terrain that has been cut and gouged by a score or more of north flowing streams whose waters tumble into Lake Superior. A few lesser roads and remnants of old logging and mining roads, some now partially overgrown with brush, probe the forests. Along some, there appears an occasional clearing where some brave soul once may have tried his hand at farming or where an old mine may once have existed.

Though the rugged hills that frame this back country are now mostly quiet and peaceful, in the days of the early 1850's they buzzed with activity as a host of copper workings were born along their burly ridges. Some early writers have referred to these workings as copper mines. This was hardly true as few ever reached the stage of producing and actually shipping the red metal.

Orrin Robinson was an active factor in the life and growth of the Copper Country for more than seventy years. He has written that in June of 1854 he arrived in the west Ontonagon area. At that time the Forest, Ohio Trap Rock, and Norwich mines were producing and shipping mass copper. The Windsor, Magnetic, and Gogebic were just starting to ship small quantities of copper. These mines had not been fully developed. He also wrote that shafts had just been sunk at the Sharon, the Clifton, and the Derby. However, by fall of the following year, those mines had been closed and so had several other lesser prospects along the range.

None of the early mines west of the Ontonagon left much of an imprint on the affairs of the Copper Country. However, the Victoria, whose story has already been recounted, survived the longest. It likely should be considered the greatest mine of the area. The Victoria, which began as the Cushin, was reorganized as the Forest.

The Norwich was another of the enterprising mines of this local area, although its activities were spasmodic and its life somewhat shorter than that of the Victoria. Actually the Norwich was born as an offspring of the American Mining Company from whom its property was purchased in 1855 for the grand sum of $85,000. The American had acquired the property in 1852. Although the evidence is highly circumstantial, it is believed that they had already opened a shaft. It is also possible that some drifting was done. The price paid was considerably more than the normal value of undeveloped mineral land.

For three years the Norwich braved the disadvantages of mining in this remote area. Supplies and the mined copper had to be hauled by ox teams over a long and tortuous route to and from the American Landing on the Ontonagon River. In 1858 the company built a stamp mill and seemingly this put a bad dent in its treasury, as shortly thereafter the mines were turned over to tributors. In 1863 the company gained new life by reorganizing, and with the fresh money received, the neighboring Windsor property was purchased and a new start made. But by then the Civil War had run its course and the falling price of copper made the new company rather short lived. Operations were discontinued in 1865 with only some 500 tons of copper having been produced during its active lifetime.

For twenty years the company remained idle. In 1885 the property was sold to the Essex Copper Company. The Essex people made some effort to reopen the mine, but the venture was unsuccessful, as were the endeavors of two other companies who succeeded them. The first in 1904 and the second in 1916.

The property of the Ohio Trap Rock Mining Company was located adjacent to the Norwich. Although not an outstanding concern or in any way noted for its mining accomplishments, it had a unique twist in its early history. It was one of a few organized mining companies, and maybe the only one, to make a land purchase directly from the government. Normally the early day acquisition of land from federal agencies was handled by one person. This individual typically had, by preemption through an early day mineral permit, or by direct purchase, first acquired title to the property. The individual then sold the property to the mining company or simply transferred the title.

In the case of the Ohio Trap Rock Mining Company, it seems that a government permit had been issued to them in 1845 by the mineral agency. The permit and lease system was discontinued by the War Department. The policy of direct sale was authorized by Congress. As a

result the company opted to buy the 1,702 acres covered by the government lease.

It is likely that some of the original enthusiasm may have dimmed because after 13 years the mine had yielded but slightly over 19 tons of copper. This was hardly enough to cover operating costs. So in 1858 the company called it quits. Later the Hamilton Mining Company took over the property. Its efforts, as well as the efforts of three others that followed, were all futile gestures. No company ever operated the mine.

Perhaps the most successful company of the Norwich district was the American Mining Company. Successful, that is, because it made the most money, but not because of any mining it did. The American Mining Company was made up of a group of pretty shrewd Vermonters whose chief objective seemingly was to buy, and sell, tracts of Copper Country land.

They were aided in this enterprise by one Alonzo Davis, a local lad who performed the ground work by seeking out and acquiring promising copper prospects. Whether he was acting as an agent for the Vermonters or whether he purchased or otherwise acquired the property on his own and then resold it to American is uncertain. At the time, Davis was less than thirty years old. A little later he became the local agent for the Norwich mine. The source of America's good fortune is not known. Was it the exceptional judgment on the part of Davis in his selection of copper tracts? Was it the shrewdness of the American personnel in their ultimate negotiations? In the several transactions they completed, they put together a profit of over $130,000, by selling land for $144,000 which had cost them less than $10,000.

For example - the American Mining Company sold the land on which the Norwich mine was opened by the Norwich Mining Company for the substantial sum of $85,000. Three years earlier they had paid Davis only $1,000 for the tract. They also sold land to the Windsor Mining Company, the Hudson Mining Company, the Sharon Mining Company, and the Derby Mining Company. In every case, at a sizeable profit.

In view of the amounts received for these tracts, it would seem that enough exploration work must have been done to add value to the property. Yet it remains quite obvious that the land was first acquired for resale with no intent of fully developing or operating any mines.

The American Mining Company was quick to take advantage of every opportunity. It also created the American Landing, some ten miles upstream on the Ontonagon River. They used land acquired from Edmund Lockwood, a nephew of Dan Cash. Lockwood obtained this, and more, as Lot No. 7 which had been patented from the government. In these early days all supplies for the mine workings had to travel up the river on scows, poled mostly by Indians, and then be teamed to the mines. They made the most of this situation. The Vermont Company sold twenty acres of its riverside land to the Norwich and the Windsor Mining Company. The Vermont Company stipulated that the Hudson, Sharon, and Derby companies also be allowed to land and store their wares on the property at reasonable rates.

The Minesota Landing was on the opposite side of the river a mile or so upstream from the American. Both became important facilities in the functioning of the early mines of the entire Ontonagon district. All copper produced at the mines during the summer had to remain at the mine workings because of poor road conditions. Not until winter when the ground was frozen and snow covered could it be successfully hauled to the river landings. Stored there until the following spring, it was then floated down the river in scows to Ontonagon during the summer months. Finally, after a long lake voyage it reached Detroit or other points east. From six months to a year was added before the mined copper was smelted and ready to market.

Under such adversities, plus the added costs they generated, it is not difficult to see why so many of the Norwich district mines were so short lived. No matter how rich a mine was in copper, it had little chance of success. And so most of them died quickly and were soon lost to memory.

For those who are interested in early sites, here is a partial lineup of those that came and went in the Norwich district. The list begins with the Victoria. Then continuing down the range to the southwest, next came the Cortez then the United States, Atlantic, Hartford, Pittsburgh, Hudson, Ohio Trap Rock, and the Norwich. These were all somewhat connected by what once was a wagon road of sorts that twisted along the ridge from Victoria to Norwich. Only remnants of this old route now exist as most of it has been recaptured by the forest. A new forest road now connects Victoria and the Norwich clearing but it follows a different route. It too is but a dirt road and so is not always passable. Norwich, incidentally, is now just a name on the map. Even the old rock piles that once marked the mine site have been used for road fill.

To reach the Norwich area today, one should take the Norwich road from Ontonagon. It's blacktopped part of the way and even where graveled is not too difficult to travel. Beyond Norwich, it crosses the range and leads on to Matchwood.

In traveling today's partly modern route, it might be well to ponder the old Norwich road which was opened from Ontonagon back in 1855. James Jamison in his account of the early mining ventures describes it something like this:

You ferried your ox team and load across the Ontonagon river near the harbor, then you negotiated the corduroy across the swamp and up and over the sand hill. When you came to Deer Creek ravine there was a long trestle, but it burned soon after it was built. Aside from such minor matters, the route was either mud or deep snow the year around, and even a good ox team could lug only a few hundred pounds of cargo. To make matters worse, the road was not maintained because of the lack of funds.

Suffice it to say the mining companies of the Norwich district didn't use it very much.

About a mile north of the Norwich mine site are the remains of the old Conklin-Merriweather-Eureka mine. This is one of several undertakings of Algernon Merriweather. He was a native of England who moved his family to Ontonagon during the early days. Merriweather did considerable exploring in the Lake Gogebic area while serving as a US Government surveyor. Eventually he became identified with the development of several mining interests, and lending his name to the little hamlet of Merriweather. His efforts brought him no great reward. Long after he died, however, a most bizarre affair happened that involved his Merriweather mine.

About the turn of the century after the Spanish American War had upped the price of copper, some astute Boston promoters took over the old Merriweather property. They combined it with the nearby Plutus property to form the Wahnita Mining Company. Promoted as having the potential of another Calumet and Hecla and capitalized at a $1,000,000.00, the Wahnita became quite a sensation. But it was all for naught and for the stockholders it turned out to be a real disaster by becoming a real fly-by-night concern. After reaping a harvest from the sale of a large amount of stock, the company officers in a complete show of dishonor, abandoned the property. They spent only $500 in development work.

Somewhat disturbed by such rashness, the former owners of the Merriweather took legal steps to bring the guilty to justice. Eventually, the matter was compromised. The lands involved were returned to the original owners. None of the investors seem to have recovered any of the money they paid for the worthless stock.

Horace Stevens was a master at truthfully detailing important occurrences of the Copper Country as he saw them. Stevens had this to say of the affair after the lands had been returned to the original owners. "Now the Wahnita has no further interest in Lake Superior and Lake Superior has no further interest in the Wahnita."

Continuing down range from the Norwich are the old sites of the Clifton, Sharon, Cascade, Clinton, Waukulla, Derby, Magnetic, and Gogebic. None of these ever accomplished anything worthy of mention. Although at one time Orrin Robinson voiced the opinion that the Sharon was one of the best prospects in Ontonagon County.

After the spur range swings to the north and merges with the Porcupine Mountains, still more mine sites, some early and some of later vintage, lie hidden in the forest. These include the old White Pine, Nonesuch, Halliwell, Union, Pinex, Lafayette, Cuyahoga, and Carp Lake. Most of these are now within the confines of Porcupine Mountain State Park.

Of this group, the Union, located some four miles south west of Silver City, is the oldest. It was one of the first workings in Ontonagon County. The tract was set off by an early government permit, one of more than fifty which were issued for the Porcupine Mountain area. The severe winters and the isolated location cooled the ardor of many of the early comers. A large percentage of these claims were abandoned.

Early work at the Union was begun in the spring of 1846 under the direction of William Spaulding, a Pennsylvanian. He came to the Ontonagon Country with Dan Cash. Spaulding kept a day to day record of his activities. This dated some of the early occurrences and has provided information about early conditions.

For instance on June 14, a Sunday, he wrote, "went to Iron River. Found forty to fifty men there and two white women, the first I have seen for a year." This was in 1846. There was also a small colony of Indians located at the mouth of the river. The settlement, then known as Iron River, did not get its present fancier name of Silver City until the beginning of the silver episode in 1872.

Spaulding also recorded that on July 4, he went to Iron River to celebrate the fourth of July and also to watch the Indian medicine dance. He reports a good dinner and an appropriate dinner program. The table was set under a bowery with about 35 at the first setting.

Earlier under the date of July 1, he wrote: "The Indians got the road made." This extended from the shore of Lake Superior out to the mine and was called the Nonesuch Road. It is believed to have been the first road to be built in the Upper Peninsula. At best it was little more than a trail cleared through the wilderness. Prior to its construction it had been most difficult to get supplies and equipment to the workings. A shaft could not be sunk until machinery could be hauled in over the road. Later outgoing journeys, however, must have been with empty wagons as there are no recorded shipments of copper from the Union. And the same goes for the Lafayette, where some ten miles to the west and at about the same time, Cyrus Mendenhall was undergoing similar hardships.

It was not until a dozen years later that the Carp Lake mine came into being on a bluff overlooking the Lake of the Clouds. Possessing 1087 acres of land, the company by 1860 had sunk two shafts, and had driven two adits in the side of the bluff. The mine actually marketed three and a half tons of copper. Unfortunately by 1862 they had used up most of their capital. Even though the market price for copper was good due to the Civil War, they had to cease work. Reorganized in 1864, operations were resumed, and the next year was the company's best with a grand total of six and a half tons of copper produced. But again, the money did not last and the company had to quit. On at least three later occasions attempts were made to reopen the Carp Lake, in 1898, 1916, and 1920, but all were ill-advised and to no avail.

The Cuyahoga, a mile to the east of the Carp Lake, was an offshoot of the Carp Lake created in 1859. It lasted for seven years but during this time little copper was produced.

The Halliwell was once owned by the Halliwell Copper Company. It is much younger than the Union, Lafayette, Carp Lake or Cuyahoga. Even so had it not been located alongside what became the south boundary road in Porcupine Mountain State Park, it might have been completely forgotten. One of its buildings was neatly rehabilitated by the park people.

Organized in January of 1985, the Halliwell was south of the Union site. A big venture, it was capitalized at $3,000,000.00. It held sway over 800 acres of land in Carp Lake Township. The land was acquired from Alfred Meads of Ontonagon and A. R. Halliwell of Cleveland, thus the name of the mine. The ownership of the Halliwell was vested in a Cleveland group with A. H. Weed as its president. Unfortunately after going to the expense of opening a mine and erecting an office building, machine shop, saw mill, smithy, and shaft house, little copper could be produced. The company tried for six years to overcome almost insurmountable difficulties but finally in 1901 the mine was idled.

When the mine closed, the Cleveland owners named Gus and George Bigge to look after the property. They had lived in the area for a long time as their dad had been employed at the Nonesuch mine. The two brothers remained as caretakers for years. They lived in the little log cabin that once had served as the company office. A general store operated in one of the other buildings. After the state park system took over, because of squatter's rights, they were allowed to continue living there even though the land belonged to the State.

Both of the Bigge brothers are now deceased. According to Hugo Bigge, a nephew who resides in Ontonagon, his uncles really enjoyed their residence at the Halliwell. They were actually kings of the area. All of the buildings on the property, except the one occupied by the brothers, are now gone as are all evidences of the former mine. Regrettably, the little old log cabin, though still standing, is no longer being preserved. It is not identified so that tourists can identify it.

Of all the former mines in this area, the Nonesuch was by far the most interesting. It was the most successful of the earlier mines, though this is a dubious distinction since none were profitable. The old site of the Nonesuch is walled in by the forest and mountains. Here the quiet is broken only by the sounds of nature and the music from the tumbling waters of Little Iron River. The site is located in the eastern extremities of the Porcupines and about four miles south of the Halliwell.

The Nonesuch had an unusual beginning. It was discovered in 1865 by Frank Cadotte an Indian half breed who observed the tell-tale copper exposure outcropping in Little Iron River. Reportedly, Cadotte sold his interests for a barrel of pork, a barrel of flour, and some other groceries. It was 1867 before the mine was opened, and then by an Ontonagon company promoted by such Ontonagon notables as Dan Cash, William Spaulding and James Mercer.

The original tract consisted of one square mile of forested countryside. Outwardly this land looked the same as the rest of the country, but the Nonesuch lode tapped by the mine was quite different from most Copper Country lodes. The copper was carried in sandstone and was in fine grains usually the same size or at times even smaller than the sand particles. Technically this is described as an argillaceous conglomerate sandstone, but I'm sure the mine operators had another suitable, but less refined, name for it. The hanging and foot walls of the mine were black shale and they also carried copper particles, some of which were microscopic in size. The shale also included a great deal of chalcocite, of no value then because there was a lack of know-how for smelting it.

Because of its minute size, the copper, when freed from the sandstone at the mill, was difficult to save by the gravity methods then available. The copper was so fine that many of the tiny flakes floated on water and were lost in the waste tailings. Consequently, a considerable amount of the potential profits went down the river.

By 1873 about $40,000 in assessments had been levied on the Ontonagon shareholders but success continued to elude the company and its capital continued to melt away. To replenish the decreasing money supply, the company was reorganized in 1873. Two Cleveland investors, R. P. and J. H. Wade, father and son, were added to the shareholders. This did not help the Ontonagonites. Instead, the Wades picked up enough loose shares to gain control of the company. Then a hastily levied assessment of $1.00 per share froze out most of the Ontonagon shareholders. The forfeited shares were then purchased by the Wades making them sole owners of the company.

Under the Wades, operations were energetically expanded. The old shafts were deepened and two new ones started. But all this was brought to an abrupt halt by the death of R. P. Wade in 1875. And a bit later, as if to further suppress the venture, fire destroyed the mill.

Captain Thomas Hooper, who was Cornish, really left his mark in the Copper Country. Wade had engaged him as mine agent. In 1879 Hooper negotiated a seven-year lease on the property with the Wade heirs. Hooper was an experienced and shrewd operator. With prudent improvements and operations, he put the mine on a paying basis. The Nonesuch produced 72 tons of refined copper during the three years he worked the mine under the lease.

On the strength of Hooper's successful work, both the property and the remaining years of Hooper's lease were purchased by a new company in 1881. Hooper was kept in charge of the mine. Because the new owners expected great things, the cautious ways Hooper had been fostering were thrown to the winds. They wanted profits, and dividends, immediately, but they did not get them. And Hooper in his complete disagreement with them, stayed long enough to see them lose almost a half million dollars.

Endeavoring to stem the swelling tide of failure, the management that followed Hooper tried everything. They

tried smelting the rock without milling, but it did not work. They sent a shipment of Nonesuch rock to Chicago for processing by a chemical method. In the eyes of the inventor this seemed successful and on the drawing board his idea looked good. Anticipating great things, a large and expensive mill, new machine shops, and added dwellings were erected in accordance with his plans. In actual practice the process proved a flop. By this time some $400,000 had been lost and nothing gained for their efforts, so the company gave up in disgust.

The endeavor to solve the unusual problems encountered were probably best described in a few words by Horace Stevens. In his Copper Handbook of 1902 he wrote:

Hundreds of tons of rock from the lode have been shipped to all points of the compass for experimental purposes. The problem of saving the fine copper has been attacked mechanically, metallurgically, chemically, courageously, and outrageously by many different inventors, all of whom have suffered discomfiture.

In later years the mine was examined frequently. Calumet and Hecla tested it in the early 1900's and even put up an experimental mill with three gravity stamps. The results were encouraging but did not result in the reopening of the mine.

Today, the site of the Nonesuch is only a short hike beyond the south boundary road in Porcupine Mountain State Park. However, the way is not marked. There is little left in the area to pinpoint the site. The poor rock piles along the south shore of Little Iron River and some caved in buildings on the opposite side of the stream are all that remain. From these scant remains, one would hardly suspect that during its earlier days the Nonesuch mining settlement actually overshadowed what was then the community of Iron River. It did, though, with streets and rows of houses and about a hundred residents. Too, it had a fine agent's residence that boasted a special walnut balustrade on the stair case. And there was a store and a school house, and even a uniformed baseball team. But as we have said, it did not last because the mine owners could not make the Nonesuch lode pay.

Not until the advent of the White Pine mine of 1912 was it finally shown that such copper could be mined profitably. The mine that became the White Pine came into being a little before 1881. However, this was not the same company or quite the same mine that we know by that name today. The outcrop that gave birth to the old White Pine was discovered alongside the Mineral River by Captain Thomas Hooper whom we have already met at the old Nonesuch. Later this surface outcrop proved to be an extension of the Nonesuch lode which had been worked with such mediocre results some two or three miles to the west.

Hooper sank a shallow shaft on the spot and tried to do some mining. The lack of sufficient operating capital, or more aptly, the lack of interested investors, brought his operations to an end in 1881. But that was not the end of the mine nor was it the end of Captain Hooper. He was used to hard knocks. Young Tom had run away from home at the tender age of sixteen, and with a companion, stowed away on a ship sailing to America. His father said later he thought he had just gone out to buy a wheelbarrow.

In 1907 when Calumet and Hecla started their test work at the Nonesuch, they also began a series of diamond drillings. The drilling followed the course of the Nonesuch lode in its easterly direction. This led them to Hooper's 1881 shaft. Further drilling in this vicinity revealed good native copper mineralization running as high as 10% along what became known as the White Pine Fault.

In 1909 Calumet and Hecla organized the White Pine Copper Company as one of its subsidiaries to operate the property. At the time neither company owned the land. Title to the land was vested in the Longyear iron and forest interests, so a mining lease had to be negotiated with them. Captain Tom had a slice of this and so did the Parker people of Ontonagon. A few years later Calumet and Hecla acquired the land and then transferred the title to the White Pine Copper Company.

White Pine began its operations by deepening the original shaft which became known as No. 1, and some 5,000 tons of ore were stockpiled from it. Three more shafts were sunk to the east of No. 1 and more ore stockpiled. When about 28,000 tons of ore had been accumulated, White Pine built a mill. All of this had cost the company in excess of $2,000,000, but now it was ready for a profitable operation.

The first major shipment of copper was made in October of 1914, and it went to the Houghton area by way of a tug and a scow. The parade of these two vessels as they moved along Portage Lake to the Calumet and Hecla smelter was an occasion for a tumultuous celebration. The market value of the cargo at that time was around $50,000. The vessels were greeted with blowing whistles and sirens and the occasion highlighted by an official reception.

White Pine's operations continued on a grand scale from 1914 to 1921. Then when the depressed price of copper, after World War I, would no longer support the cost of production, the mine was closed. During its seven years of production, the company shipped some 18,000,000 pounds of the red metal, and it did this at a handsome profit.

The White Pine was able to operate profitably on the stubborn Nonesuch lode. White Pine had found a process by which enough of the small particles of native copper could be recovered to more than cover their costs. The chalcocite was not processed. Of even greater importance was the very favorable market created by the advent of World War I.

The mathematics were simple. It cost them 12.7 cents to produce a pound of copper. They were able to sell it for 25.6 cents per pound. This added up to some nice profits while it lasted. It also provides some very interesting statistics.

In 1916, during its best year, the White Pine produced 2,104 tons of refined copper. The fabulous Minesota during its best year produced only 1,745 tons of refined copper. Again, during twenty five years of operation, the Minesota earned toal profits of $1,800,000. The White Pine cleared $590,000 or nearly one third as much in just one year. Indeed, by all counts, the early White Pine was little short of a sensation. Unfortunately, its milling process was not quite efficient enough to cope with the eleven cent copper that followed World War I.

The White Pine Copper Company was lucky enough to open its mine in the right place at the right time. The White Pine Extension mine, commonly nicknamed the Pinex was in the wrong place at the right time. Pinex, which was not connected with the White Pine in any way, was located some eight or nine miles farther west.

Pinex was organized in 1915 as a subsidiary of Mohawk Mining Company. Some $50,000 was spent sinking a shaft, building shops, stable, warehouse, and office, along with two rows of log houses for the workers. The location was extremely isolated at the time, and had the venture produced any significant amount of copper, which it did not, the transportation costs would have been death dealing. Anyway, Pinex ceased to operate in 1918.

After the White Pine closed its operation in 1921, a silence descended over the area that was to last for many years. Bills from inactive property continued to accumulate. Finally, in 1929, the assets of the company were put on the block and sold at a sheriff's auction. The sale, held on the steps of the Ontonagon County Court House, took place on May 21, 1929. It was a beautiful spring day, and it turned out to be a lucky one for William Schacht. Schacht was a Copper Range Vice President, who had driven over from Painesdale to Ontonagon to bid on the property. How many other potential bidders were on hand has not been determined. Likely there were not many, but as a result of Schacht's $119,000 bid, Copper Range became the owner of the White Pine Copper Company and all its assets.

At the time Schacht was about the only person in the Copper Country who had any faith in the property. He had long felt that the secret of making the Nonesuch lode profitable lay in its content of chalcocite. There had to be some method of extracting the copper from this compound and keeping the copper. Up to this point Michigan's Copper Country companies had not been faced with such a situation. In fact most of them even scoffed at the idea of a profitable copper tract without the native red metal.

Schacht was convinced otherwise. Almost immediately after purchasing the property, geological and metallurgical studies were begun. White Pine rock was tested at Michigan Technological University and still more testing was done by the American Cyanamid Company. Copper Range also did considerable experimenting at its own mill at Freda.

The onset of the depression that swept the nation after the stock market crash at the end of 1929 slowed research. And then in 1941 when World War II erupted, all work was suspended for the duration. In 1946 after the war clouds had cleared away, a new exploration shaft was sunk and milling tests resumed at the Freda mill. The Battelle Memorial Institute was also called upon for lab work.

With the outbreak of the Korean conflict in June of 1950, and with an immediate shortage of copper in sight, the Government asked Copper Range to make a study covering the complete development of the White Pine ore body as a source for the much needed copper. Under the leadership of Morris La Croix a study was made and a plan submitted to the government. Eventually approved, the White Pine received a construction loan of $67,000,000 under the Defense Production Act. Copper Range added $13,000,000 of its own money to this, and construction of the new White Pine plant was begun.

This was in March of 1952. A tremendous task lay ahead. Some three hundred acres of woodland had to be cleared at the new site. Thousands of tons of concrete and steel, and miles of pipe, cable, and wire were gradually molded together as a new and "modern mining camp" took shape.

On March 31, 1953, the first White Pine ore was brought to the surface, nearly two years before the construction was completed. Fittingly, a crowd was on hand to observe the 12-ton diesel shuttle car as it drove up the mine portal with the first load of copper bearing rock.

A little less than two years later, copper began flowing from the refinery furnace, and on January 19, 1955, the first bar of copper was poured. It marked the climax of many years of research as well as the final touches to the massive construction project.

And then on September 18, 1965, just a little over ten years later, came another great event. A group of over four hundred visitors representing the government, civic organizations, business and the press gathered at White Pine to observe the pouring of White Pine's billionth pound of copper. This, indeed, was an important milestone in the company's rise to fame. Success had been achieved. A victory had been won, but alas, William Schacht who dreamed of this goal, had died before the great complex bore its fruit.

Today, the White Pine has become one of the country's leading copper producers. The adjacent town of White Pine, which has grown up with the company, is one of the most modern in all of Michigan's Upper Peninsula.

Though the White Pine Copper Company created the largest economic splash in recent years in Ontonagon country, an episode that occurred prior to the turn of the century also set off quite a stir, in much the same area. This was the silver boom of 1872 to 1876. Economically it did not amount to much, but historically it was a most interesting period.

Silver, of course, was no stranger to the Copper Country. As already related it had been found associated with copper in many of the Copper Country lodes along the trap

range. However, the burning question that fired the imagination of many people was why silver had not been found in veins all by itself?

Almost from the beginning of the copper rush, a wishful feeling persisted in the minds of the prospectors, and many felt that a lode of pure silver lay hidden somewhere in the Copper Country. This feeling persisted and grew until it became a legend, a ghost legend of a lost silver mine, that refused to be put aside. It became strongest in the Iron River area of Ontonagon County. Here the Indians had carried native silver specimens to the fur trading post at the mouth of the Iron River long before the arrival of any copper miners.

Perhaps it was the pervasive mists from which this legend was born that enshrouded Major Robert Rogers. Nearly three centuries earlier he had tried to establish a domain in Ontonagon country. Did he know something special about this land? Or how about Ramsey Cooks, the overlord of the Astor fur interests at the Sault. A century later he sought land in the vicinity of Iron River. Was it the lure of silver that also urged him on?

In 1845 Bela Hubbard, while working as a surveyor in the Porcupine Mountains, poured more fuel on the glowing embers of the lost silver mine myths. He reported a quartzose vein crossing the Iron River. He added, "The Indians have been persistent in their reports of silver in the region of Iron River and have frequently shown specimens." Try as they might, however, the newcomers never quite succeeded in inducing the Indians to reveal the source of their treasure.

As with copper, the Indians were highly superstitious, believing they would be punished by their Manitou if they showed where to find the silver. And as if to prove the validity of these religious superstitions, the story is told of an Indian half breed who brought some vein rock that was rich in silver into the early settlement of Ontonagon. He told his white friends, with whom he bartered the silver, that his wife had found it on the south range where they had been trapping. To test his story, his greedy friends sent him back for more. In a few days he returned with a sizeable specimen that contained eleven and a half ounces of silver. But then, after going back to his home among the Flambeaux Indians, disaster struck. He was killed. His wife insisted that this was punishment for disobeying his Manitou. From then on she never would reveal to either friend or foe the location of the silver vein.

And again, there was Frank Cadotte, the half breed who discovered the copper outcrop of the Nonesuch lode. Shortly after pointing it out and selling it for a trifling of groceries to some Ontonagon friends, he was taken sick and died. His Indian relatives shook their heads and said they knew it would happen.

Indian legends and myths about silver abounded and even though many of them were cunningly vague they continued to stir the imagination. Many of these were set in the Iron River area, like the one related to Colonel Charles Whittlesey in 1845 by Kon-te-ka, chief of the Ontonagon tribe. The Chief claimed that, one day, as he canoed along the shore of Lake Agogebic, rock from the cliff fell to the edge of the water. From the fragments of these rocks, he picked up nuggets of silver. True to his religious convictions, he would not say just where. And so another mythical lost silver mine came to be.

And then there's the story related by James Jamison. His was about the time he sat with a man in a room high above the street in the old Colony building in Chicago. This man, who had made a few dollars in the timber business, had done some exploring around the Iron River area one winter shortly after the Civil War. At first the talk in this Chicago room was of those early days. But finally, as conversations often did, it turned to silver. When it did, Jamison's companion turned to an old safe standing along the wall. Its top was piled high with dusty books and papers. Probing amid its multitude of inner contents, he presently withdrew a fist-size lump of pure silver. This, he told Jamison, as he displayed it fondly, had been found in a little creek not far from the Nonesuch. He went on to tell about Indian superstitions. He told how the Indian who had been with him seemed to become afraid when he saw him take the nugget from the crystal clear waters of the stream. The next morning when it came time to go out again, the Indian said he was sick and could not go. The next day he disappeared. Going back to the creek alone, the story teller said he found several more smaller nuggets as the outcrop was very plain. And then, moved by the memories of the occasion, Jamison relates how his friend began to philosophize by saying, I bought a lot of timber lands up there, but that is not where the wealth is in that country. It may not happen in my life time, and it may not happen in your life time, but the time will come when that country. ... Indeed silver has captured the imagination of many people!

And so gradually with the passing of the years, the stage was set for what became the silver boom. It was a relatively short affair that began in 1872, peaked in 1874, and was completely over in 1876. And had it not been for Austin Corser, there might not even have been such an episode.

Like many others Corser had become intrigued by silver and the many vague myths and legends concerning its hiding places. And like many others he searched the countryside with a never fading hope of finding some hidden source of the white metal. Vein rock containing native silver had been found in the river beds and on the beach. But the source remained a mystery.

Not until 1855 when Austin Corser stumbled upon an outcropping of native silver in the Little Iron River was its hiding place first indicated. With a great thoroughness Corser pursued his explorations. From the outcrop in the river he traced the vein across the stream and into the adjoining land. Convinced that the vein had considerable value, Corser sought out the government land office with the intent of filing a homesteader's claim. But alas! Here he learned that the land the silver vein crossed was not

available from the government. It had been set aside to become part of a land grant to the Ontonagon and State Line Railroad Company, if and when a proposed railroad was built.

Corser, however, remained undaunted. Perhaps he had a hunch that the railroad would never become a reality. Anyway, he gambled that it would not by building a log cabin on the property alongside Little Iron River. And then to the bewilderment of his friends, he moved his wife and daughters from Ontonagon to this cabin. For the next seventeen years they endured the hardships and privations of a squatter's life in the back woods.

What patience and persistence he had. But he was right! In the end, his gamble paid off. The company did not build the railroad. When its charter expired, the land reverted to the government. Thus the land became available for homesteading.

Corser filed a homesteader's claim at once, and in the course of time a patent was issued on the land. The silver vein now belonged to him. He was about to be rewarded for his many years of privations and waiting. Abandoning his prior air of secrecy, he announced his find to the world. Early in 1872, he sold his land to a group of easterners for a goodly amount of money. That enabled him and his family to live comfortably for the rest of their lives. And his friends, who through the years had wondered about the sacrifices of the Corser family, now nodded their heads in understanding.

Corser, however, had not been idle during his long years of waiting. He had carefully explored the surrounding area, and in so doing had discovered a similar silver outcrop in the Big Iron River. His own claim now secure, he presented these facts to some potential buyers who with little persuasion quickly purchased the land on which the outcrop was located.

News of the silver discoveries spread rapidly. A land rush developed. It was the greatest since the early days of the copper craze three decades earlier. Within a short time all of the available government land for miles around, from Green to the east, Lake Gogebic to the south, the Wisconsin border to the west, had been purchased. Anyone fortunate enough to own land in this district, "penciled out in his own imagination the course of the vein through his property." These are the words of A. P. Swineford, editor of the Marquette Mining Journal. He was a shareholder in the Scranton Silver Mining Company which was organized by the eastern group to whom Corser had sold his property.

As mineral lands were acquired and test pits were opened, samples from the lode were sent to assayers. One of the first assays was made by Professor Jenney of Marquette, an assayer associated with the State Geological Survey. This assay showed $260.40 of silver per ton of rock. Later assays were made by the US Mint at Philadelphia showing $185 per ton. Assays at the Wyandotte Silver Works at Wyandotte, Michigan varied from $11.70 to $1,716 per ton. Assays by Julius Ropes, an analytical chemist of Ishpeming showed from $57.38 to $296.86 per ton of rock. All were encouraging to the owners but how representative the material assayed was to the lode in general is something else. Nevertheless the facts were plain and those concerned rightfully claimed that the assays were all they had to go by and certainly they could not be disputed.

Swineford goes on to say that considerable land was sold without any regard for its mineral value. He further records that, "companies were organized and stock sold in several instances at good figures (for the sellers) and it is only charitable to suppose that all transactions were in good faith."

In support of this statement, of the twenty seven companies formed at the time with recorded articles of incorporation, most did little more than attempt to sell shares. A few did a little exploring, but only four, perhaps six, could be called true mining ventures. But more about these later.

Austin Corser waited out the building of a railroad. Captain Daniel Beaser, retired lake captain and respected citizen of Ontonagon, bought land around the mouth of Big Iron River. The harbor there would readily accommodate smaller craft having a draft of less than six feet. In view of the activity from the early Porcupine Mountain copper mines, the prospects of a growing settlement at Iron River looked good to him.

It's doubtful whether old Dan had any inside information as to Corser's silver lode, but when the silver boom burst, he was ready for it. Realizing that the mouth of the river would become the center of activity for the newly formed mining companies, he began to plat a townsite. It was quite a townsite too, with many blocks and streets some of which were appropriately named to honor recent heroes of the Civil War.

Captain Dan also changed the name Iron River by which the original settlement had been known from earlier days to the more romantic name of Silver City. He began selling lots for $100 to $150 each. The lots were almost alongside the projected mine shafts because Corser's homestead had been a half mile up the river.

Alfred Meads, then editor of the Ontonagon Miner and a one-man chamber of commerce for the newly platted townsite had this to say about its setting:

It is one of the handsomest locations that could be desired for that purpose and it does seem as if Dame Nature had laid herself out to show what she could do in this way. The beautiful little river that goes rushing along over its rocky bottom, the formations of the land in natural benches one above the other, so that no one need be inconvenienced by having a neighbor in front of him, as well as the good and serenely unlimited expanse of Old Father Superior himself, which makes an admirable foreground for the picturer, and the bold outlines of the Porcupines in the west are only the more prominent features. The fact that the land has been mostly cleared

for a great many years and is now ready for occupancy and garden cultivation without the removal of a stump, root, or tree, is also in its favor.

As the mining companies settled in around Silver City, the newly platted community became a hive of activity. New residence buildings sprang into being. A general store and a meat market were soon going full blast. A boarding house was built and by November, 1872, four large warehouses were standing near the harbor. Tugs hauling scows loaded with freight and supplies, as well as passengers moving to and from Ontonagon, kept the bay crowded throughout the summer. When winter halted lake shipping, the harbor became quiet until the following spring.

In 1872 winter came early at Silver City. Preceded by a particularly severe fall, it was a hard winter so little work could be done on any of the new mining properties. The Ontonagon Silver Mining Company jumped the gun in the spring of 1873. They somewhat foolishly began operations in March when there was still four feet of snow on the ground. The Ontonagon Silver Mining Company property was located a little east of Big Iron River and about a mile south of Silver City. The present M-64 now passes through the middle of the old property.

Alfred Meads wrote a contemporaneous account of the silver rush for his newspaper, the Ontonagon Miner. The account is dated January 10, 1874. Meads provides about the only details concerning the operations of these early companies. Later, this account was updated and republished in the form of a booklet. This, however, has long been out-of-print. Unfortunately old copies of the Miner of that date seem to have been destroyed in the disastrous fire that swept Ontonagon in 1896. Thanks to James Jamison who in his book, "This is Ontonagon", also out of print, quoted freely from Meads' story, numerous details of the silver boom have been preserved.

Meads had this to say about the Ontonagon Silver Mining Company, which seems to have attracted the greatest attention:

Work was commenced on the ground when it was covered with fully four feet of snow in a section of country perfectly isolated, no roads to reach it and not a single person living there. All supplies, provisions, tools, and camping materials had to be packed and hauled from Ontonagon on dog trains or on men's backs. The men were made as comfortable as circumstances would permit in a brush camp.

Three test pits were sunk to the slate which proved that they were too far north. At length, however, in about four weeks from the time they commenced work, they struck the vein. It occupied the same geological position as the outcrop on Iron River. The width of the vein was about eighteen inches and fully as rich in native silver and silver ore as the specimens obtained from Iron River. This fact of the vein being found some fifty rods to the east of its outcropping in Iron River very much elated the friends of the whole district and seemed to prove conclusively that the vein was a continuous one.

Land was cleared, roads made, houses built, and today (January 10, 1874) they have a neat, well regulated, clean location in which the laborers are comfortably housed and supplies and materials taken care of.

James Jamison adds this to the account:

Captain Thomas Hooper, whom we have seen at the Nonesuch was put in charge and the shaft sinking and drifting was directed by him. He appears to have been employed as a sort of consulting engineer who could inspect and direct the work handily from the Nonesuch. The shaft went down 125 feet and drifts were made east and west. Between two and three hundred tons of silver-bearing rock was stock piled on the surface. Now it was apparent that a mill was required.

The next development was a little farther south and on the Big Iron River. This was at the Ontonagon and Lake Superior Mining Company. To avoid being confused with the Ontonagon Silver Mining Company which it adjoined to the west, it was generally referred to as the Superior. The Superior also began work in the spring of 1873 with Captain Dan Beaser in charge, but he started a little later than his neighbor. Here Meads in his account of January 10, 1874 tells us, "Several commodious houses have been erected and everything put in shape for energetic mining next season. Owing to the money panic which set in last fall, the company thought best to discontinue for the winter."

Although the Scranton mining group was the first to become involved in the silver episode, it was one of the last companies to commence work. After Corser sold his homestead to the investors from Scranton, Pennsylvania, (the reason for the name) there was little information recorded about its operations. Meads does say that the company sank a vertical shaft 300 feet from which it took four and a half tons of silver-bearing rock. It seems that Captain Thomas Hooper was also involved here in opening the mine, so apparently he divided his time between the Scranton and Ontonagon while also serving the Nonesuch.

The Collins mine was another property on which the vein was opened. Considerable work was done and the results were termed somewhat gratifying, at least as far as proving the extent of the deposit. Lack of funds forced the company to abandon the operation.

And then there was the Cleveland mine which adjoined the Collins to the south. It was operated by the Cleveland Mining Company, the last concern to do any silver mining in the area. The company did not get organized until 1875, but even so, it did more practical mining than most of the others. A perpendicular shaft was sunk which cut the lode at a depth of 136 feet, encountering vein material which was claimed to be richer than any other from the district. The death of the company president, Judge John C. Edwards of Cleveland, plus the financial

panic later in the year put an end to the venture just as it was getting started.

The foregoing were the only companies to do any real mining, but as already related, there were many others organized. The Mammoth Silver Mining Company did develop a shallow shaft on its location but did nothing else because it lacked capital. There were many that did nothing but sell shares. Like the Silver Cliffs, the Silver Mountain, the Caribou, the Geneva, the Atlas, the South Shore, and, even the proverbial Eureka, the Eureka Silver Star. And now, as James Jamison wrote, "we come to the meat of the nut." The Ontonagon mine had yielded a considerable stock pile of silver-bearing rock and the company saw the need of a reducing mill. In 1874 the owners of the Ontonagon cooperated with the Superior, Scranton, and Collins companies. They agreed to pool their resources to build a mill for processing their vein rock. Each agreed to contribute a thousand shares of capital stock for this purpose. It was quite convenient for them to do this since the mines were fairly close together and some of the stockholders owned stock in more than one of the companies.

The mill was built on the east bank of Big Iron River on the property of the Superior. Its workings consisted of a Blake rock breaker, five heads of Gate's stamps, and three Varley amalgamating pans.

On the morning of July 2, 1875, the plant was put into operation, and during the next two weeks 22 tons of Ontonagon mine rock were processed. From the amalgam that resulted, the first brick of Iron River silver was smelted. It was poured at two o'clock in the afternoon of July 17, 1875. The resulting brick weighed 523 ounces and was worth $732. This was an historic moment for the Ontonagon, but it also was a disappointing one as the 22 tons of processed rock had averaged only $33.28 of silver per ton.

A little later in the summer four and a half tons of rock from the Scranton mine were processed. Reduced to 40 pounds of amalgam, this produced a silver brick weighing 160 troy ounces, worth $203.75. That works out to an average of $45.28 of silver per ton of rock.

A subsequent test of five tons of material from the Scranton mine produced a 15 pound brick, an average of $56 of silver per ton of rock.

Naturally all of the results were somewhat disappointing and with them the silver episode began to end. From this point on activities declined. When the summer of 1876 rolled around, only one mine, the Cleveland, continued to operate. Even here the miners had quit work in April because they had not been paid for work already done. Work was resumed in August when a small amount of added capital was promoted. Then in September came orders from the Cleveland owners, "to ship all horses, tools, and supplies to Marquette to be sold." And so the last of the silver companies came to an end, and so too ended the Iron River silver episode.

In retrospect it can be said that the reducing mill had been crude and inefficient and that much of the silver had been lost. It had been set up in a wilderness, its construction was cheap and hurried. More significant, they were treating a strange, silver-bearing rock. The rock was a grey, compact, well stratified sandstone interbedded with thin undulating seams of a black shaly material containing silver. The minerals were microscopic. Only in rare instances were they visible to the naked eye.

There were also some other factors to consider, and again I quote James Jamison who sums it up well:

The silver boom was inaugurated, flared, and died out in three years of one of the most severe depressions the nation has ever experienced. A panic followed the failure of Jay Cooke and company in 1873. The inevitable depression following that panic lasted for several years. Capital was indeed timorous.

From the beginning to end in that brief silver exploitation only insignificant amounts of money were expended. Even if all resources had been concentrated on one mine, it would have been insufficient to prove or disprove that silver existed in paying quantities on Iron River. The deepest shaft was 115 feet; transportation difficulties used too much of their slender means; credits were impossible and money was extremely scarce.

Though the silver boom came to an end with almost startling abruptness, the elusive silver hidden away in the underlying rocks is not forgotten. Today, in its mining operations, the White Pine Company disgorges tons of this rock, and along with its copper, also turns out thousands of dollars worth of silver. And so the silver legend still breaths.

After the bubble burst in 1876, the populace of Silver City slowly melted away, and a peaceful quiet settled upon its scattered remnants at the mouth of Iron River. Through the years as the ever increasing influx of tourists has come to recognize the picturesque delights of the area, it has gradually turned into a pleasant resort community.

On the other hand, Ontonagon, only a few miles to the east, was not greatly affected by the silver boom or its collapse. In fact, it seems to be a pertinent observation that the Ontonagon folks had not been too much carried away by it all. Few had actually been involved and many, it seems, had even expressed doubts about the whole thing. There were rumors that the mines had been salted, that the assays were false, but of course such were untrue. And finally, when it was all over, there were the usual "I told you so's!" But few, if any, really knew why. But even as the epilogues to the silver episode were fading away, Ontonagon County was to gain another distinction. It was still 1876, the centennial year. Linus Stannard, Jr., a prominent Rockland business man, had journeyed to Philadelphia to attend the centennial exposition.

Stannard took in the sights. He saw the latest inventions and gadgets. While he was there he spotted a man with a

tube stuck in each ear talking into a mouth piece which he held in his hand. Today this would excite no one. Things were different then. Stannard was curious. When queried about what he was doing, the fellow replied, "I'm talking to a friend in a neighboring city." Intrigued, Stannard began to ask questions. Did the gadget really work? How far would the voice travel? Was it expensive?

The answers to these questions and many others were readily forthcoming. The man being questioned was an early representative of what came to be the great Bell System. Stannard heard that in a short time it would be possible to talk by telephone from one end of the country to the other. He began to visualize himself sitting in his store in Rockland and talking with friends or business associates in Greenland, or Ontonagon, or even Houghton. And with this vision, the idea of the Ontonagon Telephone Company was born.

After returning from Philadelphia, Stannard called upon two of his close associates, Jim Mercer and B. F. Chynoweth and told them about the new invention he had seen. He also unfolded his idea of a telephone company. They too were enthused, and right there and then, the Ontonagon Telephone Company was born. Materials and instruments were ordered. Lines were soon strung between Ontonagon, Rockland and Greenland. Once they were in place, the first telephones in the Upper Peninsula came into use. At first the company was just a small affair serving only its incorporators.

As the late Joseph Bebeau recalled it, the system was not set up as a money making venture. Instead, it was put into operation more for the benefit of the incorporators and the communities. Said Bebeau, In the early days I do not recall that anyone was ever charged for a call. It seems that they were well satisfied in knowing that they were serving the people by letting them come into their places of business to make a call.

And so to Ontonagon County came the distinction of having the first working telephone system in all of northern Michigan. And now with expanded facilities, it still remains as one of the few independent telephone companies in Michigan.

In 1881 something different came to Ontonagon. The mighty lumber barons and their strong armed ax men descended upon the land and began to strip the towering pines from their forest stands. Here the giant pines were not in solid stands but were intermixed with huge hemlocks and other hardwood timber, and these the axmen bypassed until a later day.

First to come was the Ontonagon Lumber Company, a quarter million dollar concern put together by a group from Chicago. Gaining control of some 13,000 pine-covered acres in Ontonagon Country, they built a saw mill on the east bank of the Ontonagon River, a little above the lake. Soon they were turning out nearly 200,000 board feet of lumber a day.

Next came Sisson and Lilley from Grand Rapids. They built an even larger mill near the mouth of the river on the opposite shore. This boosted Ontonagon's lumber output to over 500,000 board feet a day.

Shortly before 1883, the Diamond Match Company, king of all the big names in the industry, brought a little hokus-pokus to Ontonagon. They tried to put their own staff in the county office of the register of deeds. They were getting ready for a mass purchase and they wanted to find out who owned the Ontonagon pineries.

The upshot of it all was that the local registrar threw them out, claiming that their daily presence was interfering with work. Diamond Match then obtained a writ to force the registrar to allow the survey to go on. In the end it became a matter for the Supreme Court to decide. Though Diamond Match lost this round, they eventually gained control of a good part of the Ontonagon countryside. Within a short time the timber and match business of this industrial giant had become a substantial part of Ontonagon's economy.

This spelled prosperity for Ontonagon. In the preceding decade it had fallen from the luxury level of the Civil War into a depression. At the low point, half the houses in town were empty and the once grand Biddle House had become dilapidated. Scores of the little mining camps that once nestled along the back-country ridges had been abandoned. The forest from which they had been carved was slowly reclaiming them. Few of the younger people who had left the Ontonagon country to serve in the Civil War ever returned.

And so for Ontonagon, the coming of the lumbermen brought new life. It was the beginning of another period of prosperity, and it lasted for well over a decade. The Ontonagon people did not know what was in store. Eventually the after effects of lumbering would bring about dark days for many of them.

The great pines were felled. As the surrounding areas were logged the twisted limbs and tops were left behind. Pines are rich with gum and resin. The brush was piled on top of the carpet of brown needles that lay thick on the ground. As they dried they became tinder for fire.

Almost every year fires raged through such cut over land, sometimes unchecked by man because he had few facilities for stopping them. In many instances homes, businesses, and sometimes entire settlements, were ravaged by uncontrollable fires.

In 1896, fire struck Ontonagon. Recovery from the tragedy took a long time. On the morning of August 25, a seemingly harmless brush fire burned in the swamp lands beyond the town. At the time the townspeople thought little about it. It was the usual thing. Winds fanned the fire into a blaze. The fire swept down on the town. After the fire had run its course, just about everything in the settlement had been destroyed. Where once there had been a prosperous village of some 2,300 souls, now all was blackened ruins.

For a first hand, account of this tragedy, let us turn to the words of H. M. Powers. He was the town druggist and the editor of the Ontonagon Herald. After the fire, the first issue of the Herald, which had to be published on a small replacement press, carried this description of the holocaust,

Tuesday morning, August 25, 1896, the sun seemed to shine unusually bright in Ontonagon, then a prosperous village of 2,300 well-to-do, happy and contented people. The two large saw mills of the Diamond Match Company had given the signal for the crew to take their places and the busy hum of the saw seemed to voice the sentiments of our people; not one of them thinking that before the orb of the day would sink in the west that their homes would be in ruins and they would be compelled to fly for their lives, rendering them paupers on the world.

It may have been imagination or premonition but many of our people whom we have talked with since the terrible conflagration, tell us that they felt something hovering over them during the forenoon of that day. It seemed to them as if something was going to happen but they could not explain it. For weeks, yes months, there had been fires in the swamps up along the west side of the river but so accustomed had our people become to the smoky atmosphere that nothing was thought of it.

At different times when it began to encroach on the Diamond Match Company fences and boom, they sent men up to fight it. Tuesday forenoon, however, fanned by a brisk wind from the southwest, it had come nearer to the buildings on the west side and as early as half past nine the company had sent men over with a hose to try and check its progress. The reports which came back to town were that it was not very serious. Men who had families living on the west side began to get alarmed for their safety, but went to work just the same when the mills started up at one o'clock.

The machinery had hardly got in motion, however, when the fire alarm was given, one of the buildings had caught fire, and from that very moment the town was doomed. Many of the firemen were already on the ground, but they soon saw it was useless to fight such a fire with a wind which every minute was increasing in velocity, and they immediately began urging the women and children to hasten to a place of safety.

It did not take long to consume the dozen buildings in its path and in another instant it was in the west side mill and yard where its ravenous appetite devoured all before it, crossing the river into the immense piles of lumber which seemed like so many shavings before it. In a jiffy the planing mill, dry kilns, barn and island saw mill of the Diamond Match Company were all on fire.

The Bigelow House, a large four story frame structure, caught next and then people realized from the rapidity with which the wind was traveling that not only property but lives were in danger. Every person in the lower end of town who could get by the flames went in the direction of Greenland and Rockland, and the others sought refuge on the beach and in boats.

About this time, between three and four, the wind changed to the northwest, and then began a race for life. The wind had attained a velocity of seventy-five miles an hour. Huge banks of smoke hid the sun from view. The air was filled with fire brands and the terror stricken people dropped everything they had and ran for their lives.

No pen can describe the wild scene at this juncture. Many of the poor people saw houses catching fire ahead of them and terror stricken they hardly knew what to do. They realized, however, that their only alternative was to keep ahead of the monster tidal wave of flame which was pursuing them and on they went, some in wagons, but most of them afoot. Horses were lashed into a mad gallop, and men, women, and children ran like wild.

Before the wind shifted, it was thought that the residence portion of the town could be saved, but now it was evident that no power on earth could stem that sheet of flames which seemed determined to lick up every building within the village limits. People standing a half mile from the fire could not face it. It seemed as if the very air was afire and the population kept pushing out into the interior, some going as far as five miles out.

John Roosen's residence located fully a mile from the lake shore on Parker Road, which everyone supposed was perfectly safe from any fire which might break out in town, was showered with burning fire brands swept on by the terrific hurricane and soon it too was leveled to the ground.

At the same time the fire was making equally good progress up the Rockland road, never stopping 'til it had laid low the Martin and Gothard residences, and then took everything before it to the Greenland road, including William Heard's beautiful residence. When darkness settled down on the scene, it was one long to be remembered and certainly indescribable.

Three hundred and forty-four buildings, including one bank, the courthouse and jail, four churches, three hotels, a dozen stores, thirteen saloons, two newspapers, three school houses,-the Diamond Match company's plant, 40,000,000 feet of lumber, the large general store of this company, the barge City of Straits, two iron bridges, Corgan's Opera House, and many homes were erased from the face of the earth. It was indeed a scene of desolation and woe sufficient to make the stoutest heart quail and bring tears to the eyes of the bravest men.

But it was no time for crying, and the grief stricken inhabitants, hundreds of whom had taken refuge in the farm houses adjacent to the village, while others were taken by train to the neighboring town of Rockland, twelve miles away, congratulated one another that they had escaped with their lives and then shuddered to think of their fate had it occurred at night, but the wind did not abate with the going down of the sun and many of our people who had not reached shelter in the farm houses

outside of town were afraid to return until morning and slept in the fields with blankets for covering while others unable to sleep walked about all night.

When morning broke, however, the generous people of Rockland came to the rescue with food which was highly appreciated by the people whose appetites had been sharpened by the excitement and exposure they had been subjected to.

During the forenoon of Wednesday and after the excitement had subsided it was learned that but one life had been lost. The victim was Mrs. Albertine Pirk, an aged German lady who had been living in the lake shore portion of town with her daughter, Mrs. Geist, who was severely burned about the face in her endeavor to get her mother away from the home. Thursday, the 27th, the charred remains of the poor unfortunate were found in the ruins about a block from her home and were unrecognizable but for a small fragment of clothing yet attached to her body. A day or two later the remains were interred in Evergreen cemetery.

This so far as we can learn, is the only human life lost, although quite a number of animals perished, the burnt district being strewn with the parched bodies of cows, pigs, dogs, cats, and poultry of all kinds. One could not help remarking how thorough the fire demon had done its work when gazing on the scene of desolation.

The area burned was fully a mile square, only about a dozen buildings being left standing in the lake shore district, among them being the Lake Superior House and the village power house containing the water works and electric plant. At the other end of town stands the residences of Ed McMullan, merchant John Hawley, conductor Allen, and about eight more. Up the Rockland road there are yet about seventy houses standing within the village limits, among them C. E. Haring's grocery store, the stock of which was soon exhausted.

It is safe to say there are yet one hundred buildings, barns, and all, still left in the village limits. These, together with the farm houses several miles from the village were crowded to their fullest capacity as well as the barns with fire sufferers, nearly all of whom had escaped with only the clothing they had on at the time, and were glad to get away in that condition.

President Haight at once sent appeals for aid to every city and town on the peninsula as well as to outside cities, and the generous response so far received proves that his appeal did not fall on deaf ears.

Charitable organizations from many communities responded by sending clothing and emergency rations. Even the Michigan Legislature obliged with an appropriation from public funds. A local committee was established and a hundred and fifty tents, provided by the Wisconsin and Michigan State militias, were set up at the fairgrounds to house the homeless. many people left town after the fire and others were encouraged to do likewise if they had friends or relatives to whom they could turn.

The committee fully realized that it would be impossible to care for very many during the rigors of the coming winter, and prospects of employment were not at all promising. The chief source of employment was the Diamond Match Company. Ironically they had been burned by the fire. A short time later came the disheartening news that the company would not rebuild. Of course after more than a decade of cutting, most of the pine was gone, so from their standpoint it was a logical decision. But without Diamond Match, said the pessimists, Ontonagon was finished! But it was not. Instead the town was rapidly rebuilt and within four years, some 1,600 hardy souls had reestablished themselves in new Ontonagon homes.

The Richard Henry's were one such family of loyal citizens forced to participate in this second episode of home building. Their new home was built on River Street and in the years that followed they never strayed far from it.

Mrs. Henry became a resident of Ontonagon when her parents moved there. Her dad, Jacob Schramm had married in Germany and left the country because of obligatory military service. Like many others he came to Ontonagon because of readily available employment at the copper mines. In this case, the couple became so attached to the area that they never left.

Mrs. Henry in her many reminisces of her younger days, has said she would never forget that first night after the fire, she was twenty-nine at the time. Mrs. Paul Francis on Greenland Road, she recalled, helped her by providing her family with a dozen eggs and a feather pillow. This gesture of kindness left an indelible mark on her memory especially since most folks had so little to give.

Mrs. Henry also told of seeing a most amazing memento of the blaze. A much melted twenty-dollar gold piece had been reduced to a golden mass to which five highly-fused silver dollars were attached. It probably came from the cash box of one of the business places destroyed by the flames. A jeweler who looked at it later described it as a most unusual memento of the fire.

It has now been three quarters of a century since the Henrys built their second home in Ontonagon. Since that time there have been many changes throughout the village. New business ventures have come and gone. Scores of new homes have been built. Many improvements have been made. Most of the streets have been paved and many new facilities have been built. These include a fine hospital, an enlarged consolidated school, a Catholic church and rectory, and a golf course for recreation. The village now has natural gas and an improved water and sewer system, as well as good electrical service from the Upper Peninsula Power Company.

Yet in spite of these many improvements, the village itself is little changed. It is physically different from the older days. In essence it has remained the same. It is a modest, unpretentious, rural village. It serves its people well, but lacks some of the touches of more modern communities.

The area seems a bit battered and bruised, but certainly wiser because of its many misfortunes. The village and its people follow a simple, yet proud existence. It is likely that they will continue to do so.

Calumet's Best Days

Ontonagon was making a slow yet determined recovery from its misfortunes. The twin cities of Houghton and Hancock continued to sink their roots to more substantial depths as their populations expanded and business activities became more diversified. Calumet, the youngest of the major copper towns, burst into full bloom. By the turn of the century it had become a thriving metropolis that spread its environs in the very heart of the Copper Country. It was distinctly marked as a mining community. The big shaft houses of the mines rose from the center of the city and outlying areas. From these many shafts the rich red metal literally poured from the ground.

After the consolidation of the Calumet and Hecla in 1871, its ore production increased steadily until 1900. During its history, this giant of the Copper Country produced more than 89,000,000 pounds of refined copper from its own mills. The neighboring Tamarack, Osceola, and Wolverine turned out another 40,000,000 pounds. During that single year, these four companies also paid more than $12,000,000 in dividends to shareholders.

The Marquette Daily Mining Journal, in a special industrial issue, described the Calumet area as the, "richest copper region in the world." They said it had such untold wealth beneath its hills, "it was a haven for the miner and a land of promise for the capitalist."

People flocked to the Calumet area to join in the mining prosperity. The stock of the mighty Calumet and Hecla, first sold for $1.00 a share, steadily increased in value until in 1907 it momentarily hit $1,000. Is it any wonder that Calumet became a Michigan political center? The Michigan Hotel, completed in 1901, virtually became a second State Capital for a number of years.

In an attempt to maintain expanding production at the mines and mills, the mining companies constantly expanded their working force. They hired on a world-wide basis. This policy started during the labor shortage created by the Civil War. By 1910, a large percentage of the nearly 60,000 people, who made up the population, were foreign born. Many had emigrated from bankrupt, war-torn, and even disease stricken countries. Calumet did much for the Copper Country. Thus, Calumet and its environs became a community of many nationalities. It became a community with mixed languages, a completely polyglot city hosting a multiplicity of churches and religions. It also had a corresponding diversity of saloons or "thirst parlors" as they were sometimes called.

There were a preponderance of Cornishmen with strange sounding names like Trewarthe, Polyglase, and Pemberthy, and they all had a nose for ore. There were Finns from northern Europe, and hundreds of Croatians and other Roman Catholic Slavs from the troubled Balkans. Alongside them, riding the skips into the shafts each working day, were the Italians, good natured and irrepressible. The English, Germans, Swedes, Norwegians, and Irish, all made their contributions. The hardy French Canadians, with an aversion to working underground, helped make up the timber work group and the work force at the mills along Torch Lake.

It is surprising how well this extraordinary mixture of races lived and worked together. It should not be inferred that problems or segregation did not exist. The change house at some of the mines was often divided for the use of the various nationalities. The English at one end of a room, the Italians the other. Half of a second room would used by Croatians, the other half for Finns, or other similar arrangements.

At some of the mines, the code of signals for the skip at the shaft house was explained in several languages, notably English, Finnish, and Italian.

The Italians were often rendered clannish by feuds which originated in or were identified with the particular localities from which they came. Newcomers from parts of Italy other than those of their compatriots were often considered as "outsiders." They were treated so harshly by fellow Italians that they often departed for friendlier surroundings. Most of the Italians that remained came from Piedmont.

In the earlier days, the Irish were more numerous than in the twentieth century. At that time they were inclined to have frequent fights with the Cornish. Eventually, when the Swedes and Finns became more abundant, the Irish and Cornish tended to draw together.

The Finns, who were quite separate from the Swedes and Norwegians, were ambitious and thrifty, but also stubborn. Too, they were usually a little better educated than most of the foreigners, at least in reading and writing. They were, however, separated by two rather distinct cleavages, the so-called "temperance Finns" and those who were fond of drink. Often the latter, when under the influence of heavy drink, were inclined to rampage. It was the Finns, who, after the thrifty accumulation of sufficient savings, often broke away from mining and turned to the land for a living. They came from a country with a rigorous climate and an ungrateful soil. Without apprehension, they would acquire a tract of land, clear it (if needed) and begin cultivating the soil. So great was their success, as a whole, that eventually they brought a much needed system of agriculture to the North Country.

The Cornishmen and Finns usually became the hard rock miners, with the Cornish gravitating to supervisory work. With his inherited instinct and eye for reading the signs for ore, he usually made a better miner than a laborer. Further, he detested shovel work and preferred to do the actual breaking of the ground. The Finns, however, made up in muscle and persistence for their lack of instinctive mining know how.

The trammers at the mines were mostly Italians, Finns, and Croatians, the latter for the most part being quiet, hard working, and peaceable. The Croatians also worked with the timber gangs, usually under a Cornish boss.

Naturally, each of these many nationalities made its individual stamp on the community. Each preserved their ethnic culture which, maintained by the generations that followed, still prevails today.

As the population increased, mining production and mining employment burgeoned to new peaks after the birth of the new century. With this came increasing prosperity. Prosperity not only felt in Calumet but throughout much of the Copper Country. Businesses of all kinds flourished and the building boom, which had started a few years earlier, continued. With this new opulence, merchants, bankers, company executives, and others of means, began to think in terms of a better mode of living. A grander style of architecture was developed and stately mansions and impressive public facilities were built.

This gusto for culture and better living also created a prosperous period for the sandstone quarries at nearby Jacobsville. Many of the new buildings incorporated the well known red and brown Jacobsville sandstone in their construction. The extent to which it was used can still be seen today. All one need do is to travel about the Copper Country to find many magnificent sandstone buildings still standing throughout much of Houghton County. Not only have many withstood the elements, but many are still in use.

At one time as many as five different firms operated quarries at Jacobsville. At their peak they employed nearly a 1,000 people who quarried hundreds of thousands of tons of sandstone, most of which was used locally. Some, however, was shipped to distant points, as far away as San Francisco. Some even went to New York City to be used in the first Waldorf Astoria Hotel.

The advent of cement and multi-colored brick, eventually brought an end to sandstone quarry operations. Production began to decline in 1917 and came to an end during World War I.

So Calumet continued to bloom and gain in stature until the turn of the century. Calumet was recognized as one of the great culture centers of the midwest. It has often been said that Calumet reached its peak in 1899 when the city fathers decided to build the Calumet Playhouse.

At the turn of the century, theater going of the stage and opera variety was a popular activity. Nearly every large community which did not have an opera house was at least thinking about building one. However, few places in the Upper Peninsula or even in northern Wisconsin could afford anything quite as commodious or luxurious as the Calumet Theater came to be. In the Upper Peninsula at that time only Marquette had an opera house of any note. Even this, though acceptable enough, was a second story affair located above a business.

The idea of a theater in Calumet sprang from the minds of the town council. It soon became a village venture, a cooperative endeavor that was designed to produce a combined theater and village-use building. Pushed to its completion in 1900 and costing $70,000, the Calumet Theater became one of the select cultural entertainment institutions of the Midwest. It was a most ornate and luxurious affair. Its interior decor was crimson, gold, and ivory with plaster relief done in Louis XIV style. The floors were covered with green velvet Brussels carpeting.

It first opened its doors for a public performance on March 20, 1900 with Reginald Dekoven's "Highwayman" as the special feature. A delightful arrangement of romantic and comic opera, this presentation highlighted thirteen principals direct from the Broadway theater in New York City. An orchestra and chorus just large enough to fill the back of the stage also participated in the production.

A large number of general admission tickets for the formal opening were made available at one dollar each. However, tickets for the boxes and more choice seats were sold by auction. These tickets went for anywhere from $2.50 to $25.00 each. The proceeds were applied toward the first year's interest on the opera house bonds. There were no passes for that initial show. Even so, the house was sold out. The three-tier capacity of the theater was filled to overflowing. Some 1,200 theater-goers thronged to the new playhouse to be entertained. The attendees provided this opening function with wealth, beauty, culture, and refinement. A special train from the Portage Lake area transported many of these patrons from Houghton and Hancock.

Before the curtain rose for the performance, Captain W. E. Powell, one of the north country's great mining officials, came on stage. He offered words of congratulation and praise to the Calumet people for having created such a lavish entertainment house.

After this opening show, the Calumet joined the Upper Peninsula stage play circuit and continued to arrange bookings for a sequence of top notch, live entertainment for the area. Just a little over a year later, another noted theater was added to the circuit when the Kerredge in Hancock formally opened its doors to the public. For many years thereafter the Calumet and the Kerredge provided musical comedies, opera, and dramatic stage shows for the enjoyment of the area's people. Usually any production appearing at the Calumet would make the Kerredge and Marquette Opera Houses.

A long list of entertainers and stage personalities made appearances at the Calumet. Among these were; the Marx Brothers, Lillian Russell, Otis Skinner, Madam Mojeski, Sousa and his band, Mae Robson, Sarah Bernhardt, Richard Mansfield, and a host of others.

Throughout the years that followed, the Calumet theater became something akin to a Copper Country pyramid. Now restored as a National Historic Monument, it has survived like the sphinx, a shining gem from the past. What a contrast with cinema houses of today!

It was during the early years of the new century that another cultural achievement, the Calumet and Hecla Band, reached the pinnacle of its success and fame. The history of this musical group spanned the tutelage of many outstanding directors. It came during an era of music which produced pomp and parades on the American scene, as well as some of the finest talent to appear on the world stage. So great was its national fame that at one time it was studied by masters from abroad. John Phillip Sousa, after directing this band on one of his visits to Calumet with his own famed band, proclaimed it a most excellent musical organization.

In 1885 Calumet's first band, the Calumet Miners, came into being. During the gay nineties, brass and military bands had become a great American institution. Most of the better bands of those times were facsimiles of the worker's and miner's bands of Great Britian. Examples of which include the Lancastershire and Yorkshire organizations which were well known on the continent for their excellence. The first Calumet and Hecla Band was fashioned after these English bands. It was composed of local miners and other workers, mostly Cornishmen and other English immigrants who had settled in the Calumet area.

Later, as the musical body came into its own and was called upon to play at an ever increasing number of concerts, historical events, and dances, talent was imported from far afield. Personnel came from circus bands, dance bands, and symphonic groups. Too, a policy was established by the mining companies whereby a prospective employee was selected partly upon his willingness and ability to master some musical instrument. To further encourage the study of music, most of the mining companies offered bonuses and paid for time off when the band was called out of town. Later, when a declining copper market brought about a narrower margin of profit, these company subsidies had to be discontinued. Nevertheless, not until 1934 after the depression days had settled over the country was the Calumet and Hecla band finally broken up. Its last performance came in 1933 at the Upper Peninsula State Fair at Escanaba. Here, under the baton of Arthur Kittie, the band's professional skills were enjoyed at a final five-day stand.

A number of community fringe benefits were made possible because of the affluent Calumet and Hecla Company. The Calumet and Hecla Band was just one example. However, not all the glory for such benevolences should be bestowed upon the mining company. Nor was Calumet and Hecla solely responsible for the wave of prosperity or the cultural boom that prevailed throughout this decade. And it was not just the Calumet and Hecla employees that made up the hodgepodge of races from which sprang the many ethnic cultures so unique to the Copper Country. In the Calumet environs there were several important copper mining companies. Even though they were much smaller than Calumet and Hecla they contributed to the welfare of the community. The production and the profits from their mines added considerable impetus to the boom. One of these was the Osceola Mining Company.

The Osceola was first opened in 1873 at a spot about two miles south of what then was Red Jacket. At the time of its opening it created quite a sensation. This was because Ed Hulbert, the discoverer of the rich Calumet Conglomerate who had been placed in charge of the opening work, supposedly had found another conglomerate copper belt. Under this well advertised assumption, its Boston promoters, namely Horatio Bigelow and Joseph Clark, had no difficulty in placing the stock with their Boston compatriots.

But alas! What they had thought to be a new lode turned out to be a southerly extension of the Calumet Conglomerate. Even though it was fairly productive at first, as explorations were pushed southward it did not prove out. The rock became softer, more friable, and lacking in copper. The Schoolcraft Mining Company had gone bankrupt working the nonproductive northerly extension of the Calumet Conglomerate Lode. The Osceola, under similar circumstances, seemed doomed to failure almost before it started.

Miraculously, from out of this darkness, came the guiding hand of Dame Fortune. Only eight hundred feet east of the nonproductive conglomerate belt, an amygdaloidal copper lode was discovered. Suffice it to say, the company was quick to transfer its attention and machinery to this new lode. Starting in 1877, a preliminary shaft was sunk into the amygdaloid, then over the course of the next three years, three more shafts were added.

As it turned out the lode proved difficult to work. Although from six to thirty feet wide, it was broken, contorted, and twisted. This led State Commissioner Wright in his examination of the mine to declare that the lode, "presents all the sinuosities of a stream meandering its tortuous way through the meadow." Too, its ore was inclined to be bunchy, richer in some places than others with stretches of barren ground intervening. Nevertheless, in spite of such characteristics, the Osceola produced just short of 3,000,000 pounds of copper in 1878. The next year it produced a similar amount and a $40,000 dividend was distributed among the Osceola shareholders.

From that point on, production from the Osceola increased quite steadily through the years. In 1910, it reached a high of slightly over 25,000,000 pounds of refined copper. The 1878 dividend marked the beginning of a long series of Osceola dividends and $18,044,825 was paid to shareholders before the company was finally absorbed by the Calumet and Hecla consolidations in 1923.

The little settlement at the Osceola, first known as the Osceola Mine Location, came into being when the company started to build houses for its employees. Logs cut from the surrounding forest were fitted and houses erected along both sides of a long but narrow lane that became known as Bush Street. In most cases, with employees eagerly awaiting for some kind of home, each house was occupied as soon as it was completed.

The pattern of these houses was simple and often repeated. Lacking any kind of rock foundation, there were three small rooms downstairs and a peaked, usually leaky loft upstairs. Pantries and closets were absent. A cubby hole beneath the stairs served as a catch-all, while shelves along a wall became a place for dishes.

The furnishings, usually added by virtue of the owner's axmanship, were crude and simple. Mrs. Rhoda Donald, whose parents moved into one of the first houses put up on Bush Street, left this account:

A long bench beside the table served the children at meal time instead of chairs. All dishes were plain and substantial, the only fancy ones being family heirlooms brought from across the water. A shelf with scalloped paper held family books, while magazines were rare visitors.

The kitchen was equipped with open-front stoves. The housewife used clumsy pots and pans calculated to last a lifetime. The weekly washing was done in heavy wooden tubs bound with hoops that often cracked with the ice in winter. These tubs fell apart with the heat of summer. Sometimes too, the hoops broke while the washing was in progress, depositing the laundry on the floor while the housewife stared in woeful amazement at the flooded kitchen. The ironing was done with heavy flatirons also calculated to last forever more. The mother baked, boiled, and stewed every article of food now supplied by factories. She not only cooked it all but made her own yeast for raising during all the early years.

Bare floors were the rule except for a mat or a strip of carpet made by the woman of the home, and fortunate indeed was the woman who managed to scrub those board floors without getting a splinter in finger or thumb. Bare, whitewashed walls matched the floors. A picture from a magazine was a treasure even if the frame had to be pine cones glued together and varnished or bits of bright colored flannel woven together and stuck on a cardboard frame.

The agent's house at the Osceola was a more commodious and pretentious affair. It occupied a spot midst a grove of pines and maples back of Bush Street. Beyond this, the homes of the mine officials were spread out along what became Depot Street. Depot Street was named because the depot of the Mineral Range Railroad, which coursed its way to the mine site, occupied a central position on the street. Another row of smaller log houses was also built along a short street back of Depot Street. Appropriately, it was named Back Street.

In those early days before electricity, candles were used for lighting. A little later, they were replaced by the great innovation of the day, kerosene lamps of every size and shape, topped by that miracle of all, the Aladdin lamp. At night a kerosene lantern became a part of everyone's outdoor equipment and it became so commonplace that some even toted it around when it was moonlight.

In 1879, after the amygdaloid lode had proved its value and the Osceola Mine had become a dividend payer, the company underwent its first expansion. It was reorganized as the Osceola Consolidated Mining Company, the consolidation taking in a considerable amount of adjacent land which had been owned by the Opechee Mining Company. This expansion provided the company with adequate working ground for quite a few years.

As the company expanded its operations and its number of employees increased, so too the townsite grew. By 1910 nearly 1,500 people lived there and in its expansion it became contiguous with Calumet.

Early in the life of the community a one-room schoolhouse was built between Bush Street and the grove. Like most early day schools it was equipped with uncomfortable desks and heated with a large, cylinder-like, wood-burning stove that roasted the face while the back froze. The teacher, who of necessity had to be a jack of all trades, was expected to teach children of all ages and grades. Slates, pencils, and a blackboard, along with trays of letters for the little beginners, were about the extent of the available equipment.

Later, as the need arose, the school was enlarged to suit the growing population and several teachers and a principal were employed. On January 16, 1886, somewhat to the temporary delight of the students, the school was totally destroyed by fire. According to reports, the only thing saved was the door key to the primary room. After locking the door after school, the teacher had taken it home with her. The school, of course, was quickly rebuilt.

In 1875, Kohlhaas and Ward established a butcher's market in Red Jacket and right after this, they opened a branch store in Osceola. It was the only meat market in Osceola at the time.

In 1882, Joseph Vivian and Frank Haun opened a general merchandise store in Osceola. Up until this time most of the Osceola residents had traded at Red Jacket two miles away. Many patronized peddlers who were frequent visitors, and it is surprising the conglomeration of things they carried in their packs or wagons.

That same year a post office was established at the Vivian and Haun store and Frank Haun named postmaster. Strangely, it was not called the Osceola post office. Instead it was called Opechee after the mine of the same name. There were about 1,200 residents in the village at that time. As the Osceola reached its calmer days, better homes were built, old ones repaired, and sometime new rooms added. By the time the gay nineties rolled around conditions in Osceola, in fact the entire Copper Country, were much improved. Many of the untold drudgeries had been eliminated and the homes were brighter and more cheery. Painted or canvassed floors and patterned wallpaper were becoming a welcome change from the bare walls and floors. Pictures now adorned the walls, while the clumsy pots and pans were mostly replaced by bright and easier to handle tin ware. Storm doors, storm windows, and even coal heaters began to ease the heating

problems. To start a coal fire in the fall and keep it going all winter soon became a miracle of comfort.

Still, what a contrast mining life is to the present time of modern, easy living. Often this time was described as the good old days. It was a simple, yet happy life that prevailed in the Calumet area and throughout the entire Copper Country. Ironically, this was not an easy time for the average, hard working housekeeper. Household duties before the days of electric power were still a chore that had to be done. Still it was accepted without a quibble as a necessary part of life, accepted because as yet there were no easier ways.

Let's listen as a Copper Country grandmother in a reminiscent mood recalls some of those household chores of the so-called Gay Nineties:

Housecleaning was a major chore and often took weeks before it was completed. Don't misunderstand me, it was sort of fun too. To picture the result and the anticipation of something new and different was just as great then as it is now in the push button era.

The parlor or front room, as the living room was called in the average mine worker's home, very often had an overall floor covering of a patterned or floral design. Sometimes this was wool, but more often a mixture of wool and cotton. It was laid over layers of newspapers and tacked close to the walls. The newspapers not only served to preserve the carpet and act as a dust catcher but also to deaden the sound and make walking easier.

Each spring, and often in the fall, it was taken up, laid over a line and thoroughly beaten with wire beaters. After it was well aired and the floor had been scrubbed, it was put back as before. In the meantime, the walls and woodwork were all scrubbed with strong lye soap and water, the soap usually playing havoc with already worn fingers.

The curtains, usually the kind the A & P tea and coffee man offered with coupons for the purchase of his products, were stiffly starched and stretched. If one had no stretchers, a clean sheet was tacked on the floor of a room not in use at the time, and mother then carefully stretched and pinned to perfection, but it was a slow process. If the curtains sort of billowed when first hung up, it didn't matter. In the eyes of the housewife they were wonderful Nottingham lace curtains and well worth the trouble of any self respecting woman.

Most of the early furniture was stiff and not very comfortable as measured by today's standards, nevertheless it was well polished and cared for. Very often it consisted of a settee, something on the order of a modern love seat, with two matching chairs and plenty of rockers

Prominently displayed on the center table, which boasted a center piece and a wonderful cloth with a deep fringe, lay the huge family bible along with the parlor lamp with its flowered globe.

The combination book case, china cabinet, and writing desk, were mother's pride and joy. In it she kept her choicest possessions, her books, her prettiest china, and her dearest treasures such as the christening bowl and towel used for all the children. Here too was the stereoscope with its colored pictures which we kids thought were so great. Sunday was the only day we used the parlor, except on special occasions.

Scattered throughout the house here and there were little three-legged, wooden stools for house plants. These had been offered as an extra bonus with the purchase of a can of baking soda by the ever obliging tea man.

On Fridays it was my duty to clean the house, so small pieces of wet paper were scattered on the already clean carpeting to catch any dust while I used the broom. Our first vacuum cleaner was the suction type and worked only when pushed the strong arm way, which was most tiresome.

We had no electricity, so oil lamps were the accepted thing. There was no running water or any of the things that naturally go with electric power. In the kitchen a wooden sink with a hand pump did yeoman service for water, the pump having a large pail underneath it to catch the extra drip if one got to daydreaming and the pail we were supposed to be filling overflowed.

A wood or coal-burning stove in the kitchen did double duty for cooking and heating. Usually the kitchen was the warmest room in the house and so it was often the most lived in. In it was a rocking chair and mother's sewing table. Once a week the stove, or range as it was called, underwent a thorough cleaning. It was polished and shone and the nickel cleaned with a new-fangled cleaning soap called 'sapolio', a wonder of wonders.

When wash day came around, the clothes were soaked in wooden tubs, while a boiler full of water was heated on the range. They were rubbed on the wash board in two different waters using bar soap. All boil proof ones were boiled in more soapy water, rinsed in three waters, hung out doors to dry, and in due time ironed with flat irons heated on the kitchen stove, usually while baking bread.

Later came the washing machines. All were made of wood with three or four legs, and each with a different contraption to run it by. One kind had a long handle on top which was grasped by both hands and with a swinging motion swayed from side to side. Another, made with a handle to fit the hand, made a half turn on top, and a third had a wheel on the side, much like a side-wheeler ship, and turned with a crank. Each had a corrugated spindle inside somewhat like a glorified clasher on a churn, as well as corrugated sides on the tub. They all eliminated rubbing on the board.

There were no movies in those days, and the first gramophone we heard play was at school when we heard 'Silver Threads Among the Gold' on a tube-like wire record. Years later we became the proud possessor of a Victor

with a huge morning glory horn, only we called it a talking machine then.

Life was simple then, but we had fun too. There were plenty of family gatherings and people visited more. Too, there was always the Sunday School picnic to look forward to, at which on that never-to-be-forgotten day, we had our first taste of ice cream.

The news from the daily paper was eagerly awaited and needless to say, news of vital importance was often late. Now with all the conveniences that electricity brings, radio, TV, and all the new products for living in the modern way in town or country, house cleaning is just another easy bit of work.

In September of 1894 one of the greatest disasters ever to occur in the Copper Country took place. At the Osceola Mine an underground fire killed 39 people.

The report of the fire as it was carried in the newspaper, stated that shortly before noon some of the workmen had smelled wood smoke. At the time they thought little of it. It was a common practice for workers to kindle a fire with candles and powder boxes in order to warm their tea at dinner time. Besides, as one of them had remarked, there was not enough timber in the whole mine to make a good bonfire.

Nevertheless, just a short time later, as Captain Richard Edwards approached the No. 3 shaft at the 27th level, he came upon Captain Richard Trembath and a small group of miners trying to extinguish a small fire. The fire was burning in the lagging at the back of the shaft.

Several months prior to this, some bad ground had been encountered at this spot. For the protection of the miners riding in the cage, the weak spot had been shored up with timbers. The back was filled in with some ten or twelve cords of wood lagging. It is likely that this was about the only spot in the entire mine where a fire of any magnitude could have developed.

The cause of the fire remains unknown but it was stated that if it were accidentally caused, it must have been done by a very careless person. It was supposedly started by a snuffed candle. The candle must, of necessity, have been thrown high overhead. Because in first trying to extinguish the fire, the miners had to throw water about twelve feet overhead to reach the blazing wood.

The fire was reported by Captain Edwards who immediately went up to get a hose that could be attached to the main in the shaft. When he returned to go back underground, the draft created by the fire had changed the direction of the air flow in the shaft. What previously had been a down-draft was now an up-draft. Dense smoke was beginning to pour from the mouth of the shaft. So much so that Captain Edwards was unable to get near it. Soon No. 4 shaft also became impassible due to smoke pouring into it from the upper levels of the mine.

At the outbreak of the fire there were about two hundred and twenty miners underground. Word was immediately dispatched that all should come to the surface. Preparations were also made to seal off the mouth of No. 3 shaft with planks and dirt. However, the covering was delayed when it was reported that a number of miners were still missing. At the same time, No. 4 skip was kept running slowly so that anyone could jump into it as it passed. Most of the miners reaching the surface safely, however, came up the Opechee shaft.

About four o'clock No. 3 shaft was finally sealed off but smoke continued to pour from both No. 2 and No. 4 shafts. It was so thick that no one could have passed through it and lived. Afterwards, many persons expressed their disapproval of the management's sealing the shaft so quickly when so many miners were still missing. Apparently, the conclusion had been reached that no one underground could still be alive.

At five o'clock a search party was sent down the Opechee shaft. They returned in about an hour. No one could go very far from the shaft because of the noxious fumes. They had not seen or heard anyone.

The strange part of the calamity was that many of the missing were old and experienced miners. They should have realized that noxious gasses would spread through the mine even though the fire might be comparatively small. It has been said that one of the missing miners, when informed of the fire, disclaimed the need for haste and sat down and began to eat his dinner.

The scene at the mouth of the Opechee shaft as the mine was emptied of its underground workers became heartrending. Family members waited expectantly for the arrival of loved ones from the depths of the mine. It was a tragic scene filled with despair and sorrow for those who waited in vain. A reporter who witnessed the anxious moments, later wrote that he particularly noticed two young women, one of whom held a young child by the hand. Hopefully, they peered through the crowd as each upcoming load of miners jumped from the skip. When they did not see their dear ones, they settled back for the next load. The growing tension for these waiting women must have been terrific. When the next load of miners surfaced, the younger woman who held the child cried out, "There's papa!" and rushed toward him, while the tears which she had hitherto so bravely held back flooded her eyes as the three of them walked away rejoicing. But for the other woman, unfortunately her husband never showed up. At last, not being able to stand the pressure any longer, she fainted and had to be carried home.

During the early years mine fires were a constant threat at all the mines. A veritable forest of timber was used in the underground reinforcements. So, it was almost impossible to avoid an occasional fire due to carelessness or at times even faulty equipment. A cigarette, thoughtlessly thrown next to a dried out or rotting timber, started a blaze. Even the friction of a wire rope could set fire to an oily wooden guide sleeve. Although such fires were not always destructive, they did at times generate enough smoke to shut down a shaft. As such they were usually more

damaging to mine production than they were to life or property. Twice in 1887, in July and in November, mine fires at the Calumet and Hecla resulted in a production loss of nearly 10,000,000 pounds of copper. Even more disastrous, was the fire of 1900 which shut down this company for a whole month. The Hecla No. 12 shaft, where the fire started, was closed for almost a year.

In the fall of 1897 the Osceola consolidation with the Kearsarge and Tamarack Junior properties took place. At the same time the lesser known Iroquois property was also acquired. These new acquisitions gave the Osceola Company a grand total of nearly 2,000 acres of mineral lands. To effect this consolidation, the capital stock was boosted from 50,000 to 100,000 shares, each having a par value of $25.00. Nearly all of the new shares went to the owners of the three properties acquired.

The Kearsarge Mine, the most important of these properties, had been opened in 1887 by the Kearsarge Mining Company on the Kearsarge Amygdaloid. It was located northeast of Calumet just north of the Wolverine. It had proved itself as a consistent, though not overwhelming producer from the very start. In 1890, 1895, and 1897, it had even paid dividends totaling $160,000 to shareholders. At the time of the Osceola acquisition, the property still contained a mile of unexplored territory. Two years after the consolidation, the South Kearsarge was opened, and this too became a profitable mine.

The Tamarack Junior had also been an active mine, though not a dividend payer. This property had been set off by the Tamarack Mining Company in 1888 but recorded production did not start until sometime in 1892. Its shafts were sunk on the Calumet Conglomerate Lode. One of its early drawbacks was the lack of suitable milling facilities. To overcome this, Osceola put up a new mill with much improved equipment. The improvements were also duplicated at the old mill. A new pumping plant was completed in 1905. It was capable of moving 40,000,000 gallons of water every 24 hours from Torch Lake to the Osceola and Tamarack mills. It was operated jointly by the two concerns.

The combined production from the Osceola Consolidated mines soon led the company to a high ranking position among Michigan's copper producers. In 1903, it climbed to the number three spot, exceeded only by the Quincy and the Calumet and Hecla. In 1904, it even slipped past the Quincy to reach the number two spot. It continued to hold this position in both 1905 and 1906. Except for the World War I years (1915 to 1918), they were the most productive years of the Michigan Copper Country.

The profits from the red metal from the Tamarack Mining Company added much to the well being of the community. It was closely associated with the Osceola Mine. It ranked fourth in production for 1905 and 1906. The Tamarack was another important copper producer from the Calumet environs.

The story of the Tamarack is interesting. It has an unusual twist involving a most remarkable feat which became a first in the history of lake mining. Actually, the company was born as an offshoot of the Canal Company. In a sense it became activated because of a mistake in judgment on the part of the Calumet and Hecla management. To pick up the beginning threads of the story, it becomes necessary to go back a few years.

The founders of the Calumet and Hecla acquired property through which the rich Calumet Conglomerate Lode extended. However, they failed to purchase a sizeable chunk of real estate that adjoined the north west corner of their acreage. At the time this was an excusable oversight. The property was some distance from where the lode had been discovered and its value seemed somewhat doubtful. Even later, when there was reasonable assurance that the lode continued onto this non-owned land, little more than casual consideration was given to the acquisition. It would be quite a few years, so they thought, before the lode would be worked to the limits of their present property. Besides, there was no certainty that the lode would remain productive. Even if it did, the dipping lode would then be a half mile deep and the inclined shaft some 3,500 feet long. At such depths not too many ore bodies were being profitably worked in those days. Further, they reasoned, should the lode continue to be profitable at this depth, they could then purchase the property. They doubted whether any other company would be interested. They would have to sink shafts through a half-mile of hard rock in order to reach the lode. Obviously, this would cost millions. And so the Calumet and Hecla directors felt safe in postponing the purchase for a few years.

As it turned out, waiting proved to be a mistake because another Copper Country person had some different ideas about the situation. Captain John Daniell, superintendent of the Osceola Mine, was a Cornish miner with that natural instinct for ore. He recognized the favorable possibilities which the situation presented. It was his belief that the rich conglomerate lode extended beyond the Calumet and Hecla property line. He also thought that a vertical shaft could intercept the ore bed and be profitable. Daniell thought long and hard about the opportunity. He even appended his thinking with the cold logic of some carefully calculated mathematics that involved dollars. He counseled with his superior, William Parnall, then general manager of Osceola, and received his enthusiastic support. In turn, their combined enthusiasm was then transferred to the Clark-Bigelow interests in Boston. A short time after, Clark-Bigelow came up with the desired land in the name of the Tamarack Mining Company.

The Calumet and Hecla continued to grow. The dipping conglomerate lode became richer with depth. Year by year, the mine came ever closer to its western property limits. The conservative directors became concerned. They began to seriously consider the purchase of the now attractive property which they so indiscreetly had previously considered of little value. Accordingly early in

the eighties, an offer was submitted to the Bigelow interests for the purchase of the Tamarack property. Although the offer was given long and careful consideration, it was finally rejected. Tamarack had their own ideas. Calumet and Hecla had waited too long.

The Tamarack Mining Company was organized for the purpose of developing a mining property next to the world's greatest copper mine. In 1882, they began the herculean task of sinking its first shaft through a half mile of hard rock. Although today this is a rather common practice in mining, it was then a new and courageous plan. Many said that sinking a shaft nearly a half mile on the chance of cutting the conglomerate lode was the dream of a madman. Captain Daniell, Cornishman that he was, stood resolute upon his convictions. He even told his backers they would cut the lode at a depth of 2,260 feet. And he was not far wrong. Three years later, after an outlay of $61.00 a foot for "digging costs," the shaft encountered the lode. At 2,270 feet, it was just ten feet deeper than Captain Daniell had estimated.

The success of this project was an important day in the history of the Tamarack. Not only had a notable mining feat been successfully accomplished but with this victory the future success of the company seemed reasonably assured. Drifting along the rich conglomerate lode was now possible. Because their property covered some 1,280 acres, the lode could be worked to whatever extent and depth the underground atmospheric conditions or operating costs might permit.

As soon as the first shaft encountered the lode, preparations were made for sinking a second shaft some six hundred feet to the north. Started in March of 1886, this second shaft cut the lode about two years later, at a depth of 2,575 feet. Eventually three more shafts were sunk, each making a deep-seated contact with the lode. The No. 3 shaft, after contacting the lode, was eventually bottomed out at 5,139 feet. At the time, it was considered to be the deepest vertical shaft in the world.

For 35 years the Tamarack people worked the mine. Though the company had its high and low moments during these years, the mine added 389,215,899 pounds of refined copper to the lake country's copper production. It also paid over $9,000,000 in dividends to stockholders, more than six times their original investment.

Some of Tamarack's gloomier years came after 1907, when the declining price of copper cut into the company profits and also put an end to the dividends. Also adding to the company woes, were problems of ventilation in the depths of the mine, the inefficiency of workers, and mounting operating costs. All of these burgeoned as the mining operations deepened.

In 1917, Calumet and Hecla came to the Tamarack people with another offer for their property. With their fine facilities and surface plant they knew they could operate the mine much more economically than Tamarack. And this time the Tamarack management did not turn them down. As a result, $3,600,000 in Calumet and Hecla stock changed hands. When it did, the property and holdings of the Tamarack Mining Company slipped into the mighty vortex of the Calumet and Hecla.

Another mine venture that earned a place of distinction in the Calumet district right after the turn of the century was the Ahmeek. It was one of nearly a dozen mines that were opened along the length of the Kearsarge Lode which stretched out to the northeast of Calumet. Some of these, like the Kearsarge, Allouez, Wolverine, and Mohawk became profitable mines. Mines to the north of the lode, such as the Gratiot, Mayflower, Ojibway, and Seneca, and to the south the LaSalle, were not as fortunate.

Fortune, however, was kind to the Ahmeek. Situated in what eventually was shown as the central portion of the lode, the grade of ore it produced proved to be outstanding. It too, became a dividend payer for a dozen years as well as achieving several other distinctions which helped to make it noteworthy.

Born on March 22, 1880, the Ahmeek Mining Company held 920 acres of land located just north of what came to be the Osceola owned Kearsarge. Shortly after the company was organized, two shafts were sunk and some development work carried out on the property. The results, however, were not up to expectations and the work was soon discontinued.

Not until 1902, was another start made, this time on the newly discovered Kearsarge Lode. In 1904, the Ahmeek joined the ranks of producing mines. For another nineteen years, until the lode was about worked out, it continued to be a good producer.

The village of Ahmeek was born with the opening of the mine in 1902. However, it did not grow up around the mine site as did some of the mining settlements of the earlier days. In this case, the village was the promotion of two Calumet real estate dealers, Faucett and Guck. They had laid out the town site, divided it into lots, and then sold them to individuals.

After the appearance of the usual village necessities, a township hall with a jail and justice court on the first floor, and offices on the second floor was built in 1907. Two years later, Ahmeek was incorporated as a village and Morris Kemer elected as its first mayor. That same year the village was granted a post office and J. A. Hamilton designated as the first postmaster. A village fire hall was added in 1911. It boasted a large hall on the second floor which was used for elections, meetings, and community social events.

In an unusual twist, the village developed a second section, a sort of suburb, if it you want to call it such. This happened in 1908 when activities at the mine were increased and four new shafts sunk. The mine and its expanded mine settlement which was a short distance south of the original town site, became known as the Ahmeek Mine location. The community settlement was referred to as Ahmeek Village or Ahmeek Townsite. Residents, however, who were mostly mine workers,

enjoyed the same privileges regardless of the sector in which they lived.

Two of the new Ahmeek shafts, No's. 3 and 4, were begun at this time. When they were completed they were quite unlike anything else in the Copper Country because the two shafts came up into a single shaft and rock house. In their first 1,200 feet of descent, the two shafts tapered away from one another at an angle of about eighty degrees. After 1,200 feet, they gradually turned to the dip of the lode and continued to diverge until at the 43rd level they were about 2,800 feet apart.

To increase the efficiency of the shafts, they were equipped with Norberg steam hoists. The hoists were capable of lifting a five-ton capacity loaded skip at a rate of 2,500 feet a minute. Although these were about the best thing going at that time, they were greatly inferior to the more modern giants that came into being at a later date.

Perhaps the greatest distinction for the Ahmeek was the discovery of a fissure vein that ran diagonally across the lode. The vein began in the vicinity of the No. 3 shaft and continued almost to the 34th level. A fissure by itself was not unusual but, in this case, it was rich with pure masses of copper. The masses were reminders of those mined in the earlier days at the Cliff. Cumbersome affairs, these masses varied from an inch or two in thickness to as much as 36 inches, and some were of considerable length and width.

As at the Cliff and also the Minesota, many of these masses had to be cut up underground before they could be conveniently handled or lifted to the surface. One of the larger masses was hoisted through No. 2 shaft. Originally it weighed approximately 13 tons.

Of course the old hand methods of cutting such masses had been somewhat improved upon since the earlier days, but it still was not an easy task. Even though high-speed, high-strength dynamite was being used by this time, channels still had to be hand cut with chisel and sledge into which the dynamite could be placed. After being packed and heavily covered with clay, the dynamite was exploded. This process was repeated until the mass was broken into pieces small enough to be handled.

About 1913, the air driven twist drill was introduced and this made the task much easier as well as far less expensive. Holes a little over an inch apart were drilled in rows across the face of the mass. Every other hole was then tamped solid with dynamite and connecting sticks laid across the tops of the holes. These were then solidly covered with clay and exploded as a single charge. Usually this produced a fairly clean break through the mass.

Over the years, these copper masses added nearly 8,500,000 pounds of copper to the Ahmeek production. During its history, the Ahmeek accounted for a total of almost 250,000,000 pounds of refined copper. Peak production came in 1917 with nearly 28,000,000 pounds.

For several years, the No. 2 shaft at the Ahmeek set an all time record for ore produced from a single Michigan Copper Country shaft.

In 1911, the company began paying dividends to its shareholders, and except for 1921, paid them annually until 1923. The largest, $3,200,000, being paid in 1917. Altogether the Ahmeek company distributed $14,050,000 in dividends. But, the checks ended in 1923 when the Ahmeek was included in the great consolidation of companies engineered by the Calumet and Hecla.

Three other mines developed on the Kearsarge Lode, the Wolverine, the Mohawk, and the Allouez. They, too, were important contributors to the economy of Calumet's boom days. All of them were located in the northeasterly extension of the Calumet environs. Each of these ventures was a separate company with its own corporate structure. Eventually, they became closely allied under the guiding hand of John Stanton. For many years, they were operated by virtually the same management.

Of the three, the Allouez was by far the oldest. Located directly north of what became the Kersarge branch of the Osceola, its development was begun as early as 1859. The first ten years of Allouez operations, however, were both unproductive and unprofitable. In 1869 the company started work on what was named the Allouez Conglomerate, but even though the efforts that followed were extensive, the results were still negative. Further company work was soon suspended and the mine leased to tributors.

Later, the company was reorganized and resumed operations, but failure followed failure and in 1887 the property was finally attached by creditors. After another reorganization in 1889, work was resumed. As it turned out, the percentage of copper carried in the rock being mined was just too small for a profitable operation.

Still the Stanton backed company refused to give up. At the turn of the century the Allouez management wisely turned its attention to the dip of the Kearsarge Lode which was believed to extend into the property. Following the lead of the Tamarack whose success had been achieved because it had dared to sink deep shafts, the Allouez became a "deep level" enterprise. This came about after they had successfully contacted the 38 degree dipping lode, and richer ore, at a depth of 1,100 feet.

From this point, things brightened for the company. Annual production began to increase steadily, until finally in 1916 it climaxed at 10,000,000 pounds of refined copper. It was during the years of World War I that the company enjoyed its greatest success. The Allouez distributed nearly $3,000,000 in dividends to its shareholders between 1915 and 1919. Four years later, the Allouez was absorbed in the major consolidation of mines effected by the Calumet and Hecla Consolidated Copper Company.

The Wolverine, a smaller yet important Calumet District mine, was opened in a modest way by local people in

September of 1881. It was located only a short two miles northeast of Calumet and just east of the Kearsarge property. Here, the owners held sway over 320 acres of land, although for some reason they were unable to obtain the mining rights on forty acres of this property. For that matter, earlier difficulties had even been encountered in getting a clear title to the land. The government, in one of its master goofs, had issued two patents covering the same property. Perhaps this was a bad sign, as the venture soon ran into difficulties and it was deemed necessary to turn the mine over to tributors. Eventually it was abandoned and allowed to fill with water.

In 1890, John Stanton became interested in the mine. After organizing the Wolverine Copper Mining Company and acquiring the property, Stanton had the old mine dewatered. Shortly, mining was resumed but the mine still failed to produce satisfactory results. In 1893 the company turned its attention to new ground and made another start, this time on the Kearsarge Lode which also crossed the property. Under the careful guidance of the Stanton management and the advent of a much richer ore, the Wolverine came into its own. Within a short time the mine was producing from 29 to 31 pounds of refined copper per ton of rock stamped. This gave it the distinction of having the largest average return of any amygdaloid mine in the district.

In its earlier days the company leased a stamp head at the Allouez mill to supplement the single head at its own mill. However, as production increased, a new modern mill was built near Gay at the mouth of the Tobacco River on Big Traverse Bay. It was a duplicate of the Mohawk mill which had been built a short time before on the opposite bank of the river. These mills were singular in a way because they were the only ones ever to be constructed on the eastern shore of the Keweenaw Peninsula. True, both the Mass and Michigan mills were built along Keweenaw Bay but their location was much farther south as well as being below Portage Lake.

In 1898, the Wolverine joined the ranks of the dividend payers when it declared dividends amounting to $60,000. The company continued to pay dividends for the next twenty years before being absorbed in the Mohawk-Michigan consolidation of 1923. After becoming a part of this organization, the mine was finally closed in 1925.

The Mohawk turned out to be the biggest producer of the three Stanton ventures in the Calumet District. It was opened on one of the last great copper discoveries made in the Copper Country. This discovery was made on the old Fulton property located some five miles northeast of Calumet. John Stanton, who had obtained an option on this property for the purpose of prospecting, was doing just this when the ore bed was discovered.

Supposedly the hiding place of the lode was exposed when a tree being felled by a woodsman plunged into another tree and uprooted it. Clinging to the roots of the overturned tree were chunks of rock showing copper. According to the story, when Stanton was shown one of these rocks, he immediately turned his attention to a systematic exploration of the area.

Thirteen test pits were sunk which revealed the path of the lode along nearly a mile of the property. Fortunately the covering of glacial drift ranged from only twelve to twenty feet thick so the underlying bedrock was easily reached. All but two of the test pits uncovered rock that showed considerable copper. As it turned out, the ore bed discovered was none other than the relatively shallow strike of the Kearsarge Lode.

The Mohawk Mining Company, organized in 1898 by the Stanton group immediately began active development work for the mine. Two shafts were first opened on the north end of the property. Later, four more were built. The shafts were numbered one through six from north to south.

In 1902 the Mohawk began stamping rock. Because the lode proved to be reasonably rich, over 6,000,000 pounds of refined copper had been turned out by 1903. In 1906 the company started paying dividends. Its peak production of over 16,000,000 pounds of copper came in 1916, and its largest dividend, $2,050,000, was distributed to its shareholders during the next year.

The Mohawk, as did the Wolverine, built its mill along the shore of the Tobacco River where it empties into Big Traverse Bay at Gay. Earlier the company had made an excellent move in acquiring sufficient frontage along the bay. The land could be used for a mill site for dockage and rail facilities. The company also purchased the railroad which led from Gay to within three miles of the mine. It became the Mohawk and Traverse Bay Railroad. After the Wolverine built its mill on the opposite side of the river, it carried the mined ore from both the Wolverine and Mohawk mines to these mills. Later, this service was taken over by the Mineral Range Railroad, and still later, by the Copper Range trains.

The early railroad, only about eleven miles long, was down grade all the way to Gay so the loaded ore cars were easily moved to the mills by gravity. In turn, the empties were hauled back to the mines with little effort by small locomotives. This operation was both efficient and economical. However, the railroad soon gained a reputation for excitement because, as old timers in the area frequently recalled, many loaded cars went off the track.

The Wolverine and Mohawk mills at Gay were not only unique duplicates of one another but they were pretty much a combined venture. They were managed by a joint superintendent, and a single pump brought water from the bay via the Tobacco River to both mills. The pump-house, a real "super human" affair, is worthy of mention. It was equipped with a 20,000,000 gallon, triple-expansion snow pump which was supplemented by a 9,000,000 gallon Norberg pump. Together these pumps easily supplied both mills with ample water.

Except for the very early days, the copper concentrates from both mills were sent to the Michigan smelter on Cole's Creek just west of Houghton. The Cole's Creek smelter was completed in 1904 by the Copper Range and Stanton interests. This was the largest and most modern smelter in the district. It was capable of turning out more than 400,000 pounds of refined copper per day. Before it was built the concentrates from the Wolverine and Mohawk had been shipped to the Lake Superior Smelting Company at Ripley. The former headquarters building of this one-time smelter now serves as the office of the Houghton County Road Commission.

Today, all the hustle and bustle of industry and its associated people are but memories at Gay. No longer do the rumbling trains move back and forth between the mines and the mills. No longer do the loaded cars of ore or the train loads of coal make their appearance at the little port town. No longer do the black engines whistle or belch steam and smoke. All this ended in 1932. The two mills at Gay ceased to operate after the Mohawk management closed its mines. It then became a part of the mighty Calumet and Hecla regime.

Today the hamlet of Gay, named after Joseph Gay, a copper area pioneer who became much interested in the Mohawk-Wolverine enterprise, is quiet. Originally, Gay had been a small lumbering town. It came into being in the late 1880's or early 1890's. Gay was a result of the Hebard Lumber and Stone Company whose little venture along the bay provided the principal employment for the townspeople. When near the end of the century this business began to languish, so did Gay. By 1900, when the Mohawk mill was built, the little settlement had just about withered away.

Revived by the new industry, Gay recovered to enjoy a new surge of life, eventually becoming home for some 1,500 people. At its peak there were 117 houses in the town, along with a number of company stores, and even a fair-sized schoolhouse. The townspeople were closely knit by a number of fraternal organizations and social groups. They also had a band and even a baseball team.

But when the mills and the big coal dock closed down in 1932, most of the people left. A few who were reluctant to leave lingered on, fishing for a living. A few scattered houses are about the only tangible evidence of Gay. Evidence of past industry are the old mill foundations and the tall concrete mill stack which still stands defiantly, as it looms high above the waters of the bay. The towering stack is a landmark that can be seen for miles from Lake Superior vantage points. It is also an object of admiration for those who travel by car. It stands as a memorial to days gone by. A solemn reminder of times far more prosperous than now.

Today, though those who come this way will find only quiet solitude, but the time spent will not be wasted. The air is pure and the diverging roads lead to a host of beautiful scenic areas.

The Strike of 1913

In 1910, lake copper was just about at the peak of its long and productive life. Production had hit new highs, and the industry had set new employment records for 1905 and 1908. Dividends were becoming commonplace. To a great extent the rapid expansion of the electrical industry helped to create this situation. It had more than doubled the consumption of copper throughout the United States. The rich conglomerate and amygdaloid veins of northern Houghton and southern Keweenaw counties were producing nearly 75 percent of Michigan's copper. This played a major role in making it possible to keep pace with the added demand. Too, the many technical improvements being effected in both underground and surface workings also helped to add potential profits to the company treasuries. But in spite of this apparent luxury, all was not well.

Although life in the Copper Country was bustling in 1910, some ominous signs were beginning to appear throughout the industry suggesting that some difficult times were ahead. In reality all this prosperity was camouflaging an industry that was beginning to decline, though actual deterioration did not come until nearly a decade later. Stiff competition from the not so old mines of Arizona and Montana was forcing the Lake Superior producers into a frantic search for cheaper labor. Too, the painful issue of organized labor was beginning to simmer. Organizers from the militant Western Federation of Miners were already trying to woo dissatisfied miners and trammers into its folds. These efforts would in three short years culminate in a bitter strike.

But even more ominous, the lush dividends being paid pointed to a lesser amount of profit used for capital reinvestment. In the earlier days the mining companies had invested most of their surplus funds in improvements and to acquire future mining lands. As the availability of such lands diminished, company earnings began to accumulate and more dividends resulted. Yet as welcome as these dividends may have been, they were also harbingers of an eventual decline.

In spite of such subtle portents, in 1910 copper was still king. Standing well out in front as the recognized giant in the field was the mighty Calumet and Hecla. Its sprawling works were administered from a row of offices at 12 Ash Burton Place in Boston. Calumet and Hecla, almost single handedly, was the raison d' etre of the Copper Country.

The company had become a dividend payer par excellence, returning to its shareholders possibly the richest return on capital investment of any mining venture in history. From these opulent returns, a score of Boston families were becoming incredibly wealthy. There were cumulative benefits derived by many others which went far beyond these millions of dollars. Intangible benefits of inestimable worth were reaped. Indirect benefits by the score, like the Harvard Museum of Natural Science, and to a lesser extent the Michigan School of Mines, now Michigan Technological University.

For Calumet and Hecla the early years of the twentieth century not only were profitable years, they were also years of changing leadership. In the summer of 1901, James MacNaughton was chosen to succeed S. B. Whiting who was retiring as general manager. Whiting had been general manager since 1888. At the same time S. D. Warner, who had been superintendent under Whiting, resigned and returned to the Pennsylvania coal fields.

MacNaughton's appointment proved to be a most fortunate one. His natural executive ability and power to handle people enabled him to assume much of the responsibility that formerly had fallen on the shoulders of Alexander Agassiz. MacNaughton, only 37 years old, was held in high regard by Agassiz. In one of his letters Agassiz wrote, "I like him and I now feel as if my orders will be carried out promptly and not appear year after year on my list of things to be attended to." Conversely, as a measure of MacNaughton's ability, it was equally certain that all such orders were duly weighed and had his full approval before they were issued.

During this same period, a second generation was growing up in Boston. George Agassiz, Alexander's youngest son, was beginning to relieve his father of many confining details. This gave the elder Agassiz, part time naturalist as well as capitalist, a little more leisure for himself. At the same time, Quincy, the young son of Quincy A. Shaw, the original financial genius behind the Calumet and Hecla, was also getting a foothold on the management team.

In 1908, the elder Shaw passed away leaving his son Quincy as the heir to the family fortune. In March 1910, Copper Country residents were further saddened. They learned that Alexander Agassiz had a fatal heart attack while aboard the steamer Adriatic in the mid-Atlantic. The transition from first to second generation leadership was now complete. Under MacNaughton's diligent guidance in Calumet, the company was in good hands. Agassiz's appointment had been a wise one.

The story of MacNaughton's rise to high position in the Calumet and Hecla regime is truly a "Horatio Alger" miracle. Born in Ontario, young Jim came to this country with his father and mother at the age of four. Heading for Michigan's Copper Country, his father, Archie MacNaughton, became an engineer at the Lake Linden "incline." This was the railroad terminus where Calumet and Hecla cars were switched to a rope-controlled inclined railway leading to the mills and docks. It was around these mills and docks that young Jim romped and played during much of his early boyhood. By the time he was twelve, he was working as a dollar-a-day water boy for the longshoremen, yet between his working hours, he managed to continue his schooling. During his summer

vacations, he unloaded bricks from the boats. At fourteen, he left school and became a switch tender and then a stationary engineer at the "incline." He earned about two dollars a day, half of which he managed to save for an education.

At nineteen, he went to Oberlin College with the hopes of becoming a mining engineer. By working during his summer vacations, he was able to take a two-year course at the University of Michigan after completing his studies at Oberlin. Upon graduation, he came back to Calumet and Hecla as a civil engineer in the Boston offices. Following a short stay there, he went on to pursue a successful career as engineer, superintendent, and then general manager of the Chapin iron mine at Iron Mountain, Michigan.

At Calumet and Hecla, following his appointment as general manager, MacNaughton soon proved his worth. In the first five years on the job, the new management had the house in order. Without cutting wages, overworking the employees, or curtailing the philanthropic enterprises of the company, MacNaughton began to strive for a tighter, more efficient organization. How well he succeeded is best told in a single sentence. Refined copper which had cost the company eleven cents a pound to produce in 1901 had been reduced to only seven cents by 1905.

Such economies, however, were becoming necessary in order to maintain the competitive position of the company. In 1905, Calumet and Hecla temporarily recaptured from Anaconda the distinction of being the largest copper producer in the world. Calumet and Hecla had lost this position in the 1880's. The low cost mines of the west became more powerful and a bigger threat to the older Michigan companies.

Because their production costs were relatively low, the western mines were able to pay higher wages than the Michigan companies. In 1910, the average wage per shift in Montana was $3.87 and $3.40 in Arizona. In Michigan, the average was only $2.36. This led to a major labor shortage during the ensuing years as many people left the district. Some headed for the western mines and others to the neighboring iron ranges in Michigan and Minnesota where wages were also higher.

In a further endeavor to reduce costs and maintain production, Calumet and Hecla embarked upon a well-planned expansion program in 1905. The intention was to obtain both stock and the physical assets of other companies. They would use purchases, stock transfers or options in an endeavor to gain control over adjoining operating properties.

They were aided in this endeavor by the Michigan Legislature. They passed a law which made it possible for Michigan corporations to increase their stock issues for the purpose of acquiring stock of other corporations in the State. Of course this bill had been introduced and promoted at the insistence of Calumet and Hecla. As soon as it was enacted, the company immediately made the necessary amendments to its charter and then very quietly proceeded with the plan.

In Keweenaw County, it acquired the Frontenac Copper Company, along with a 90 percent interest in the Manitou Mining Company. This represented the accumulated remains of the old Delaware and its ancestors and offsprings. Other options were obtained. They acquired the New Jersey Mining Company near Lac La Belle, the Gratiot Mining Company at the north end of the Kearsarge lode, as well as the Caldwell and LaSalle properties at the southern end of the Kearsarge lode. Then just south of Portage Lake, the Superior, which adjoined the Isle Royale and carried the strike of the Baltic lode for fully a mile, was also acquired. And finally in Ontonagon country, they made similar arrangements for the old Nonesuch.

Even though none of these properties ever became productive under these arrangements, they did have possibilities which made them worthy of further exploration. Still, it was not all in vain. Keep in mind that diamond drilling at the old Nonesuch led to the opening of the original White Pine mine. The White Pine, which for a few years during World War I, became highly profitable.

Another incentive for such an endeavor was the cold, menacing fact that no new copper lodes had been discovered in the Calumet area after the Kearsarge lode. The Kearsarge was uncovered shortly before the turn of the century. And without new finds, eventually there must come an end to existing reserves.

The Keweenaw Copper Company was formed in 1905 under the guidance of C. A. Wright and for a while its activities were looked upon with great hope. Mr. Wright had been a leader in the promotion of Copper Range. The new company picked up some 12,000 acres of land along the mineral belt. They built a railroad which made connections with the main line to the south. Then they began work principally at the old Mandan and Medora properties with the hope of developing a profitable mine. Unfortunately, this goal was never realized.

In 1909, Calumet and Hecla further added to its growing territory with an outright purchase of the old lands belonging to the Cliff Mining Company. Apparently, though the Cliff had run its full course. Here again, no particular good was ever derived from the purchase.

At the same time Calumet and Hecla launched an expansion program. Agents for the company quietly began to buy the stock of several neighboring companies through the open market. In this manner they hoped to acquire enough shares to give Calumet and Hecla a controlling interest in each of the companies. They also thought that once this was done it would be possible to effect economies in the overall operations by having a common or joint management of the contiguous properties. They wanted to eliminate duplicate facilities, to open up lodes, and to profitably work offshoots of ore which extended into each others properties.

So successful was their stock buying endeavor, that within a year stock control of several companies had passed into the hands of Calumet and Hecla. When these companies became aware of the situation, some of them capitulated and made friendly agreements allowing Calumet and Hecla to take over the management. Among these were the Allouez and Centennial. Some of the others, however, including the Osceola, were more adamant. The Bigelow interests managed to get a bill through the Michigan Legislature preventing a mining company from voting any stock acquired under the 1905 act. Their victory, however, was short lived as Governor F. M. Warner refused to sign the bill. Thwarted in this attempt, a restraining order was obtained preventing Calumet and Hecla from assuming control. A long legal battle insued but in the end the courts decided in favor of Calumet and Hecla.

Immediately following this decision, the Bigelow interests offered Calumet and Hecla their remaining stock holdings in the other mines under the Bigelow management. Included in this offer were the Seneca, Tamarack, Ahmeek, Isle Royale, and Laurium. The transaction, when finally completed, involved a consideration of $8,313,600.

And so began a period in which a group of subsidiary, yet completely separate corporate companies, began to operate under the stern guidance of Calumet and Hecla management. It was a noble endeavor but it took only a short time to discover that the anticipated savings were not to be realized. It was evident that holding down and reducing costs would require more than control of stock and joint management. A complete integration of mining operations was necessary, and this was attainable only by a complete merger or consolidation of the companies.

In December of 1910, the Calumet and Hecla directors tried to form a consolidated company. They offered a pre-determined ratio of stock in a new company in exchange for the stock of the controlled companies. A detailed report explaining the advantages, as well as the importance of such a move, was issued to all the shareholders of the constituent companies.

Most recognized the advantages of such a consolidation. However, they were quick to disagree with the values which had been set as the basis for the exchange of stock. A thorough study of all the assets involved had been made by Calumet and Hecla before submitting the proposal. Never the less, each company contended that its holdings were greatly undervalued and those of Calumet and Hecla equally overstated. Protests and bitter opposition came from all sides and another legal hassle promptly followed, started largely by the Osceola shareholders. Eventually this continued opposition forced the abandonment of the plan. Not until some years later, during which the accounting and interworkings of the companies became extremely complicated, was another attempt made for a general consolidation.

In the meantime, in a continuing effort to hold down costs and effect economy in their operations, the companies began to introduce a variety of technological changes. In some cases hoisting engines and lifts were replaced or greatly improved, in order to speed up the movement of ore. Many improvements were also made in mill recovery techniques. Between 1905 and 1913, more efficient grinders were installed at many of the stamp mills. This increased the amount of copper recovered from the rock.

At Calumet and Hecla, C. H. Bennedict completed a series of successful flotation and leaching experiments. In the coming years, the results of these experiments would double the anticipated recovery of copper from the old tailing sands at Torch Lake. This would later prolong the life of the company for a number of years.

In 1909, the one-man drill was perfected, and the companies were quick to take advantage of it. For many years prior to this, engineers had endeavored to perfect a suitable power drill. Around 1870, the Burleigh rock drill powered by compressed air had been tried at several of the mines. It was massive and heavy and could only be used in a few places. Consequently, it had not been generally accepted. A few years later, smaller drills which were both lighter and stronger were perfected. Powered by compressed air, these were soon used at all the mines, but were so heavy that two miners were required to operate each drill.

The new one-man drill weighed only half as much as former drills. It also improved the drilling operation because greater air pressure could be used which gave it increased drilling power. The most important factor, however, was the saving it effected in manpower. With only one miner per drill instead of two, the same crew was now able to do almost twice the work. Thus, for about the same cost the mines could increase production, and of course, profits.

Although the one-man drill was of great benefit to the companies, it met with considerable opposition among the workers. To a great extent this was brought about by the fear of job losses, a most natural feeling after the installation of any labor saving device. Some miners felt that it was too heavy for one miner to handle even though it weighed only half as much as the 300 pound two-man drills. Others objected to working alone, feeling that a call for help, if necessary, might go unnoticed.

To ease this opposition, some of the mines including the Winona, Hancock, Quincy, Franklin and Tamarack, offered their miners a choice of drills. Nevertheless, the ruffled edges of the workers throughout the Copper Country soon began to show. Likely, much of this resentment would have subsided if not for the continued agitation from the Western Federation of Miners. Union organizers were now frequently in the district. They used continued pressure and constantly promoted dissatisfaction among the workers to gain union members. These tactics brought about a decided change in the thinking of many of the workers.

In 1907, a visitor to Michigan's Copper Country made the statement, as reported by the US Bureau of Mines, that, There are no labor unions among the mines of the Calumet

region. The miners say that they do not need them. They are satisfied with their wages and their living conditions. This was not entirely true. However, most of the companies, and particularly Calumet and Hecla, had gone to great lengths in being mindful of the comfort and well being of their employees. Alexander Agassiz, in particular, had made it his personal interest to see that the miners were well housed and provided with the best in schools, libraries, churches, and hospitals. This policy was maintained by his successors.

As the wife of one of the workers expressed it, We were happy and had no ill-feeling toward the company. They did many fine things for us. They picked up our garbage without charge and even came out to clean our privy whenever we called them.

Dissatisfactions, however, real or imagined, are usually present in the minds of workers. Michigan Copper Country workers were no different in this respect. Still, throughout the earlier years, the entire Copper Country had been relatively free of labor disputes. There had been none that involved all the mines.

The first dispute of any consequence erupted in April of 1872 when a wage increase was demanded at both Calumet and Hecla and the Portage Lake mines. A company proposal offering a 10 percent wage increase was rejected by the workers. Strike breakers were used after the miners walked off their jobs and some rather violent disturbances resulted. To quiet the disorders, Governor J. J. Bagley sent out the state militia. Fortunately, the whole disruption collapsed in less than thirty days, when the workers accepted the original 10 percent offered by management before the strike began.

A few short, sporadic strikes broke out during the following years. One hit the Atlantic mine in 1890. A strike hit the Osceola in 1892. One hit the Tamarack in 1894. A strike hit the Quincy in 1896. A series of strikes hit the Copper Range territory in 1904, when some nine hundred workers struck the Baltic, Trimountain, and Champion. All of these were minor affairs. Their overall effects made little impact on the industry, although, it was alleged that several costly mine fires may have resulted because of them.

Nevertheless, such disturbances were an indication of an underlying current of growing unrest among the mine workers. It was this unrest that organizers of the Western Federation of Miners began to foster when, fresh from some strenuous encounters in the west, they appeared in Calumet shortly after the end of 1904.

The Western Federation of Miners was founded in Butte, Montana in 1893, and during the first few years of its existence, it created many a stormy scene. Even the preamble to the Federation's constitution was an invitation to battle. In effect, it boldly declared that a class struggle existed in society caused by economic conditions. It stated that the worker was being exploited in not receiving a fair share of the wealth he helped to produce. It went on to say that emancipation must come for the working class, and concluded that only through an industrial union and concerted political action could the necessary changes be realized.

With this as their battle cry, union organizers swept into the Coeur d' Alene district shortly after the Federation was organized. As a result, the next five years at Coeur d' Alene were hell on earth. The district constantly underwent violent labor disturbances. The battles saw much bloodshed and even murder before the union was finally driven from the district. In 1903, Cripple Creek in Colorado was subjected to similar tactics but here too the union was repelled. Surprisingly, the Federation did manage to set up some union contracts with a number of mining companies, particularly in the Butte district of Montana. By 1913, it had succeeded in gaining an almost closed shop.

When the Western Federation of Miners moved into Calumet its reputation for violence and bloodshed had preceded it. Because of its history of violent activities, Quincy A. Shaw before his death had adamantly vowed, We will never recognize or deal with the Western Federation of Miners, not because of antagonism to labor organizations as such, but because we cannot in justice to ourselves, our men or community, deal with an organization possessing an established reputation for inciting disorder, dissension, and violence.

For the first few years at Calumet, union recruiting was relatively slow. By 1913, five locals had been established which claimed to have 9,000 members. In 1912, some of these members, became overly dissatisfied with the existing situation. They fostered the idea of making demands on the company for improved working conditions and of striking, if necessary, to secure these demands. Because at the time, the union organization of the locals was far from complete, the Federation officers cautioned them about taking any hasty actions.

In spite of this admonition, early in 1913 the locals did call several minor strikes when in their eyes they thought conditions were getting worse. Their stated grievances were mostly over wages, hours of labor, working conditions, and the use of the one-man drill. As one disgruntled worker put it, For a long time Calumet and Hecla had held the reputation of being a liberal and generous employer, but a while back a change had occurred, and now they have become industrial experts interested solely in efficiency and profit at the expense of the men, they do not give a hell for the workers. Many contended that working conditions were bad. They supported their claims by citing the lack of ventilation in the mines, few sanitary facilities, and no drinking water. Trammers, they said, had to push loaded cars weighing as much as 8,000 pounds along a rough track. They contended this was a job for mules or machines not people.

They also claimed the ten-hour shifts were too long. At times, the small cages were overcrowded causing delays in

leaving the mine, which increased shift time to ten and a half or eleven hours, without additional pay.

The contract miners who were paid on the basis of work accomplished, were also dissatisfied. They claimed they were being charged excessively for dynamite, fuses, caps, carbide for their lamps, oil for the drills, and sometimes even for wrenches and drill bits. All of this happened under a system which over the years, had admittedly become corrupt.

Another disturbing factor was that workers had no way to present their grievances to the mine managers. Handled by a shift or petty boss, grievances were relayed to the mine captain, who either ignored the injustice, or without further inquiry accepted the word of the shift boss. This left the worker unsatisfied.

These claimed injustices were not the only source of unrest. There was a animosity among the miners about the paternalistic system. The system was nurtured by the powerful copper barons during the early twentieth century. One of the labor leaders in commenting on this made the statement that at Calumet, the Calumet and Hecla ruled supreme. He declared that, it absolutely controls the two newspapers...and censors every article affecting the miners. It can drive any man in the district out of business.

Again, Senator James E. Martin, a New Jersey democrat, later stated that, This (Houghton County) is not a community of self-governing American citizens. It is one chiefly of aliens brought thither to serve the monopoly, and ruled from Boston in defiance of law and in spite of democratic institutions.

The Miner's Bulletin, the official union workers paper put it this way:

The really dangerous feature of the situation in the Calumet district is not that the miners are shockingly underpaid, though their wages certainly are not adequate; nor that conditions in the mines are exceedingly dangerous or unsanitary, though they ought to be improved in both respects. What should give us concern is the undoubted fact that Houghton County, Michigan, in the heart of what purports to be the purest democracy on earth, is being governed as an oligarchy.

Thus it appears that by itself dissatisfaction over wages, hours, working conditions, or the one-man drill was not the entire issue, though numerous historians have cited it as such. There were many reasons for the strike which began on Monday, July 23, 1913. Included in the list should be the effects of paternalism, the dehumanization and absence of a democratic process, and other grievances. These all served to unify the workers to strike.

In the month prior to the strike, members of the locals had met in Calumet. They voted 7,680 to 125 to request a conference with the company managers and to strike if their demands were not met. What followed did not have the express approval of the Butte officers of the Federation. However, on July 14, registered, special delivery letters were mailed to the local operating heads of each company. The letters stated that a meeting was desired to discuss the possibilities of shorter work hours, raising wages, and improving working conditions. A reply was requested no later than July 28.

Reaction to these letters was negative. The Quincy merely marked its letter "refused," and sent it back. The other companies made no response at all, believing that if they did it might strengthen the union's position. Accordingly, on July 23, a strike was called. Before the week ended, almost all work stopped at all the lake country copper mines, except two. These were the old White Pine and the Victoria both in Ontonagon County. The Victoria was the only company to work throughout the entire strike.

In calling the strike, the union felt that the grievances of the miners, principally long hours, low wages, and non-recognition of the union justified a work stoppage. Perhaps they did, but they did not justify the disorder that swept the district as a result of the strike.

Dawn that ill-fated morning spread an uneasy light over the Keweenaw peninsula. It revealed mobs of club-wielding-strikers roaming the streets of nearly every active mining town in the Copper Country. The union opening day attack was well organized. In the outlying districts armed attackers, along with the help of name-calling paraders and crowds of strikers assembled near the mines, successfully preventing many of the non-striking workers from getting to their jobs.

At Calumet the mobs of boisterous strikers were too late and too few to intercept the early workers of the day shift, but this did not stop the violence that came later in the day. Wielding clubs and baseball bats, the strikers forced their way into the surface shops and by violent physical assault drove out the workers. Watchmen and guards were powerless to prevent the onrush; they too were abused both verbally and physically, some had their badges torn from them. Although no property was destroyed, at one shop a number of miners were so badly injured that they had to be hospitalized.

Later, the night shifts were also confronted as they tried to go to work, and many of the underground workers were prevented from entering the shafts. The next day, the rioting and physical violence continued at an ever increasing pace, as loyal workers were harassed and abused. Nor did this storm of harassment and violence abate during the first week of the strike. By the end of the week the entire copper industry, the life blood of the area, was at a virtual standstill. Civil authority had broken down completely and the strikers were in control. Not only had production been stopped but loyal workers were also prevented from manning the pumps which kept the mines from flooding.

At the very onset of the strike the mine managers made good use of their strong political and economic influence. They requested and received the assistance of the

Michigan National Guard. Acting through Houghton County Sheriff, James Cruse, a telegram was sent to Michigan's Governor, Woodbridge Ferris, asking for 2,000 troopers. In it, Cruse contended that, The situation will become worse and will result in great destruction of property and possible loss of life unless I receive the aid of State troops.

Governor Ferris responded immediately. He dispatched the entire force of the Michigan National Guard to Houghton. By July 27, more than 2,600 Guardsmen, under the command of Brigadier General P. L. Abbey, were encamped along Calumet Avenue and at nearby mine locations. The assembled troops included; three regiments of infantry, two batteries of artillery, two troops of cavalry, one company of engineers, a mounted signal corp, two ambulance companies, and three brass bands. Indeed, this was an impressive force, and fortunately, it did stem most of the severe rioting.

To augment these forces some 1,700 deputy sheriffs were sworn in by Sheriff Cruse. Some were company guards while many others were former workers. Detectives were recruited from the Waddell-Mahon Agency, a New York firm of strike breakers and reputed gunmen. In some of the more isolated areas, the responsibility for protection was almost completely turned over to outside agencies. It seems that it was here that the majority of the later disturbances occurred. Scarcely a day passed that some disruption did not take place. These ranged from verbal abuse and obscenities to physical violence. In some cases shootings were cold blooded murder.

On the night of July 27, an unfortunate incident happened at Centennial. A fire broke out and because of the unmanned pumps the store of Morgan and Greison was completely destroyed. Although the cause of the fire was never fully determined, the fatal results were blamed on the strikers. A few days later, a fortunate agreement was reached with the union leaders whereby pumping operations at the mines could be resumed without molestation.

Rioting also produced many short tempered situations, as exemplified by an incident that took place near the Champion mine at Painsedale. Deputy Jack Chellaw came upon a small group of strikers harassing some workers. In his anger he reportedly drew his pistol and demanded, "You leave those men alone or I'll blow your brains out!" And under the tension of the situation, had they resisted, likely he would have done so.

At the beginning of the strike the Calumet strikers set up a union hall on Sixth Street in the Red Jacket end of Calumet. From these headquarters they conducted daily parades, flaunting placards and flowing banners. Some times they even used brass bands. Many women also joined the miners in these protest marches. The soldiers kept a constant watch over the daily processions and endeavored to maintain order. Verbal abuses between strikers and non-strikers led to fist fights and minor skirmishs. This kept tensions and hard feelings at a high pitch.

During the month of August, the presence of the guardsmen kept things fairly well under control except for scattered incidents. In fact, by mid-August conditions seemed to have quieted enough so that many of the troops were returned to their home base. From this point on, the force was gradually reduced. Only 500 remained at the end of September, 200 by November, and only 85 by December. The last of the Guardsmen were finally withdrawn in January even though the strike continued well into the new year. The total bill for the six months of this service amounted to $400,000. many of the non-union workers had been forced off their jobs by mine closings after the initial violence. Early in August, they voiced a desire to go back to work if the mine managers would reopen the shops and mines. These workers from Calumet had met at the Washington school and voted to resume work. They also let it be known that they had some demands they wanted to make.

General manager MacNaughton agreed to receive a committee representing these workers and listen to their requests, but supposedly the demands they made were even more than the Federations. So all were denied. MacNaughton felt that if he gave in, the Federation would claim that it had won them the victory.

Another week rolled around. By this time, the non-strikers had decided that they wanted to go back to work even if their demands would not be met. This was agreeable with the mine managers. Each miner had to sign a registration blank which stated that he would return to work without gaining any of the benefits demanded by the Federation. The form further stated that he would have nothing to do with the Federation, and concluded by saying the miner had not been in favor of the strike. And so, the wheels of the copper industry slowly began to turn again. By September the three largest companies, Copper Range, Quincy, and Calumet and Hecla and its subsidiaries, were all operating, though operations were limited to only day shifts of a few hundred miners.

To augment this somewhat limited force of non-union workers, the companies began to import strike breakers from New York, Detroit, Chicago, and other cities. Almost immediately, these workers were dubbed, "the cream of the Bowery flop houses and First Avenue gin mills." To thwart the recruiting, the Federation members distributed posters throughout potential recruiting areas. The posters warned workers to stay away from the Michigan copper mines. The poster advised, Don't be a scab. Wages are low, the labor required excessive, and hours are long. No real man will come to the copper district until a settlement is made. In spite of such warnings, at least 1,200 or 1,300 workers had been imported by the end of October. After work started up again, the strike became pretty much a stalemate.

The first attempt to mediate the strike was initiated by Governor Ferris who offered his office at Lansing for a conference. The Governor's proposal was accepted by the Federation, but politely yet flatly rejected by the mine managers. The managers advised him:

We feel obligated for the welfare and good name of the State as a whole, for the best interests of our employees, for the interests of the entire community, and for making continued and lasting industrial peace and quiet in this district, but we should not and cannot take part in a joint conference with the leaders or representatives of the Western Federation of Miners.

It is only natural that much of the strikers' resentment was focused on MacNaughton because of his consistent refusal to give the Federation or the strikers a hearing. They could not understand why he and the others did not believe that the strikers had real grievances. Pro-union writers were quick to pick up his casual remarks and convert them into barbed taunts. A hotel clerk at Calumet is alleged to have told Inis Weed, a writer for Outlook Magazine that he had heard MacNaughton say, "Grass will grow on your streets before I'll ever give in." Quickly this appeared in print in an issue of Outlook, along with the allegation that MacNaughton had also claimed, "he would teach people to eat potato parings."

A powerful searchlight was installed atop a tower near Calumet and Hecla No. 2 shaft to aid in the surveillance of the property. The strikers, in their scorn, were quick to label it "MacNaughton's eye." The calm that had prevailed over most of the district during August was broken. It broke almost as soon as the non-strikers went back to work and the companies started to bring in strike breakers. Almost immediately there was a renewed outbreak of roughhousing and violence, as the bitterness between strikers and non-strikers once more flared into an open flame. Miners who attempted to go to work were threatened, insulted, and sometimes beaten. Promiscuous rifle shooting was part of a program to intimidate strike breakers.

The account of one of these shooting incidents has been related by Henry Laukkanen, an old timer who lived in Ahmeek at the time of the strike. The story is preserved on a taped interview by the Historical Society at Suomi College in Hancock. The story involves a passenger coach, supposedly filled with strike breakers who were being imported to work at the mine in Ahmeek. Says Henry:

This engine with a single coach attached pulled into Ahmeek, there used to be a depot there, and was going to back in from there to the mine where they had some bunk houses. But the depot is all the farther it got. Someone began to shoot the coach full of holes. The train then started to back up right away, and I guess it backed all the way into Calumet. Nobody yet knows how many got killed or hurt in that coach. Never heard a thing more about it. The next day I went over to the depot and talked with Tony Strepp, the depot agent, and he showed me some bullet holes in one of his filing cabinets. The rifle bullets had come into the depot and punched holes through them.

In mid-November an endeavor was made to wreck a compressor plant at the Ahmeek by using dynamite. This was followed by an apparent attempt to murder two company officials who were making an examination of the damage. Rifle balls whizzed by the heads of these men whose only concern was an effort to learn the extent of the damage caused by the vandals. Later in the week, an attempt was made to burn the residence of a Mohawk worker. The dynamite at Ahmeek did not do great damage. The rifle bullets did not kill. The arson attempt was not successful. These all can be credited to good fortune rather than to any lack of intention or criminality.

As the strike dragged on, many mass meetings were held by the strikers at various halls about the district. These were often climaxed by week end sessions at Laurium's Palestra where prominent labor leaders sometimes spoke. On these special occasions, it was not unusual to have four or five thousand people assembled. Many notables made appearances. These included: Charles Moyer, President of the Western Federation, John Mitchel of the United Mine Workers, and, John L. Lewis of the American Federation of Labor's Mining Department. "Mother" Jones an eloquent advocate of worker's rights and a prominent character at many strikes about the country, was another.

A local heroine made it a practice to lead most of the parades. In particular the morning affairs were Annie Clements special delight. She was a spectacular person, blessed with good looks. They called her "Big Annie." As she led paraders, it was her custom to hold a large American flag in her hand or have it draped around her. She often remarked that no one would mistreat or shoot her as long as she carried the flag.

Annie Clements enjoyed the publicity and the pose. Militant Socialism was her fun. From her lead position in the parades she verbally abused workers, posed for photographs, and became copy for magazines and newspapers that found her a great subject for human interest stories. At times, Annie Clements became violent and eventually she was arrested for creating a public disturbance, but forgot to appear in circuit court when her trial was called. In the course of time, after being arrested half a dozen times, she was tried before a jury in justice court. The business like jury lost little time in finding her guilty of assault and battery. The complainant in the case was a miner who insisted on going to work whether Annie Clements blocked the way or not. The Western Federation lawyers immediately appealed the case in circuit court. Later, there was another trial, and another jury. Again, the jury refused to be influenced by either her glamor or her heroine status. The verdict was guilty.

Early in September the Western Federation began paying the strikers strike benefits from its Denver treasury. The amount of the individual benefits were supposed to be based on the size of the striker's family and also his financial condition. At first, these benefits were distributed in cash but in November the Federation established what it called "cost stores" at Calumet, Ahmeek, Hancock, and South Range. They then issued coupons to the strikers. These were good for merchandise at any of the stores. Most of the funds for these benefits were raised by a two-dollar monthly assessment on the

overall membership of the Federation. In December however, the United Mine Workers did contribute $100,000 to the cause.

In spite of the union claim that 10,429 workers were being paid benefits, there were many needy families for whom aid did not materialize. A Calumet woman, who made a personal investigation at a number of homes, reported a great amount of poverty and privation among the strikers. Families without food, with hardly a crust of bread in their home, and with no fuel to provide warmth, were found. She told of scenes that indicated total inhuman neglect on the part of the Federation. One family in particular was pointed out. They had nine little ones. Though they had received a small amount in strike benefits, the benefits fell far short of being enough to purchase clothing for all the children. In most cases, each was clothed in a single garment with no underclothing to protect them against the rigors of a Copper Country winter.

And then there was the Lehto's, Sophie and Andrew and children, a typical immigrant family who had carefully weighed the advantages and disadvantages of union membership. Finally, like the majority of the immigrant laborers, Andrew was persuaded to join. He paid his dues even though there were doubts in his mind. The union organizers had made promises to provide financial aid to needy families in the event of a strike. But when the strike came, Andy was better off than most. He had some chickens and cows and hogs as a back up food supply. And too, as he had surmised, the financial aid did not materialize. One lone box of used clothing came their way but none of it was suitable for their children. As Sophie rated it, "the pieces were unfit for carpet rags." Yet she stored them away because her sense of thrift cautioned her that there could come a time when they might be useful.

The loss of income, financial insecurity, tension, and unsettled conditions created by the prolonged strike drove many of the workers and their families to other parts of the country. Some turned to farms, others migrated to the nearby iron mines, still others to the western mines. A few left their families in the area and sought work elsewhere. By the end of November it was estimated that a 1,000 families had left the district. By the time the long strike finally ended at least two thousand workers and their families had departed.

Business operators were hurt by the decline in business. They were thoroughly disgusted with the continuing strike, the tension, and lawlessness. In November, they banded together informally with professionals and workers and formed the "Citizen's Alliance." Its chief purpose was to restore law and order by ridding the Copper Country of the Western Federation of Miners and its misguided adherents.

The group had no officers. It did not hold regular meetings. It did undertake to publish a paper called "Truth." The paper was intended to clarify the many distorted views and untruths published in the Miner's Bulletin, the publication of the Federation. The badge of identification for the members of the Citizen's Alliance was a large white button proudly worn by each of its members.

The first major action of the Alliance was prompted by a cold blooded murder. Three Copper Range miners were killed in Painesdale at about two o'clock on the morning of December 7. The Calumet Daily Mining Gazette described the incident as the most vicious crime in the campaign of outlawery perpetrated during the Western Federation of Miners' strike. During the outburst of shooting not only were three miners fatally wounded but an innocent girl was also hit.

In the Gazette story, Mrs. Thomas Daley, the boarding house operator where the shooting occurred, was quoted as saying that all except herself were asleep when the disturbance began. She said she sat reading while awaiting the late return of one of the boarders when suddenly a shot broke the stillness of the night and a bullet whizzed past her head. The single shot was immediately followed by a spray of shots. The shots killed Arthur and Henry Jane, who occupied a third story room. Mary Nicholson, age eight, was also shot while asleep. One of the bullets hit her in the shoulder. Mr. Daley, who had risen from bed at the sound of the first shot, was hit in the head by one of the wild bullets which followed. A physician who later arrived at the scene, said he could extend no hope of recovery for Daley. He pronounced the little girl's wound as serious but not dangerous. The others were dead when he arrived.

Deputies found three different kinds of rifle bullets which had slammed into the boarding house, indicating that at least three people had fired the shots. No trace of the murderers was ever found, though the woods near the boarding house were thoroughly searched.

The Gazette concluded its account of the tragedy with these remarks:

This morning's murders come as a climax to a long string of lesser crimes which have been perpetrated in an attempt to check the Copper Range Consolidated Company's rapid progress toward a restoration of normal copper production. These crimes have ranged from shooting into workers' homes to assaulting employees on their way to work.

Just a few days before this, a party of deputies escorting some miners and trammers to their work at the Champion mine in Painesdale were fired upon by two strikers. The deputies returned the fire and the hostile strikers retreated into a boarding house on Adams Street. The place was immediately surrounded by the deputies and a call for assistance sent to Houghton. When reinforcements arrived, the house was entered, but not until a great number of shots had been fired. No one was hurt in the exchange. A search of the premises yielded an arsenal; ten rifles, four shot guns, eleven revolvers, several packages of cartridges and a number of full cartridge belts. Thirteen strikers were jailed as a result of the incident.

Immediately after the brutal slayings at Painesdale, the aroused Citizen's Alliance called a citizen's mass meeting at the Calumet armory. They hoped to stir the public into a united effort that eventually would bring back law and order to the communities of the Copper Country. The enthusiasm generated by this meeting spread rapidly and was followed by meetings in Houghton, Hancock, and Lake Linden. From each came volunteers who placed themselves on call with Sheriff Cruse, designating their willingness to assist him in whatever way they might be needed. Many were sworn in as deputies.

Other organizations also took up the cry, including the Veterans of the Civil War at both Calumet and Hancock. The Sons of St. George lodges of Calumet, Houghton, and Quincy, also pledged their support. The objective was the same. Stay within the law, yet rid the district of the professional agitators.

But even as enthusiasm was building, another event took place, the repercussions of which would sweep across the nation. On Christmas Day, 1913, 62 children and 11 adults perished in a tragedy at Calumet. Perhaps more than any other single thing, this tragic affair helped to bring the people back together and wind down the remaining days of the long, costly strike. The animosity and bitter memories remained for many years.

It all began as an ordinary Christmas celebration arranged for children of the striker's families living in the Calumet area. It was sponsored by the women of the striker's alliance. They wanted the children to enjoy a fitting Christmas, in spite of the poverty created by the long strike. Some time earlier the auxiliary women had sent letters to associated unions in other cities. They asked for clothing, candy, and other gifts which could be distributed at a Christmas party. Some of the local merchants also donated gifts to the group.

When the big day arrived, a standing room only crowd assembled on the second floor of the Italian Hall on Seventh Street in Red Jacket. No one knows for sure just how many were there, but some say it was well over four hundred. Some parents brought their children and remained for the festivities. Many children came by themselves. They came from all over, Bootjack, Yellow Jacket, Florida, Tamarack, Centennial Heights, Kearsarge, Swedetown, Rambletown, Osceola, Red Jacket, and who knows where else.

The Italian Hall where the party was held stood two stories tall, three at the back because here the land sloped away. On the ground floor a saloon occupied one side and an A & P store on the other. The entrance to the upstairs part of the building opened into a narrow hallway that extended alongside the saloon. From here a flight of stairs led to the second floor. At the top of the stairs, one could enter the hall through double doors on the right or continue down the corridor to the stage entrance. The stage was elevated about three or four feet above the level of the hall. Underneath a kitchen had been built which was half above and half below the second floor.

The main hall was 78 feet long and 35 feet wide, but the front half toward the stage was filled with permanent theater seats anchored to the floor. The other half was empty. It was often used for dances by various groups. For the Christmas party, tables and chairs had been set up in this area so that a lunch could be served.

After lunch, most of the younger set moved into the area with the theater seats so they would be closer to the stage to see the program scheduled to follow. There were a couple of decorated Christmas trees on the stage. Threasa Sizer, Ladies Auxiliary member, played Christmas music on a piano, while Annie Clements assisted with program activities.

One of the features of the program was a ballet dance performed amidst a fairyland atmosphere by a small girl clad in a pink ballet dress and a leotard. And then when this was over, there came that wonder of wonders, Santa Claus. Eagerly, the children pressed forward to get a closer look at old Saint Nick, and one little girl is said to have fainted in the excitement. Annie Clements admonished the children to be patient and assured them there was plenty of gifts for all.

To the rhythms of Christmas music, the children began to move toward the stage and up the steps onto it, where in single file they approached the jolly Santa. Each child in line was personally greeted by Santa and then with the help of Annie Clements presented a gift before leaving the stage. For a while all was merry. A joyful atmosphere prevailed. Then a totally inexplicable thing happened.

A man described as wearing a "Christie Hat" and a long dark overcoat with a fur collar turned up around his face is said to have entered the hall. He started shouting "Fire! Fire!" From this point on no one really knows for sure what happened. The excitement, pressure, sorrow, passion, and bitterness that followed effected each version differently. The accounts of what happened have unfolded with a wide range of wholly different interpretations.

One thing remains certain. The results were tragic. Panic and confusion followed that first shouted outcry of "fire." Two streams of running, screaming people poured into that single narrow hallway. One from the main hall exit, another from the stage exit. Everyone was pushing and shoving to get to the stairs and out of the building. The two waves of panic stricken humanity converged at the top of the stairs. The surge sent the first in line toppling headlong down the stairs. Others were quickly pushed on top of them. In only a matter of a few minutes, the narrow stairway was jammed. Bodies were stacked like a jumbled pile of loose cord wood.

The bodies were so densely packed that when rescue workers began to untangle the choking pile of humanity, it took considerable effort to separate the few remaining survivors from the victims. The victims lost their lives by suffocation in that seething tangle of humanity. Indeed, a most tragic ending to what began as a joyful occasion.

During the unfortunate melee, no one seems to have noticed that there were no signs of smoke or flames. It is likely that even if someone had tried to still the madness, any attempt would have gone unheeded, even if it had been heard above the shrieks and cries of the terrified people. Apparently, there was no fire. Someone may have thought they saw smoke or something burning and gave the alarm. Some claim the alarmist was under the influence of hard drink. If not, why anyone, either friend or foe, would have done such an inhuman thing at the height of the Yule season, is hard to explain.

At the subsequent coroner's inquest, more than sixty witnesses testified. There were many conflicting statements about what happened. Few agreed on any of the details. As a result, the blame for the tragic affair was never established. A half dozen or more people described the perpetrator, however, it never was determined who was responsible for the shouting "fire." This is because each gave a different description, as well as placing him in different parts of the building. Some declared that the alarm came from within the hall. Others claimed it was from the hallway. Still others thought it was shouted from the doorway at the foot of the stairs. Mrs. Louisa Lesh was near the stage. She was guiding the line of boys and girls to Santa. She claimed the cry came from the center of the hall. After it had been shouted three times in English, it was repeated four times in Croatian.

Annie Clements told reporters at Calumet that she saw a man rush into the door and cry fire, and she said he wore a Citizen's Alliance button. When asked where she was standing, she said she was on the stage. This caused some to wonder. How she could have spotted the Alliance button amid the crowd of people? The stage was 35 to 50 feet from the door and the lights were dimmed.

A 15 old boy testified that he saw a drunken man forcing his way back and forth through the crowd fully fifteen minutes before the tragedy occurred. Some believe the drunk may have been the one that shouted the alarm. Later, it was suggested that the perpetrator might have perished in the pile up of humanity that resulted.

Before the inquest Prosecutor Anthony Lucas issued a statement. He said that the person or persons who cried fire may have had cause. Mrs. Charles Meyers lived in the flat near the Italian Hall. She claimed to have seen a little boy let down to the ground over the fire escape and a shed at the rear of the hall. She said that his clothing was burning or smoldering. Herman Bibber also lived close to the hall. He telephoned the Red Jacket fire department when he thought he saw smoke coming from the building.

A few claimed that the tragedy was caused because the outer doors at the foot of the stairs opened inward. People trying to exit could not open them against the pressure of the falling victims. Someone even asserted that the doors had been held closed so the children could not escape. This, however, was all refuted by Mr. Charles Meyers, manager of the A & P store below the hall.

According to Meyers, as soon as he heard the unusual trampling overhead, he rushed to the hall entrance to investigate the cause of the disorder. He claimed to have reached the door just in time to see the masses of children, men, and women piling up on each other at the foot of the stairs. He said the heavy doors were open. However, his efforts to rescue anyone from the rapidly growing heap of people were futile.

After such a mixture of conflicting reports perhaps the most plausible words of all came from a child. The child quite simply said, "Some one hollered fire and we all started to run! "

Of course the Western Federation of Miners, along with Annie Clements, was quick to blame the Citizen's Alliance for the disaster. They claimed that the false alarm which panicked the crowd came from a man wearing a Citizen's Alliance button. The Tyomies was a Finnish Socialist daily published at Hancock. It was the Finnish union paper. The Tyomies put out an extra which included this terse statement, "From all that we have seen, we learn that it was a put up job by the Citizen's Alliance."

A few witnesses made conflicting statements. Two union representatives who were acting as door tenders in the hallway testified that no one wearing such a badge had passed them. Furthermore, only those who were able to show a union book were admitted to the hall. Even the children were required to have their father's book. If anyone attempted to gain admission without a book, they were turned back. Only the bartender at the Dominic Valrose Saloon on the ground floor of the building could vouch for someone without a book. What person, sporting a Citizen's Alliance button, would have had the fortitude to go up to the hall or into the Valrose Saloon. The Valrose Saloon was a strikers' hangout.

Charles Moyer was the Federation president and directing leader of the strike. He even went so far as to lay the blame on the mine managers. He implied that the managers had hired an agent to disrupt the party, though quite discretely. However, Moyer refused to verify this statement under oath.

Thoroughly aroused by the brazenness of Moyer's statements, the Citizen's Alliance decided to force him to retract the charges or else have him driven out of the Copper Country. Thoroughly aroused by the brazenness of Moyer's statements, the Citizen's Alliance decided to force him to retract the charges or else have him driven out of the Copper Country. Accordingly, on the day after Christmas, a committee of citizens visited Moyer at his room in the Scott Hotel in Hancock. The events that followed are somewhat vague and can only be put together from statements that were later gathered by investigators. Apparently, Moyer was informed in no uncertain words that unless his charges were publicly withdrawn he would be in personal danger. He must have refused because when the committee left the room, a larger group of citizens who had been waiting outside the door entered the room and took over.

Seizing Moyer and a companion who was in the room with him, the pair were none too gently forced to the door. In the fracas, someone struck Moyer over the head with a revolver which accidentally discharged inflicting a flesh wound along Moyer's shoulder and back. They were dragged and kicked by the assailants. The two Federation members were forced into the street. Then they were shoved and pushed through Hancock and across the bridge to the Copper Range depot in Houghton. For a while the fury of the tormentors made it doubtful whether Moyer would ever get across the bridge. Some in the group wanted to hang him from the bridge girders. Another scoffed, "Why bother to put him on a train. Let's throw him over here!"

At the depot, Moyer and his friend were put aboard the train with a warning never to come back lest they be hanged. A deputy paid the fare and wired ahead for a doctor to meet the train and dress Moyer's wound. He then stayed with them until they were out of the State. Moyer went on to the St. Luke's Hospital in Chicago where the bullet which had lodged in his back was successfully removed.

The headlines of leading papers across the country screamed out the news. Moyer had been mobbed and then ejected from the Copper Country. It stirred the entire nation. Coming on the heels of the Christmas tragedy, it also aroused Congress. Congress launched a federal investigation.

Early in 1914 members of a Congressional committee arrived in Calumet. They began gathering testimony from the strikers, mine workers, mine managers, and many others. They talked to anyone who was able and willing to provide information about the strike and general conditions throughout the Copper Country. Eventually 2,357 pages of depositions were assembled. Yet neither these nor the Grand Jury probe that followed brought any convictions.

Christmas and the days after were sad ones for the people of Calumet because that was when most of the dead from the Christmas panic were laid to rest. The services and burials, held under the direction of the Western Federation of Miners, were as impressive as they were sad. Sunday was the day of the mass burial service. Slightly before one o'clock bells about town began to toll and flags throughout the Copper Country were lowered to half mast. Many seen on the streets were wearing some touch of black on sleeve or hat.

As many as 20,000 people lined the streets to watch the long funeral procession. People came from as far away as Ishpeming, Negaunee, and Marquette. Several churches held final services. After the services, mourners slowly marched to the Lakeview Cemetery two miles outside Calumet. The procession was solemn. Bands played a dirge. There was the chanting of old religious hymns sung by voices thick with emotion. Slowly, the marching parade moved ahead.

The procession was led by fourteen hearses, three death wagons, and an automobile truck. These were followed by miners in squads of four, each foursome bearing a child's small white casket. At the cemetery throngs, of people crowded around the long rows of yawning graves. Here the caskets containing the lifeless bodies of loved ones were lowered into the earth.

Following the brief grave side services, a public service of eulogy was conducted by union leaders at a stand set up near the entrance to the cemetery. Here speakers eulogized the dead as martyrs of the long fight for the cause of labor. Eugene A. McNally, a member of the legal council of the Federation, paid an especially glowing tribute to the children.

The strike dragged on for just over three months after the Christmas tragedy. However, its spirit seems to have been broken by the wave of sympathy that arose for those lost in the disaster. Early in April, the Federation had to withdraw most of its financial support to the strikers. They had become involved with labor problems in the Ohio and Pennsylvania coal fields.

At this time, the Federation was well aware that their cause had been defeated. They advised the locals that they should appoint a committee to ask the mine managers under what conditions the strikers would be reinstated. The answer came back. All who gave up their union cards and renounced their union memberships would be reinstated. All except those who had been arrested and convicted for violence during the strike.

Faced with starvation and ruin without work or assistance, the strikers voted 3,104 to 1,636 to end the strike and return to their jobs. This action came on April 13, 1914, but long before this most of the companies had been operating at near capacity. Never once during the strike had the mine managers deviated from their stand not to recognize the Western Federation of Miners. Thus, the result of the strike had been predictable. It was only the date of its conclusion that had remained uncertain. Some changes in operating methods at the mines had been made but not because of the union's pressures. Rather, they were the evolution of plans long under consideration for the general good of the workers. They were brought into a more general discussion because of the strike.

Early in the strike, the mine managers made a report to Governor Ferris and the Federal Department of Labor. In the report they stated that the inauguration of an eight-hour shift for underground workers had long been contemplated. They went on to say that such a change would actually become effective by January 1, 1914. Some time before this, a bill had been introduced in Congress. It proposed to require by law an eight-hour working day for underground employees. The companies, in a small way, began discussing such a schedule irrespective of whether the bill passed or not. The bill did not pass.

The eight-hour shift for underground workers and also the stamp mill workers became a reality early in December,

nearly a month earlier than had been promised. Too, provisions were also made which gave all employees access to the management of the property for a hearing of his grievances. The one-man drill, never done away with, was replaced by a lighter, more manageable machine.

And so on the Monday after the strike was officially ended, the strikers began to straggle back to work, signing reemployment applications and surrendering their union cards. At the same time, the Federation closed its cost stores. They made a parting claim that half of the union members had not voted. The Federation retired from the Copper Country. Some of the strikers refused to give up and as they began to leave town, they were labeled "professional strikers" by a Copper Country newspaper.

With the strike at an end and the strikers picking up where they had left off nine months earlier, industrial peace returned to the Copper Country. Even so, the scars of the strike went deep. It took many years for the memories of the violence to fade. A national spotlight shone on the Copper Country during the final months of the strike. The dazzle began to fade. Paternalism, some have said the evils of paternalism, once again settled upon the communities of the Copper Country. But even though the industry again began to dominate daily life, the Calumet News declared, "copper workers will come to realize that their best friends, those most concerned with their interests, are the mining companies."

Unfortunately, the tide was beginning to run against both the communities and the industry. Although there were still some prosperous times ahead, the turning point had been passed.

The Declining Years

Though recovery from the crippling strike of 1913 was beginning, it was overshadowed by events that led to World War I. Almost immediately the price of copper reacted, and it was adverse. Copper prices plummeted to 11 cents per pound. Profit was virtually impossible. Drastic cost-reducing actions were enacted.

Calumet and Hecla in 1914 put their employees on a three-quarter work schedule. At the same time they effected a 10 percent reduction in pay. Fortunately, the price reduction of copper was not prolonged. By May of 1915 it had sufficiently recovered so that the cut wages could be restored to their original level and a full-time work schedule again resumed. Later, early war profits began to accumulate. The company, in what must be one of the finest gestures ever shown any workers, paid its employees the half million dollars of wages lost during this recession. It did so without any solicitation on the part of the workers.

Progress of the war and eventual United States involvement not only stimulated the price of copper but also spurred copper production and sent it soaring to new levels. During World War I, copper production reached the highest levels in history. By this time at least 90 percent of the Michigan copper output was controlled by just three companies: the Copper Range, Quincy, and Calumet and Hecla. Notable exceptions to this were the Champion, Trimountain, Mohawk, and Wolverine, all of which were later acquired by Copper Range. In spite of the brief respite this gave to most of the Copper Country mines, it proved to be only a temporary spurt. In a sense, it led to a feeling of false security.

When the war clouds finally cleared, an over-supply of copper soon brought about hard-hitting retrenchment. Faced with an abundance of copper, and even more serious, a dwindling demand for the red metal, many of the copper producers closed down. Even the great Calumet and Hecla threw in the towel and discontinued its operations for nearly a year during 1921 and 1922.

When this happened, many said the companies were finished. At first it led to a great exodus of workers from the Copper Country. Train loads left daily. Before the advent of the war, some 16,000 workers had been earning their living in Houghton County. Twenty years later there were less than 4,000. There was an emigration of disheartened workers. Many of the hundreds of young workers, who at the beginning of the war left to serve their country, never returned to the Copper Country.

Some of the miners and their families had confidence in the future of the Copper Country. They remained until the mines reopened in 1922. Their stay was not pleasant. They suffered through the hard times hoping for the return of prosperity. But even when copper production was resumed, it was at only 50 percent of capacity.

The Calumet and Hecla workers were awaiting the reopening of the company mines at Calumet. Officials of the Quincy considered the drop in the price of copper as temporary. They were not willing to give in to the trend of times, but, looking to the future, they dipped into the company treasury for nearly $400,000 to acquire one of the largest hoisting engines ever built. Installed at the Quincy No. 2 shaft, a steam powered Nordberg hoist, became one of the wonders of the mining world. Operated in balance, it was capable of lifting a load of 20,000 pounds from a depth of 13,350 feet at a speed of 3,200 feet a minute. The drum, a cylindro-conical type, had a diameter of 30 feet at the large end and a of 16 feet at the small end. This gave it the capacity to wind 10,000 feet of 1.625 inch wire rope, weighing 41,500 pounds. The engine stood 60 feet high from the bottom of its foundation to the top of the drum and required a floor space of 60 by 54 feet.

Bruno V. Nordberg, a brilliant young Finnish immigrant who built many Nordberg hoists for the Copper Country mines, began construction of this mammoth machine before World War I. But completion was delayed by the war. It was completed and installed late in 1920, and operated until the depression in 1931. It hoisted copper ore a distance of 9,009 feet on the incline. The vertical depth was 6,400 feet.

Quincy No. 2 shaft with its huge hoist soon became the pride of the Copper Country. Tourists, especially with mining interests, came from all over the world to view this modern wonder.

This giant, long been stilled, has been restored as a major tourist attraction by the Quincy Hoist Association. The Association a nonprofit corporation is composed of representatives of the Quincy, Nordberg, Upper Peninsula section of the American Institute of Mining Engineers, Michigan Technological University, and the public.

The steam hoist is of great interest. It is a symbol of the lore of the Quincy Mining Company. The constant push for progress. Quincy started with the use of steam powered drills in 1873, diamond drills in 1875, and improved mine hoists in 1876. Quincy was the first to install both underground and surface telephones in the summer of 1879, just three years after Bell's invention. By 1880 it had replaced the old hand drills with compressed air drills, and in 1891 the man-engine was replaced by man-cars in the shafts. Its first smelter was built in 1898, and in 1901 it became the first Lake copper mine to adopt electric locomotives for underground haulage.

Although the big hoist did its work well, it could not keep the Quincy producing copper at the rate it had during the earlier years. After 1920 Quincy production steadily declined, and with it, the big dividends it once paid (over $27,000,000) became a thing of the past.

The decline of Michigan's Copper Country was now well under way. The golden age of red metal prosperity was clearly past. The time had come for drastic readjustments if the copper industry was to survive. The cost of labor, freight rates, coal, and other supplies had all increased substantially, though, the price of copper was some 10 percent lower than it had been in 1913.

One of the obvious hopes in the Calumet area for restoring some of the lost prosperity lay in the direction of a complete integration of the Calumet companies. This had been attempted but failed a decade earlier. Consolidation made sense. It would make it possible to combine surface plants and facilities, and to allow the development of centralized smelting and milling facilities. Centralization would avoid the maintenance of duplicate shafts and hoisting. Shafts, which were bottomed at depth by the termination of property lines, yet were still in good ground, could be worked out.

It was felt that such possibilities, resulting from a single ownership, would bring about greatly reduced costs as well as a greater efficiency, and thus restore profits. Too, it would also eliminate the competition for labor, in short supply at the time because of the great exodus of workers.

Geologist knew that the northern and southern ends of the Kearsarge lode were barren. With this in mind, a plan was drafted for the consolidation. The plan would combine; the Calumet and Hecla with its immediate neighbors the Ahmeek, Allouez, Centennial, and the several properties of the Osceola Consolidated. The Isle Royale, although a controlled subsidiary of Calumet and Hecla, was not to be included. Its was too far away. However, the stock of the other Calumet and Hecla held companies; the Cliff, LaSalle, Superior, and White Pine, were appraised as part of the Calumet and Hecla assets.

Details of the plan and the relative values of the companies to be consolidated were determined by three engineers whose expertise and integrity were unquestionable. They were assisted by a committee made up of representatives from each of the five affected companies. The current assets and earnings of each company were attested to by Arthur Young and Company, certified accountants whose reputation was considered unimpeachable.

The plan called for the formation of a new company. It would be known as the Calumet and Hecla Consolidated Copper Company. The company would have an authorized capitalization of 2,500,000 shares. Each share would have a par value of $25.00 per share. Of these shares, 2,005,502 were to be issued to the shareholders of the constituent companies according to their predetermined value. The balance of the shares was to remain in the company treasury.

Surprisingly, there were no hitches in this undertaking. The directors met on August 2, 1923, approved the plan, and this was followed on September 7, by the approval of the stockholders. Three days later the new articles of association were filed and the consolidation of the companies was accomplished.

During the next few years some prosperity returned to the Copper Country. Aided substantially by the surge of good times throughout the country during the Coolidge and Hoover administrations. The price of copper held reasonably steady between 13 and 14 cents and in the boom year of 1929 climbed to 18 cents. Then, just as everyone was beginning to forget the grim post war days, came the disastrous market crash of 1929 followed by the great depression of the thirties. Once again the price of copper plummeted. This time to an all-time low of 4.75 cents a pound. This price made it impossible for any of the mines to operate at a profit. As a result there were a number of closings. Those that did remain open reduced their working time substantially to avoid a glut of copper.

Among those affected was the Quincy, Old Reliable, which after 83 years of uninterrupted operation, closed down its shafts in September of 1931. Quincy had an estimated ore reserve of 2,000,000 tons of copper. An additional 4,000,000 tons were partly developed in the lower levels. The low price of copper, coupled with the low copper content of the ore, made a profit impossible.

Not until six years later did the Quincy attempt to make a comeback. The 12,5000,000 pounds of copper it produced during the first two years of this resurrection were no match for the 22,500,000 pounds it had produced in 1910. Although the Quincy was not yet finished, its future, like its beginnings, was to be beset with many trials and tribulations.

As a result of the great depression, a wave of unemployment spread across the Copper Country. The annual Copper Country mining payroll dropped from $9,800,000 in 1929 to $3,300,000 in 1939. In 1934, 66.3 percent of the families in Keweenaw County and 37.8 percent in Houghton County were on relief. At the time this was claimed to be the highest relief load in the United States. Six years later, 37 percent of the people in Houghton County were still dependent on some form of public assistance. The future of the district, Calumet, a one industry community, was in serious trouble.

Even more portentous signs were visible. As early as 1929 the Calumet and Hecla annual reports began carrying ominous notes about the gradual deterioration of the ore at depths. The great lode was nearing the end of its life. And finally the 1932 annual report carried the fatal news of what in reality was the death warrant of the Calumet conglomerate. In sad but straight forward words it stated:

With the low price of copper, the loss attendant upon mining this lower rock is no longer justified; therefore in January of 1933 it was considered advisable to stop all work in this part of the mine and to confine production to the shaft pillars and old backs. As one of the large items in the expense of mining is that of pumping, it was decided to remove the lower pumps, together with all equipment of value and let this part of the mine fill with water.

Although this marked the end of the once rich Calumet conglomerate workings, the Calumet and Hecla Consolidated with its immense holdings was far from finished. As the thirties ran their coarse, the over abundance of refined copper on hand was gradually reduced and the economy began to brighten. In 1936 the Ahmeek mine was reopened. Attention was again directed toward reclamation of the copper in the old tailing sands. There was talk of reopening of the Lake Linden Reclamation plant and the Tamarack Reclamation plant.

Reclamation begun in 1915 and continued through the 1940s. Flotation and leaching processes were used, and the reclamation of the copper contained in the tailing sands, became a vital part of the industry. Reclamation and mining were enhanced and made profitable by the world wars, and particularly World War II. Perhaps a guiding hand in 1866 led to the building of the early Hecla, and Calumet, stamp mills on the shores of Torch Lake, not Lake Superior. A Lake Superior site would present many problems. In all likelihood the rugged winter storms would have washed away much of the sands. What sand was not washed away would become contaminated with barren lake sand. Of course little was it realized at the time that the day would come when they would be of such vital importance to the future of the industry. The location had been selected because Torch Lake provided an adequate supply of water for the mills and plenty of room for the disposal of the tailings. Too, the adjacent land was relatively flat and quite suitable for building purposes.

Before the reclamation work was begun, the tailings covered an area of over 150 acres and offshore reached a depth of 120 feet. Reclamation of the earlier sands dumped nearer the shore when the mills were lacking in efficiency, eventually produced 20 pounds of copper per ton of sand. Tailings from the later days which were farther offshore and derived from a more efficient mill operation gave up about 9 pounds of copper per ton of sand.

After the shutdown of the conglomerate workings, Calumet and Hecla explorations for new sources of copper were spurred on at a greater pitch than ever. A considerable amount of diamond drilling was done beyond the nearly worked out areas of Houghton and Keweenaw counties. Although most of this work was unproductive, two areas between the Allouez and the conglomerate did look promising. One of these was an amygdaloid lode, the Iroquois, and the other was in the Houghton conglomerate. Eventually, two new mines were brought into production on these lodes.

In 1939 the problems of organized labor returned to the Copper Country. This time it was the International Union of Mine, Mill, and Smelter Workers, CIO. Finding a fertile field among the smaller companies that were paying lower wages than the Calumet and Hecla, the union was able to conduct a successful membership drive. Workers at the Copper Range mines were brought into the fold during this first year of organizing. By 1941 both the Quincy and Isle Royale workers were operating under a CIO contract. It was not until a year later, however, that the Calumet and Hecla workers were unionized.

The advent of organized labor marked the beginning of new troubles for all the Copper Country mines. Just as soon as the union had been certified as the bargaining agent for the miners, its demands for increased wages began to present insurmountable problems. For instance, the Quincy at the time was operating under an informal agreement made between the government and the producers. The agreement stabilized the price of copper at 11.8 cents per pound. By no means was this a sugar coated plum and it certainly was not enough to cover the demands for the increased wages made by the union. Accordingly, when these demands were not met, the Quincy workers voted in February of 1941 to go on strike. Further negotiations, however, resulted in a 90 day truce while an appeal was made to the government for an increased subsidy that would satisfy both labor and management. This led to a new agreement whereby the government's Metals Reserve Company would purchase Quincy copper at 15 cents a pound. Temporarily, this calmed the situation. Later in October, a cost plus contract was given to Quincy which allowed a dollar a day increase to the miners and a profit of 1 cent a pound to the company.

In 1942 the Japanese attacked Pearl Harbor and the United States became directly involved in the war. As a result, a premium price plan on copper was effected by the government. It allowed a 5 percent premium on all copper produced over the 1941 production. Satisfying as this appeared, it only brought about more union problems. The workers demanded still higher wages to equal those being paid to Calumet and Hecla workers.

In 1943, the war labor board ordered substantial wage increases for all the copper miners. At the same time a new metals reserve contract with a complicated profit formula was drawn up. It was made retroactive to the first of the year. Shortly after the war ended this special price support was withdrawn. The Quincy was faced with the return of the old premium price plan which meant a flat 17 cents a pound for its copper. With the increased labor costs which had been imposed upon the company, this was not enough for a workable margin of profit. In September of 1945, the Quincy closed again. It resorted to the more profitable reclaiming operations, but the end of the tailings came in the 1960s. The tailings accounted for millions of pounds of copper. Reclamation had extended the working life of the company for more than twenty years.

Though the Quincy mines are now closed and many of its shaft and rock houses gone, the company still lives on as a going concern. It owns 4,300 acres of land in the center of Michigan's Copper Country and has three large buildings in New York. It still maintains an efficient supervisory management. On occasion it has excited Copper Country diehards into believing that the time might come when the Old Reliable would be resurrected.

At Calumet and Hecla, the outbreak of World War II and the Korean conflict brought about a flurry of activity. With the conglomerate mine already closed and the end of the tailings not too far away, there was a dire need for supplemental production. Accordingly, the North Kearsarge was rehabilitated and worked to the fullest extent, and the work at the Peninsula was speeded up at depth. A lease with Copper Range was effected for the operation of the Douglass to the south of the Ahmeek. Work on the newly discovered lodes, the Iroquois and the Houghton, was pushed and the mines brought into production. A project to dewater the old Centennial and hopefully reactivate it as a producing mine was set up under a government contract which guaranteed against a capital loss.

These measures, to some extent, were successful. However, they did not offset the drop suffered some two years later when the conglomerate tailings were finally exhausted. Production plunged from 52,000,000 pounds of refined copper to slightly under 4,000,000 pounds. Once again the giant of the Copper Country was staggering.

As the Calumet and Hecla crews began dewatering the old Centennial No. 3 shaft, it became an important factor in the future of the area. In a nostalgic sense, it became a glance into history, a graphic illustration of how mining was carried on before the turn of the century.

The Centennial had been idle since 1897 when the Centennial Mining Company abandoned its shafts as being unprofitable. History lay buried beneath the water. As the water receded, the old workings told their story better than it could be told on the yellowing pages of some old mining record.

The first five levels of the old shaft told of the hand drilling days when mining was a craft, almost an art. The work was slow and tedious, yet the evenly cut rock revealed the precision with which the miners worked. Below the fifth level came the evidence of mechanization. With drills operated by compressed air, the miners drilled deeper holes and accomplished their work faster. But the walls were more uneven and the drifts no longer appeared like carefully chiselled tunnels.

At this time in history, the lives of the miners underwent a change. Their job became easier. With better tools they could produce more, and so earn more. One might imagine, though, that some of the old timers were almost sorry at first. Undoubtedly they took great pride in the precision with which they drove a length of steel into the rock and placed the explosive. Progress in a large measure had destroyed their craft.

The change in the drilling method was further evidenced by old pieces of drill steel. The hand held steel was short, not more than two feet long, with a chisel bit. The machine steel was longer with a cross bit.

The early mining methods did not include leaving pillars of supporting rock in the stopes, and so considerable timbering was done. White pine logs as much as three feet in diameter were used. Plats in some places were timbered with hand hewn pine that was 24 inches square. Occasionally these were doubled for extra support. In later mines most of the plat timber was cut ten inches square. Only occasionally were pieces cut twelve inches square. Planks 24 to 36 inches wide were commonly used for converting plat sand to divide the compartments of the shaft. Planks of this size soon became a rarity and were not found at all in the later mines. Their presence in Centennial No. 3 reflects the magnificence of the timber stands that once thrived throughout the Keweenaw peninsula. The giant trees have disappeared along with the huge planks they made possible.

On the third level there was evidence that the early operators had an eye for cross cutting. Apparently they avoided the trouble and also the expense of hauling all of the poor rock to the surface, for here there was a space under the shaft. A small tram car, a quarter of the 7.5 ton cars used later, was pushed under the shaft to dump poor rock into it. The car was trammed by hand and apparently this poor rock was dumped and left in the old stopes.

Several pieces of equipment were found along the drifts as well as personal effects belonging to the miners. In most cases much of this material was too badly rotted to bring to the surface. Among the interesting items were the bowls of old clay pipes smoked by the early Cornish miners, a copper-toed boot, ends of tallow candles, and a hat of the type to which the candles were attached. Also found were two completely wooden wheelbarrows, probably used for certain tramming jobs, and a wooden skip. The stem of an old Cornish water pump was also discovered. These pumps, which passed from the scene early in the history of the district, were worked by engines on the surface. A long shaft containing a piston extended underground and the water was raised to the surface by the piston.

And so Centennial No. 3, the scene of a project that hopefully would improve the future of the district, gave up its relics and memories of the past. Perhaps a part of tomorrow may also be waiting there. Unfortunately, labor problems were coming. These difficulties would bring the entire Copper Country to its knees. It also would put it completely out of the copper business. The turmoil laid to rest the Calumet and Hecla plans before the old mine could be brought into production.

The last few years of Calumet and Hecla existence were mostly bleak ones. Dark and desultory, these were years beset with rising costs and a series of obdurate labor-management disputes. The Korean conflict caused a temporary return of 45 cents per pound for copper. This stimulated a mild boom. The boom was restricted because of tight government controls. Too, the constantly increasing costs accelerated by the union's persistent demands for annual wage increases and greater fringe benefits for the workers, left much to be desired. And so as the going became rougher, no longer could the company do as much for the people as in the days of old. Mostly it was forced to say no to those who came along with

charitable requests. Resentment began to build among the populace and attitudes to change.

It was under these trying conditions that the work of reactivating the old Centennial was continued. After the dewatering had been completed, exploratory drifts were pushed outward from the 9th, 11th, and 17th levels, and finally from the 31st or bottom level. Because these explorations seemed to present good copper prospects, a decision, which had been deferred throughout the explorations, was finally made to bring the mine into production. Accordingly, No. 3 shaft was deepened to the 36th level and a drift pushed northward for some 2,300 feet. From the end of this drift, No. 6 shaft was raised to the surface. It was at this point that the labor difficulties and the death dealing strike of 1968 brought about a complete shut down of mining on the peninsula.

Contract problems with the union had first reached a critical point in 1955. A crippling strike lasted for a 111 days. Then during the ensuing years, as each union contract came up for renegotiation, increasing problems were encountered. In 1965, another impasse was reached when the union of the United Steel Workers refused to accept the terms of a company-tendered three-year contract. A 70-day strike resulted idling about 2,000 Calumet and Hecla workers. Another 100 were idled at the Quincy reclamation works. Reclamation depended upon Calumet and Hecla for its electricity. At the time, Calumet and Hecla was operating seven mines in the Calumet area and southern Keweenaw County to the north.

After numerous sessions of heated negotiations, a new working pact with an increased wage scale and greater fringe benefits, along with an expanded pension plan, was finally agreed upon. Burt C. Peterson was president and general manager of Calumet and Hecla. He accepted the new package with its increased costs to the company. However, Peterson announced that for the company to survive under the new contract, it would be necessary to make an immediate reduction in its work force of about 550 employees.

He said:

We are heart sick that the union has forced us to sacrifice these good people. ... It is no secret that for years we have maintained marginal and submarginal mining operations in order to preserve the skills which we hoped would ultimately be used in a full-scale productive effort. We cannot imagine why the union would do a thing like this to the people they claim to represent.

In April of 1968 trouble began to fester on the labor front. Another contract renewal approached. Calumet and Hecla slipped quietly out of the picture. They dealt their entire holdings to Universal Oil Products Company. Universal Oil was a diversified chemical conglomerate headquartered in Des Plaines, Illinois. After the merger had been completed, Calumet and Hecla became the Calumet Division of Universal Oil Products. As such it was just one of Universal's 20 scattered Divisions. Universal's products ran the gamut from aromatic fragrances to air craft seats.

And so, Calumet and Hecla, the giant of the Copper Country, the company that made the Keweenaw the legendary Copper Country of Michigan, became but a name to be remembered. As Calumet and Hecla, it had been the biggest and most powerful of the dozens of copper companies that struggled in this region. It was not the oldest, but without any doubt, it was the richest, and likely it will be remembered the longest.

Universal Oil Product's venture into the Copper Country was a stormy one, as likely they knew it would be. But it is doubtful whether anyone realized what was ahead, that the end of a great copper mining era was in the offing. But it was. It all began on August 21, 1968. A labor-management dispute over wages, fringe benefits, and working conditions came to a head. One thousand defiant workers walked off their jobs. Little did they realize at the time that they would never be going back. Immediately after the walkout, Universal permanently laid off seventy more workers, and the wheels of the only major industry of the Keweenaw ground to a halt.

Although endeavors were made to settle the dispute, Universal and the union failed to reach a mutual agreement on the issues at stake. Universal officials charged the union with failing to give their offer due consideration The union was charged with not negotiating seriously. Universal had offered a contract containing increases in both wages and fringe benefits. They also accused the union of asking for unreasonable demands which if accepted would make it impossible for them to conduct a profitable operation.

Universal tried unsuccessfully for nearly a year to end the strike. They began looking for a partner. A company with experience in mining that could take over and reactivate the mines and facilities of the Calumet Division. They found the Hanna Mining Company of Cleveland a willing prospect. However, it was impossible for them to proceed. A satisfactory termination contract had to be agreed upon between the union and Universal. To this end both Hanna and Universal tried to negotiate with the union, but to no avail. Management failed in all its efforts to settle the strike. In April of 1969 the management of the Calumet Division made an initial announcement. They said that they intended to close its three remaining mines along with the mill and smelter because of the losses suffered during the strike. They stated it had cost the company $325,000 a month since the strike began eight months earlier. Many observers, however, felt that there were also some other reasons. As other mining companies had learned earlier, the Copper Country did not give up its ore easily. In many instances it was far below the surface. The copper content was sometimes low and the cost of processing high. Some fancied that the Calumet Division of Universal Oil was just one of its many divisions. Maybe the parent company was not interested in copper.

At first many refused to believe the company was serious about a complete shutdown. A little later, some 300 supervisory and clerical workers were laid off. Next, the last of the copper products were removed from the smelter and mill. Finally some of the equipment was sold. The skeptics were not so sure.

Meanwhile a group of some fifty Calumet business owners held a public meeting. They hoped to delay the shut down. They wanted the company and union to go back to the bargaining table. Many were pessimistic about the plight of the copper company as well as the general economic conditions in the area. Suffering from the loss of $750,000 in monthly wages, the entire Keweenaw district was experiencing some of the darkest days of its history. Some of the workers succeeded in finding employment elsewhere, a few leaving their families behind, while others pulled up their roots completely. Some were taken in at the White Pine, nearly a 100 miles away, where Copper Range's White Pine mine remained as the only working copper mine in northern Michigan. White Pine buses transported many, making the round trip from Calumet at different times daily.

The Copper Country was economically depressed. It was an area that had seen ghost towns develop around once profitable mines. The possibility of the permanent loss of the Calumet mines was a most depressing thought. About 80 percent of Keweenaw County and perhaps 25 percent of Houghton County had been dependent on these mines. Now they were in jeopardy of permanently losing their jobs.

But not until December 29, 1970 did the end finally come, 28 months after the strike began. And it came when Universal Oil officially announced that it would completely close the mines and halt all pumping operations. The differences between the company and its striking workers affiliated with Local 4312 of the United Mine Workers could not be negotiated. The situation was hopeless.

Reactions to the announcement were mixed. Most were not surprised as many Copper Country people had long suspected the impasse would end this way. Earlier, Peter Baudino, owner of Calumet's Ace Hardware Company, and chairman of the citizen's committee that tried to end the strike declared, "The company is going to make an announcement after Christmas, and I'm afraid what it will be."

A striking employee of the Centennial mine was overwhelmed. Likely he expressed the sentiments of many when he said, "It looks pretty bad. I do not know what to say."

On the other hand, Henry Snabb, president of Local 4312, had rather bluntly stated, They won't close the mines. This is Copper Country, the best in the world. Its been mined for a hundred years now. They won't shut down the pumps. But they did.

In a letter directed to the residents of the copper district, the officials of Universal Oil Products explained their reasons for shutting down the properties. The letter stated that the company had withdrawn its settlement offer in April 1969 after it appeared quite certain that the strike could not be settled. At that time it discontinued all maintenance operations and announced it was seeking a qualified firm to take over the reopening of the mines. It also pointed out that a letter of intent had been obtained in September 1969 with one of the country's leading mining concerns. However, it was unable to meet the condition of settling all outstanding differences with the union. Unable to negotiate a suitable agreement with the union, this letter of intent had been terminated. And finally, came the terse statement that the shutdown was to include the halting of the pumping operations because, "it is impossible for Universal Oil Products to spend additional large sums of money in keeping the property available for operation."

Early in 1971, Universal closed the mines. Far below Calumet, water began to rise in the tunnels of what had been the last of the district's active mines. Water slowly rose from level to level. As the water rose, the chances for the revival of the mines so vital to the economy of this area gradually sank. It seems that the wheels of an industry had ground to a halt. The long strike may have stilled them forever. Such was a bitter blow for the well being of Keweenaw's people. Without the dollars from the red metal to support them, some bleak days were ahead. Indeed, though hard to accept, Michigan's great copper boom had come to its tragic end.

Epilogue

Finding Michigan copper, in mineable quantities, may seem straightforward but it really is not. T. M. Broderick in 1931 characterized exploration this way:

The chances that any new deposits can be found by inspection of surface outcrops now are exceedingly remote. Diamond drilling is the most satisfactory method for determining the general geological conditions. ... (drilling) is not a reliable method of determining copper values, because of the very erratic distribution of metal. The drill may encounter local bunches of copper in a worthless lode; and, on the other hand, in going through ordinary amygdaloid lodes of commercial grade, it is more than likely to miss the copper. Where values are quite uniformly distributed, as in a sandstone or conglomerate ore body, the drill has a better chance to secure a good sample of copper content. ... Underground methods must eventually be employed in any exploration. ... It is apparent that the ore bodies are determined by favorable conditions of a purely local character.

John T. Wilband echoes many of these thoughts saying:

It is unlikely that surface basic prospecting will reveal significant or mineable concentrations of copper. The area has been traversed many times and most outcrops already bear the marks of prospector's hammers. Probably the best chances of discovering more deposits will be from a combination of geochemical, geophysical, and exploration drilling.

A basic factor which thwarts geologists and prospectors is the glacial overburden which may cover up to 98 percent of a 7 1/2 minute quadrangle. The exposures of basalt which dip towards Lake Superior at angles of 70 near the base to 25 near the top of the volcanic pile weather uniformly. The massive, coarser grained interiors form ridges with intervening flow tops and conglomerates in parallel depressions or valleys. It is possible that several large deposits underlie these low areas.

Wilband concludes:
Based on data available from this investigation the Michigan copper resource is estimated to (be) 19,500,000,000 pounds of copper, of this total 12,900,000,000 pounds are from Gogebic, Ontonagon, Houghton and Keeweenaw Counties in Michigan's Keweenaw Peninsula mining district. The remaining resource is from Marquette County. Of this total, Most of the reserves are within the Nonesuch Formation. This does not necessarily reflect the true distribution of copper; it simply reflects the relative ease of estimating reserves within the Nonesuch lode as compared to the native copper lodes. The 1,000,000,000 pounds estimated for these lodes is considered conservative.

It is unlikely that native copper production would ever approach the production levels of bygone years. Nonetheless, the existing properties such as the Kingston mine, portions of the Kearsarge and Osceola amygdaloid mines, the Champion mine at Painesdale, the Caledonia property, and possibly the Quincy mine could provide a modest amount of copper to the domestic requirements with production rates of 500 to 2,000 tons per day per 260 day year. Without new discoveries most of these native copper mine resources would be depleted within 5 years; some could remain in production up to 20 years.

Should the present technology and economic environment improve the existing native copper mines which are deemed rehabitable would require a common mill and smelter facility to be reconstructed. The mill should have a capacity of 10,000 tons per day in the eventuality that at least five or six mines would be brought on line. At current prices, the facility would cost approximately $50,000,000. Smelter costs may be avoided if the ore could be shipped to White Pine's smelter.

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