THE ROMANCE OF COPPER

by

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The earth trembled and cracked. The sky was darkened with dust; vapor, steam and rock fragments spewed from the vent. Paricutin, the new volcano in Mexico? No, quiet followed, the convulsive paroxysms ceased, molten lava oozed, then poured forth, billowed out like gigantic blisters that cooled quickly to fine glassy hardness on. top and were filled with gas pugged froth of molten rock. The tops of the blisters broke up into jagged fragments as the relentless lava flowed on or remained as the pavement over which later lava flowed. Was it Mauna Loa or Kilauea of the Hawaiian Islands? No....No men fled before these lava flows, no animals were overtaken by them, no orchards or fertile fields, no plains of grass were destroyed--or none were there to be destroyed. No sounds of the eruption were heard, no ears were there to hear. No eyes saw what happened, yet the record is clear. Nearly eight hundred million years have passed since it all started in the western part of the Lake Superior region--long before any but, perhaps, the most primitive plants lived in the seas.

Time after time through millions of years, periods of lava flows alternated with periods of earth quiet when wind, weather, rain, streams and waves, tore down the built-up lava flows called trap rock. Rains soaked up the lava dusts, made streams of silty lava muds that flowed down and were deposited on gentle slopes. The lavas were broken up to cobbles, pebbles, and sands that streams carried to the nearby seas--seas made red by the iron ore which was their basin, and the sediments became red. At times the seas were turbulent and rolled and tumbled the lava stones but quieted before grinding them to sand and left a conglomeration of cobbles, pebbles and sand spread along their shores and on the beds of their shallow waters,

At times the seas were quiet, breezes rippled their surface, gently moving the water till it made ripple marks on the bottom sediments. In a long time the undisturbed sediments hardened to rock as other sediments were slowly piled upon them. High up on Brockway Drive in Keweenaw County and in the red rocks along the Ontonagon County shore you can see these ancient ripple marks in the hard rock which prove that it was so. Perhaps at times a desert and not the sea claimed the broken-up lava pebbles; winds rolled and polished them and buried them in sand. For two hundred and fifty million years layer upon layer of flat-lying lavas, dark red to dark brown, green shales made from the lava muds, red and green sandstones, the petrified coarser sediments, and conglomerates made of the cemented lava pebbles were piled up alternately one upon another until their known thickness became 25,000 feet.

But always during their upbuilding, even while waters at the surface, rain, streams and seas, attacked and broke down the surface levels of these rocks and rocks to be, waters from deep within the earth were rising, cracking, and cementing the rocks in a different way and in that ancient time laying the foundation for the achievements of a vigorous inventive people. Hot waters carrying a heavy load of dissolved minerals rose to the surface with the lavas and we're ever rising as the lavas cooled and the sandstones, shales and conglomerates were made. They moved faster than the lavas and when they reached cracks and cavities, no matter how minute, the molecules of water evaporated and dumped their load of silver and copper minerals, pure silver and pure copper metal. Pure copper filled the gas bubble cavities, the amygdules, filled the space around the pebbles and cobbles of the conglomerates like a close fitting cap around a skull. It spread along the cracks in thin leaf sheets and like pressed leaves or masses of twigs, it filled the microscopic spaces with tiny grains of copper and the larger spaces with nuggets and huge masses of pure tough copper. Why were the largest masses of pure copper in the world deposited there?

Unalloyed free silver was left with the copper. Ores of copper were deposited also--the black oxides, blue and green carbonates, green arsenides and others. Copper minerals slowly crystallized to the beautiful malachite, epidote, datolite, chlorastrolite, agates and many others you can find in the dumps of the copper mines or along the beaches and in the perfect crystal specimens taken from the copper mines and placed in museums. Thus were made the rocks of the Copper Country, the Keweenaw formation. So were they filled with copper in veins and lodes in amygdules, the gas holes, and cracks and in grains through the sandstones.

Long eons later more molten rock sought to reach the surface pushing out south and eastward from under the flat lying bed of trap rock, conglomerates, sandstones and shales. It lifted the copper rock from the tip of Keweenaw Peninsula to the Montreal River, high on the Keweenaw, lower to the west. It broke through in a few places. It tipped the trap rocks sharply northwestward and gave us the Porcupine Mountains. Its movement probably caused the copper rocks to buckle downward to form the basin of Lake Superior with the western edges rising in Isle Royale and the eastern edges lifted high along that great crack that cuts diagonally from Bete Grise Bay at the tip of the Keweenaw Point southwestward to the north shore of Lake Gogebic and beyond in Ontonagon County and the other great curving crack at the southerly border of the Porcupines. Thus were the deep seated masses of copper brought within the reach of man.

During the Ice Age the glacier covered these rocks; glacial grooves, scratches and scars tell that tale. When the ice melted it left a great lake which covered even the highest parts of Isle Royale, the Keweenaw and the Porcupines--lake sediments (fertile soil for the potatoes that later helped to save the country), beaches and sand

dunes high above Lake Superior reveal that story. Before the ice came, winds and weather had gnawed at the uplifted Keweenaw rocks, loosened masses of copper, nuggets and slabs; streams carried smaller masses along their courses; glacier and later storm waves or the lake beaches scattered the copper still farther from its source. The ice left. The lakes settled into the Superior and Michigan basins. Vegetation covered the land. Animals came. that's what happened from the tip of Keweenaw Point to the Montreal River, Michigan-Wisconsin boundary line on Isle Royale in those far gone eons.

And then in 500? 600? years ago men came, found the copper pebbles and boulders on Isle Royale ad on the mainland, from Copper Harbor to the Ontonagon River. Who were they? Mound builders? Norsemen? They worked the copper boulders and the copper they found in the face of the cliffs along the great crack. They cut trees, dug pits around the copper, built fires under it and when it was soft and malleable cut it with stone wedges, chisels and hammers made of the hard trap rock. They made hammers and chisels and knives of the copper, some they left behind with discarded copper chips. In one place they dug nine feet into solid rock and worked the copper vein they followed. Some masses were too large to move so they hacked off the jagged edges and left the boulder smooth. Then they went away as mysteriously as they came and the hemlocks and litter and duff of the forest covered but did not obliterate their traces--the pits they dug, the mounds piled near the pits, the stone and copper tools, fragments of wooden bowls, the debris of their mining operations. But no tools of iron have been found.

The Indians came, the Algonquin tribes and the plains Indians. They found the copper boulders and revered them as Manitous. They picked up copper pebbles they found along their beach trails or found as their women dug and planted maize, or dug pits to hide their corn; these they kept wrapped in birch bark and beaver pelts as little Manitous, household gods, in their hogans and wigwams or wore as amulets upon their person. We have no records that they ever worked the copper but they spread copper fragments and pebbles far and wide in the North Central Plains. They told the first Frenchmen who sailed with Cartier up the St. Lawrence of copper to the west, so we find the first record of it published in Paris in 1635 by one “Lagarde”.

Then the white man came to the Lake Superior country and its recorded history began. The intrepid Jesuits, penetrating far into the wilderness of New France as intent on saving souls as their voyageurs were in securing beaver skins, were shown the copper Manitous, saw the pebbles on the shores and beneath the water, heard the tales of the great Manitou at the fork of the Ontonagon, of the islands of copper to the west, and of the vein of “turquoise” in the copper rocks. The only copper they had known before was smelted from the areas of Cornwall and Spain, and perhaps a few tiny nuggets from Hungary. Then Raymbault, Joques, (1641) Mesnard, Allouez, Marquette and Dablan (1660-1670) reported back to Quebec and France of the pure copper and sent as proof the pieces they had found but they sent no record that the Indian mined or worked the metal. Pere Mesnard wrote that he would seek the copper mines--wandered into the woods and was never heard from again. In the middle 1660’s Pere Claude Allouez and Pere James Marquette voyaged along the shores of Lake Superior and made a remarkable accurate map of the whole lake. To them came Awatanick, an Indian, who crossed from Green Bay to Lake Superior and told of finding on the way pure copper as large as one’s fist. Pere Cablan related of the great island Menong to the west and its copper mines (Isle Royale), the huge boulder near the western edge of the lake (the Ontonagon Boulder?) and of the 100-pound chunk the Indian gave him from which he cut pieces he sent to Quebec and France. Probably the first Michigan copper used by the white man was in the crosses, censers, chandeliers, and candlesticks made of it by a Jesuit goldsmith while on a mission at Sault Ste. Marie as related in 1744 by Charlevoix after a voyage through the Lake region.

The fame of the copper that needed no smelting as reported by Capt. Jonathan Carver in 1765 interested in the British when their flag replaced the flag of France over the Northwest territories. Their mines in Cornwall controlled the copper output of the world. In 1770, however, Alexander Henry (who had escaped the massacre at old Fort Mackinac) with the backing of the Duke of Gloucester, the Empress of Russia and others started a copper mining enterprise at that hugh copper boulder, the Indian Manitou, at the forks of the Ontonagon, which has come down in history as the Ontonagon Boulder. The venture was not successful. The miners could not move the boulder nor could they find the vein from which it came after driving 40 feet into the clay bluff near the boulder. They did not know it is an “erratic” moved by the glacier from some other place. But they did report in England that the copper was too far in the wilderness to be properly mined and could never be transported from the region;; the rapids at the Soo barred the way. The first copper mining venture in historical times on the shores of Lake Superior ended in failure. Nevertheless, Captain Jonathan Carver believed mining would be profitable and that the metal could be portaged around the rapids.

Benjamin Franklin knew all this. Paris and London knew more about the inland copper and had seen more of it than Boston or Philadelphia, and Franklin had access to all that information; so when the Articles of Paris were drawn up as the American Revolution ended, Franklin held for the boundary line between the United States and the British possessions to be through the middle of the Great Lakes. This carried the line across Isle Royale to Long Lake. The story goes that as the map was being drawn. Franklin remembered the copper mines of Isle Royale, his pen “slipped”, the line was drawn north of the islands and the treaty signed in 1783 states the boundary is”….. thence through Lake Superior

northward of the Isle Royale and Phillipeaux, to the Long Lake....."

During the administration of President Adams, Congress gave a little thought to its western mineral lands but did nothing. In 1819 General Cass, Governor of the Northwest Territory, proposed an expedition to the sources of the Mississippi and an exploration of the mineral lands of the Superior basin. He asked the Secretary of War for an assistant mineralogist and geologist. Calhoun appointed Henry Rowe Schoolcraft. The expedition started from Detroit in 1829. They visited the Ontonagon Boulder, noted the black copper oxides and spent four days exploring the copper region. Schoolcraft was interested in the minerals but the Indian interested him more and he began to then collect those legends which is friend, Henry Wadsworth Longfellow, enshrined for immortality in the Songs of Hiawatha. But he also made a detailed report to the Secretary of War which by order of the Senate was published in the American Journal of Science--the first scientific account of the geology and mineral value of the Upper Lakes region, the first published notice that the copper region began on Keweenaw Point and that the Ontonagon boulder was not near its parent mass. Schoolcraft was most optimistic about the future of copper mining in the Northwest Territory; but Professor Keating of the University of Pennsylvania who accompanied Major Lang's expedition in 1823, exploring the northern boundary of the United States, reported the copper mines were too far from market, in too wild and unsettled a country and raised the question "what shall we do with it if it should be found?" The small production of Connecticut and Vermont did not interfere with the market. The mines of Cornwall produced all the world needed then for pots and pans, ornamental screens and shipheads. The day of electricity had not yet come.

Cass and Schoolcraft were not disturbed by pessimism, and another expedition was organized. A young doctor and scientist, of Detroit, Douglass Houghton, was Invited by Schoolcraft and appointed by the Secretary of War to accompany the expedition and vaccinate the Indians. Houghton performed his medical duties but Schoolcraft noticed he was far more interested in the geology and resources of the Indian country and wisely decided that Houghton should be given full opportunity for such study. Therefore, the 1832 expedition was mainly along the south shore of Lake Superior. Then it was that Douglass Houghton, during three excursions along the coast and up the streams, found that the copper bearing rocks were in the long narrow strip we know today, that the country was far richer than even Cass and Schoolcraft believed and that pure copper was more important than copper ores. Then he collected the evidence that eventually convinced Lucius Lyon, delegate to Congress from Michigan Territory, of the wisdom of a trade by which Michigan could gain statehood:

--Michigan to accept the proposal of giving up the Toledo strip and settling the boundary line between the States as Ohio wished and in return be given the Chippewa lands from the Meridian of Marquette to the Montreal River. Thus to the unwitting wrath of most of its voters Michigan acquired the richest mineral land in the nation and became a State January 26, 1893.