Statement

In the 1870s a miner's pickaxe hit the ground in search of gold. But the vein it struck spewed forth blood earth, hematite, the rich ore of Minnesota's massive Iron Range. That axe roused a giant from its slumber and there would be no rest in the foreseeable future. Mesabi (Giant) is the name the Ojibwe gave to the Laurentian Divide, an uplifting of colliding tectonics that brought to the surface the vast iron deposits of northeastern Minnesota. From that iron came steel for the girders of proud buildings that reach for the sky, rails that span a country, and the guns, tanks and ships for two world wars in defense of a great nation. All that arose from this enormous deposit of iron ore. Companies came, invested, and needed workers. Europeans saw a grand opportunity, and people from 43 nations came seeking a better life in a land where the streets were paved with gold. They found instead the red dust of hematite. With them came old country crafts, cuisine, customs, culture and ceremonies – religious and secular. Minnesota's mining peaked during the Second World War when up to 85 trainloads a day rumbled to the docks of Lake Superior where the red ore was loaded onto boats, shipped to mills in the east and dumped into fiery blast furnaces.

Visual evidence of this great endeavor, the expansive vermilion pits and stockpiles that run the 100-mile length of the Mesabi, caught my eye. I knew of the Range, but like most Minnesotans I had never visited, nor had much of an idea what really happened here. Like most outsiders I thought the ore had run out, as had the people, and that what remained was economically depressed and physically ravaged. I went to find out – what is this place?

While it was the visual environment that first caught my attention, it is the fantastic people of the Range that most impressed me. A cauldron of forty-three nationalities mixing, in the 1920s there were as many ethnicities on the Range as in New York City. Their heritage remains in food - pasties, porketta and patica – brought by Welsh, Italians and Croatians; and in the music, dance, ceremonies and beliefs that their descendants preserve and cherish. That provided me opportunity to record a vibrant tapestry of faces and cultural landscapes. The portraits

range from high tech mining engineers in their 20s to a retired newspaper editor and musicians in their 90s. From the Native American perspective, there are Ojibwe who watched as the white man took all the majestic virgin pines and ripped holes in the ground. There are towns losing to the mines, and others retaking the pits.

There's truth in the notion that the range isn't what it used to be. The days of rich ore are now gone. The eclectic communities that live the sweat, blood, tears and joys of the Range are being tested. Mining continues, but it's much different. Mining is always a boom and bust business. The halcyon years are over; now the mines yield low-grade taconite and hematite that require high tech processing and employ less than a tenth of the previous work force. And there is the contentious proposed copper nickel mining with it's potential for both jobs and pollution. Finally, there are the evolving opportunities in the arts, tourism, paper, support industries and high tech centers. It's a grand, sprawling story that "Sleeping Giant" tells through a uniquely beautiful landscape and a proud, resilient people.

Vance Gellert.

The Laurentian Divide - The "Sleeping Giant"

The Ojibwe people were the primary Native occupants of northeastern Minnesota when interest in mining in the Range area began in the 1860s. They had come from the east, to avoid the light-skinned race, in accordance with the Seven Fire Prophecies. They were told to go west until they came to the land where food grows on water (wild rice). The Ojibwe called the Laurentian Divide, the upwelling of hard rock that divides water flow of the continent between north and east, Mesabi, meaning "giant." That name is their legacy to the vast iron deposits of the Mesabi Range. The mountains eroded through eons of weathering and glaciers that left much of the ore on the surface of the land. The usual process of treaties and broken treaties led to the expropriation of Native lands for mining.

The first mine operation in Minnesota was a search for gold by the New York Mining Company in 1866. No gold was found. Underground iron mining of the Vermilion range south of Lake Vermilion began shortly thereafter with the first shipment of ore made July 31, 1884.

Northern Minnesota was thoroughly surveyed in the latter part of the 19th century to enable logging the great forests of white and red pine. The area known as the Lost Forty, a section that was listed as being underwater, was never logged. The 350 year-old virgin red and white pines remaining there are among the last. Logging in the rest of Minnesota continued through the early part of the 20th century until virtually every giant virgin pine was cut down.

The Mesabi Range, 100 miles of Hematite

Hematite is oxidized magnetite with a distinctive vermilion red color. The low-grade stockpiles can be seen along Highway 169 from Grand Rapids in the southeast, to Virginia, and then on to Babbitt at the northeastern end of the Mesabi Range. Every town on the range has these piles as part of their vista. Housing developments are springing up along some of the flooded, abandoned mines for the views the pits provide.

“The town became a hole in the ground”

Many towns built near iron mines ended up being swallowed by the ever-expanding mines. Almost the entire town of Hibbing was either moved south or demolished around 1920 for the ravenous shovels of the Oliver mine. It later became the Hull Rust Mahoning mine and for a time was the largest man-made hole in the ground. Only a few buildings on 3rd street remain from the original town. The mining companies financed the move and built a new City Hall in classic style that was later compromised by an interior designer’s less than tasteful artistic vision. The new Hibbing High School built by the companies is magnificent and still arguably the most beautiful high school in the world. The auditorium chandeliers alone cost two million dollars in 1922.

The removal process continues and is evident in the town of Mountain Iron. The US Steel Minntac operation has already bought

a portion of the town and removed the homes from their sites. Russell Smith's father worked for Minntac for 42 years. Russell did too until the economic downturn of the 1980s when he moved to St. Paul for more steady employment. His parents moved from the house in 2002 and later passed on. Russell maintains the house that he figures Minntac will buy up in the next five years.

Support Businesses

A large part of the Iron Range economy comes from support services for those who come to work the mines. Everything is big in taconite mines as efficiency and scale are necessary to make taconite mining and processing profitable. Four-story high shovels are built on site and maintained in massive nearby repair facilities. Trucks that haul the ore from mine to processor are capable of carrying 300 tons of ore. The tires are big (12 feet high), six to a truck. Food, clothing and shelter needed by the miners and their families as well as education, health and religious services further contribute to the economy.

The DuPont building provided power to the company's black powder plant. In 1918 the Hibbing Tribune reported that, "[t]he black powder stored in [a building behind this one], 'let go.' The two victims were blown into atoms. A flash of flame in the sky followed by an explosion was a signal to the other employes [sic] that an accident had occurred. Adjoining powder buildings, all heavily protected, were not damaged." The plant was shut down after this incident because more stable dynamite had supplanted black powder blasting. The irony of it all, and there is much irony on the Range, is that two months after the photograph of the DuPont was taken, the building was demolished as a hazard, even though after the explosion it had stood for 95 years without incident.

With taconite mining, much bigger explosive charges are necessary to break up vast volumes of the granite-hard ore in which the magnetite is trapped. Sections are drilled with 16 inch by 70 feet deep holes, 100 or more per blast site. A charge of TNT is placed in the bottom of each hole as detonator, and then filled with a slurry of fuel oil and fertilizer. Everything is well planned by engineers based on the structure of the rock, volume,

desired rock size and where they want the resulting detritus to land. The muffled boom and slight rattling of china at 1pm on Wednesdays in Hibbing signals the scheduled blast at the HibTac mine north of town. Each year, 175 million pounds of explosives are used on the Range.

Paul Aubin Jr. was nine when he started working in the dark room of his dad's photography shop in 1935. His dad had started the business in 1903. The shop continually expanded, eventually monopolizing the photography and film services of the Range. Paul closed the business in 2010 and moved his voluminous inventory of equipment, films and photographs into every nook and cranny of his home. His massive archive of mining images and film is an invaluable vintage resource.

James J. Hill, magnate of the Great Northern railroads, realized the value of iron ore properties and formed a Trust (Great Northern Iron Ore Properties) began buying up the land in 40-acre parcels starting around 1900. Up until 2015 the trust held 17 percent of the total iron ore properties on the Range. Acquisition of much of the iron-laden land was accomplished through the use of professional squatters called "entry men" who took advantage of the Homestead Act. The Act provided 40- or 160-acre parcels of free land for settlers if they lived on and improved the property for two or five years. Companies wanting the property hired the professionals to do the "homesteading;" they were paid a fee for their service and the land transferred to the companies.

Gary Liubakka is standing in the core library of Great Northern which has soil samples dating from 1892 to the present. The trust for the properties ceased to exist in 2015 and all of the iron ore properties have gone to the Conoco Phillips Company. It was part of the deal when Great Northern Railroads were merged with Burlington to form Burlington Northern (now Burlington Northern Santa Fe), *which is owned by Conoco Phillips.*

Land grant universities in the United States were given land in 40-acre parcels in various parts of the states where the universities are located. The University of Minnesota has 10 percent of its land in the Iron Range, which generates about 80

percent of its land grant revenues through ore royalties. The royalties are based on the weight and purity of the ore coming out of the particular parcel of land on conveyor belts. As one might expect, calibrating these conveyor belt scales is a very big deal. All interested representatives of mining companies, private land-owners, the state, and local communities that have a financial stake in the exact weight, and hence the value of the ore that passes over the conveyor, show up for the calibration.

Arts, Culture, Politics, Food

The mining companies and immigrant workers agreed on one thing, the need for quality education and culture on the Range. The miners wanted to enrich their own and their children's lives, the companies to help attract managers from the east to what was a rather barren land. Bob Dylan gave one of his first public performances with his band, the Golden Chords, in the Hibbing high school auditorium. Half way through his set, school administrators thought they were too loud and cut Dylan's microphone. He left Hibbing and "The Girl of the North Country" as soon as he graduated.

The Slovenian National Home Association opened in 1945 originally to preserve Slovenian culture and heritage. The association has since expanded to celebrate all ethnicities. Due to accessibility problems (people have gotten older and many can't get up the stairs), it hasn't been used much over the past four years. Steps are being taken to get an elevator installed.

Finnish immigrants erected Kaleva Hall as a Temperance Hall, a place for young miners to socialize and meet nice young girls rather than in the rowdier alcohol-soaked bars. Now renovated, it is a cultural and performance center.

The parents of Julie (92) and Paul (94) came from Slovenia in 1912. Like so many others coming to work the mines, they thought the streets would be paved with gold. They found only the red dust of iron ore. They recently celebrated their 70th wedding anniversary, having met and courted in the early 40s. Over their many years the couple combined their musical talents and still regularly perform traditional Slovenian music at a variety of

venues and events.

Andrew Carnegie made his fortune through United States Steel. Most of his company's iron ore came from the Mesabi Range, much of it from Mountain Iron, the first large operating mine on the Mesabi Range. Later Carnegie had a library built there.

Veda Ponikvar, 94, started the Chisholm Free Press in 1947 and was its only publisher and editor over its 50 plus years. It ceased legitimate publication (it's now an advertising circular) with her retirement. Veda was a no-nonsense journalist often referred to as the "Iron Lady" because of her dedication to championing issues she valued. She liked to "lay her cards on the table" and expected the same of others. No one on the Range was elected to public office without her endorsement in the Free Press.

Of the 43 nationalities drawn to the Iron Range seeking their fortune, the Finns represented almost 25 percent. Early on, Finns were activists in organizing the miners seeking better pay and working conditions. Things did improve but not before many of them were blacklisted for their organizing activities and not allowed to work in the mines. The first strike by miners protesting low pay, long arduous workweeks, and poor and dangerous working conditions occurred in 1907. Strikebreakers broke it. Other strikes followed, and eventually miners and other workers became unionized and were able to greatly improve mine working conditions and pay. This was mainly settled with the outbreak of World War Two. The US government ordered the mines to settle with the miners and get on with the business of mining and winning the war/

Sexual harassment was rampant on the range when the mines began hiring women in the late 1970's. Lois Jensen went to work for EvTac mining near Eveleth in 1978. In 1981 she filed a grievance with the company asking that it comply with federal laws on sexual harassment and discrimination by posting guidelines and providing training sessions. For some reason the company refused. They didn't discriminate against women as policy; the wage scale and benefits for women were the same as for men. The unions had gotten weaker and were of no help to her. As Lois put it, when unions

become too big *they* become companies. The case evolved into the first class action sexual harassment suit that was successfully litigated for the plaintiffs. Filed in 1984, it was not resolved until 1998. Lois' story was told in the 2005 film, "North Country" with Charlize Theron portraying Lois.

Pete Kero has the classic Finn features of cherubic face, pleasant blue eyes and shock of hair. He had just completed building his sauna, maybe the best-known Finnish contribution to Minnesota culture. Pete is also an artist working with old wood and car parts to make fish sculptures, like the one seen in the lower right of the photo. In addition to their mining activism and socialist tendencies, the Finns were also adamant that arts and culture should prevail on the Range. Their commitment, along with that of mining companies, which needed arts to placate managers who thought the Range a cultural wasteland, brought excellent cultural programs to the schools.

Concert pianist and music professor Veda Zupancic was born in Aurora Minnesota. Like most Range towns, the Aurora school had an excellent arts program that provided a strong foundation for Veda's music career. To give back and maintain that opportunity for young people of the Range she founded and directs the annual Northern Lights Music Festival. It began with student workshops and recitals and has expanded to faculty and professional presentations including the production of both children's and professional opera. The 2014 production was Carmen with a cast of international opera stars, full costumes and an exceptional orchestra led by an accomplished conductor from Moscow. The world-class production was presented to sold-out audiences in the Aurora, Chisholm and Ely high school auditoriums.

Immigrants brought their cuisine and home country recipes with them. The three dishes the Range is known for are Cornish pasties, a baked pastry filled with meat and vegetables; Italian porketta, a spiced pork roast; and Slovenian potica, a sweet pastry filled with walnut or poppy seed. All brought their home country sausage specialties; most towns had their own meat stores.

Patriotism runs deep on the Range. Coming at the peak of summer's

long days and warm nights, the 4th of July is the major holiday of the year for Range towns. I was told that Eveleth's celebration was the best, mainly because it has become the annual town reunion. Many people who have moved away over the years return for the Fourth; motels in the area are booked up months in advance. The fireworks show during a break in a street dance was so-so, but the Eveleth Clown Band that was the finale of the parade on the morning of the Fourth was outrageously fun. The parade started with 45 minutes of emergency vehicles from all the surrounding towns, plus politicians running for office. Only anticipation of the clown band kept bored spectators on the curb.

Range Prowess in High School Sports

Put powerful miners on skates and give them sticks and you have a sport that manages to stay just this side of brawling. Miners were always known as a tough lot and proud of the reputation. With the lakes of the northland frozen for more than four months a year, hockey prowess on the Range was inevitable. Range schools have claimed many of the Minnesota state hockey championships. A large part of their success was due to mining company financial support that one past player said included everything down to their jock straps.

Twenty miles east of Hibbing is Eveleth, surrounded by mines and home of the hockey Hall of Fame. With ten percent of the inductees (eleven total) being from Eveleth, the town proclaimed itself the Hockey Capital of the United States. Painted on the walls of the Penalty Box Bar is a mural of the Miracle on Ice, the victory of the 1980 United States Olympic Hockey team over the Soviet Union in the semi-finals. The US team went on to beat Finland 4 - 2 for the gold. There were four players on the 1980 team from Iron Range cities: John Harrington, “Buzz” Schneider, Mark Pavelick and Bill Baker.

Bob MacDonald coached the Chisholm Blue Streaks for 53 years and became the winningest coach in Minnesota high school basketball with 1012 victories. He retired in 2014 after leading the team to three state titles during his career.

Mining today - New Faces, New Processes, New Challenges

The high-grade iron ore was mostly depleted by the end of World War II. The white pines had disappeared long before that. The economy has adapted to processing lower grade ore and pulpwood for paper. The low-grade ore stockpiles and tailing ponds that stretch along the length of the Mesabi Range contain 25 – 30 percent iron. They were set aside during the halcyon times of iron mining, when the rich ore could be scooped from the ground and dumped directly into blast furnaces. Eventually two things came together: a rise in the price of iron combined with the development of an efficient process for enriching low-grade ore to high enough concentrations for the furnaces. Taconite ore contains about 40 % magnetite, a magnetic form of iron oxide that can be extracted from pulverized ore with electromagnets. The nonmagnetic reddish hematite of the stockpiles and tailings ponds can be induced with electromagnets to take on a short-term magnetic field so it can then be drawn out with powerful permanent magnets. Al Fritz developed this commercially viable process with a device that he called the ferrous wheel.

Magnetation, a new company developed by Minnesota-born Larry Lehtinen and Al Fritz was incorporated in 2006. It is totally Minnesota owned and operated. Ironically, Larry's grandfather was one of the Finns banned by the mining companies for labor activities in the 1920s. Much of their ore resource (legacy ore) has already been mined and resides in the tailing ponds and stock piles that can be scooped up for beneficiation, as concentrating the ore is called. As a result there are fewer physical mining jobs but more high tech positions, usually degreed engineers, run the processing plant. Since its first processing plant went on line in 2009 Magnetation has hired many young employees trained in the necessary technologies in community schools on the Iron Range and at the University of Minnesota Duluth. However, mining of all sorts has historically been a boom and bust business. Re cent steel dumping by China has caused the price of beneficiated are to drop, forcing Magnetation to close three of its four facilities and file for bankruptcy protection.

The surface mines were holes in the ground. Abandoned after they were exhausted of high-grade ore, they quickly flooded. Some will be pumped out to mine the low-grade hematite remaining in them and

some become housing developments with a view.

A copper-nickel ore deposit in the Range area is claimed to be the largest on the continent. Trace amounts of platinum, palladium, and gold in these deposits are adding value to mining the copper and nickel. The problem is that the deposits are in solid, sulfide-laden rock. When exposed to air and water, sulfides form sulfuric acid that acidifies water tables and also dissolves heavy metals out of the rock and into the water. The Dunka pit, formerly run by LTV Mining, illustrates the problem faced in northern Minnesota if mining of these deposits moves forward. The pit was mined for taconite. It had an overburden of sulfide rock that was broken up and pushed aside to get at the ore. Since this rock was exposed, sulfuric acid has been leaching out of the rock and polluting the water of the pit and is now leaking into nearby creeks and lakes. A purification plant was built to treat the leakage, and much of the overburden has been covered to decrease the leaching. The Native community is concerned that increased acidification could damage their wild rice beds.

PolyMet and Twin Lakes mining companies have applied for mining permits and filed environmental impact evaluations. The proposed mining is near the ecologically sensitive wilderness area of northern Minnesota, the Boundary Waters Canoe Area and Voyageurs National Park. Those concerned about the acid factor of non-ferrous mining contend that mining in this area must be held to high standards to protect the environmental and recreational resource; they're concerned that water purity cannot be maintained over the years. While technology has been developed to help control the problem, it has not been tested over the long period of time (hundreds of years) that the exposed sulfide rock will continue to be a problem

Some geologists have noted that the Duluth Complex rock of which this sulfide ore is composed is much less subject to fracturing so less surface area will be exposed to air and water, and less acid formed. Mining interests have said the mines would create an economic base through taxes, jobs and support industry. Mining has gone on continuously for 125 year in the area and most probably non-ferrous mining will become part of it. If so, time

will tell how the economics and environmental impact of non-ferrous mining actually works out.

Faith and Transition

The St Peter and St Paul Russian Orthodox Church was built in 1917 through donations and the efforts of David Lucachick's grand parents. Dave and his brother oversaw the church's renovation in 2003. Dave's mother Florence died in February 2013 but was not interred until late May due to frozen ground.

Reclamation

Mount Itasca is piled up overburden - dirt and rock that once covered the ore of a nearby pit. Scandinavian miners first formed a ski-jumping club here in 1906. Despite its humble appearance, that is a 70-meter ski jump where Olympic ski jumpers train and go on to win gold.

The Soudan underground mine was operated by US Steel from 1882 until 1962 when the company donated it to the state of Minnesota for a state park. At the bottom of the elevator shaft is level 27 at 2,341 feet below the earth's surface. Turn north and the mine is as it was, with carts and air hammers left in place for tours. Turn south and one enters a high-energy physics lab that was built by the University of Minnesota in 1989 to study proton decay. It is now used to study the mystery of dark matter through high-energy physics. The black octagonal object is a detector of neutrinos that are fired from the Fermi underground nuclear facility in northern Illinois.

On the north side of Virginia, homes are coming back to the edge of the mines for the view. There's more Range irony in this because for years the mines ate the towns. Now its the towns that are creeping back to the precipice.

Most recently, Highway 53, the Range's major connection to Duluth and the Twin Cities will have to be moved because there's mineable taconite beneath it. United Taconite that owns the land on which the highway is built, served notice that it intends to mine in that area. Under a 1960 agreement with the state, the highway has

to be moved within three to seven years. Rerouting 53 will cost $220 million dollars. The alternative would be for the state to buy out the value of the iron located under the highway and right of way. It’s an interesting dilemma. It would cost less to buy out the contract, but then the company would take the money out of state and out of the economy. Building the highway will maintain mining jobs and create additional road construction jobs.