The Many Worlds of District 1
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[Note: This series of articles was written in 2005 - 2006.]

Part I: Fire and Ice

According to Einstein, all time exists simultaneously. The concepts of past, present and future are an illusion. Just as there may be other dimensions of the physical universe that the human mind cannot perceive, so time in its totality stretches beyond our recognition as we wake in the morning, have a first cup of coffee and step out into a landscape we scarcely know, though we may have lived here most of our lives. Or not. The gentle hills of District 1 have seen many denizens come and go.

But if time's passage is an illusion, so are comings and goings. Everything that has ever happened or will happen in District 1 is happening at once. As an analogy, think of Lower Afton Road rolling up from Highway 10-61 at the edge of marshland along Pig's Eye Lake, all the way to the border of Maplewood at McKnight Road, and then on to misty places east. Imagine that you are a tiny creature pattering along the white shoulder line. You observe a minuscule part of the road. That part is real to you. The rest seems hypothetical. Nevertheless, the entire road exists with every step you take, and it exists, all of it simultaneously, whether you can see it or not. Such is the nature of what we call history---in its broadest sense, a narrative of what occurs in time as a dimension of place.

Time past is time present not only in the abstruse world of physics. Time past is also apparent every day as we travel District 1 roads that recently appeared. In the surface of the land, carved into cliffs and hollows as the last glacier receded about 10,000 years ago, physical evidence of its presence surrounds us.

Occasionally, glaciers set down boulders that remain as a testament to the event that put them there. The most recent glacier of the most recent Ice Age---known as the Wisconsin glaciation---occurred during the last 35,000 years. It might have been the one that cut the wide, deep valley between District 1 and downtown St. Paul. In any case, this last glacier left a calling card. It probably left many, but this particular one---a granite rock---drew attention over the course of generations from people who lived in the vicinity before Europeans arrived. They focused on the rock in a legend regarding its provenance and made it a site of ritual and respect.

Red Rock today is an industrial area at the southernmost end of District One. It was named after a frontier community, which in turn was named for the granite boulder that once sat close to the Mississippi, probably on the shore of today's Newport. Dragged through District 1 and left behind tens of thousands of years ago at the very edge of the glacier's reach, the rock was worshiped by the Dakota as the dwelling place of the Great Spirit. Repainted each year in scarlet bands, it became the focal point of an annual thanksgiving ritual celebrated after the harvest. According to the Dakota, the rock they called "Eyah-shaw" [eyah = rock, shaw = red] was sacred because the Great Spirit had entered it and rolled to his chosen spot. Once the Dakota people were dispatched by the U.S. Government to land west of the Mississippi, the two-ton rock---which doesn't look all that large---was repeatedly moved by white men. It now (2005) resides on the lawn of the Newport United Methodist Church, a silent witness to the past in the present.

In the Beginning

Of course, our entire landscape is a silent witness to the past. The earth began as a red hot sea of magma created by the continuous high-speed collision of space rocks gradually clumped together into a ball as the outside surface was dented from all sides. The clump of rocks cooled as the collisions tapered off. The cooling released water vapor. The earth's gas envelope did not entirely dissipate into space, a crucial kindness. It held the water vapor in. The clouds condensed. It rained. The surface cooled further, first in a semi-molten sea, ultimately in a granite crust, layered in plates over a mantle that covered an outer liquid iron core that covered an inner solid iron core. Rain continued to fall, and the surface of the earth was flooded, giving rise to ocean over two thirds of the total area. 4.6 billion years ago---about the same time the rest of the solar system formed---our dynamic sphere came into being as a speck revolving around a medium-sized star in a typical spiral-armed galaxy we call the Milky Way.

The 4.6 billion is approximate. Whenever it began, the layers of the earth's oceanic and continental crusts shuffled and slid against each other, resulting in earthquakes, volcanoes and a constant reshaping of their rocky skins as new mountains rose and previous ones melted away. Today, radioactive dating tells us that little of the original rock remains near the surface, but we can separate what we can reach according to relative age.

Some locales on earth, including ours, formed earlier than others, resulting in the usual advantage of an older resident over the parvenu: the land under District 1 is rock hard, solidified by very high temperatures during the earth's infancy. It has been stable for 2500 million years.

But 2500 million years ago, when our tiny sliver of land became terra firma, it wasn't here. The seven modern continents on today's earth once formed a single, ancient supercontinent. Long after higher forms of life appeared, this supercontinent split along jagged seams, and the resulting parts floated away from each other, dividing the great surrounding ocean into smaller oceans, creating seas, gulfs, and bays as water rushed up against the edges of the new land masses. That was less than 200 million years ago. Our spot, in the middle of one of those drifting continents, was an immigrant in the age of dinosaurs.

The dinosaurs were long gone when our most recent Ice Age began, during the Pleistocene Epoch, roughly two million years ago. Ice is an on-again, off-again affair. At least four times since the molten core of the earth gave up its primordial gases and its crust solidified, precipitous changes in the levels of carbon dioxide in the atmosphere led to plunges in the average temperature, which led to the formation of great sheets of ice in what we now call Canada. In northern climes, when more snow falls in long winters than melts during the summer, reflection of the sun's rays by the snow further lowers the ambient temperature, and new precipitation piles on additional snow, over and over, until the weight compresses the snow into ice. Eventually, in extreme cold, the pressure of successive layers of snow over vast terrain forces the lower ice to flow out in continental glaciers that drift.

Minnesota's last glacier was more than a mile thick. Such massive weight bulldozes the land over which it inches, cutting new valleys or deepening previous ones wherever melting ice, seeking its lowest point, drains into torrential rivers that flow through deposits of rock and sediment. When a glacier recedes, still-solid ice may be trapped in crevices to form new lakes that successive glaciers might bury underground. Rock and sediment left on the surface by one glacier may be worn away by rain and wind or covered by the residue of a subsequent glacier.

District 1's latest great ice invasion came from the northeast and passed over the St. Lawrence River area of eastern Canada, dragging along tons of granite, sandstone, and basalt, much of it ground into glacial till, an unsorted mixture of clay, sand, gravel and boulders. The soil ultimately created---by the combined action of climate, landscape slope, the presence of living organisms, and the effects of time on the parent material---varies greatly in District 1, according to Matt Swanson, District Groundwater Specialist with the Ramsey Soil and Water Conservation District.

In some places, the bedrock is St. Peter Sandstone with very little soil cover. It may even be exposed at the land's surface. As gardeners whose homes line the bluffs above Point Douglas Road know only too well, not all the land in District 1 can be easily turned. In those areas, the clay can be pick-ax hard and filled with rocks the size of pumpkins. Many a District 1 garden plot is outlined by harvested rocks once buried by ancient ice, now part of a landscape that blooms because of black dirt and sand brought by human hand from elsewhere.

Other areas in District 1 hold glacial deposits that are parent material for roughly 50 to 200 feet of soil. The composition of the soil changes even within a small area. Owen Nelson of Ogden Court in Highwood reports pure sand on one part of his property and firm, rocky clay elsewhere. In a creek bed adjacent to his land, where water from a spring somewhere further east carries soil along its path, erosion has brought some rare and wonderful black dirt.

The map below shows the geology of the surface in District 1 according to origin of the rock and soil.

[Surficial Geology Map of District 1 vicinity]