Portage to the Past: Deep History of the Chicagoland Bioregion

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Staring out at the bright lights of the Chicago skyline reflected off the vast black waters of Lake Michigan, a city dweller might find the permanence of the city to be all consuming. It is hard to imagine the city has not always been here. Chicago is a city that is seen as having triumphed over nature. Its namesake river was straightened, channeled and molded to suit the needs of inhabitants, even going so far as to change the direction of its current. The river is exemplary of Chicagoans' relationship with nature. Libby Hill explains (2000), "Chicago owes its existence to the Chicago River, and the river owes its present form to Chicago. Had the convenient but capricious portage between Lake Michigan and the Des Plaines River not been such a short way up the river, so attractively, provocatively close, Chicago would never have developed into the nation's transshipment point" (p.5). To understand the land from which this portentous river was born, we must go far back in time and look at the seismic forces that formed the land and the glaciation that carved it and lent its waters to the lakes and rivers that define this region.

440 million years ago Chicago and the entire Great Lakes region lay under a shallow tropical sea. This vast salt water sea covered most of the continent west of the Appalachians throughout the Silurian period up until about 395 million years ago. The waters were teeming with life such as expansive coral reefs and crustaceans, whose cast off shells were ground into calcium carbonate. This material intermingled with sand and salt formed thick layers of limestone. Overtime, magnesium was added to the mix, replacing the calcium and forming the hard yellow dolomite bedrock, later used to construct iconic buildings such as the Water Tower.

Thousands of years passed and the seas receded. Around 250 million years ago, the tectonic plates shifted, causing the supercontinent Pangaea to divide leaving the North American continent as we know today. The flat, featureless land was molded by forces within the earth.

The land was elevated and tilted so that streams from rainwater and snowmelt could carve out the topography through sedimentary sands, shale and softer limestone; a task later finished by glaciers. The most prominent feature that was formed is the Niagara Escarpment, a 1,000 mile rock ridge that stretches in a serpentine arc around the entire Great Lakes region from Ohio, through Indiana, across the northeast corner of Illinois and following along the bank of Lake Michigan through Wisconsin and Michigan curving through Lake Huron and ending just north of Lake Erie in Ontario, Canada where the great Niagara Falls cascades over the exposed dolomite (Hill, 2000).

The most dramatic of the Ice Ages arrived 650,000 years ago. Ice sheets, as thick as the John Hancock tower is tall blanketed the northern part of Illinois along with 60% of the North American continent (Rogers et al., 1991). By 14,000 years ago the Wisconsin Glacier, the most recent of the glaciers to shape the Midwestern region, began to recede to the northeast. The resulting ice sheets swept up the soft shale (atop the dolomite) and crumbled it beneath them, leaving behind the sandy glacial till that makes up this region's soil. The deposits formed moraines; some of the most prominent are the Valparaiso, an eight-mile stretch of hills to the south in Valparaiso, Indiana and the Tinley ground moraine to the north, under what is now O'Hare International Airport. In the final burst of the recession, the Lake Border moraines were formed. This six-mile feature was the foundation for several northern suburbs including Highland Park, Deerfield and Park Ridge.

The glacier began to melt and pool within the banks created by the moraines. This was the predecessor to the Great Lakes, the prehistoric Lake Chicago. The waters overflowed creating spillways, giving way to Lake Algonquin and eventually Lake Michigan (Hill, 2000). This

crescent shaped flatland between the moraines—the exposed floor of the ancestral Lake Chicago —became the habitat for coniferous vegetation and big game animals.

Around 13,000-11,000 years ago, the glacier receded and mastodons, mammoth, saber tooth tigers, and dire wolves roamed among the black spruce, fir trees, low mosses and tussock sedges. These along with the herbivores such as elk, white-tailed deer, mule, bison and big horned sheep inhabited the land when humanity arrived on the continent from Asia by route of the Bering Land Bridge. Although there is some debate as to whether humans may have preceded the Ice Age in this area, they were certainly well established by 11,500 BP. Archeologists refer to the people of this period as the Clovis. Despite there being a wide distribution of the population throughout North America, all of the Clovis shared the same culture. They hunted the big game of this area using spears tipped with flint points and gathered the roots of plants as the forests shifted from coniferous to deciduous due to a warming climate. Spruce went from being the most abundant species to nearly disappearing. A more diverse forest consisting of three species of pines, balsam firs, a variety of hardwoods such as paper birches, elms and oaks grew in its place. This decline was evident throughout the northern parts of the continent but occurred most quickly in the Midwest. It was so rapid in fact, that it is possible groups of Paleo-Indians witnessed the change within their lifetimes (Pielou, 1992).

From 12,000 BP (10,000 BCE) to 10,000 BP (8,000 BCE) there was a mass extinction. Over fifty species, including much of the big game hunted by the Clovis people, died out either before or during this time period. Some archaeologists speculate that the hunters may have played a role in these extinctions. Others theorize it was due to a loss of prey, environmental change or even disease. Regardless of the cause, numerous species were lost including ground sloths, short-faced skunk, dire wolf, short-faced bear, American lion, saber-toothed cats, giant

beaver, American mastodon and mammoths (Illinois State Museum). Only four species of carnivorous mega-fauna survived. They are the timber wolf, the grizzly bear, the cougar, and the wolverine (Pielou, 1992).

The Archaic period lasted from 10,000 BP to 2,000 BP. The people of this period adjusted their lifestyle to adapt to changes in their environment as the glaciers continued to retreat to the northeast and the climate warmed. The Archaic Paleo-Indians modes of life ranged from hunters, foragers and collectors to harvesters and semi-agriculturalists. Early Archaic people in Southern Illinois did not remain in one place, but instead moved with the seasons, following sources of food. Their small encampments were located on moraine crests and in the uplands. Here white oak, black oak and hickory grew in abundant small forest groves. The ground-stone tools such as drills and chipped-stone tools such as axes utilized by early Archaic people were indicative of their life-style and diet, both of which focused on hunting and gathering of forest resources, primarily white tail deer, elk and raccoon along with plants such as hickory, black walnut, hazel and acorn.

During the Middle and Late Archaic periods the tall-grass prairie replaced the oak-hickory forest as the dominant land cover. Base camps grew in size and the inventory of tools became more diverse now including pottery. Nuts continued to be an easily accessible food source, and wild bean, wild grape and persimmon also started to grow. A diversity of flora and fauna allowed for optimal exploitation and led to more long-term, possibly even year-round, settlement. The lifestyle of the Late Archaic people changed accordingly. They reorganized into larger and more permanent social groups and encouraged the creation of specialized task groups (Brown et al., 2009).

Hunting and gathering cultures such as the Effigy Mound builders continued through the Woodland period until about 950 CE when human subsistence patterns went through a dramatic change. The Oneota cultures, which succeeded the hunter-gathers, focused on intensive agriculture. The Pima-pago species of corn, which spread eastward through Oklahoma and Arkansas and up the Mississippi river arrived from Mexico to Northern Illinois in 100 CE (Blake and Cutler, 2001). The Oneota grew corn and beans (after 1000 CE) and harvested from the wetlands in seasonal homes, moving to winter huts during the bison hunting season. They built sprawling agricultural villages that consisted of long-houses and wigwams. They took advantage of the fertile flood plains of rivers and plowed the land creating extensive ridged field systems constructed and tended with bison scapula hoes (Boszhardt and Theler, 2006).

The culmination of this culture was the Cahokia settlement (located in Cahokia, IL, just south of modern Saint Louis), a city and societal organization on scale with the Mayans and Aztecs in South America. Its population, around 30,000 at its peak was the largest in the North America until Philadelphia in 1850. Mississippians from surrounding villages abandoned their homes to join with the Cahokians. The religious hierarchy of the society led to the construction of a monumental pyramid structure, called Monks Mound, similar to the ones constructed by South American cultures and a wooden hinge not unlike the stone hinges of Europe. (Feuerhelm et al., 2012)

The Cahokians changed their landscape in ways unprecedented by all of the previous inhabitants. The American Bottom's relatively high well-drained land was suitable for growing crops. Their farming complex incorporated the best technology of the time. A chipped-stone hoe blade was used to till the heavily rooted soils of the upland prairie or prairie-forest ecotone, and a diversity of crops planted in both well-drained and poorly-drained soils may have increased the

yield enough to support the burgeoning community. This bounty and its ability to feed so many people was tenuous at best, “The inhabitants of the American Bottom were perched on the cusp between success and failure, and a series of bad years would have been disastrous for them"(Benson et. Al, 2009: p470).

Like many of the great civilizations before them, climatic change might have led to their collapse. According to Benson et al. (2009), “Cahokia's "boom" phase occurred during one of the wettest 50-year periods in the past millennium and that its ‘bust’ phase occurred during a series of intense and persistent droughts (p.467).” Although their diet was supplemented from fish readily available in permanent swamps and lakes, a severe 15-year drought between 1100 and 1245 BCE left Cahokia without an integral part of its subsistence base. Negative PSDI values, a measure of available soil moisture calculated from monthly temperature and precipitation, at the time of Cahokia’s abandonment around 1400 BCE indicate the drought’s impacts on agriculture (Benson et al., 2009).

Mississippian culture was thought to have disappeared, but there is evidence that some of the people moved north to Hanover, IL. In 2003, archaeologist Phil Millhouse from the University of Illinois excavated a site in an area known for occupation by Woodland Indians and two distinct Mississippian traits were found, including a ceremonial mound and pottery created in style of both cultures (Feuerhelm et al., 2012). Perhaps some of these people were the forebearers of the modern tribes.

The Illinois Indians occupied the Chicago region as far back as history records. The Illinois were not comprised of one tribe, but many sub-tribes including the Kaskaskia and the Peoria who inhabited the lands just south of the Lake Michigan. Buffalo roamed along the Des Plaines and Kankakee rivers; they, along with elk and white tailed deer made up a good portion

of the Illinois diet. These animals and the people who pursued them cut trails through the region that eventually became the streets of Chicago (Snyder, 1912). The brother-tribe to the Illinois, the Miami, lived in close proximity to Lake Michigan. In 1690 the Wea band lived in a village located where Chicago now stands. One thing that differentiated the Miami from neighboring tribes was their possession of a soft white corn, remarkably different from the flint corn of their neighbors. It is hypothesized that the Miami had contact with Indians in the Southwest where many varieties of grain had developed (Anson, 2000).

Sometime in July of 1673 French explorers arrived in the Chicago region by way of the Mississippi and Des Plaines rivers. They intended to take the portage that would lead them to the Chicago River and onward to Lake Michigan. This party of seven men, commanded by Father Jacques Marquette and Louis Joliet, were the first Europeans to come to this land.

Marquette described the pristine landscape teeming with life in his accounts of the voyage, "We have seen nothing like this river that we enter, as regards to the fertility of soil, its prairies and woods; its cattle, elk, deer, wildcats, bustards, swans, ducks, parroquets, and even beaver. There are small lakes and rivers. That on which we sailed is wide, deep, and still, for 65 leagues. In the spring and during the part of the summer there is only one portage of half a league" (Greenburg, 2002).

At the time of contact, a distinct ecotone had developed in each of the north-to-south river flood plains including that of the diminutive Chicago River (also the Rock, Fox, and Des Plaines rivers). To the west of each was verdant prairie, which in the spring would be ablaze with colorful flowers and grasses, and in the fall literally blazing as prairie fires started by lightning or native peoples would burn for much of the season. The well-drained land on the west side of the rivers was an upland savanna habitat with scattered groves of fire-resistant trees such as white

oak, bur oak, white ash and hickory. Along the edges of these savannas grew witch hazel, sumac, dogwoods, gooseberry and currant. The fauna described by Marquette along with many others including the woodchuck, gray squirrel, fox, wolf, bobcat, mountain lion and black bear, crow and wild turkey roamed the savannas and woodlands.

To the east of the rivers, there was an entirely different ecosystem. Less fire-resistant trees such as swamp white oak, ash, elm, hickory, black walnut and wild black cherry are protected from the infernos by the river and the low, moist lands. On slight rises maple and basswood could be found among the wetland, and as indicative of an ecotone, bur oak could be found on both sides of the rivers. Here, herons, egrets, swallow-tailed kites, long billed curlews, whooping cranes, and ducks of nearly every variety could be seen. Also near to the river were beaver, otter and marten (Hill, 2000).

Two other ecosystems were predominant, wet prairie, called “sloughs” by early settlers, and the sandy dunes of the lake front. In the sloughs, where it was too wet for trees, stiff low vegetation prevailed such as wild rice, blue flag and cattails. In the dunes on the banks of the lake, cedar, white pine, cottonwood and spreading juniper grew. Near the mouth of the river, in today's downtown Chicago, was an expansive marshland. Because of its connection to the Great Lakes, the Chicago River supported Lake Michigan fish that came up-river to spawn lake sturgeon, walleye and some trout species (Hill, 2000).

The changeable portage that Marquette describes was a tantalizingly short passage that connects the inland sea of Lake Michigan with the waterways of the Des Plaines and Illinois rivers, finally leading to the great Mississippi river. It is to be the cause of much frustration and innovation, and the impetus that started the chain events leading to the City of Big Shoulders.

There between the Chicago River and the Des Plaines was a patch of elevated land that included a muddy pond. Depending on the season—the spring and summer flood waters allowed for easy passage without the necessity of getting out of your boat, but if it were any other time the portage could mean up 13 miles of trudging through mud carrying your boat, cargo and gear (Hill, 2000).

Visions of canals were implanted in the minds of all the men who traveled through the portage starting an irrevocable chain of events leading to the utter transformation of the region. In 1836 before Chicago was even incorporated into a city the Illinois and Michigan Canal construction began as settlers poured in along the North Branch of the river up to Lake County throughout the 1830s. Prairies were plowed. Wet-prairies were drained. The settlement grew into a town, and the town into a city. At each stage of development the river was molded to better suit the needs of Chicagoans (Hill, 2000).

On April 16, 1948, the Illinois and Michigan Canal was officially open, it's construction causing the intermittent reversal of the flow of the South Branch of the river. Shortly after a massive flood in 1836, most likely caused by the limited drainage as the river underwent changes, excavation of clay that created the North Branch Canal and Goose Island began. Later in 1871 the deep cuts into the Niagaran dolomite created the I&M Canal and the rate of reversal of flow for the Main and South branches of the Chicago River was increased. Finally, in 1900, the Sanitary and Ship Canal was built and the flow in Main Stem and South Branch completely reversed. The Chicago River—born of the melt-water of glaciers, carving through the morainal outwash a meandering path in the nearly flat Chicago Lake Plain until it poured out at the sandy, marshy mouth into Lake Michigan, and had done so since prehistory—now flowed the opposite direction toward the Mississippi (Hill, 2000).

Although the river has been changed the spirit of the land lives on. In the forest preserves surrounding the city, the bur oak still grows intermingled with hickory and ash. It is still possible to see a whooping crane standing in the shallow waters of a marsh. It is our legacy to preserve and protect what remains and to do our best to restore what has been destroyed.

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