ENVIRONMENT AND BEHAVIOR IN THE TRANSITION
OF A WISCONSIN COMMUNITY

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INTRODUCTION

This paper analyzes the relationship between the physical environment and human behavior by examining the chronology of this interface from a community’s inception in the mid nineteenth century until 1930. Of particular interest were the several technological modifications which, over time, altered the impact of environmental conditions on human behavior in and around the city of Eau Claire, Wisconsin. There were several changes, dramatic and exceptionally complex. What especially caught our attention was the transition from a community which had to adapt to environmental conditions via limited human technologies to a community which, 80 years later, was a creature of human technologies becoming detached from environmental conditions. To suggest that the transition was akin to moving from “God creating man in his own image” to “man creating God in his own image” overstates the point, but it serves the purpose of alerting the reader to the potential significance of the transition.

While this particular analysis might find aid and comfort in several academic disciplines, it is the authors’ preference that it be accorded recognition in that interdisciplinary realm known as “modernization.” We realize the use of this term could imply that the transition was beneficial because it frequently connotes identification with the developmental values of a twentieth century western type culture, but a caution is in order. Though the term modernization in our present society often suggests an inherent “goodness,” we do not so imply. Instead it is viewed as a mixed dynamic, both a blessing and a curse. In the words of C. E. Black,

“Modern societies, with a greater understanding of their physical and human environment, have a greater capacity for assuring the material welfare of mankind; yet at the same time, they face more complex personal and social problems and possess a greater capacity for violence and destruction”.

The introduction is complete. With the admitted advantage of hindsight, denied those citizens whose fate it was to live these events, we shall proceed.
This study covers the time span from 1946 to 1930 and it constitutes a major transition in the socio-economic growth pattern of Eau Claire, Wisconsin. In order to provide a sense of place relative to the times, a description of the community in 1881 in *The History of Northern Wisconsin* offers a beginning.

"Eau Claire is a rapidly growing and enterprising city situated on both banks of the Chippewa River, about sixty miles from its mouth. The river is navigable to the falls, eleven miles above. It enters the city from the north, having just described in its course a well defined, but reversed letter S, which has been cut across to secure boomaige. The Eau Claire, a stream perhaps one-third the size, arises in the adjoining counties on the east, and, receiving accessions north and south, enters the Chippewa at right angles, near the center of town".

From Eau Claire, the Chippewa River wends its way past several small villages (among them Durand), ultimately flowing into the Mississippi River with such force that it slows the larger stream creating Lake Pepin, 27,813 acres in size. At this point merchandise was transferred from smaller river craft to large river steamers or large rafts for distribution to the growing markets of the middle Mississippi River Valley in the mid nineteenth century.

The reader can readily discern the significance of Lake Pepin, since river travel was the primary transportation system of the Upper Mississippi Valley in the past century. It still remains to explain why Eau Claire was chosen as a point for settlement. In spite of the fact that the Chippewa River is a major watershed for northwestern Wisconsin, in 1850 the stream posed major obstacles to navigation. The river could be navigated to a falls eleven miles above the site of Eau Claire, but only during periods of high water. Consequently, the site offered the best compromise for settlement in that it could be reached under the worst conditions (low water) by the best existing technology (i.e., by keelboat which had sufficient size profitably to transport people and merchandise). Furthermore, the Chippewa River had sufficient water volume to transport small river craft because the Eau Claire River emptied into it in the middle of the proposed site. Whatever resources existed in the two watersheds could be exploited at a point of maximum advantage. The location was therefore logical, albeit mandated by environmental conditions and technological limitations of that era.

There was an external factor too—the growing demands for lumber in the upper midwest. As a result, the city did not gradually evolve from farm to village to city as did so many places at that time. Rather it exploded in the manner of many mining and lumbering communities, in response to pressures from the larger national society. Prior to the development of sawmills, the future site of Eau Claire witnessed only a small French fur trading post in 1784, a small lumbermill north of the area in 1833, and virtually no agricultural development save for a few subsistence farms in the
1840ies⁴. Although the city site had been crossed by a few Indian trails, no major villages were ever located there⁶. The absence of Indian settlement was reinforced in 1825 by the Indian Council held at Prairie du Chien, when the boundary lines were fixed between various tribes, particularly the Sioux and the Chippewa. Because the line ran through the future site of Eau Claire, what had been previously uninhabited became a ‘‘no man’s land.’’ Thus, the white settlement of Eau Claire presented the site with its first permanent human habitation.

II

In the great push westward across the nation, new communities began to flourish along the primary transportation arteries, the rivers. By the 1840ies, frontier communities in the middle Mississippi valley in Illinois, Iowa and Missouri were in search of lumber for construction⁸. Given this demand, the immense white pine forests of the Chippewa River valley offered an obvious attraction. Present estimates indicate that in the early nineteenth century the Chippewa River watershed contained one-sixth of all the white pine west of the Appalachians in the United States⁹. Approximately 86% of the valley was covered with pine forests⁹. In 1880 the U. S. Census estimated that fifteen billion board feet of pine was found in the valley, which constituted more than one-third of Wisconsin’s pine reserves¹¹. The remaining exploitable vegetation consisted of hardwoods such as yellow and white birch, maple, oak, hemlock and several varieties of smaller trees¹².

The congruence of factors, a need for lumber, a transportation artery which linked this need with a rich resource base and the ability to reach the resource via existing technologies (river steamers and keelboats) made the site selection fairly obvious. The list is not complete, however, since some additional factors deserve mention, less significant, but important none the less: (1) at this same time the state of Wisconsin began to wage a vigorous campaign to attract settlers to the area; (2) large tracts of Chippewa pinelands were opened for public sale; (3) capital and management from the depleted eastern timberlands were in search of new areas for exploitation; (4) waterfalls on the Eau Claire River offered sites for generating water power (this should be noted with some caution as a contemporary historian of Eau Claire suggests that it was less significant than earlier accounts would lead one to believe); (5) a large oxbow lake (a previous meander of the Chippewa River) offered an ideal log storage reservoir, in addition to a large meander in the river in the north part of the city known locally as Dells Pond. The pond was eventually dammed and used as a reservoir¹⁳. Were this a statistical factor analysis of the siting of Eau Claire, the congruence of factor loadings would call for a title. With a less quantifiable subject, suffice it to say the site for a future city was compelling.
Attention will now turn to the growth of the community as a center of lumbering activity. Because Eau Claire began to grow at the far northern end of a transportation artery, lines of supply were extremely long and required weeks or months to traverse. The early mills brought into the community were generally constructed in the east, shipped across country by lake steamer to Milwaukee, by rail to Prairie du Chien, by river steamer to the mouth of the Chippewa, reloaded on river keelboats and transported to Eau Claire.14. “With the exception of its indigenous timber resources, the raw frontier of the Wisconsin pineries provided none of the many articles necessary to construct and equip such a mill.”15.

The rapid growth of sawmills and the awkward transportation routes created a number of demands which were initially met by mill owners who found it necessary to begin non-lumbering sidelines. Examples range from farms for provisioning logging camps to grist mills to supply flour to feed the lumberjacks16. Even though the original purpose of such sidelines was to supply logging operations, production frequently exceeded company needs. As a result, company managers allocated time for disposing of the surplus, thus earning additional profits17. Although a few mill owners maintained such sidelines, most discontinued them when food and provisions were available from a growing number of secondary industries in the 1880ies18. This phenomenon deserves some attention since the growth of secondary industries was unique to the time and place of the community’s development. Isolated from sources of supply and sufficiently large to generate business for support industries, Eau Claire began to attract persons who made their livelihood provisioning the mills and lumber camps. In essence, a nineteenth century support threshold was achieved. Again, it should be remembered that environmental conditions (the river transportation system and remoteness from alternate sources of supply) made such secondary industries viable.

Examples of secondary activities reveal the degree of diversification and specialization which evolved. The largest number of firms were engaged in provisioning the “loggers;” woolen mills, soap manufacturers, meat packing companies, breweries, flour mills, grain elevators, food suppliers, shoe manufacturers, broom manufacturers, feed mills, and farmers who sold vegetables, meat and dairy products19. In addition, a number of larger industries engaged in support of the sawmills; construction of mill machines, iron works, construction of sawmills, paper supply companies (ledgerers, record books for mill operations), foundry and machine shops (steam engines, saw blades, mill machinery), and transportation firms20. Finally, some firms involved in making finished products settled in the city because of the availability of raw materials; furniture factories, a trunk factory and mill working firms21. All such activity was logical, given the constraints of time and place, but the reader should give this aspect of the community’s development special note, as the consequences for Eau Claire would eventually outweigh the later vicissitudes.
Having established time, place and activity in the community’s early development, we now direct attention to Eau Claire’s primary role as a center for lumbering activity. It is in this realm that the most dramatic sequence of changes can be found between environment and behavior. In the fall of the year, lumber camps were constructed in the forest and provisioned for the winter. As the ground froze and snow came, lumberjacks worked out of these camps, felling trees and hauling them to the nearby river bank. This activity began in late fall (November) and continued into March, approximately a four month period of mobility in the forest. In the early lumbering period, 1850-1870, logs were skidded singly across the snow to the driving stream. Because of this rather cumbersome method for hauling logs, lumbering operations were confined to the vicinity of the driving stream.

Among the first efforts to avoid this environmental constraint was the improvement of the method of bringing logs to the driving stream. Hauling roads were iced. In time this practice became fairly systematic. Roadways would be cleared in late summer and early fall, and ruts gouged to accommodate sled runners. As the weather turned cold, water was poured over the ruts creating an iced roadway which not only withstood temporary thaws, but was capable of accommodating sled loads which occasionally exceeded one hundred tons. Although the practice was used in some areas as early as the 1870ies, it apparently was not widely employed until the 1880ies. The iced roadways and sled hauling greatly extended operations, although never more than six to seven miles from the driving stream.

Another environmental factor was the logging drive down the Chippewa River and its tributaries. When the streams were free of ice in the spring, logs were released from bank storage into the water and driven downstream. "Inadequate rainfall during the spring driving season destroyed or seriously impaired the drive and caused consternation at the mill where the lack of logs paralyzed milling operations." To overcome the vagaries of spring weather and erratic stream levels, attempts were made to control the flow of the driving stream by constructing a series of dams. This simple technology build up a head of water to refloat and transport logs downstream. The obstacle of the dam itself was handled by directing logs through sluices.

In addition to aiding spring log drives, the dam-sluice structures allowed diversion of logs to reservoirs where they were held in water storage for use by the various mills. (Directing logs to reservoirs was possible because each log carried the "stamp" of the parent mill.) The construction of dams also helped to reduce the danger of floods, which danger was two fold; (1) during a flood, logs were often carried downstream past the mills and (2) a flood of water and logs wrecked havoc, destroying Riverside mills and structures. In fact, during Eau Claire’s history as a logging community,
several floods did severe damage to the town. While the construction of dams did not eliminate floods, it certainly helped to reduce their frequency and severity.

These modifications in logging practice reveal human attempts to reduce the impact of climate and terrain on logging operations. It would appear that the environment maintained the upper hand. In the decade of the 1870ies the balance changed dramatically and a transition began which transformed logging operations and initiated a series of innovations which still pulsate through our contemporary society.

The next major change in lumbering operations was a direct product of human invention. Even though the railroad had begun to replace water and overland transportation systems in the east and was a major factor in transporting materials during the Civil War, its impact was not felt in the Chippewa Valley until 1879. In the spring of that year, the Eau Claire Lumber Company decided to ship lumber to its various markets by railroad, a decision which precipitated a number of modifications in lumber operations. Where previously rough cut lumber was shipped by keelboat and river steamer to markets and there finished for use, to ship such bulk by rail was economically prohibitive. Consequently, the Eau Claire Lumber Company constructed a planing mill. By December 1879, four to five carloads of finished lumber were shipped each day by this one mill to markets in Kansas and Nebraska. By the turn of the century, Eau Claire mills were shipping lumber to markets in Texas, the middle Atlantic states and New England, which was the largest market for top quality lumber and the birthplace of many of the mill owners. But the bulk of the shipments were still concentrated in the middle Mississippi Valley and the Great Plains which had been outside the reach of earlier water based transportation systems. The change was dramatic. Between 1879 and 1900 the transportation changed from water based to 75% rail in the mid 1890ies and 100% rail by the early 20th century.

While the railroad transformed the shipment of lumber to markets, it exerted an even greater influence in the nature of logging operations. Railroad logging began on a modest basis in the 1850ies in New York and Pennsylvania and by the latter quarter of the 19th century this technology spread as far as the state of Michigan. In 1893 the Daniel Shaw Lumber Company shipped twenty carloads of logs to its mill in Eau Claire and it was proclaimed locally that, “the railroad idea has struck Eau Claire.” This announcement, modest in tone, masked a far more profound reality. With the advent of railroad logging, operations were no longer confined to the driving streams and immediate watershed. By the turn of the century the Daniel Shaw Lumber Company had extended logging to within fifteen miles of Lake Superior and the Upper St. Croix River, two entirely different watersheds.

While the initial practice of railroad logging extended the reach of Eau Claire based lumber companies into remote and heretofore uncut
timberlands and made it possible to cut and ship timber for the entire year, instead of just the winter months, by 1900 it was apparent that the white pine forests of the area were virtually depleted. All was not completely lost because the railroad made it possible to begin shipping hardwoods which had previously exceeded the technological capabilities of logging operations. "...The high density of oak, birch and maple made it impossible to float their logs down the stream. Hemlock and basswood would float for a short distance." So the remaining varieties of wood fell prey to the insatiable appetites of the mills. The environmental limits of the Chippewa Valley watershed and the seasonal rhythms of the Wisconsin climate which had ruled the logging industry for forty years were at an end. For better or worse, human interactions with their technologies gained the upper hand and became the central behavioral dynamic.

V

Before examining the shift of the community's economy from its primary to its secondary industrial base, it is helpful to examine the dramatic growth of the community from the inception of the lumbering era until 1930. Although the first two sawmills were erected in 1846 and 1848, the population was quite small at that point in time. The earliest population found by the authors was for 1855 with subsequent growth as follows:

<table>
<thead>
<tr>
<th>Year</th>
<th>Population</th>
</tr>
</thead>
<tbody>
<tr>
<td>1855</td>
<td>110</td>
</tr>
<tr>
<td>1857</td>
<td>600</td>
</tr>
<tr>
<td>1860</td>
<td>2,000</td>
</tr>
<tr>
<td>1870</td>
<td>6,000</td>
</tr>
<tr>
<td>1880</td>
<td>10,000</td>
</tr>
<tr>
<td>1885</td>
<td>21,615</td>
</tr>
<tr>
<td>1890</td>
<td>17,415</td>
</tr>
<tr>
<td>1900</td>
<td>17,517</td>
</tr>
<tr>
<td>1910</td>
<td>18,310</td>
</tr>
<tr>
<td>1920</td>
<td>20,880</td>
</tr>
<tr>
<td>1930</td>
<td>26,287</td>
</tr>
</tbody>
</table>

The above figures graphically illustrate the rapid growth until 1885, when it first became apparent that the once abundant forests would sustain logging for only a few more decades. The sharp drop between 1885 and 1890 and the subsequent slow ascendance to the level of 1930 coincided with the gradual shift in the city's economic base.

A comparable examination of statistics on the yearly amount of board feet of lumber cut, also reveal the growth and decline of the lumber industry in the city. By one estimate, the Chippewa Valley mills were annually producing thirty million board feet of lumber in the mid 1850ies, but this included some mills not in the immediate vicinity of the city. The earliest year for which reliable statistics can be found for Eau Claire is 1873. A few selected years will serve to illustrate how rapid was the growth and decline
of the lumber industry in the city (the figures are for pine cut in millions of board feet)\textsuperscript{42}:

<table>
<thead>
<tr>
<th>Year</th>
<th>Board Feet (Millions)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1873</td>
<td>136.2</td>
</tr>
<tr>
<td>1876</td>
<td>81.6</td>
</tr>
<tr>
<td>1879</td>
<td>165.8</td>
</tr>
<tr>
<td>1882</td>
<td>258.0</td>
</tr>
<tr>
<td>1885</td>
<td>209.6</td>
</tr>
<tr>
<td>1890</td>
<td>200.7</td>
</tr>
<tr>
<td>1895</td>
<td>111.3</td>
</tr>
<tr>
<td>1900</td>
<td>57.1</td>
</tr>
<tr>
<td>1905</td>
<td>3.5</td>
</tr>
</tbody>
</table>

It should be emphasized that these figures represent pine cuts, because in 1905 23.6 million board feet of hemlock also were cut in the city\textsuperscript{43}. Fluctuations in the yearly amount cut are not visible in the above figures, except for 1876. The leaner years resulted from several factors; floods, mill fires, low snow fall in the forest impeding movement—to mention a few\textsuperscript{44}. As is evident, the pine lumber industry reached its peak output in the mid 1880ies and then rapidly declined.

Lumber processed after 1905 was almost entirely from hardwoods, and as late as 1914, twenty million board feet of lumber was cut in the city\textsuperscript{45}. However, the end was in sight. In 1929 the last log was cut in the city by the New Dells Lumber Company. No more timber was available\textsuperscript{46}. The lumber industry had endured in Eau Claire for eighty-four years, and Eau Claire had at one time been the largest sawmill city in the world\textsuperscript{47}.

The exact number of mills which operated in the city is difficult to ascertain, as records are available for only the largest mills. Ownership changed frequently, new mills were built, companies merged and changed names. Also, when mills were sold they frequently acquired new names. In the years 1873-1874 sixteen mills were listed as operating in the city with an annual production of two million board feet or greater\textsuperscript{48}. Figures for smaller mills are not available.

The environmental and socio-economic reasons which made Eau Claire a logical site for logging no longer existed. By the 1890ies the city site determined the nature of logging operations, rather than logging operations determining the site as originally had been the case. Even though the need of a secondary industrial base no longer prevailed (remote location, the nature of the mid nineteenth century river transportation and inaccessibility to alternate sources of supply), the secondary industries were in place and represented a sizeable investment. More importantly, they were flexible. With the decline of the sawmills, the secondary industrial base began to overshadow the primary industries in importance. This particular transition took on new importance and ultimately determined the survival of the social unit.
VI

By the 1880ies various segments of the community's economic and political leadership were aware that they were exhausting the natural resource base upon which the city's economy was built. Vast areas of forest in the Chippewa River watershed had been leveled and no long term efforts were being made to systematically perpetuate the lumber economy for future generations by selective cutting and tree planting. To paraphrase Kenneth Boulding, a "cowboy economy" had developed where production and consumption were characterized by reckless and exploitative behavior. The natural resource "campsite was soiled" and it would soon be time to move on.

During the economic depression of 1886, some people in Eau Claire began to voice a concern about the economic development of the community. Editorials argued the need for a more diversified industry to replace the threatened loss of the sawmills. To accomplish this end the Eau Claire Board of Trade, a voluntary businessmen's organization, was created to foster economic trade. The Common Council of the City of Eau Claire also actively encouraged industrial development. A third device was the Eau Claire Commercial Syndicate, created in 1887.

Of the three groups, the City Council was the most active. For a brief time they engaged in offering financial inducements to firms to locate in the city. For example, in 1882 the City Council granted a bonus of $5,500 to a firm if it would move to Eau Claire, and in the period from June, 1887 through October, 1888, the Council granted $58,000 in bonuses to firms which eventually settled in the city. Although the inducements were abandoned after 1888, the Council had been successful in its efforts.

Among the assortment of individuals who migrated to the area during the lumbering era, several began to function as a viable political unit. The community was sufficiently large that it did not collapse when the main industry began to atrophy, as so often happened in smaller lumbering and mining towns. The efforts to avert economic disaster give some indication of the socio-political identity which had been achieved in forty years.

It is interesting to note that the "town leaders" perceived themselves as members of a viable social unit (Eau Claire). The transition of a conglomeration of human beings migrating to an area to exploit the natural resources into a functioning social organism is fascinating. The attempts to avert economic disaster are indicative of the changes which transpired in forty years.

In addition to attempts to attract new industry, several of the secondary industries began to produce merchandise for which there was a demand outside of the lumber companies. A few examples should illustrate: (1) a company which constructed mills shifted to general contracting, and highway construction; (2) a company supplying paper products to mills and lumber camps shifted to general school supplies; (3) a firm manufacturing...
mill machinery shifted to structural steel for bridge and building construction; (4) the meat packing plants shifted from serving lumber yards to supplying consumer demands and expanding their area of distribution; (5) a grocery supply company became a regional wholesale distributor of groceries; (6) a hardware supply firm began a regional distribution of hardware supplies; (7) a mill machine firm shifted to producing small vehicles; (8) one firm still manufactures sawmill equipment; and (9) the brewery still brews beer.

As might be expected, farming grew, new industries were added and the community became a regional distribution and service center, but the core of the community’s survival centered on the strong and diverse character of its secondary industrial base. Save for a paper mill, virtually no remnant of a lumber culture remained by 1930. The internal transition from a city which grew in response to environmental conditions to a city focused upon human technologies was complete.

CONCLUSIONS

Before the reader challenges our observation that Eau Claire is no longer dependent upon environmental conditions, let us add a disclaimer. The sun still shines, clouds still bring rain and rivers still flood. It is impossible to walk outside on a cold winter day and not be reminded that Eau Claire has long winters. Perhaps not the “nine months of winter and three months of bad sledding” suggested by visitors from warmer climates, but winters none the less. In sum, the environment exists and we acknowledge its influence.

Putting this aside, the city of Eau Claire did experience a profound transition from a world in which the environment played a major role in human behavior to a world based on human technologies which operate in spite of environmental constraints. The forests which might have provided several hundred generations of human use were obliterated in 84 years and will not be resurrected in any manner comparable to their original form.

So much for the past; of importance now is the future. The danger lies in not learning a lesson from what preceded. As we continue to operate in a synthetic world of human technologies irrespective of environmental constraints, we ignore the precarious interdependence with our ecosystem. We are presently at a point where future environmental assaults threaten the quality of our survival and for some sections of the world, threaten survival itself.

While early citizens of Eau Claire may not have realized what they were doing and it may have been a “rough and tumble” spectacular sort of beginning, these early entrepreneurs of the lumbering era were poor forefathers for future generations. Self aggrandizement did something for a few, but little for the quality of life for most persons. To put this observation in a present setting, the rapid consumption of prime farm land for “house, lot and barbeque” enriches a few, provides some housing and
will make it increasingly difficult to feed future generations. Some overall conception of ourselves, as trustees, as interdependent elements of ecosystems, some coherent plan for the quality of life for ourselves and future generations is imperative. Otherwise we can rightly be accused of the sin of pride and having arrogated to ourselves “creating God in our own image.” To quote C. E. Black, “It is the task of modern societies to make the best of their opportunities and to safeguard themselves as best they can against the destructive capabilities of their power.”

NOTATIONS


Personal interviews with Dale Peterson, December 30 and 31, 1967. Mr. Peterson was then candidate for the Ph.D. in history at the University of Minnesota. His dissertation examines lumbering in Eau Claire from its inception to 1885.

14. Ibid., p. 7
15. Ibid., p. 7.
16. Ibid., p. 47.
17. Ibid., pp. 47-50.
18. Ibid., p. 49.
Reynolds, op. cit., p. 141.
22. Reynolds, op. cit., p. 141.
23. Ibid., p. 43.
24. Ibid., pp. 43-44.
25. Ibid., p. 141.
26. Ibid., p. 12.
Barland, op. cit., p. 47.
28. The reader should realize that the sentence leans on poetic license, but it serves to indicate a degree of relationship.
29. Northwestern Lumberman, November 9, 1878, p. 3; April 26, 1879, p. 5.
31. Northwestern Lumberman, August 2, 1879, pp. 2, 5; August 16, 1879, p. 2; September 13, 1879, p. 3; December 20, 1879, p. 6; September 14, 1880, p. 5.
33. Ibid., p. 104.
34. Ibid., p. 59.
37. Ibid., pp. 61-62.
38. Barland, pp. 58, 60.


41. Wisconsin Lumberman, January, 1874.
Northwestern Lumberman, March 18, 1887.
Dale Peterson, op. cit., files for years 1870, 1882.
Barland, Sawdust City, pp. 47-48, for the year 1885.
Northwestern Lumberman, January 24, 1891.
American Lumberman, January 19, 1901, February 24, 1901.

42. American Lumberman, February 24, 1906.

43. Barland, Sawdust City, pp. 36-40.


45. Ibid., p. 338.


47. Wisconsin Lumberman, January, 1874.


50. Eau Claire Daily Free Press, June 18, 1887, June 27, 1887.


52. Eau Calire Weekly Free Press, September 1, 1881.


57. Black, op. cit., p. 34.