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Iowa: Reconstructing the Farm Unit

Abstract

The natural space of Iowa was reinvented in the nineteenth century as a reflection of the rationality of capital production. The product of this rationality was the overlay of a grid system of surveys that indiscriminately subdivided the land—subduing its embodied natural and cultural characteristics.

Disciplines

Architecture

Iowa: Reconstructing the Farm Unit

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Figure 1. Image of Iowa by A. M. Wettach, ca. 1940.

Introduction

The natural space of Iowa was reinvented in the nineteenth century as a reflection of the rationality of capital production. The product of this rationality was the overlay of a grid system of surveys that indiscriminately subdivided the land - subduing its embodied natural and cultural characteristics. The grid provided the structure whereby farms, towns and cities were created to cover the entirety of the state and established a network of agricultural and industrial production. This modern landscape also produced the culture of the family farm, which, until the mid twentieth century, was the dominant production unit in Iowa. In the twenty-first century, Iowa is experiencing significant challenges on social, economic and environmental levels that accentuate the tension between the modern cycles of production and the sustainability of the social and natural environment. Through this course of inquiry, we sought to negotiate this tension by proposing a prototype of spatial regeneration in Iowa that is developed through the proposition of a new type of urbanism based on locally sustainable places that support the production and exchange of food by small-scale farmers. The following discussion is based on investigation conducted by myself in collaboration with Marwan

Ghandour in 2007 and recently in studio while conducting a graduate level case study.

Iowa

Communities in Iowa continuously adapt to changes in the agricultural production processes. Since its start in the nineteenth century, this production process was led by family farmers - a form of farming in which labor is supplied primarily by family members.¹ Family farming has become a consolidated social symbol that Iowans are attached to which is based on a form of independence through private farm property and its production process. This form of independence is also translated through social distance whereby farmsteads are equally spaced across the landscape leaving ample fields between farming families. This sense of spatial and symbolic independence has largely defined the quality of life in Iowa. However, this spatial and federally advocated form of independence was associated with economic dependence on market forces, food industries and federal policies. Given that family farms have been consistently mechanizing and increasing production, the demand for more farmland has also been increasing, which resulted in 'successful' farmers purchasing production ground from other less successful farmers. This has made the family farmer's space unstable as it is consistently under market competition pressure and trends of federal policies. This economic condition has produced spatial and communal instability because it has caused frequent reconfiguration in the living space. The impact of farming development is apparent in the various small towns that were dependant on providing services for the family farmers. The need for these services has been decreasing to a level whereby vacant retail sites along the towns' main street are common. For several decades, these conditions in the farming and small town landscape have economically favored particular practices at the expense of some communities.² It is this form of disparity between social and economic conditions that we wanted to address in this case study. Our main challenge is to create a

condition in which continuous agricultural innovation does not destabilize the social space of communities within Iowa.

The American Landscape of Iowa

Contemporary Iowa is a reflection of strategies that were developed during the late eighteenth century and the nineteenth century, which included methods of quantifying newly acquired land by the United States, ways of representing the land, ways of settling it and incorporating it into national economy. Though they produced the contemporary spatial characteristics of the state and inscribed its political boundaries, the majority of these strategies were developed before Iowa joined the union in 1846. The strategy for settlement offered little recognition of the physical and ecological particularities of the geographic space of Iowa. The landscape was thus quickly and dramatically transformed immediately after its settlement. Although this spatial rationalization marginalized the ecological characteristics of the landscape, it remains symbolically significant because it shaped the lives of generations of Americans that inhabited the state and contributed to its spatial production. Our project addresses this historical dichotomy since it seeks to connect the ecological characteristics, which have environmental and social value, to the characteristics of the modernized landscape, which has symbolic and productive value.

The Township Grid

The 1785 Land Ordinance specified the six-mile township grid as a basis for future land surveys in the United States. This system was primarily employed in the original Northwest Territory that is bounded by the Ohio and Mississippi rivers and was eventually ceded to the United State by the British in the treaty of Paris of 1783.³ Iowa was annexed as a part of the Louisiana Purchase in 1803 and offered a topography that allowed surveyors to inscribe one of the most orderly and complete applications of the system. With the exception of the eastern and western boundaries, most of the land in Iowa is subdivided orthogonally following the six-mile township grid, which, in turn is divided into a one-mile sectional grid. This form of subdivision allowed an even distribution of American and European settlers to inhabit the state who simultaneously turned

the predominantly native prairie landscape into farms and, eventually, towns and cities evenly distributed throughout Iowa. This uniform system of distribution was overlaid on an uneven distribution of natural resources and geographic configuration, which were the main features that shaped pre-American native Indian settlements. Due to the continuous innovation and increasing efficiency in the farming practices, the number of people employed through agriculture in the United States has steadily decreased since 1930.⁴

The Productive Landscape

As mentioned earlier, settlement in Iowa during the nineteenth and twentieth century rapidly erased the pre-American landscape to produce the iconic American landscape of the family farms. Even though family farms were initially autonomous as economic and social units, their current production and farming practices are dependant on the federal government policy and distant food industries. This logistical connection between the 'cellular' family farm economy and the national industrial economy was facilitated through the establishment in the second half of the nineteenth century of an elaborate, largely speculative, railway system which carried the agricultural products of Iowa to Chicago and from there to supply the food industries in the East.⁵ Coupled with the development of crops as industrial raw material, such as livestock feed and most recently alternative energy, this new market dependency lead to the monoculture industrial agriculture of today that is primarily dominated by two crops: corn and soy beans. In addition to mechanization, biological research, and the extensive use of fertilizers and pesticides that have contributed to more efficient methods of production and thus increased yields, federal policy and demand have created a significant increase in the area required for both family and corporate farming operations. Inversely, this increased scale of operation has led to a population decrease in Iowa's farming communities.⁶ Therefore, we seek to focus on the production of spaces that have some resilience to these large-scale industrial operations by creating opportunities for small-scale production operations that are internal to the state and, thus, can be controlled locally. These spaces provide opportunities for a diversified economy and the absorption of the population that is

leaving the farming industry. Most importantly these spaces need to allow for the invention of the community-based family farm as a sustainable unit of production for local food.

Guidelines for Regeneration

It is evident that farmers within the industrial agriculture sector need to periodically reorganize their working space and farming techniques to maximize production rates in order to survive within a market dictated by large scale industries and federal policies of crop subsidies, to which farmers have very little ability to challenge or transform. While these reorganization processes help increase production, they also create an intrinsically unstable space. When production space and living space are thus intertwined, continual reorganization can negatively affect the social stability of communities. In our research we acknowledge the space of industrial agriculture as a space of work that can retain the flexibility necessary for its development and create within it a more locally sustainable place that reinforces communal interaction. Within the family farming era these two spaces, the space of living and the space of industrial agricultural production, were identical which explains the immediate impact that the recent development in agricultural production has had on the sustainability of the living spaces of town and farms. Concurrent with this development in production is the migration of workers out of certain regions in the state where farm sizes are getting bigger⁷ and fewer people are taking on farming as an occupation.⁸ As a response to these conditions, we have developed the following set of guidelines that support a spatial regeneration for Iowa that holds the livelihood of its communities as the main concern without compromising the state's economic competitiveness that is largely determined by the continuous innovation in the agricultural industry.

First, geographically consolidate communities to achieve a critical population that is closely networked without necessarily being spatially dense.

Second, recognize the landscape morphology of Iowa with new patterns of settlement and land-use boundaries. The six-mile grid of the American surveys reduced the sensitivity toward the natural formations of the land of Iowa, which we propose to reverse.

Third, maintain a small cycle of exchange that is centered on reinforcing community relationships. This cycle of exchange needs to co-exist with the industrial larger cycle of exchange.

Fourth, reduce transportation commutes and the energy waste associated with it.

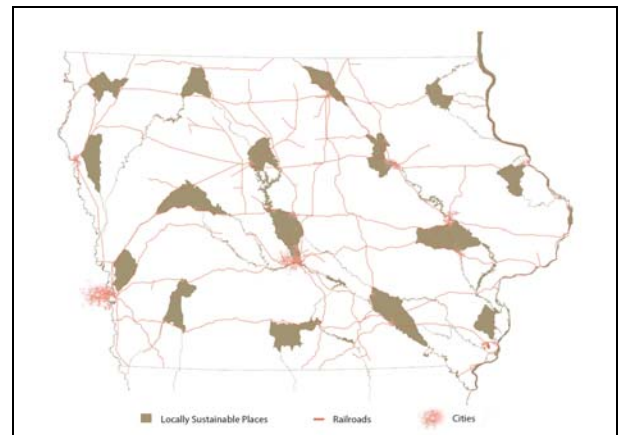


Figure 2. Map of locally sustainable places in Iowa.

Accordingly, we identified sixteen regions in Iowa (figure 2) with specific characteristics that are shaped by landscape formations and social configurations. Outside these regions is Iowa as we know it; a landscape shaped by large industrial operations that will require continuous consolidation due to ongoing industry growth.

Case Study

In the fall of 2008 I conducted a graduate level studio that led to individually developed architectural design projects that explored the relationships between architecture, cultural landscapes and biological issues based on the previous research. With emphasis placed on regional sites in Iowa, our studio concentration focused on the one-mile gap between two towns, Slater and Sheldahl; a socio-economic condition which is representative of the larger scale 'locally sustainable places. Special focus was placed on local food production and distribution – namely: CSA community development. The assignment required the participants to develop a contemporary building program based on their own research and site analysis in effort to develop a plausible land use plan and facility design strategy that would support the practices of an

existing CSA while imagining the gap between the two towns as a 'locally sustainable place.'

The Town that Moved

In early 1874, Sheldahl, Iowa was surveyed and settled on a branch of the Chicago and Northwestern Railroad, approximately eighteen miles north of Des Moines. This township was located between the Skunk and Des Moines rivers at the intersection of Polk, Boone and Story counties. In 1879, the North Western company purchased the rail line. In an effort to construct a line that would join Chicago and Omaha, a survey was conducted. Due to unfavorable topographic features regarding the crossing of both the Des Moines and Skunk rivers, the new line was to be pass by Sheldahl at a point a mile-and-a-half north. Construction of this line and the abandonment of the former was complete in 1883. With the addition of a depot, interlocking plant, and elevator by 1885, the junction had become known as Sheldahl Crossing. With increased economic pressure, the town considered possible growth potential regarding the line to the north. An interested spectator, Mr. Jenks, who held land adjacent to the railroad junction divided part of his farm into city blocks of which a part of this was set aside to serve as a main street for the future municipality. With increased concern of extinction by townsmen and tension regarding the establishment of a new town center, a general meeting was called early in 1887. In this meeting, Jenks offered to give a free lot to each resident that would move his house to Sheldahl Crossing. This discussion also yielded notions about county pride. In the end, the residents in Polk and Boon County remained. Approximately fifty Story county residents of Sheldahl did relocate their family practices and associated buildings to the north by the end of 1888. In May of 1890, the Sheldahl Crossing community was incorporated and renamed Slater. A one-mile gap farmed by tow individuals still remains between the two communities. The abandoned rail line that connects these communities serves now as a rail-to-trails bike path. This system is paralleled by shared sewer services.

CSA Center & Assembly by Sarah Sandor

This proposal seeks to serve as a culinary learning institute and open air market facility for both the Sheldahl and Slater communities

as well as the new local food farm neighborhood. Through an intense onsite survey of the existing Dutch barn at the north end of the site, Sarah Sandor developed a adaptive re-use strategy for the severely dilapidated assembly. Working with the dormant nature of the barn and landscape, Sandor was able to construct a programmatic sequence that would shore up the existing structure and community as a whole. This assembly is to accommodate seasonal exchange and preservation goods produced by the local farmers. Exchange would take place in the 'dormant' areas of the facility (see gray area on plan drawing in figure 3). Preservation would take place in the set of root cellars inserted below the 'dormant' area (see section in figure 3). Dissemination of knowledge regarding harvest, presentation and preservation would take place in the kitchen/seminar space along the western bay of the existing building. The proposal includes a new roof assembly with a series of incisions to provide additional daylight and cross ventilation in the 'dormant' area.



Figure 3. Proposal drawing by Sarah Sandor.

Spring Valley Honey by Lauren Strang

Neither Connie nor Curt Bronneberg envisioned a future in beekeeping, but for the past twenty-one years they have owned and operated Spring Valley Honey Farms. The couple currently lives on an eleven-acre farm near Perry, Iowa, where they extract, process, and package honey collected from their 2,000 honeybee colony.

Strang's experience with the Bronnenbergs lead her to design, on multiple scales, a farm based on the evolutionary spatial efficiency of a honeybee colony referred to as the *Apis mellifera*: from the soil conditions influencing vegetation; the buildings arrangement on the site; the orientation and interior layout of the residence; down to the organization of the kitchen and its corresponding equipment. By allowing the activities occurring in the 'space between' to inform the constructed forms, an acknowledgment is made to the numerous small elements that ultimately defined a larger form and ultimately our comprehension specific to the development of honeybee colonies.



Figure 4. Site plan by Lauren Strang.

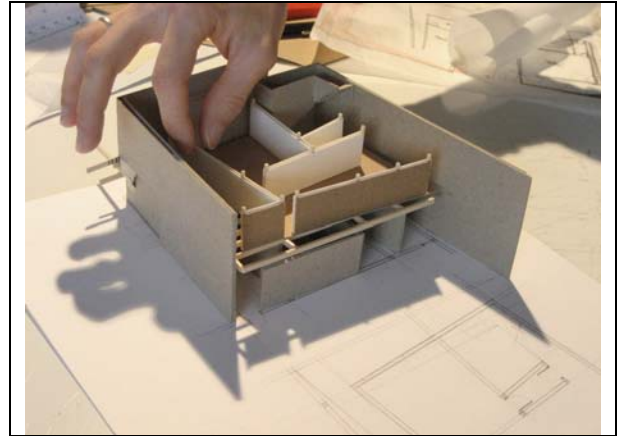


Figure 5. Study model & drawing by Lauren Strang.

Conclusions

Cultural studies are often left untested. The effort to do so with this inquiry was given over graduate students in the second year of study. Our intent in doing so was to attenuate the research through a case study that allowed for varying perspectives by students from a diverse array of educational and geographic backgrounds to apply and question the knowledge and resources particular to the work at hand. The case study served a number of functions, but we suspect its most important may well have been to provide structured trajectory by which to engage the space of Iowa and seek out at-grade knowledge from folks currently operating land. We continue to reflect on the project's real significance specific to the students education, but we recognize that its greatest function may well have been the simple extension of our interdisciplinary perspective, analysis and production that set our subsequent research up well for further exploration and reconstruction of the farm unit specific to the inherited landscape of Iowa.

¹ Sue Headlee defines the family farm as "...a family-owned farm with enough land to support the family and no more land than could be farmed by the labor force of the family." Headlee, S. (1991). *The Political Economy of the Family Farm*. Praeger Publishers, New York. P. 2.

² In the 2006 Iowa Farm and Rural Life Poll, nearly one-half of respondents felt that the economic prospects for rural Iowans will become worse or

much worse in the next five years. Seventy percent of respondents saw new farming technology replacing the need for neighbors' help, thereby potentially contributing to a loss of social connectivity. Only 29 percent of those polled feel their neighborhood is closely knit, down from 37 percent in 1996. Eighty-one percent of respondents felt that neighbors visiting each other have greatly or somewhat declined in the past 10 years. Additionally, 72 percent of respondents felt that rural population loss is more severe in Iowa than nationally. Over 50 percent felt that rural population loss is a moderate or severe problem. Korsching, P.; Lasley, P.; Gruber, T. (2006). *2006 Summary Report, Iowa Farm and Rural Life Poll*, Iowa State University Extension.

³ Joseph W Ernst argues that the township surveying system, "an artificial division of the public lands which ignored the natural features," was refined and perfected through its application in parts of Ohio, Indiana, Michigan and Illinois from its inception in 1785 to 1816. For a full discussion of these surveys see Ernst, J. W. (1979). *With Compass and Chain: Federal Land Surveyors in the Old Northwest, 1785-1816*. New York: Arno Press.

⁴ Farm employment declined dramatically during the twentieth century. In 1930 12.5 million people were employed in the sector while in the 1990s this figure was down to 1.2 million, though the total U.S. population had more than doubled. Conte, C.; Karr, A. (2001). *An Outline of the U.S. Economy*. Prepared for the Department of State and issued by the U.S. Information Agency. <http://usinfo.state.gov/products/pubs/oecon/chap8.htm>.

⁵ "In Comparison with the world of wagons and canalboats that preceded it, the postrailroad landscape would require much higher levels of trade, production, and resource consumption for its own sustenance, let alone its imperatives towards growth. More and more of the Great West would be drawn into that landscape, and more and more of western nature would become priced, capitalized, and mortgaged as the new capitalist geography proliferated." Cronon, W. (1991). *Nature's Metropolis: Chicago and the Great West*. W. W. Norton & Company, New York & London..

⁶ Data from the Agricultural Census shows a decline in the number of farms in Iowa. In 1974, 126,104 farms were recorded while by 2002 this number had declined to 90,655. During the same time period, those reporting their primary occupation as farming dropped from 102,163 in 1974 to 61,935 in 2002. Corporations grew from 2,668 in 1978 to 5,279 in 2002.

⁷ While U.S. Census of Agriculture figures reveal that the average sizes of farms in Iowa are increasing (averaging 350 in 2002, 325 in 1992, 283 in 1982 and 262 in 1974), this is occurring at the differing rates across the state. For example, in 1997 Fremont County in southwest Iowa had an average farm size of 506 acres, the highest in the state. In 1950, this average was 170 acres while in 1990 it was 155 acres. In northern Iowa, Hancock County is one of the few counties in the state that experienced a decline in average farm size at times during the 20th century. In 1900, the average farm size was 205 acres and by 1950 this average had decreased to 177 acres. However, by 1997 the average farm size had increased to 205 acres. Linn County has experienced more stable farm sizes. In 1997, the average farm size was 229 acres, in 1950 it was 124 acres, and in 1900 121 acres. 1997 and 2002 U.S. Census of Agriculture.

⁸ In 1978, 21 percent of agricultural farm operators were under 34 years old. In 1997, this figure had dropped to under 10 percent. Conversely, the age of farm operators has increased. In 1978, just over 10 percent of farm operators were over 65 years. By 1997, 22 percent of farm operators were over 65 years. 1997 U.S. Census of Agriculture.