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This research investigates the relationship between the early mapping and surveys of Iowa in the 19th century and the morphology of the contemporary landscape. A study of the maps of Iowa between 1830's - 1850's was conducted in order to understand the factors that contributed to the quick transformation of the landscape at the time where Iowa was a native territory to become a state within the American Union and the heartland of industrialized agriculture based on family farming. The findings of this historical research became the basis of the AlA funded project, in which a strategy of spatial regeneration for Iowa was developed to address the social, environmental and material waste produced by the demise of family farming and the growing efficiency in industrial agriculture.

Keywords
Mapping, Colonisation, Agriculture, Lebevbre, Iowa

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Comments
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Culture and ecology interface

Production and reproduction of social space in Iowa

Marwan Ghandour
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Abstract

This research investigates the relationship between the early mapping and surveys of Iowa in the 19th century and the morphology of the contemporary landscape. A study of the maps of Iowa between 1830's - 1850's was conducted in order to understand the factors that contributed to the quick transformation of the landscape at the time where Iowa was a native territory to become a state within the American Union and the heartland of industrialized agriculture based on family farming. The findings of this historical research became the basis of the AIA funded project, in which a strategy of spatial regeneration for Iowa was developed to address the social, environmental and material waste produced by the demise of family farming and the growing efficiency in industrial agriculture.

Keywords: Mapping, colonisation, agriculture, Lefebvre, Iowa

For the last ten years, I have been living in two places, Beirut in Lebanon and Ames in Iowa in the United States. Richard Manning argues that part of the oil that is brought from the Middle East, a few thousand kilometers away from Beirut, finds its way into the fields in Iowa as nitrates. However, the only connection I can make between these two places, in my continuous travel between my homes, is the ideas that I carry with me from one place that may shape my actions in the other. This presentation is about the studies I conducted on Iowa, which were instigated by my original shock when I flew over Iowa for the first time in 2003 coming from Beirut; the shock of seeing this seemingly endless grid of squares inscribed in the landscape. Eventually, I would learn that these one-mile squares would typically embody four squared farms of 160 acres each. Within this landscape of squares, several mostly small towns are distributed evenly. Other than the towns and the banks of the major waterways, the Iowa landscape is practically fully occupied with farmland, dedicated predominantly to corn and soya beans. Historically, these farms evolved as family farming units where Farmsteads were spatially and economically independent.

Experiencing it from the ground, it took some time to 'decode' the tectonic and symbolic meaning of the Iowan landscape. The landscape has an overwhelming uniformity with the rhythm of the equally spaced roads and farmsteads and the minor changes in the horizon in accordance to the growth level of corn stalks. This uniformity is broken with tall structures, grain elevator and water tanks, that appear in the distance announcing the towns that are spread within the landscape. Iowa towns are the service centers for the farming operations. The town included the grain elevator where the crop is stored which is connected to the railway system that transported the Iowa crops to Chicago, the Midwestern trade hub that linked the Midwest to food industries in the east and further beyond. These towns provided also the hardware store, the convenience store and the bar. This seemingly rational landscape seemed to be a straightforward illustration of Henri Lefebvre's 'abstract space' which is produced in the image of the capitalist production process. Moreover, these elements of infrastructure acquired a symbolic meaning where for example the train tracks and grain elevators constitute the town gate to Main Street (see figure 1).
In what follows, I will briefly talk about two projects that I conducted in Iowa: the first where I studied the maps of the Midwest that were produced during the first half of the nineteenth century, in order to understand the origin of the rational landscape of Iowa. This is the period that produced the network of family farms and towns of Iowa that replaced the native Indian landscape. The second project, which I conducted with Peter Goche, was entitled 'Guidelines for spatial Regeneration in Iowa' where we engaged ways of generating new maps for Iowa that would address the breakdown of the existing network and imagined possibilities for its future. It is important to note here that in generating these new maps we were testing the limits of Lefebvre's conceived space that professions and governments operate from. We were consciously activating it through the new representations of space that we were producing and the resources we were basing these representations on.

In 'Representation and Spatial Incorporation of Iowa, 19th-20th C,' I wrote "As a production space, Iowa is part of a network of capital flows that resists all forms of locality and historicity; capitalists work on keeping space devoid of symbolic structures to enable its quick transformation and adaptation to abstract and new forms of capital flows." Since the 1970's small town economy has been diminishing due to the increased efficiency of mechanized farming where farms are becoming bigger, required less of the town services and were operated by fewer farmers. I was arguing that this phenomenon is an outcome of the reorganization of production processes that is bound to happen in any industrial operation in order for that operation to remain competitive within a capitalist market.

Furthermore, the network of capital flow I was referring to is one established in the nineteenth century when Iowa became part of the United States. The territories of Iowa were incorporated in the United States as part of the Louisiana Purchase of 1803 when U.S. president Thomas Jefferson bought land west of the Mississippi river from France, at the time when Napoleon was facing financial challenges. Soon after, Americans started making agreements with the native Indian Nations that inhabited these territories to move west. At the same time surveyors were commissioned to survey the land to be distributed for new American migrants coming from the eastern states and Europe. The total transformation happened very quickly between the early 1830's to the early 1850's, all the land was American and fully surveyed. Iowa was admitted into the union in 1846. Within this short period, the landscape of Iowa witnessed a major cultural shift. The landscape changed from a native Indian landscape in which ownership was associated with labor, owning the crops that they farm or the cattle that they hunt, to an American landscape which is full of privately owned farms that follow the geometry of the grid. My argument is that maps played a major role in creating this cultural shift.

The Judson map of 1838 (see figure 2) was produced during the time when surveys were conducted in the eastern part of Iowa. The grid is a result of the land ordinance of 1785 in which it was decided that the surveys of the American territories would be based on the 6x6 mile townships. From the map, one can literally see the township grid extending into Iowa, as did the new settlers, the rest of the landscape was still represented as a continuous environmental system that run across current states and countries, mainly a network of waterways. Throughout the first half of the
nineteenth century new maps of Iowa will be generated, shifting the reference from the environmental systems to the new rational system of the township grid according to which new properties were divided and new comers were settled.⁹

In chapter eleven of his guidebook, 'Iowa as it is in 1855,' Nathan Howe Parker advises the new-comer to Iowa to go directly to the land office accompanied by a surveyor or somebody who knows how to transcribe the hieroglyphs on the map in order to make a good selection of land. The immigrant then 'makes his application to the Register, receives a certificate of application and then presents the same to the receiver... to enter upon and settle these lands is the next thing for the immigrant.' Maps were the central piece of exchange of land in Iowa. Location on the grid and its relationship to the resources represented was the primary knowledge that initiated the migrant into Iowa. One hundred and fifty years later, Iowa looks like its nineteenth century representations. I can only wonder about the daily labor that the people of Iowa put in inscribing the map on the land, and the material and legislative resources invested in its sustainability. As the map signified the political and property boundaries, it also shaped the imagination of the new settlers who literally drew the map on the land through their daily practices.

As mentioned earlier, the system of family farming that was initiated by the implementation of the townships grid has run its course and that Iowa towns were facing economic hardship because they have been losing their role within the evolving production network. Based on this study of nineteenth century maps, the next research project experimented with the production of new maps for Iowa that may address the contemporary changes in the area. Given that we perceived current instability of small town communities to be related to changes in the work process, our study was envisioning a way to allow social stability within the ever-changing industrial landscape of Iowa by addressing:

- Lack of diversity of job opportunities caused by dispersal of communities and farmsteads.
- Economic dependence of the state on federal and industrial policies.
- Waste caused by the disparity between the natural environment and the social/political one.

It was important 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 will provide opportunities for a diversified economy, which may help absorb the population that is leaving the farming industry. Four principles were developed in order to allow the development of zones of locally sustainable places alongside the industrial agricultural zones. The study concluded with construction of a tectonic map of Iowa (figure 3) from which possible scenarios of future developments were introduced for further research.

Figure 3: Tectonic Map of Iowa; Ghandour & Goche, 2008

Elaboration of the four principles follows:

Geographically consolidate communities to achieve a critical population that is closely networked. This is particularly achieved by designating spaces that are not directly affected by the changes in industrial agricultural production. This requires that the economic sustainability of this living space is only partially dependent on the economy of industrial agriculture. While employment in the state will remain connected to agricultural production, these locally sustainable places are not immediately threatened by changes in federal policies or new farming techniques. The sheer population living in these places will allow for a more efficient provision of public services. It will also provide more communal stability given workers can change their jobs within the industrial farming sector without necessarily changing their place of residence. In addition, community consolidation increases the diversity of the local job market where workers have more possibility to change their jobs and remain within their community, a condition which is not easily available within current small town economies.

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 the spatial regeneration proposes to reverse. Two particular land features influenced this proposal. The first feature was the waterway, which was recognized as a line of differentiation that may constitute a spatial boundary. The second feature is the watershed crest area, which was recognized as a prime area to preserve, by limiting
use to minimal land exploitation, in order to preserve the integrity of the watershed system. Within this new spatial configuration, the sectional grid will continue to exist through the property divisions, infrastructural network, and transportation routes. Accordingly, the grid will retain its historical significance but will be incorporated within boundaries that reinforce and preserve the natural cycle of the landscape. One of the major impacts of this principle is the need to dissolve the county system of governance whose boundaries rely solely on the geometry of the grid. As a consequence, a new division of local government would need to be established which adopts the new allocation of spaces as its basis of division.

Maintain a small cycle of exchange that is centered on reinforcing community relationships. Retaining a short cycle of exchange reinforces an economic cycle internal to the state of Iowa, which can be locally administered while the larger scale farming remains directly connected to national and international cycles of exchange. This would be achieved mainly by encouraging organic and community supported agriculture (CSA) within areas of population where the farmer is directly linked to the consumer. Hence, one can ensure that more of what is consumed in Iowa is produced in Iowa. At one level, this reinforces social and economic relationships within communities as well as opens the opportunity for a new type of family farmer to emerge. This new family farmer is closely connected to urban centers and therefore, shares the same social space as his/her customers. The main purpose of this proposal is to create an economic and social condition, which is more resilient and can endure changes in the larger working conditions of the state, hence reinforcing a sense of place centered on communal relationships and local food production.

Reduce transportation commutes and the associated energy waste. Part of the benefits of consolidating communities and reinforcing short cycles of exchange is reducing the travel distance in the transportation of goods for daily consumption, as well as developing strategies to encourage less reliance on private cars as the only form of travel. Current infrastructure can be used more efficiently by encouraging the use of the existing railway system for passenger transportation between the locally sustainable places within the state. One of the main factors in determining the location of these places is to maintain a maximum of 30-40 minutes travel time from the edge of these places and any point in the industrial agricultural territory. With the proposed spatial reconfiguration and the new population concentrations, railway and public transportation become more feasible. Roads circumscribed by large farming operations can be gradually sold back and incorporated in farms hence reducing the overall cost of road maintenance.

Finally, the two studies on Iowa emphasize the key role representations play in the production of space, positioning the producers of such representations in a significant power position in relationship to the social and natural environment. While the first study explains the forms of representation that produced the twentieth century social space in Iowa, the second study continues the cycle by studying the outcome of this production process in order to generate new representations that may trigger alternative cycles of spatial production. The second study also illustrates the need for designers, as producers of representations, to expand their knowledge of the resources and forms of representation given the impact they have in future spatial production.

1 Richard Manning, "The Oil We Eat" in Harsers Magazine. February 2004, 37-45.
7 Nathan Howe Parker, Iowa as it is in 1855 (Chicago: Keen and Lee, 1855).