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Over 5,000 bird's eye views of nineteenth-century North American cities and towns completed between 1820 and 1920. These maps provide an important documentation of the American landscape but have long been overlooked by the cartographic community. Adapting technique from landscape painting, military mapping and cadastral surveying, the bird's eye map makers created one of the most popular mapping formats of the nineteenth-century.

This study focuses on the bird's eye maps of the Midwest and prairie states between 1865 and 1918, which was a tremendous period of change for the entire country. The end of the Civil War changed how the world saw The United States, and how we saw ourselves. Much of this introspection was undoubtedly the result of the influx of thousands of immigrants into the Midwest and prairies and the promise of the American Dream.

This work looks at the cartographic components of 483 maps of the Midwestern Territories and the major artists who developed a profitable niche market within the larger commercial map trade that flourished during the nineteenth-century. They constructed maps rich in the iconography of patriotism and civic pride that were unparalleled in their ability to communicate sense of place. As these maps were carefully constructed graphic displays of local and regional characteristics, it was possible to "deconstruct" the maps into symbols, iconography and text that could be quantitatively studied through a modified version of context analysis. The application of context

analysis to the bird's eye maps proved to be a very useful method of measuring the occurrence of cartographic elements of the map as well as documenting the changes in the maps over time that would eventually transform the message of the map.

Underwritten by railroads, real estate developers, local governments and proud local citizens, these incredibly detailed maps matched the desire of a nation in pursuit of its Manifest Destiny. These portraits of democratic idealism enticed thousands of settlers to the Western Territories. Today they are a seldom tapped repository of spatial and cultural information.

THE CARTOGRAPHY OF HOPES AND DREAMS: THE NINETEENTH—
CENTURY BIRD'S EYE MAPS OF THE MIDWEST
AND PRAIRIE STATES

by

Roberta Williams

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Approved by

Jeffrey C. Patton, Ph.D.
Committee Chair

To Joy Poger, Pat Shaw, June Williams and, Marilyn Williams—my adopted family and my staunch supporters who stuck with me through this entire ordeal. I can't thank you enough.

~~~~~

*This dissertation is dedicated to the memory of my dearest friend, Leanne Williams (1961-2009), who was my rock and support and made me “keep [my] nose to the grindstone.” Our time together was all too short. Of all the people I know, it was you with whom I wanted to share this accomplishment. I sorely wish you were here.*

APPROVAL PAGE

This dissertation has been approved by the following committee of the Faculty of  
The Graduate School at the University of North Carolina at Greensboro

Committee Chair Jeffrey C. Patton, Ph.D.

Committee Members Elisabeth S. Nelson, Ph.D.

D. Gordon Bennett, Ph.D.

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## PREFACE

Maps are a form of magic. They are like the great illusionists who can make things appear and disappear on command; this is the selectivity of map making. They represent reality not as it truly is, but as the map user wishes it to be. Maps are smooth and calculating; they take us from one point to another and can display data by different methods to convince us that the illusion is true. And we accept this truth because “maps do not lie.” They make the past present while making the present the future. The mystery of the map entices us as evidential proof that a place exists and we are drawn to it by curiosity and fascination. This magic is inherent, in one way or the other, in all maps but, perhaps, most easily experienced through the nineteenth-century American bird’s eye maps.

The nineteenth-century bird’s eye maps are uniquely American. They embody a specific time in American history as the nation struggled for an identity while pursuing the philosophy of Manifest Destiny. The maps are particularly good at interpreting the American experience at a time when immigration made a spectacular impact on the nation’s population. According to Meinig (1993) population growth during the nineteenth-century had quadrupled between 1800 (5,306,000) and 1850 (23,192,000) making the settled parts of the nation the most populous in the entire world. By mid-century, settlement had spread to southern Michigan, southern Wisconsin and eastern Iowa. Small towns, created by waves of immigrants, were popular subjects of the bird’s eye map makers. They are full of enthusiasm, confidence and optimism, reflecting newly won national pride that took hold of the country following the Civil War. Maps became a

symbol of nationalism (Schulten, 2002; Brückner, 1999) and the bird's eye maps focused on towns that were microcosms of the national spirit.

The American bird's eye maps were more than symbolic manifestations of national patriotism, however. Because they were unparalleled in showing what a city was like, in many ways they could be considered a type of thematic map that instead of using quantitative data relied more on qualitative data. Boats in the harbors were indications of local and far-reaching trade. Trains crisscrossed the landscape bringing people and goods to the trans-Appalachian territory and prairie states. Factories that billowed smoke suggested a healthy industrial economy and churches, whose steeples reached to the sky hinted at a moral, God-fearing community. The presence of civic buildings such as city halls and jails indicated lawfulness and orderliness. Clean roads and yards presented a sanitized version of the towns. The sun always shined in a blue sky full of wispy clouds and the illusion was complete. Reality, apparently, was truly in the eye of the beholder.

The concept of reality in the field of cartography has been the subject of much debate. What constitutes a cartographic reality? In the case of the bird's eye maps, reality may be best defined by the user's sense of place which is theoretically subject to communal agreement. Therefore, one person's vision of his/her town is actually the culmination of the society's ideals. The role of the community played a large part in the production of the bird's eye maps. Because the map makers were required to walk the streets of the town, they undoubtedly developed an intimate association with the townspeople, which in turn would heavily influence selectivity—what was to be left in

and what was to be left out of the final map. The resulting map is therefore greatly influenced not only by the artist's selectivity, but also by a discriminating society.

Like all great magicians, maps must know their audiences. The bird's eye maps communicated a sense of place to those who lived in a specific town or city, but they also spoke to past, present and future generations of those who lived there. Just as portraits captured the essence of the person being painted, the bird's eye maps created a "portrait" of small town America. They were valued as fine art to be hung in the homes and offices of the town's inhabitants. They were treasured documents that recorded both the physical achievements of town building, and the pioneering spirit that made these achievements possible. They were meant to be handed down to future generations as reminders of the accomplishments of their ancestors. Over time the function of the maps changed and the bird's eye maps were well on their way to becoming commercial marketing tools by the end of the century. Once artistic renditions of civic pride, used to attract immigrants to unsettled territories, the later maps became advertising tools for attracting customers to local businesses.

While the intended use of the maps changed, much of their basic structure remained constant. The over-emphasized road network and tremendous detail are the most prevalent identifying visual elements of the bird's eye maps. The overall impression of the views is of prosperity built upon religious fidelity, the value of universal education, and the importance of a law abiding benevolent community. To create this image, the map legends list churches, schools, cemeteries, civic buildings, asylums and orphanages. While the civic pride which dominated earlier maps is still

evident, in later maps the emphasis on economic prosperity and the utilitarian function of advertising subjugates unbridled idealism. The early immigrants to the Midwest and prairie states saw their version of the American Dream defined in the first bird's eye maps produced of their towns. The bird's eye maps produced towards the end of the century would herald the rise of American consumerism.

Magic is only as good as the magician. Hundreds of men made at least one attempt to create bird's eye maps, but only a handful were able to make successful careers of the trade. Among these men are Albert Ruger, Thaddeus M. Fowler, Henry Wellge, Oakley H. Bailey and his brother Howard H. Bailey, J. J. Stoner (Ruger's partner), Augustus Koch and Lucien R. Burleigh. Although Fowler and O.H. Bailey had the longest careers of any of the bird's eye map makers (both continued their work into the early decades of the twentieth-century), Ruger seems to have made the greatest impact in the field. Through a practiced slight-of-hand, great skill and an intimate knowledge of their audience, these artists produced the bird's eye maps which still cast a spell over cartographic enthusiasts today.

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## CHAPTER I

### INTRODUCTION

The North American bird's eye views were one of the most popular forms of lithographic printing in the nineteenth- and twentieth-century. The maps were similar in subject matter, style and content and appealed to a variety of map users for many different reasons. The railroads used the maps to promote settlement and land sales; city officials purchased copies that hung in government buildings; businessmen displayed them in their shops, perhaps to give credibility to their businesses, and the maps were purchased as fine art to decorate the parlor of the American home. Despite their immense popularity cartographers have virtually ignored the role these maps played in the development of our nation, and their importance in the history of cartography.

Categorized as either "outsider" (small scale) or "insider" (large scale) views over 5,000 maps of North American cities were produced during the nineteenth- and the early years of the twentieth-century. This study has concentrated on 483 insider maps of the American Midwest and prairie states (Figure 1). The maps examined in this study are felt to be particularly representative of what is considered to be the "Golden Age" (1855-1890) of the American bird's eye views. As they were drawn by a small number of artists who seem to share a common beginning and because they all worked within the



**Figure 1. The Study States of the Midwest and Prairie States.** Because of mass immigration into this area and the domination of the railroads as a method of travel and transportation, these states were chosen to be the study area.

established time frame, it is hoped that this study will help to define cartographic similarities and differences between artists and their subjects.

The bird's eye maps were part of the spate of popular maps that were produced after the Civil War. Along with the many types of atlases that were being produced by large printing houses (e.g. World and County Atlases), maps from the great reconnaissance became available to almost any citizen, and many more maps were being published by popular magazines. The bird's eye views were single sheet maps that could

be purchased individually; they were often found in magazines and, interestingly, in the county atlases. Eventually, the bird's eye maps acquired a more commercial purpose and were used as flyers to attract customers to stores and services in the town.

The popularity of the bird's eye views coincided with the end of the Civil War when patriotic fervor was at its highest and immigration forever changed the face of the American nation especially in the Midwest and prairie states. As Americans and newly arrived immigrants settled the frontier, the bird's eye maps reflected the changing American landscape. As commemorative items, they were produced to remind future generations of their roots. Later in the century, the maps were essential to advertising the many goods and services to be found in the city, while demonstrating the prosperity of the newly formed middle class. Although the meaning of the maps changed over time from those that portrayed newly founded towns to those of flourishing cities, the message of the maps remained constant: the bird's eye maps were drawn to exclaim the civic pride of the community at any stage of development. How this was accomplished is a major theme of this dissertation.

### **Research Objectives**

The bird's eye maps are generally overlooked by the cartographic community because they do not appear to follow any of the established cartographic rules. While the graphic nature of the views might obfuscate the cartographic nature of the maps, this study looks at how the bird's eye maps adhere to many cartographic tenets, such as symbolization, generalization, exaggeration and selection.

The iconography and symbology of the maps play a special role in defining the towns and cities of the study area. By using a modified version of content analysis, this study looked at the icons and symbols of each map, as well as specific text that was found in the legend of the maps. This methodology helped to define when specific elements occurred on each map, how many were present and if they corresponded with the appearance of similar elements. By scrutinizing the contents of the bird's eye views, it is hoped that this study will establish a better understand how symbology and iconography helped to define the American sense of place in Victorian America. For instance, it is easy to identify churches on the maps since they are always listed in the legend and because crosses on church steeples appear frequently. If the references to churches change over time and fewer crosses appear, is it possible that there was a change in the number of churches over time as the towns became more urbanized? Does the size of steeple change with time? In addition, it may be possible to determine what aspects of the landscape were seen as worthy of being recorded, which were emphasized, and which were eliminated and what cartographic methods were employed to accomplish this. It is felt that this information will shed light on why these maps were so popular, the purpose of the maps, and their effectiveness.

The message of the maps is often dictated by the cartographer, which is certainly true of the bird's eye maps. However, just as outside influences can manipulate the message, the message of the bird's eye views was also affected by the social and technological changes of the post-War era. New towns, settled by immigrants and Americans alike, quickly sprouted in areas of ordered development and in unsettled

frontier regions. The middle-class that had originated in cities in the east came west to build and staff factories, as well as put their imprint on society, all of which is reflected in the maps and identified by content analysis. The method of printing inexpensive maps on cheap pulp paper made maps more available to the general population at this time as in no other. Americans coveted maps of all sorts, which resulted in the establishment of large printing houses, located mainly in Chicago and Milwaukee. The bird's eye views were a large part of this popular map mapping vogue. As inheritors of the cartographic legacy of previous centuries, it is important to understand how they were affected by modern contributions to map making, and how they managed to carve a niche of their own into cartographic history.

The American bird's eye maps were a part of nineteenth-century popular culture that glorified hard work, the goodness of God and the bounty of the new nation. They reflected that ideology by combining art and cartography into a map that reflected the past and looked forward to the future.

CHAPTER II  
AMERICAN BIRD'S EYE VIEWS—AN OVERVIEW

***Characteristics of the American Bird's Eye Views***

An estimated 5,000 bird's eye views of approximately 2,400 American and Canadian towns and cities were produced by hundreds of map makers from the early nineteenth-century to the turn of the twentieth-century (Reps, 1984). Immensely popular in America, the bird's eye view maps were a unique marketing tool that promoted the settlement of new towns of the expanding west, as well as the growth of prosperous towns in the Midwest. Today they are a unique visual archive documenting American villages, towns and cities. Somewhat underutilized by scholars, they are rich in architectural detail and unparalleled in their ability to transmit a "sense of place." Imbued with the iconography of a growing, increasingly industrialized nation, these maps reflect the historicity of a youthful, rapidly expanding country.

The prototypical bird's eye map is a hand drawn city view from an imagined elevation that suggests the artist was sitting on a nearby hill whose perspective resulted in a high-oblique view of the city or town. In order to replicate the view, objects in the foreground would be drawn at one scale, and objects towards the horizon would be drawn at progressively smaller scales. On most bird's eye view maps the rate of the progressive change in scale of objects that were close to the horizon was artificially controlled so that buildings near the horizon were far larger than would be expected. The result was a sort

of "warping" of the landscape that allowed for a great deal of detail to be drawn even for distant buildings. It is a testament to the skill of the mapmakers that the often severe degree of warping is so readily accepted.

Other attributes of the bird's-eye view maps include a horizon line as well as a clearly defined and labeled road system. A listing of important public and private buildings is usually found in the map's legend and at times, elaborate cartouches as well as vignettes of important buildings create a border around the map.

To focus solely on the artistic merits of these maps without recognizing their cartographic elements would be a grave injustice. Drawn in one-point perspective, the maps have a relatively predictive scale, albeit one that changes with the depth of the image. In order to present the towns in their best light, selectivity was employed by the map makers to emphasize or diminish various elements of the landscape in accordance with the general purpose of the map as either a promotional product or commemorative artifact. As a commercial endeavor map sales clearly influenced what features were to be emphasized. Some features may have been embellished or presented in a "better light" to accommodate those who subscribed to receive a copy of the map, or by a patron who paid an extra fee to have his building included on the map.

The American bird's eye views are perhaps most notable for their portrayal of detail aimed at accentuating the manmade landscape. The prominence of the grid brought order to town life creating residential, commercial and industrial districts as well as social, government and religious space. These zones were typically defined by the meticulously drawn buildings that re-present architectural tastes of nineteenth-century

Americans. Because many of these towns were cleared of trees and shrubbery when they were first settled, homeowners and city officials often attempted to recreate nature within the town or city by planting trees and gardens. On the bird's eye views they often seem to be somewhat mechanical as trees appear to be merely stamped onto the image with very little variation in size or type. However, this recreation of nature serves as mere props to the built townscape that occupies the limelight. The backdrop for this performance is the topography of the physical landscape. Shown with little detail, it is used as a device that draws one's view to the horizon where, by convention, the artist portrays an unending expanse crowned by a blue sky and billowing white clouds drifting across the image.

### *The Artists*

In the early nineteenth-century itinerant artists created American travelogues and collections of picturesque views of the landscape for the European market. Lessons learned in the commercial aspect of marketing these views became part and parcel of the bird's eye view trade a few decades later. One of the earliest bird's eye map makers, Edwin Whitefield, began his career as a landscape artist but, by 1850, he was drawing bird's eye maps of Canadian and American cities. Whitefield's diary is the only existing record regarding the procedures used to advertise, sell and produce urban views. During the Civil War other landscape artists functioned as topographic engineers producing bird's eye views of military encampments and engagements.

Whitefield's diary provides intriguing insight into the business aspects of bird's eye map making. Acting as his own accountant he took scrupulous notes estimating

subscription rates, printing and shipping costs as well as other costs incurred by the artist. “Whitefield was the first lithographic view maker to travel continually and extensively in search of cities to draw” (Reps, 1984, p. 6). His method of sales and travel became the model for the itinerant lifestyle of the bird’s eye map maker. Due to the nomadic nature of his work, he found it necessary to hire sales agents. His agents, B.F. Smith and J.T. Palmatary would often go ahead of Whitefield to promote the artist’s arrival and his artwork by planting promotional ads (probably written by Whitefield himself) in local newspapers. Since these stories were often run as news reports and not as mere advertisement, they were much more effective in promoting the importance of the artist’s work, an effective tool in increasing subscription rates. While we are aware of no existing ad placed by Whitefield, the following ad for J.T. Palmatary’s planned view of Pittsburgh found in the Daily Pittsburgh Gazette from 1859 was undoubtedly typical of this practice.

...we welcome to our city Mr. J. T. Palmatary, who...in connection with Geo F. Schuchman & Co., will shortly publish a “Bird’s Eye View of Pittsburgh, Allegheny, Birmingham, South Pittsburgh, Sligo, Manchester and Lawrenceville.” The view will be similar to those which Mr. P. has already prepared of the cities of New York, Philadelphia, Boston, Cincinnati, Chicago, etc....The view of Pittsburgh will be six feet in length by four in width, and will exhibit to the eye every street, square and lane in the two cities and boroughs, with a correct and life like drawing of every public building, store, manufactory and private dwellings...so minutely described that more than two hundred signs of stores, etc, may be distinctly read...Palmatary is now busily engaged in completing the drawings...The lithography...will be printed in oil colors (Wolf, 2004, p. 33 after the Daily Pittsburgh Gazette 2/22/1859, p. 3).

Whitefield's associates Smith and Palmatary would also go on to become significant urban map makers. While not an apprenticeship in the traditional sense, the practice of agents later becoming artists in their own right was typical within the network of artists, agents, lithographers and publishers creating bird's eye maps. This practice would be extended to include artists becoming lithographers and publishers. Thus was developed an intricate fraternity of individuals responsible for literally thousands of bird's eye views, although Reps lists only 47 individuals who were actively engaged as bird's eye view artists (Reps, 1984).

### ***Cartographic Design and the American Bird's Eye Maps***

American bird's eye maps are highly prized for the historic information they contain, yet they have been largely ignored by cartographers. Reasons for this oversight may be the artistic nature of the bird's eye view, seen by some as more landscape painting than map making, the fact that they were not produced by the major cartographic publishers, and a perception that they were not accurate. Depending on the strictness of the definition of a map, the bird's eye views created in the nineteenth- and early twentieth-centuries could be classified as maps, map-like objects, or landscape views. For this study, they are considered maps as they both function as maps (represent spatial layout and could be used for navigation) and incorporate basic cartographic principles in their construction.

In 1967, Erwin Raisz codified five principles of cartography: scale, generalization, selectivity, symbolization, and emphasis of certain features. Raisz's typology is but one of many schemas that have been created to refine the construction of

the map by transforming visual and quantitative variables between the real world and the map. Roth, et al., (2008) list the typologies of fifteen different authors (including Raisz) that encompasses nineteen different transformations that occur between the real world and the cartographic representation. These vary from those that affect content of the map, such as addition and elimination to those that affect the geometry of the map (merge, simplify, aggregate, etc.) and manipulations that affect symbolization.

Some of the transformations apply only to the representation of quantitative data such as classification and data standardization and therefore were not considered applicable to this study. The difference between the transformations that can be made using quantitative and qualitative data--that are the content of these typologies--has long been a subject of discussion among cartographers. Raisz's work was concerned primarily with the iconic representation of the real world. It is not surprising that the transformations he identified are particularly relevant to the study of the bird's eye views which are also highly iconic. It is important to note that while his list is relatively short, and certainly not inclusive, all of his principles have been incorporated into all other typologies. For this study, Raisz's five principles were utilized as well as the principle of enhancement (sometimes referred to as exaggeration).

In addition to the transformations listed above, Raisz also emphasized the importance of labeling, lettering and map titles, as well as the alignment of the map to grid system of latitude and longitude. While it may not be obvious at first glance, a closer inspection shows that it is easy to see how the bird's eye maps conform to these cartographic directives. Perhaps the most noticeable characteristic of these maps is the

grid upon which the streets and roads were laid. Streets were named and were designed to highlight the business section of the town. They also have scale; while not constant, it changes predictably and at the same rate throughout the map in order to give the illusion of depth. Generalization is a typical attribute of the surrounding landscape, while symbolization was probably a part of the printing process, and the emphasis of selected features was certainly used as a promotional tool. Most of the maps included in this study are titled, and the names of roads and buildings appear on the map. Finally, the most significant cartographic principle used by the bird's eye map makers was selectivity. As commercial marketing tools these maps clearly emphasize local businesses, government and religious buildings usually by exaggerating their size or by relocating the structures to a more prominent position on the page.

Typical of commercial map making during the nineteenth century, pre-eminent space was given to those willing to pay for what can be considered advertising space amidst the background of an urban setting. At the turn of the twentieth century, advertising would eventually dominate the bird's eye maps, relegating the map to playing a supporting role.

### ***American Bird's Eye Maps—A Historical Perspective***

Historians have used bird's eye maps as reference material in restoration projects, archaeological studies, or as primary historic records and artists have studied them for their artistic merit. However, the cartographic community has not adequately studied these maps for their cartographic content or for their contribution to cartographic history. This is an unfortunate oversight as they are a particularly effective thematic

representation of thousands of American and Canadian towns, with wide popular appeal. In addition, as more and more cartographic interest is being focused on the formation of three dimensional views of the urban and physical landscape, through such venues as digital elevation models, Google Earth, etc., there is much the cartographic community may learn from these early bird's eye maps.

The rise of thematic mapping during the nineteenth-century marked a significant progression in the linear advancement of cartography, changing how maps were produced and how they were used. For the first time maps were more than a graphic representation of where places were; they could now illustrate what places were like by graphically depicting quantitative and qualitative data, and the American bird's eye maps were a popular extension of this cartographic revolution.

The bird's eye maps of the nineteenth-century benefited from the advancements in scientific cartography in America. However, instead of utilizing quantitative data, they were rich representations of *qualitative* data such as road names, building identification and location, and cultural transformation of the landscape.

Technological changes of the industrial age greatly influenced map making in the United States, particularly important was the invention of lithographic printing and the introduction of pulp paper. The invention of lithography at the end of the eighteenth century was slow to replace copperplate engraving in Europe, but by 1820, the technique was fully embraced by American printers and, according to Ristow (1975) the printing company of Barnet and Doolittle was the first to use the new technology to publish a map of the Catskill Mountains and the surrounding area. Because of the inclusion of geologic

strata, this map appears to be a combination of planimetric and thematic mapping. "The early years of lithography in America coincided with the period of canal and railroad building that generated a demand for inexpensive maps which was met by the new printing technique" (Ristow, 1975, p.106). The reduction in cost and the use of pulp paper along with the invention of the steam powered press were integral to the widespread use of maps by the general public. In a country whose population had tripled at the half-century mark, these innovations were especially important in the mass marketing of commercial maps and the bird's eye maps became the purveyors of the American dream to small town Americans as well hundreds of thousands of European immigrants.

Historically, the movement of east coast populations westward is attributed to overpopulation of large cities and the promise of affordable farm land. By the middle of the nineteenth-century, the expansion of the railroads not only made the trek westward much easier, but also stimulated settlement along railroad lines. Small towns built by settlers soon began to dot the landscape, and those that thrived did so—as many may have thought—by the grace of God and an American work ethic. Early settlers had much to be proud of and when the bird's eye view salesmen promised a glowing portrait of their hometown, the inhabitants may have thought that the maps were the best way to immortalize what they had accomplished.

The bird's eye views no doubt presented a view of small town America that appealed to the townspeople, even if they were not totally accurate. The roads were clean, smooth and laid out in a grid pattern that was easily discernable giving order to the

frontier. Civic buildings such as court houses, hospitals and even jails reinforced the idea of a structured society; church spires soared to heaven. Features that were considered to be less than pristine (such as outhouses and wood sheds) were usually not included. The sun was always shining on the horizon; the presence of numerous boats on waterways, as well as trains blowing smoke as they hurried to their destinations, were all indications of economic stability, prosperity and God's blessing on what Americans could achieve.

If the urban bird's eye maps represented the "American dream" to those who had participated in its founding, they must have appeared as visions of utopia to European and American immigrants who sought to escape large, increasingly industrialized cities for the promise of land in the American west. Land speculation by both private firms and federally subsidized railroads was on the rise and the graphic presentation of small town America made marketing real estate a natural function of the bird's eye view maps.

### **Summary**

While the cartographic elements of the bird's eye view maps may define them as notable participants in the history of cartography, it is perhaps the message that they convey which makes them even more worthy of investigation. If the rise of geography and cartography in the nineteenth century unified America (Schulten, 2001; Patton, 1999), then the bird's eye maps helped to define what it meant to be an American. These maps were indeed icons in that they represented both space and place, but perhaps more importantly they were visualizations of the American heart and soul at a time when expansionism was redefining the American spirit and industrialization was recreating the American city. As the nation moved westward, small towns grew along the migration

routes and most importantly with the railroads. These towns were fashioned by the pioneers who created their homes where none had been before. The citizens of these small towns were extremely patriotic and civic pride played a large part in the creation and publication of the American bird's eye maps. These urban views presented a view of a place where people could settle, raise a family and hand down their heritage to successive generations.

The nineteenth-century American bird's eye maps established a niche in commercial cartography because of their versatility and popularity. Whether utilized by private citizens as parlor decorations, by merchants to promote business, or by local government officials to demonstrate civic pride, these maps reverberate with American idealism that would eventually redefine the American sense of place in the industrial age.

### CHAPTER III

#### LITERATURE REVIEW

At the beginning of the nineteenth-century, scientific societies and government-sponsored surveys were organized to pursue a more scholarly and scientific exploration of the "New World." Many intrepid explorers, armed with new quantitative methodologies, such as statistics, new measurement technologies and instrumentation, journeyed to exotic lands in order to satisfy the European intelligentsia's obsession with the scientific understanding of the natural world.

In America, cartographers accompanied government sponsored surveys of the Western Territories and produced maps that projected the perception of order onto the vast wilderness. No longer considered to be secret government documents, these maps were made available to the general public, providing the fuel for commercial and political expansion, supporting America's belief in its "Manifest Destiny."

For nineteenth-century Americans the national map was the embodiment of an awakening nationalism. The United States was a growing political entity and, heralding the country's growth as a major political and economic power, the national map became a symbol of American unity (Brückner, 1999; Edney, 1994; Shulten, 2002).

### **The Role of Printing and Mass Marketing in Developing a Sense of Place**

As the nineteenth century progressed, cultural and technological change would forever alter the American perception of geography and the role that maps played in the achievement of American nationalism. One such change was that educators, rather than government agencies, became the authority by which geographic knowledge was taught and disseminated (Patton, 1999). According to Susan Shulten (2002), Americans tended to focus on the geography of their own country in the early years of the nineteenth-century. Because universal education was mandatory, geographic schoolbooks and accompanying atlases could be found in most American homes. At the turn of the century, world atlases produced by copperplate engraving were expensive and affordable only to the wealthy, but with changes in printing technology, especially the invention of wax engraving, world atlases would eventually become an essential item of the American parlor.

Invented around the middle of the nineteenth-century, the process of wax engraving was particularly useful for printing maps with text (instead of in a separate atlas) and was successfully used to print geography texts and atlases (Woodward, 1977). Because engravings held up well under pressure and repeated use, it was particularly adaptable to steam powered printing and was flexible enough to allow an abundant use of place names, which is characteristic of atlases at the end of the nineteenth-century (Schulten, 2002). All of this led to the production of inexpensive atlases containing a wealth of information. Their price and content made the atlas accessible to almost anyone who desired one.

According to Woodward, “Wax engraving found much wider use in the United States than in any other country...the technique appeared on the scene in time to serve the needs of the rapidly growing mass market for popular maps in guidebooks, encyclopedias, school and family atlases, railroad timetables, and so on” (Woodward, pp. 23-24). Serving the needs of retailers, educators and the newly created middle class, this genre of commercially available maps rapidly became a staple of American society. It was within this environment of mercantile cartography that county atlases, bird's eye maps and, to a certain extent, the fire insurance maps found their niche by serving the needs of a smaller, more discrete audience of businessmen, civic leaders and the American public. However, it appears that lithography rather than wax engraving was the preferred printing technology for these more specialized maps.

### **Lithography and American Maps**

Arthur Robinson (1975) states that “...of much greater importance in the evolution of mapmaking and map printing was the introduction early in the nineteenth century of the planar or surface printing method of lithography” (p. 14). Invented in Europe during the waning years of the eighteenth century, lithography slowly replaced the preferred method of copperplate printing in Europe, but found widespread acceptance in America by the 1820s (Ristow, 1975). The technique involves transferring an image directly from a smooth surface (such as stone) to paper, an improvement over woodcut, which involved printing from a raised surface, or copperplate printing using an engraved surface (Ristow, 1975). By using the lithographic method, the fine detail work of copperplate engraving could be more easily achieved; the invention of the steam powered

press improved productivity, and the use of pulp paper made niche-market maps and atlases both inexpensive and widely available.

### *Mapping Nineteenth-Century America*

The diversity of maps produced in nineteenth-century America reflects the tremendous growth and change that would eventually define the country as an industrial and political power on the world stage. Chief among these maps were transportation maps (railroad timetables, bicycle routes, and to a lesser extent, automobile navigation), landownership maps (plat maps and county atlases), fire insurance maps, and urban bird's eye views.

Because the amount of information contained within these maps is both rich and varied, researchers can pick and choose a combination of map types that would best display data to support their hypotheses. For example, David Patton, *et al.*, (2005) chose to look at plat maps, fire insurance maps (Sanborn maps) and bird's eye maps in order to understand how different variables (i.e., level of coverage, map scale, and perspective) are utilized by each map and how these variables defined sense of place in nineteenth- and twentieth-century Michigan. Each type of map was found to have its own rewards and drawbacks. According to the author, plat maps provided the best geographic coverage as they are legal documentation and “exist for every city and town and for every part of every city and town” (p. 114). Because of their completeness and continuous temporal coverage, they were also thought to be the best research tool to recreate the spatial extent of a city (Patton, 2005). “Sanborn maps are the most consistent in scale” (p. 117), but bird's eye maps give the greatest information in architectural detail and in

providing a better sense of place. Examined together, the plat, Sanborn and bird's eye maps each make a unique contribution to the historical story of a city or town. "Plats provide a sequence of events, fire-insurance maps provide an inventory of activities, and panoramic views [bird's eye maps] provide the look and feel of a particular place in a particular time" (p. 120).

The graphic documentation of landownership is perhaps the unifying thread that binds the plat, fire insurance and bird's eye maps to each other. These are not, however, the only type of commercially available landownership maps. Large scale, county-level maps and atlases, popular in Canada and The United States, were particularly effective in displaying rural settlement patterns and local geography across North America. The county atlas, in particular, flourished during the second half of the nineteenth-century and like the bird's eye maps they were both sold by subscription and printed using the lithographic technique. In addition, the atlas would occasionally include bird's eye views of urban developments when available. County atlases have received far greater interest by historians and cartographers due in great part to the fact that family names were recorded on the land parcels making them a widely used tool of those interested in genealogy.

### **County Atlases**

In his examination of rural landownership mapping, Michael Conzen (1984) traces the historical development of the county maps and atlases from their beginnings as "design experiments in copperplate" in 1814 to their use as plat books at the turn of the

twentieth-century ( p. 10). He estimates that 5,000 of these maps/atlas were published during this time (Conzen, 1990).

In their initial stages of production, the county atlas maps were drawn "by surveyors...trained or self-taught in an era when surveying still included and valued artistic creativity" (Conzen, 1990, p. 187). To map the county, surveyors used a wheeled odometer that was less accurate than the compass and chain method used by the government, but was economical since the odometer required only one person to do the work (Murray, 1991). "The circumference of the cart's wheel, when multiplied by the number of revolutions recorded on a dial, gave the distance the odometer had been pushed" (Murray, p. 78). The scale of the county maps was usually one inch to a mile, and errors in measuring distances were typically less than two percent (Murray, 1991).

Early in the history of the county maps, the surveyor acted as both map maker and salesman. Murray (1991) suggests that the wheeled odometer was something of a "promotional gimmick" that would attract enough attention to allow the surveyor to make his sales pitch. However, as the production of the county atlas became more formulaic, publishing companies took over the "complicated publishing projects on a quasi-assembly-line basis" to raise enough money to cover publication (Conzen, 1990, p.187).

The maps included in the county atlas began as a large wall map that was eventually downsized to fit each township subunit of the county on separate pages of the atlas (Conzen, 1990). The bound volume of maps was highly decorative and visually appealing, and its diverse maps and supplements made it a valuable part of rural life. The atlases were produced by private entrepreneurs and sold by subscription that required a

sales strategy directed at both urban and rural dwellers. Wealthier patrons could purchase space in the atlas to be used for family biographies or portraits. As the biographies were written by family members, lengthy family histories required more space in the atlas increasing the charge to the subscriber as much as an "additional \$200 or \$300 above the basic \$15 subscription fee" (Murray, p.79).

There are a variety of maps and views included in the atlases, including an occasional bird's eye map. During their "golden age" from about 1850 to 1880 (Conzen, 1990), the atlases were quite ornate and more attention was paid to recording landownership than advertising. Most maps were planimetric, delineating the terrain, rivers, roads and railroads within the county. Hills were marked by hachure lines and administrative boundaries were typically reflected by change in color. Low oblique views of large farmsteads, elegant homes and civic buildings gave evidence of bustling rural life in nineteenth-century America.

The county atlas maps and supplementary materials were historical records of geographic, technological and social change. In addition to showing landownership, they recorded land cover, land use, population density and urban change. While size, shape and placement of certain buildings may have been subject to the publisher's financial gain, and the topographic representation can be somewhat vague, for many parts of America the county atlas offers one of the few written and graphic records of rural and urban life in America.

### **Bird's Eye Maps**

Few scholars have chosen to study the American bird's eye maps, and those that have tend to emphasize the potential contributions these views can make to the study of American history. Historian Gerald Danzer (1990) acknowledges that the nineteenth-century bird's eye views contain information valuable to urban and social historians as well as cultural and intellectual history, but that they are rarely utilized as primary sources and are used as supplemental material instead. Danzer's study emphasizes the graphic nature of the bird's eye views and how the visual elements describe the constant evolution of urban towns and cities as America expanded westward.

Each print seems to reiterate a basic refrain: cities everywhere all seem caught in the process of expanding. Streets and roads push the urban area into the surrounding countryside, and one can almost hear the hum of commerce in crowded but orderly harbors and depots. Railroads, trains and steamboats, coming and going across the scene, serve as reminders of how this particular city is linked by iron bands and blue waters to a whole system of urban places across the continent (Danzer, p. 144).

When writing about American bird's eye maps, most authors cite John Reps' monumental work "*Views and Viewmakers of Urban America: Lithographs of Towns and Cities in the United States and Canada, Notes on the Artists and Publishers, and a Union Catalog of their Work, 1825-1925.*" Written in 1984, Reps' work remains the most thorough study of the bird's eye maps, from their beginnings as landscape portraits to the familiar elevated bird's eye maps of post-Civil War American cities. Reps has

assembled a compendium of urban bird's eye views, the artists who drew them, their years of production, and the number of views attributed to each artist.

Perhaps more importantly, Reps provides the reader with a meticulous account of how the artists created, advertised and sold their works. The more prominent artists would hire agents who went ahead of the artist to the next town to promote the artist's intention to produce a view of their city. The artist would often write his own promotional advertisement and local newspapers would run it as any other story (Reps, 1984; Danzer, 1990). After placing the ad, the agent would then go door-to-door selling subscriptions to townspeople who longed to see their house or business on the finished product. If enough subscriptions were sold to cover the cost of the venture, the initial sketch would be displayed in the town square to ensure the accuracy of the drawing (and probably to encourage additional subscriptions). Once the drawing was finished it would be sent to the lithographer to be engraved and printed. According to Reps, the turnaround time on such a project was usually two weeks and the cost was as low as \$2 to \$5 per printed map (Reps, 1984)<sup>1</sup>. These views typically were displayed in the parlor, the heart of the Victorian home, and according to Reps, after 1865, they became "one of the most popular forms of lithography in America" (Reps, p.11).

Two distinct versions of the elevated bird's eye images are easily identified, differentiated by geographic extent and the size of the population. Reps (1984) classifies the two different styles as either "insider" (town plans of less populated cities) or "outsider" (images of large cities such as Chicago, New York, and Boston). These

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<sup>1</sup> By today's standard the bird's eye view would cost around \$127.

qualifiers are meant to describe how the images are created. The "insider" view is the bird's eye view maps that were drawn on a larger scale, and the detail of the town's architecture is rendered by the map maker as he literally walked the streets of the town and drew the city, building by building. Typically, the streets are named; buildings are numbered and named in the legend. The elevation would often be accomplished by drawing from a local hillside or from the imagination of the artist; the details of the buildings toward the horizon remain as distinct as those in the foreground.

The "outsider" view (Reps, 1984) specifically addresses the small scale views of larger cities that necessarily had to be drawn from outside of the city in order for the artist to visualize the spatial distribution of the city from a single vantage point. While it may appear that these outsider views may have been drawn while the artist hovered above the city in a hot air balloon, this is certainly not the case; on the other hand later panoramic views may have benefited from the availability of aerial photography. Whatever the method, the resulting image is usually drawn in one-point perspective. In the foreground, buildings, streets, and ships in the harbor are drawn in great detail, but when the eye looks toward the horizon, objects become less detailed and quite vague. There is less order than the insider view and the images typically would be of little use to someone attempting to navigate the streets. The insider view then is much more of an urban landscape map compared to the outsider view which could be called an urban landscape view. If functionality defines the map, it is evident that the insider views are maps while the outsider views are not.

Literature regarding the bird's eye views uses the term "panoramic views" or "panoramic map" interchangeably when describing the images, regardless of their size when, in fact, both the insider and outsider views are "panoramic" in scope. As Reps notes, most bird's eye maps were drawn from a one point perspective and the elevation at which they were drawn determined the scale of the map. Technically, a panoramic view is an unobstructed, unbroken view of a particular scene. In the small town views as well as the city views, the artist has chosen which part of the city is to be drawn, a cartographic technique that has been practiced by map makers for hundreds of years.

While the intrinsic value of the bird's eye views has gained recognition in history and city planning disciplines, cartographers—especially those interested in the history of cartography--have been slow to appreciate them for their cartographic qualities and their singular ability to define place in nineteenth-century America. A study done by Roberta Williams (2004) addresses both the historic development of the American bird's eye views and their cartographic components.

Williams ties the evolution of the bird's eye views to the development of landscape painting by placing the realms of art and cartography on a continuum that spans the nineteenth- century and continues into the twentieth-century. In order to test the map-like qualities of the large- and small-scale bird's eye maps (insider vs. outsider), an empirical study was done by Williams comparing an assortment of maps (including the bird's eye view maps and panoramic views), high and low oblique air photos, satellite images and landscape paintings. In all, twenty-five pairs of images were shown to 108 subjects who were entering freshmen, first year cartography students and advanced

cartography students. In almost every instance when the insider bird's eye views were paired against the outsider panoramic maps, the majority of the subjects saw the insider bird's eye views as being more map-like. Williams suggests that the reliance on traditional planimetric maps for the organization of the insider view, as well as their continuation of detail to the horizon are responsible for the subjects rating the insider views as significantly more map-like than the outsider views. In particular, because the road system is easily recognizable on the insider map, subjects were more inclined to consider them to be "real" maps. Interestingly, in a study comparing different types of maps to determine which was more map-like, Patton, et al., (2005) concluded that the general road map was the prototypic map, since they were consistently chose it as being more map-like precisely because of the familiarity of the road map form.

Just as icons and symbols function as indicators within the sign systems of modern maps, they were also constituent parts of the American bird's eye maps. According to Williams, the most easily recognizable icon on these urban maps was the elaborate cartouche. The city's name was always the most prominent element, but the mapmakers would often include the lithographer, the year in which the map was made, the ordinal orientation of the map, and the population of the city. Depending on how much subscribers were willing to pay, the cartouche would often be framed by a flourish of ribbon held within the beak of a stylized eagle. This patriotic symbology would often contain the town motto or the title of the map written across the length of the ribbon. Legends could be a simple numbered list of building names that corresponded to

numbered buildings within the map or a list of buildings, divided into distinct services, such as “churches,” “general stores,” “livery stables,” and “grain elevators.”

"The symbology of the bird's eye maps is, perhaps, not so easily recognizable, but it exists in the boats and ships that float on meandering rivers...trains run on rails past important market places [and] smoke billows from industrial buildings..." (Williams, p. 25-26). Perhaps what is most important about the American bird's eye view maps is their ability to communicate the spatial qualities of the nineteenth-century city and town. As Danzer, Schein and Williams agree, "These maps were visualizations of the American heart and soul at a time when expansionism was redefining the American spirit and industrialism was recreating the American city. The citizens of these small towns were extremely patriotic and civic pride played a large part in the creation and publication of the panoramic maps" (Williams, p. 4).

### **City Building in the Nineteenth-Century**

The rise of cities in the eighteenth-century threatened the permanence of rural life and by the nineteenth-century the nation “bounded across [the social threshold] with dazzling speed, riding the galloping industrial capitalist society” (Kasson, 1990, p. 71). According to Kasson (1990) in the decades prior to 1820, an “urban” population consisted of about 2,500 people. By 1830, the population of these towns rose by about 64%, by 92% between 1840 and 1850, and again by 75% from 1850 to 1860. New York’s population had exceeded a million, while Philadelphia, Chicago and San Francisco all experienced tremendous population growth that consisted mainly of migrants from rural towns and European immigrants.

Meinig (1993) describes the pattern of nineteenth-century settlement along the eastern frontier as being wedged-shaped, extending along western New York to upper Ohio, to central Tennessee and then south to the coast of Georgia. However, by the middle of the century, settlement had spread to southern Michigan, southern Wisconsin, and eastern Iowa "and the general frontier line was a broad arc extending from Green Bay to the...western boundary of Missouri, Arkansas and Corpus Christi, Texas" (Meinig, p. 2).

As the western territories expanded, cities on the eastern seaboard grew larger as unsettled areas became the "'developer's frontier': speculations wherein the investors expended a good deal of money and effort not only to survey and sell lands but to provide a basic infrastructure of roads, towns, mills, inns and in some cases model farms as a means of luring settlers (and increasing the price)." (See Meinig, p. 4).

The resulting development of unsettled areas by outside investors created a new landscape that Shaw (2004) defines as vernacular urbanism, *e.g.*, the ordinary city rather than large metropolises. The formation of these cities [about three miles square until the development of transportation later in the century (Schuyler, 1986)] is the result of cultural choice, rather than academic design; they are "the social production of urban space" (Shaw, p. 1). The design of the city was not necessarily the choice of its inhabitants, however. For the most part, they were the result of mercantile entrepreneurs who worked with surveyors to construct a spatial sorting of the cities that would best suit the needs of commerce. City sorting—the intentional organization of people and buildings—depends on what Shaw calls "a dominant culture's notion of good urban form"

(Shaw, p. 1) and for aspiring nineteenth-century cities, this meant the ordering of social space that reflected both economic and social affluence.

Successful merchants, whose economic success overrode any protestations about the evils of the city, became the leaders of commerce, and somewhat inadvertently, cultural authorities. Therefore, cities became the ideal environment for both entrepreneurship and urban gentility. The wilderness had been tamed by man and the reward for his hard work was the development of a new urban landscape.

To justify city building it was necessary to promote the benefits of the city on a regional scale. Successful cities would contribute to each other's prosperity by forming a "wider mercantile chain of improvement" (Shaw, p. 12). While the city was already seen to be a boon to commercialized agriculture (the city provided a larger market for farm goods, as well as a ready source for agricultural needs such as seeds, fertilizer, etc.), frontiersmen would also benefit from the ability to trade and move necessities (such as lumber) over a rapidly enlarging territory. Road building, the creation of the Erie Canal, as well as new turnpikes and railroads became the focus of state governments to create a nationwide web of trade and development. Stilgoe (1982) attributes this intense interest in improved transportation to the American's "sudden" realization that, as a result of the purchase of the Louisiana Territory in 1803, the nation had transformed itself into "a political entity larger than the old parochial colonies" (Stilgoe, p. 107). This new nationalism manifested itself into different displays of patriotic fervor, one of which was to "create a national network of roads, canals, and other physical improvements" (Stilgoe, p. 107). Shaw (2004), instead, argues that this sudden interest in transportation

improvement is an outgrowth of the new market economy that resulted in rampant capitalism, boosterism, and increasing property values.

After going through several revisions, by 1820 a gridiron was created by the United States Public Land Survey that divided the Western territories into six square mile townships had been accepted as the method for the organization of land sales, and by the nineteenth-century it had also become the primary method of city planning. "It was, in short, the most dramatic expression of the commercial forces that have shaped American urban development. But in its very predictability and inflexibility the gridiron too often sacrificed appropriate civic space and scale to the engine of commerce" (Schuyler, p. 22, 1986). The nineteenth-century sorted city was the result of form and function. Led by the bourgeois merchant class, the city was an economic entity dominated by "urban morphology, building type and style, and the social use of public space" (Shaw, p. 18) to create a sorted cityscape based on retail and wholesale trading.

By mid-century, however, these diverse lots became refined, aesthetically pleasing urban landscapes of fine architecture and "a heightened taste for beauty and style" (Shaw, p.64). This shift from utilitarian to aesthetically pleasing buildings and architecture was a result of the rise of the middle class whose cultural leadership was imposed upon the city by combining their mercantile interests with social ones.

The attention to aesthetics came with the second wave of settlement in the cities. Once the city had been established and began to prosper, it was up to the second generation to create new spaces that would subordinate the commercial aspects to the civic. Parks, civic squares and monuments were built for adornment to emphasize the

new sophistication of the city. In an era when people were mobile enough to choose where they wanted to live, enterprising cities used both the refined aesthetics of the city, as well as the obvious commercial aspects to draw settlers to the newly developing cities. The bird's eye maps heralded the success of the city and were often seen in public places such as the town hall or in the offices of city officials. They were undoubtedly adornments (private citizens hung them in their homes), but they also played a promotional role by enticing new businesses into the area as well as new settlers.

Icons of the newly formed industrial city are easily found within the bird's eye maps. Trains (often two or more) are often depicted rolling across the countryside, bound for new urban centers. Smokestacks that emit towers of billowing smoke are indicative of industrialism and where there is smoke, there were no doubt, jobs. Boats of all sorts are shown docked along river banks, unloading cargo perhaps obtained by regional trading. Above all, the grid that was adopted by city planners to organize space within the cities is probably the most prominent feature that identifies the maps as uniquely American.

### ***City Planning and the American Bird's Eye Views***

As stated above, American bird's eye maps are often used by historians as supplemental or illustrative records of nineteenth-century city planning and architectural change. They provide pictorial evidence for the transformation of the economic power base within the community. In a study that looks at the genesis of the "romantic" suburb in both nineteenth-century England and America, John Archer (1988) investigates how cultural meaning was incorporated into the landscape of early city building. His

description of how middle class suburbia was sold to Americans, as well as what made these cities attractive to buyers is especially relevant to this study when one considers that urban bird's eye maps were designed to perform the same function.

Archer opens his article with a quote from an advertisement placed in the New York City newspaper the "Orange Journal" in 1857. The obviously promotional rhetoric is designed to sell the new subdivision (Llewellyn Park) to those wishing to find respite in a new suburb of New York City. Just as the agents of the bird's eye map makers would play to the vanity of his clientele by ensuring that the final view would reflect all that was good about their town, those interested in selling real estate in Llewellyn Park played to the ideal that prospective homeowners held as their version of the American Dream.

[The area of Llewellyn Park] was selected with special reference to the wants of citizens doing business in the city, and yet wanting accessible, retired, and healthful homes in the country...Sloping to the south-east, the best exposure for health and cultivation is secured, as well as perfect protection in winter from the north-westerly winds, while it is favorably situated to catch the sea-breezes which prevail in summer (Archer, 1988, p. 214, from the "Orange Journal," May 16, 1857, p. 3).

The newspaper article then goes on to extol the virtues of living in a gated community near the railroad station with a view of the Valley "acknowledged by all to be one of the finest in America" (Archer, p. 214, from the "Orange Journal," May 16, 1857, p. 3). Perhaps the verbiage used to promote this bucolic wonderland is to be expected as it is designed to promote a culturally held perception of what was important to American urban dwellers in creating their ideal suburban setting. This early "community planning"

described by Archer, is reflected in how the bird's eye maps display the built environment.

Archer describes the relationship between a community plan and the society who produced it as an organic one. A town plan "...has to be understood as a social artifact, a product of the social whole [and] can be 'read' for appropriate meanings, including cultural prejudices and affinities, economic stratification, and aesthetic ideals" (Archer, p. 217). The bird's eye maps contain similar information; homes and businesses of those who could afford to pay an additional fee were frequently featured in the legend or in vignettes that bordered the bird's eye maps. The industrial areas of the city are often emphasized as indicators of prosperity and are easily distinguishable from neighborhoods where social stratification is evident in the rendering of architectural details of individual homes. Perhaps, more importantly, the bird's eye view is also a social artifact, but one that was more readily accessible to those who built the town and to the generations that followed.

At the core of Archer's study is how social structure, ideology and aspiration is manifested in the built environment (Archer, 1988). His examination of "romantic" suburbs necessarily focuses on middle-class cultural biases that are first found in Britain in the 1820s and adapted in Victorian America with one important exception. According to Archer, "the simultaneous emergence of class stratification [in America] contrasted sharply with the reigning ideology of republicanism, particularly its fundamental tenets of political equality and economic liberty" (Archer, p. 230). Despite arguments claiming that a class system could not exist in a country built on republican principles of

democracy and individuality, the social construction of a new merchant middle class “result[ed] in a change from generally artisan economies at the beginning of the century into industries increasingly divided by hostile relations between entrepreneur and laborer” (Archer, p. 231). By the middle of the century, social stratification became more obvious and would impact city planning in the east as well as across the western frontier.

The eastern suburbs that Archer describes were the domain of the wealthy middle class where homes were designed and built to reflect the individuality of their owners. The availability of land meant that homes were situated on large suburban plots giving them not only a picturesque aesthetic, but also credence to the mythos of an agrarian lifestyle supposedly desired by urban dwellers. Archer suggests that the curving, winding streets that scholars feel were built to adhere to the topography are actually an indication of a fictional lifestyle created by the middle-class residents. He suggests that the meandering streets reflect a life of leisure and freedom which the merchant middle class felt was their right and privilege and that this fiction was incorporated in the city planning of suburbs associated with large cities.

Do the bird’s eye view maps of towns and cities formed along the frontier reflect their own fiction? Does the rectilinear grid pattern, typical of images of small towns, represent a more work-oriented community? If so, was the grid pattern intentionally imposed on the landscape by those in power (i.e., real estate developers, land barons, railroad executives, etc.), as a means of controlling a population consisting of immigrants and working-class pioneers? Is lot size indicative of wealth or power? Does a specific type of architecture represent social aspirations? It is possible that these questions can be

answered by studying the qualitative content of the maps. When do certain symbols or icons occur? Can a classification scheme be constructed to organize signs and their meanings? Without the opportunity to interview the artists who made the maps, or the people who commissioned the maps, how does one answer such questions? The only approach available is the analysis of the ink on the paper that is the map.

### **Content Analysis**

Geographer J. B. Harley (1988, 1989, 1990) espouses the concept that maps, because of the rhetoric embedded within its symbols and icons, may be read as literary texts and could, therefore, be interpreted according to models established by literary deconstructionists. According to Harley, cultural meaning is inherent in cartographic symbolism and is never value-free. “Maps become a source to reveal the philosophical, political, or religious outlook of a period, or what is sometimes called the spirit of the age” (Harley, 1990, p.11).

Historically, content analysis began as a way to analyze the content of newspapers and other popular media for the supposed role they played in the economic and social woes of the United States during the first few decades of the twentieth-century. At the same time, the empirical use of content analysis was tied to the rise of the behavioral and social sciences. Survey research and polling provided the data for the serious consideration of methodological research with the information gained by social scientists and researchers (Krippendorff, 2004).

That the American bird’s eye view is representative of nineteenth-century morality, pride and accomplishment goes without question (Danzer, 1990; Harley, 1990;

Williams, 2004). Because of the scale of these maps, it is expected that easily recognizable symbols and icons chosen by the map makers will reoccur over time and with some variability. By using a revised form of content analysis adapted to the “text” of the map, it is hoped that the dynamic relationship between the semiotics of the map and the culture that created them will be better understood.

As the thematic data presented in the bird’s eye view maps is qualitative in nature, the analysis of symbols and icons contained within these maps may be qualitative as well. Trudy A. Suchan and Cynthia A. Brewer (2000) reported on the use of qualitative methods applied to cartographic research, focusing on the methodology of gathering information on mapmaking and map use. Since contemporary mapmaking is becoming more specialized, the authors suggest that maps produced for “domain-specific” use are also becoming more temporary (Suchan and Brewer, p. 146). The result of this trend is that cartographic research is no longer restricted to the laboratory environment. As cartographers become increasingly involved with new research questions posed by investigators in other disciplines, the use of qualitative methods becomes more vital. Suchan and Brewer specifically look at the use of verbal data (questionnaires, interviews or “think-aloud protocols”), direct observation (“data gathered from ethnographic methods such as participant observation”), and document data (“from analysis of maps, images or written materials”). (See Suchan and Brewer, p. 146.)

As with empirical research, qualitative methods also seek to answer specific questions and produce credible answers. “Both quantitative and qualitative approaches require data acquisition, organization and summary, analysis, interpretation, and

presentation of findings” (Suchan and Brewer, p.147). The difference in how collected data are managed, however, may be more important in the study of bird’s eye maps, e.g using statistical measurements in content analysis to manage “documents.” Falling within the category of “documents” (as described by the authors), the urban views are endowed with a plethora of signs, symbols and icons. Quantitative analysis, according to Suchan and Brewer, would look at the causal relationship of variables between established, static categories. (In the case of the bird’s eye views, this may result in an “if...then” statement. *If* two railroad lines appear on the map, *then* we may expect to find a large depot.) Qualitative analysis, however, would allow the researcher to “[develop] categories [while] uncovering patterns of interrelationships between many categories” (Suchan and Brewer, p.147). Content analysis is cited by the authors as a means by which major themes can be extracted from nonnumeric data by either counting the times specific words or phrases appear in a text, or “recognizing sequence or location of words or phrases” (Suchan and Brewer, p. 152). If the icons and symbols that appear on the map can be understood as the text of a map, then understanding how they interact with each other, as well as with the map user, is an important consideration.

The relationship between signs, symbols and icons used on topographic maps is discussed in great detail by J. S. Keates (1982). Basing his investigation on the work of modern philosophers, Keates examines the way semiotics is used in cartography to display information (icons vs. symbols), the values assigned to cartographic signage (the use of bold letters or the gradation of size), and how categories of signs are organized and

interrelated. Of special interest is the importance Keates places on how signs are interpreted by the map user.

Signs, according to Keates, are divided into two main groups: signals and symbols. “A signal requires a single, predetermined response. It is not open to interpretations, and does not represent the characteristic of an object” (Keates, p. 64). On the bird’s eye maps, a signal may be something as simple as a road name. Because of its position on the map, it indicates that a road exists, but is not a representation of a road. In other words, it is a convention whose meaning is understood by the mapmaker and the map user.

Symbols encompass both icons and indexical signs. An icon “represents the appearance of something, and is thus directly representational” (Keates, p. 64). A cross situated on a steeple--an icon commonly found in the bird’s eye view maps--is open to many interpretations. To some, it may simply be an indication that the building is a Christian church; to others, it may represent something larger, such as a God-fearing society.

Indexical signs “[do] not represent an object...but indicates a certain place or position” (Keates, p. 64). According to Keates, indexical signs, such as the geographic graticule, organize space. The grid, an identifying feature of the bird’s eye maps, also serves such a purpose.

Ultimately, the map is viewed as a sign system that functions in two ways: to “indicate position” and “to describe what is being represented” (Keates, p. 68). Despite its “sign structure,” however, “The correspondence between what the sign actually

indicates and the 'real' world...is subject to limitations...inherent in the map's structure" (Keates, p. 69). The "limitations" are defined as the distortion that results from the use of projections, the representation of three dimensional figures and surfaces and line generalization. Keates does acknowledge, however, that distortion, as well as omission are both dependent on scale. He concludes that "maps...employ signs systematically, and therefore can be studied as ordered structures, just like words and numbers" (Keates, p. 77). Because the map is frequently referred to as a communication device, more attention needs to be paid to the formal "language" of the map's sign system.

If the signs contained with the map can be read as text or as a language with its own grammatical rules, a modified version of content analysis should be applicable to demonstrate how concepts are represented within the map. A qualitative study of the function of symbols and icons, as well as their values and interrelationships, could help to define the inherent message in maps as conceived by the cartographer and received by the map user. In cartography, there seems to be a limited approach to the use of content analysis from the quantification of temporal trends in cartographic research (Gilmartin, 1992) to how images that appear in tourist guides are perceived by travelers (Espelt & Benito, 2005). Espelt and Benito investigated the "transmitted" images that appear in tourist guides and generated a socially constructed image of a place. These images can be historic stereotypes that have been accepted by the collective imagination, they can market a specific association with a territory and "are formed in an unconscious way and rooted in a specific event" (Espelt & Benito, p. 777). Ultimately, the meaning of an image is rooted in one's individual perception that is shaped by his/her personal history.

Therefore, the mental construction of a place is already established before the tourist actually visits his/her destination. The authors conclude that there are two conceptions of a tourist image—one that is based on a social construction and one that is individual and varies from person to person.

Espelt and Benito attempt to define the socially constructed image of the city of Girona, Spain and to test their model on other destinations of similar characteristics. They examined the frequency of formal images of Girona and sub-groups of images that represented Girona's long history. Using 42 travel books dating from 1853 to 2002, they were able to quantify that the images presented in the books and those held by tourists were, in fact, images that were typical of nineteenth-century travelers.

In her study of current pilgrimage maps of the Holy Land, Collins-Kreiner (1997) begins by reminding the reader that maps are selective in content and this selectivity affects the message the map reader receives. However, she also points out that maps are social and cultural artifacts that contain objects that have specific meaning for individuals, and in turn, are invested with meaning by the society which creates them. Referencing Harley's (1992) belief that maps are invested with social and political power, the author makes a case for maps as forms of propaganda. In this study, Collins-Kreiner uses Monmonier's (1991) categories of distortion: political distortion that supports propaganda; advertising distortion to compel the reader to purchase a particular item; development distortion for zoning and environmental protection; data distortion of factual data; and distortion for defense purposes where features are deliberately shown out of place (Collins-Kreiner, 1997).

Collins-Kreiner's hypothesis is that the manipulation of cartographic elements is deliberate in order to make their characteristics more persuasive. Specifically, she looks at modern pilgrimage maps of the Holy Land, using content analysis "which falls between personal-social methods and physical-quantitative methods" (Collins-Kreiner, p. 46).

She separated twenty-three characteristics of the pilgrimage maps into three categories—secular, holy and graphic-cartographic. Secular elements included naming the State of Israel, marking political borders, naming roads, text and its type, highlights and point of view, and complexity (i.e., amount of detail and information). Holy elements measured by the author were map symbols: number and kind; pictures and paintings; proportion of all sites on the map; marking routes and trips; clear distinction between historical eras and the period in which sites' names were established. Finally, the graphic-cartographic elements that were included in the analysis included the name of the map; colors used; scale marking; north arrows; interior subdivisions, use of a frame, legend, topography and typeface. (Collins-Kreiner, 1997). The author rated each element, whether or not it appeared on the map, on a scale of 1 to 10 in terms of how the element distorted the map. (Missing political borders could distort the overall accuracy of the map.) A table of the elements was examined and their distortion scores "were analyzed statistically" (Collins-Kreiner, p. 7) resulting in three categories of distortion: political, historical/topographical and religious. Political distortion was based on the omission, partial provision and/or incorrect application of information, symbols and elements.

Historical and/or topographic “distortion favors the holiness of the area. The cost is in biased information that partially or completely disregards topographic reality” (Collins-Kreiner, p. 48). This could include the partial representation of topographic features that favors the religious perspective; manipulating the topography to give certain areas more emphasis than others and the inclusion of non-existent physical elements.

Historically, the author found that the maps do not inform the reader that there may be more than one historical era displayed on the map, and they are selective in what sites are chosen (usually only those related to Christianity). Since these pilgrimage maps are not all-inclusive of data related to other religions, they also appeared to be extremely biased towards Christianity, which greatly distorted the message that is communicated to the traveler.

Religious distortion is closely tied to the historical distortion of presenting only iconography, symbology and data that is biased towards Christianity. The maps use religious symbology, such as crosses and angels, as well as a medieval-type font that suggests that the Holy Land exists in a time warp, for while this type of manipulation may give the impression of the Holy Land during medieval times, they also suggest that what is depicted on the map is how the Holy Land looked during the time of Jesus’ ministry.

In conclusion, Collins-Kreiner found that according to the scores given to each map, all of the maps contain distortion but some are more distorted than others. “The amount and size of the distortions differ from map to map, according to the number of

elements that are distorted, in which ways they are distorted and to what extent” (Collins-Kreiner, p. 49).

The author suggests that there exists a continuum on which features of a map can be rated. In this case, the continuum ranged from sacredness to secularism and tourism. Perhaps, more importantly, it is because the elements of each map can be quantitatively analyzed, “the continuum is important because it allows us to classify and to analyze the maps for practical purpose. Each map has its own message, point of view and elements” (Collins-Kreiner, p. 50).

This study is especially interesting because Collins-Kreiner purposefully looked at a specific type of map (pilgrimage maps of the Holy Land) to study how selectivity, manipulation of the topography, color, scale, typeface, etc. can affect the usefulness of the map, and how these cartographic methods can be considered to be understood as elements of propaganda. More importantly, the ratings assigned to the different maps allows for quantification.

The probability exists that the American bird's eye maps can also be placed along a continuum of maps that were produced for specific reasons and that selectivity and other cartographic methods were used in order to promote the map for different uses. The use of content analysis should help to quantify the elements of the map in order to determine where the map fits along a continuum.

Because content analysis has historically been tied to publications and the printed word, it may not appear to be a useful tool for cartographers. However, by understanding the map as a text that can be read according to its use of icons and symbology, it may be

possible to apply the methodologies of content analysis to the “reading” of bird’s eye maps.

## CHAPTER IV

### MAPS AND MEANING: THE SIGNIFICANCE OF THE BIRD'S EYE MAPS

“To understand a mapping culture one has to understand the purpose of maps and the ways they are used in a given society”—Christian Jacob, *The Sovereign Map*, 2006

#### **Maps and Manifest Destiny**

By the end of the eighteenth-century the need to forge a national identity resulted in a movement to create a sense of nationalism that would unite a disparate population over an extensive geographic territory from New England, through the Mid-Atlantic States, to the South. Regional differences and interests were seen as major threats to the development of a unified republic and the creation of a national identity. In order to promote this new ideology, educators and statesmen turned to geography as an organizing principle that would encourage new Americans to view themselves and their country as a unified nation.

The change in attitude did not happen overnight. Initial attempts came from all sectors of society as literary pedagogic essays that would emphasize the use of geographic terminology to create a sense of nationalism. Jedidiah Morse and his close friend, Noah Webster, in particular were influential in creating an American geoliteracy that would be the basis of literary plans to nationalize American education (Brückner, 1999). Morse wrote the first American geography “The Universal Geography” which, together with his widely popular textbook, “Geography Made Easy,” “he stridently

promotes the primacy of the nation over regional loyalties” (Williams and Patton, 2008). Brückner states that “Between 1784 and 1820 Jedidiah Morse’s *Geography Made Easy* and *The American Universal Geography*...shaped the basic cognitive as well as advanced literary perception of geography among the first and second generation citizens” (Brückner, p. 7). Webster’s speller sought to teach children across America a uniform pronunciation of geographical place names. By encouraging a single American pronunciation, Webster sought to eliminate the traditional colonial spelling of local places, and prevent regional dialects from fostering cultural sectionalism. Webster used the outline map of the United State to teach the correct spelling of place names of all 13 states, their population and distances (Brückner, 1999). Morse’s approach to the use of geography as a unifying force of American nationalism was but one approach to the manufacture of geography textbooks. Mathew Carey’s revision of Guthrie’s *Modern Geography* was so radical that the final atlas was so imbued with democratic ideals that it was barely recognized as Guthrie’s original atlas (Patton, 1999). As in Morse’s *Geography*, the maps in Carey’s *Modern Geography* were “tipped” into the text which was expensive and time consuming. To make the maps more accessible and easily readable, Carey like other authors of the late eighteenth- century created a separate atlas that was to be referenced while reading the textbook. The introduction of mandatory universal education in the United States, coupled with the ascendancy of geography as an academic discipline meant that geography texts and maps were suddenly available to almost anyone. Consequently, the use of maps in the cause of national patriotism would reverberate throughout the nineteenth-century.

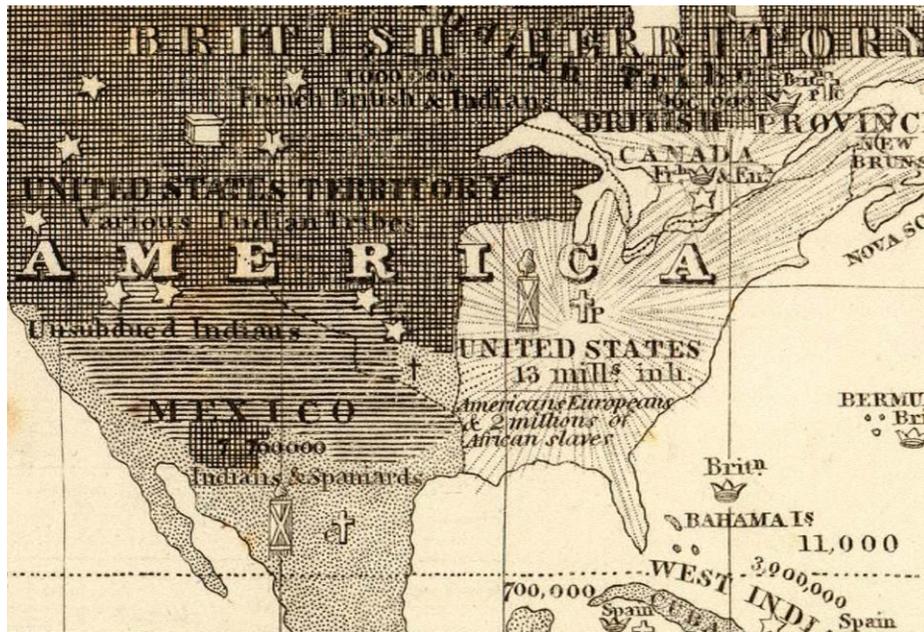
At the beginning of the nineteenth-century, geography was still learned by rote memorization, but changes in the printing industry (the use of less expensive pulp paper and the use of cerography) allowed publishers to print detailed maps on the printing press at a lower cost to the public. By the second half of the century, noted publishing houses, such as Rand McNally, George F. Cram, Mitchell, and Colton, began producing geography texts, atlases, world globes and wall maps (Patton, 1999). “To succeed in this highly competitive market, publishers produced large format, lavishly illustrated textbooks with full color maps and hundreds of exotic pictures, at a price affordable to most School Boards” (Williams and Patton, 2008).

For the first time in American history, government-sponsored maps became available to the general public. From Lewis and Clark’s expedition to the military reconnaissance missions of Fremont, Powell, Wheeler, and Pike, scientifically-based maps of the wilderness presented a landscape that must have seemed unbelievable to Anglo-Americans and European immigrants. Initially prepared for Congressional reports, these maps were also reproduced in newspapers and popular magazines of the day.

However, the most significant change in maps of the nineteenth-century was the use of the thematic map. Not only could maps show where places were, but they could also graphically reveal what the place was like. Instead of vying over who could produce the most accurate or most beautiful maps, map publishers now competed with each other over the completeness of their data and their ease of use. “Claims that maps were based

on the ‘best authorities’ no longer referred to surveyors and explorers; rather the new authorities were educators and geographers” (Patton, pp. 11-12). (See Figure 2.)

By disseminating geography knowledge through children’s textbooks as well as adult atlases, Noah Webster’s nationalistic rhetoric took the form of maps of not only the United States, but the world in general. Technological changes in the nineteenth-century (the introduction of pulp paper and wax engraving) certainly made these books and maps less expensive and more available to Americans, but perhaps more important—especially during the nineteenth-century—was the acceptance of science as an underlying component of map making. Without this acceptance, the accuracy of the map would have been in question, as well as any data collected by map makers who were interested not only in where things were...but who lived there and what they did. Thematic maps of temperature, exotic plants and animals as well as the “civility” of the culture all contributed to understanding the American’s sense of place not only in his/her own world but also in worlds they could only find by using geography.



**Figure 2. Woodbridge’s “Chart of the World.”** William Channing Woodbridge designed this map to show levels of civilization. What is now the eastern United States is classified as “Enlightened” while the West is shown as either “Primitive” or “Savage.” Thematic maps like this supported the Anglo-American vision that Manifest Destiny was ultimately beneficial to all as it would bring the light of Christian civilization to the primitive cultures of the West and provide land and opportunities for millions of Americans and European immigrants. Private collection, used by permission.

Map use was not restricted to military and educational use. The symbiotic relationship between the growth of industry and the expansion of the railroads heavily depended on accurate and timely railroad maps, further exposing the American public to the daily use of maps. The use of rail for transportation of goods and manufacturing materials created a demand for inexpensive maps to accompany time schedules. “Since schedules were frequently revised, the burgeoning commercial American map making industry was provided with a continuous source of income” (Williams and Patton, 2008).

### *The Role of the American Bird's Eye View*

The bird's eye maps successfully tapped into growing national sentiment as well as the commercial aspects of the growing map trade. In many ways, they were representative of the growing rhetoric of Manifest Destiny, as well as a conduit for its success. "These maps were visualizations of the American heart and soul at a time when expansionism was redefining the American spirit and industrialism was recreating the American city" (Williams, 2004). "As a group the urban views sing the national anthem of peace and prosperity, of movement and openness, of calm and order, and of destinies to be fulfilled" (Danzer, p. 144).

The patriotic tenor of the post-War bird's eye maps melded nicely with their function to promote settlement and, later in the century, to promote business. After all Manifest Destiny was deemed to be the patriotic right of the American nation. According to Reps, they were published in runs of 200 to 500 copies and cost between three and five dollars a copy (approximately \$77.00 to \$127.88 in today's economy). For new immigrants, they were surely a costly investment especially if there was little progress to be shown.

The average income of a farmhand in the 1860s was about \$13.00 per month; unskilled laborers (yard hands, teamsters, quarrymen and coal-heavers) made about \$33.48 per month and those with skilled occupations (machinists, masons, engineers, foremen, and superintendents) could make as much as \$66.00 per month (Martin, 1942, p. 409). Martin states that he was unable to find estimated earnings of "farmer-proprietors; and, even if satisfactory estimates could be found, the fact that so much of

the farmer's living comes from his own production would make analysis difficult" (Martin, p. 410). With these monthly earnings in mind, was it possible that the cost of the bird's eye views was prohibitive to those with limited wages? Is it possible that the true intended audience of these maps were the middle- and upper-classes and civic organizations who were better able to afford the map? Perhaps the answers are in the maps themselves.

Most of the early maps in the study sample (those produced from 1865 to ~1871) were created by Albert Ruger and Howard H. Bailey. As Bailey was trained by Ruger, it is not surprising that the work of the two map makers is very similar in style and content. Both tend to use decorative cartouches, decorative legends and they usually include at least two vignettes containing civic buildings. Ruger would sometimes frame the map in a decorative border. According to Reys, these added effects would inflate the cost of the map. As the map moved toward the upper end of the scale in price (\$3 to \$5) they clearly would be less affordable to those making lower wages. Who would the agents approach in order to make a sale? The farmhands can probably be eliminated from the equation as these men were usually itinerant/seasonal workers and had no vested interest in the town. Certainly, family-owned farmsteads that had seen generations of working farmers would have an interest in obtaining the map if they had enough disposable income; unfortunately, that data is unobtainable. This leaves the unskilled labor group and those with skilled occupations, the people who lived in the urban centers. Five-dollars for the map may have been expensive for someone with a family to afford, but perhaps still within reach. For those at the top of the pay scale, \$5 for what was considered a work of

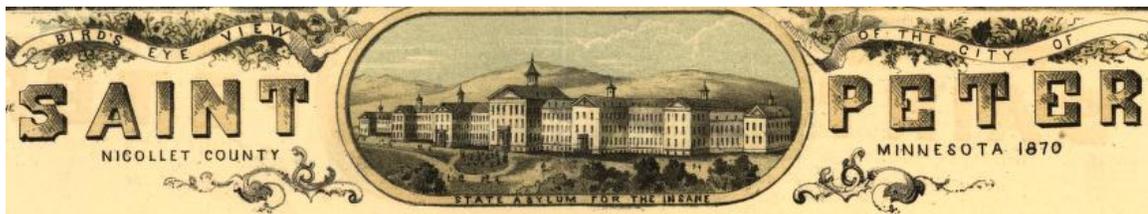
art was probably well within the budget. Unfortunately, little information regarding the sales and production costs of the maps has not been found to-date, so who bought the maps and how much they paid remains unknown.

According to the urban historian Shaw (2004), the refinement of the city became the responsibility of the second wave of immigrants and the second generation of the original immigrants. These men had become the businessmen who had created the middle-class in American society. Comfortably wedged in the social strata, these men provided services for the genteel people as well as the middle-class. They also became involved in politics and local planning and were responsible for building and maintaining the central business district. It probably would have been these people who the artists' agents targeted for sales of the bird's eye maps. They had the money to pay for more than one subscription, especially if their business or home was featured on the map. The change in the number of icons and symbols used on the maps indicate that more emphasis is being placed on the central business districts and the legends indicate social stratification of the city.

The doctrine of Manifest Destiny may have embodied the certainty of the natural and unalterable future of the nation given by God, endorsed by the government and advocated by industrial capitalists, but for many Americans, the nineteenth-century was a time of turbulent change that left people with a flagging sense of security and an oppressive uncertainty about the future. The influx of thousands of immigrants, overcrowded cities and the spread of disease and crime may have made some wonder about the wisdom of progressive ideals. Interestingly, public institutions such as prisons,

special schools and insane asylums were popular tourist attractions during the nineteenth-century. The cleanliness of the buildings and management of the patients and inmates seemed to offer some level of reassurance to those who visited.

The bird's eye maps often contain icons of American stability, such as hospitals, insane asylums, schools for children with special needs, prisons and other proud indicators of Christian beneficence, that were routinely featured in small vignettes around the map and in the legend to indicate that the community was willing and able to care for the feeble and infirm (Figure 3).



**Figure 3. Cartouche from the Bird's Eye Map of St. Peter, Minnesota.** Drawn in 1870 by Albert Ruger. The inclusion of the State Asylum for the Insane in this cartouche is a powerful statement that emotionally disturbed people were being well care for. As these types of buildings were popular tourist attractions during the nineteenth-century, it is possible that the bird's eye maps also functioned to promote tourism.

Economic stability was also represented on the map in the “finely detailed drawings of bank buildings, the portrayal of vibrant retail districts and in the smoke that billows from the stacks of high visible factories” (Williams and Patton, 2008). Ships choke the harbors and multiple trains—some carrying cargo while others transport passengers—crisscross the cities and towns, speeding towards their destinations.

One message of the maps is that hard work is rewarded by leisurely pursuits. The maps often include sporting scenes (the depiction of baseball fields became a favorite subject of the mapmakers); men are seen hunting and fishing, and children swim in the ponds and streams. Men and women either stroll along a clean, uncluttered pavement or are seen taking a leisurely afternoon's ride in fine carriages. More accomplished horsemen take advantage of race tracks that frequently adjoin fairgrounds or newly formed city parks. "The maps reflect the ideal that the American work ethic and God's bountiful blessing has made life good in small-town America" (Williams and Patton, 2008).

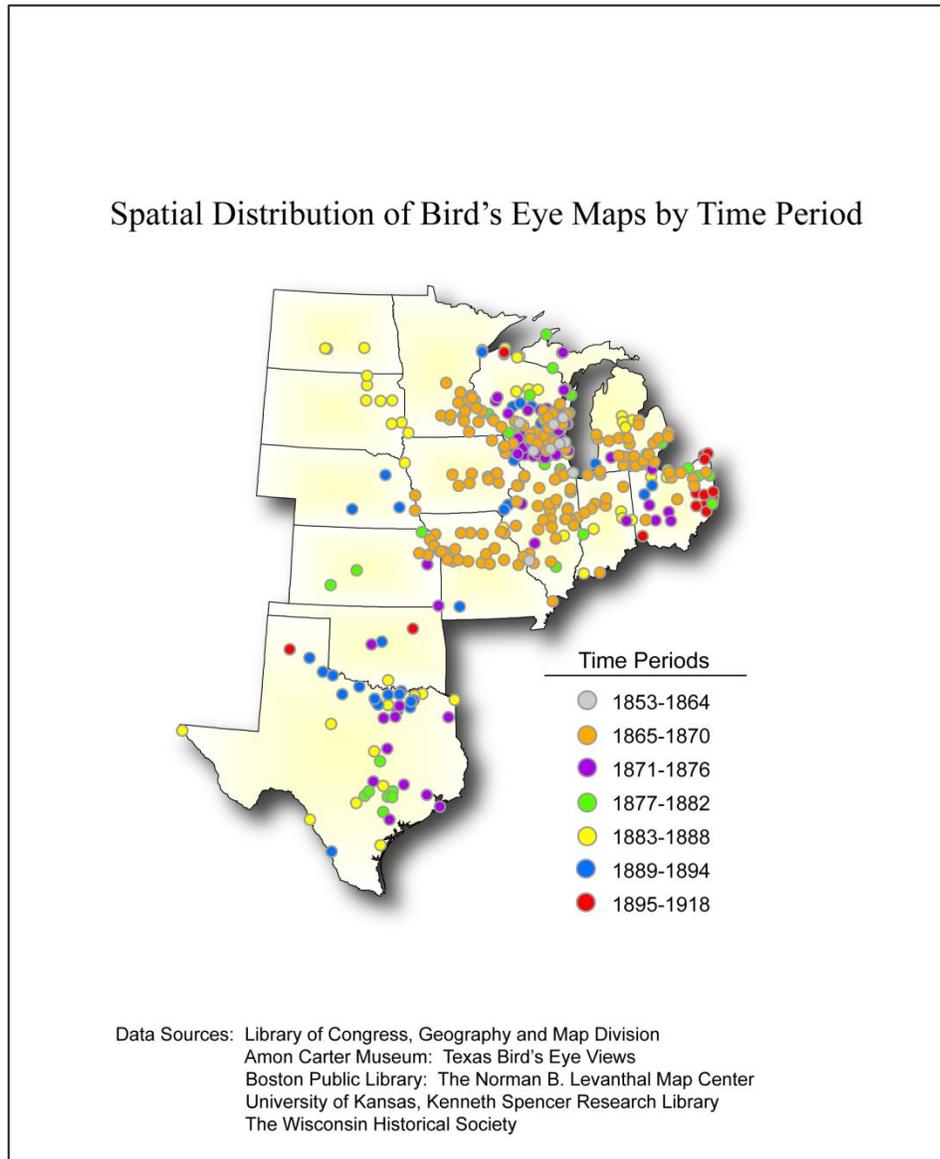
As confidence in American capitalism grew, the bird's eye maps of the last quarter of the nineteenth-century went through a transformation that reflected that optimism. Small towns throughout the Midwest grew to be larger cities and the maps that had once been commemorative portraits inviting settlers to the frontier, now became instruments of commercial promotion in order to bring customers to the stores and services available in the city. On some maps, vignettes that had once been drawn by the artists were now still images produced by skilled photographers. By the early decades of the twentieth-century, the map that had once been the focus of the views had become a mere afterthought to the advertising around its borders.

### **Commercial Mapping and the Appeal of the Bird's Eye Maps**

The nineteenth-century was an extraordinary time for the science of cartography and the success of mapmaking opened new venues for their distribution to an eager public. Changes in printing technologies and the availability of inexpensive materials

advanced the physical and financial growth of map publishing companies and “[b]y the 1880s...American cartography had evolved from an elite craft...to a mass industry producing maps as quickly and as cheaply as possible. New technologies, organizational modes, and economic motives facilitated the spread of inexpensive atlases through American culture, a trend that made atlases a common fixture in urban parlors and rural schoolrooms alike” (Schulten, p. 17). This era of popular cartography was grounded in the maps generated by field reporters during the Civil War. Afterwards, maps could be found in trendy magazines, such as *Harper’s*, or in congressional reports that were, for the first time, available to the public. Undoubtedly, the availability of many different maps changed the average citizen’s view of his immediate surroundings, and his global view. The world became much more than the view from the back porch, and constantly expanded to include not only all of the United States, but many foreign places as shown on the map. This was a particularly important progression during the Industrial Revolution as America took its place at the center of trade on the world stage. Maps for all types of activities soon became a lucrative business (Figure 4). Most commercial maps were connected with transportation, such as bicycle maps, horse and cart routes, canal maps, railroad maps and eventually, automobile maps. Fire insurance maps, while not available to the general public, recorded the minute details of city development of insured buildings and real estate and cadastral maps sold land and recorded land ownership. In many ways the county atlas, a popular bound collection of rural county maps, and the bird’s eye maps were made to support rural and urban development. Very soon after the Civil War, real estate and insurance companies as well

as railroads saw the value of the bird's eye maps both to promote cities and to sell land. These financial institutions quickly became an important factor in underwriting the cost of production and to some extent their design.



**Figure 4. Spatial Distribution of Bird's Eye Maps Over Time.** Due primarily to the expansion of the rail system throughout the Old Northwest Territory, the production of the bird's eye maps developed quickly throughout the Midwest. Prairie states with smaller populations were initially more difficult to reach and by the time that access to these new markets became available, the popularity of the maps in more eastern states was already on the decline.

County atlases were, on the other hand, created to record the existing rural landscape but on a much more personal basis. The prototypic county atlas of the second half of the nineteenth-century broke the county into multiple sections (typically townships) that showed property lines of the various farmsteads as well as the location of occupied dwellings. Of great interest to contemporary genealogists is the fact that the county atlases normally included the name of the land owner on each parcel as well as the family name of the individuals who were living in the homesteads drawn. In addition, for the small towns or cities within the county the atlases often contained bird's eye maps or planimetric street maps. Artistic renderings of individual farms enhanced the content of the atlas and biographies of prominent families (written by those who could afford to buy space in the atlas) created a rich tapestry of rural life in America. While the bird's eye maps emphasized communal success of towns fashioned by the pioneers who created their homes where none had been before, the component parts of the county atlas spoke of individual success, wealth and prosperity, connecting the counties and their inhabitants to a much larger ideology of what it meant to be an American citizen.

Comparable to the history of the bird's eye maps, the county atlases experienced a great growth in popularity and eventual decline. Just as advertising subverted the map as the focus of the bird's eye views, changing how they were utilized by the public, the county atlas also suffered a similar fate. Advertisements replaced descriptive text and family histories and the atlas became a virtual "phone book" of those who lived in the county.

The bird's eye maps assumed an important, if somewhat unappreciated, place in the cartographic revolution of the nineteenth-century. These maps recorded everyday American life, though a somewhat idealized version. Their visual power may partially explain why contemporary Americans still view small town life of the nineteenth-century as simpler, more secure, and easier than their own despite all evidence to the contrary. They were especially useful in graphically depicting the newly formed country, and would forever tie American citizens to a rousing sense of nationhood. The bird's eye maps took this association a step further after the Civil War. Draped in banners decorated with the stars and stripes, and using patriotic icons, the bird's eye maps celebrated The United States.

## CHAPTER V

### QUALITATIVE INTERPRETATIONS OF THE EVOLVING AMERICAN BIRD'S EYE MAP

The American bird's eye maps owe much of their basic design elements to the city views that were made popular in Georg Braun and Franz Hogenberg's monumental *Civitates Orbis Terrarum*, a sixteenth-century atlas that contained numerous perspective views of European cities drawn from a high oblique perspective. Generally acknowledged as "the first systematic depiction of views of cities throughout the world" (Braun & Hogenberg Views), *Civitates* was originally published in a single volume in 1572, but eventually grew to six volumes by the time of its final edition in 1617. Extremely popular in Renaissance Europe, the atlas eventually contained 546 maps drawn by more than one hundred cartographers and artists from the known world, many of which were bird's eye views (*Civitates Orbis Terrarum*-Braun and Hogenberg). It is important to note that *Civitates* was the first collection of city views published in atlas form, and because Braun remained principal editor throughout its production, the maps retained a uniformity of style that would influence perspective views for centuries to come. The city views are all drawn from an imagined perspective, important buildings and fortress walls are often emphasized by exaggerating their dimensions, ships clog the harbors and people in native costumes going to and from the cities all suggest prosperity and power. This same focus on economic achievement and the resulting symbols of

affluence would also become a hallmark of the bird's eye maps of nineteenth-century America.

### *Early American Views*

Unlike their European counterparts that had benefited from hundreds of years of view making, the American bird's eye views seem to have, instead, developed from the picturesque landscape painting trend that was popular in North America at the turn of the nineteenth-century. "Early in the century European artists (mainly British) immigrated to America in hopes of finding new subject matter and a new audience" (Williams, 2004, p. 29). The new topography of the urban landscape resulted in the "first authentic landscapes of America" (Casey, 2002, p. 9) and the "European fascination with the emergent American nation created a demand, both here and abroad, for 'view books' or 'annuals' of bound prints and engravings depicting sites along the Hudson River and other picturesque landmarks" (Mann, 1981, p. 90). In this competitive climate, it is, perhaps, not surprising that many of the accomplished artists, such as Fitz Hugh Lane, John W. Hill and Edwin Whitefield would turn to view-making in order to supplement their incomes (Reps, 1984; Casey, 2002, Mann, 1981). Hill and Whitefield are particularly important to the development of the view-making trade. John Hill "produced the first copper-engraved view books of American landscapes based on the work of artist Joshua Shaw" (Williams, 2004).

Edwin Whitefield emigrated from England to America around 1838 and became a successful landscape artist "[producing] 59 lithographic views of cities and towns throughout the northeastern United States and eastern Canada from 1845 to 1878" (Grim,

et al, 2008, p. 90). The majority were very low oblique landscape views, except for two views of Dedham and Quincy, Massachusetts, which were more typical of the bird's eye style. Whitefield's contribution to the view making trade is important for many reasons. As "the first lithographic view maker to travel continually and extensively in search of cities to draw" (Reps, p. 6), his method of sales and travel established the itinerant lifestyle of the bird's eye view artist. A field notebook containing information about his many travels contains scrupulous notes regarding subscription rates, printing and shipping costs and hand drawn maps and is the only extant record of the nineteenth-century view making trade known to exist. Perhaps more essential to understanding the stylistic development of the American bird's eye maps are Whitefield's landscape views. Drawn from a low-oblique perspective, these landscapes seem to be the precursors to the more fully-developed views that eventually came to dominate the bird's eye view market later in the century (Figure 5).

### **Insider and Outsider Views: The Role of Perspective**

John Reps (1984) has suggested that differences in stylistic elements allows the American bird's eye maps to be divided into two categories—the "insider" and "outsider" views (see pp 28-29). The insider views are generally large scale, intricately detailed maps drawn from an elevated perspective. The outsider views are either low-oblique picturesque landscape views of small towns, or the high-oblique panoramic perspectives of large cities. In order to simplify the terminology, this study will refer to the high-oblique outsider views as "panoramic views" and the insider views as "bird's eye maps."



**Figure 5. View of Hamilton, Ontario.** Drawn by Edwin Whitefield, c. 1859. Low-oblique views such as this were typical of Whitefield’s landscapes. The emphasis placed on the foreground and very little detail at the horizon will be seen again in bird’s eye views of larger cities drawn from a higher perspective. The Philadelphia Print Shop, Ltd., used by permission.

Virtually all views produced before the middle of the century were in the “outsider” style. Drawn from a low-oblique perspective by trained artists, the outsider views “were drawn in the traditional manner of landscape painting” (Reps, p. 17) and the artist is physically removed from the environment. The overall result was a scene that was finely articulated and generally more elegant than the bird’s eye maps produced later in the century (Figure 6).



**Figure 6. Pottsville, Pennsylvania.** Drawn by J.R. Smith, c. 1833. This view is typical of early low-oblique bird's eye views which drew heavily on the landscape artist tradition. This Pennsylvania mining town is drawn as if the artist were standing on a nearby low hill. Note the great care that was taken to faithfully record aesthetic details such as sun shadow and the recesses of building windows. [Downloaded from <http://lcweb2.loc.gov/ammem/pmhtml/panmap.html>, 06/10/08.]

The outsider style can be further divided into two sub-categories—the low-oblique and high-oblique—that are defined by the elevation of the perspective and referred to here as panoramic views. The perspective greatly affects the detail of architectural and topographic features as well as the areal extent of the map. Because the low-oblique panoramic restricts how much of the scene is available to the viewer, this method was generally reserved for small towns, or select portions of the city, such as waterfronts and central business districts. Larger cities required a more elevated perspective in order to capture the entire extent of the urban area. While the foreground of the image was still artistically rendered in great detail, the higher perspective required

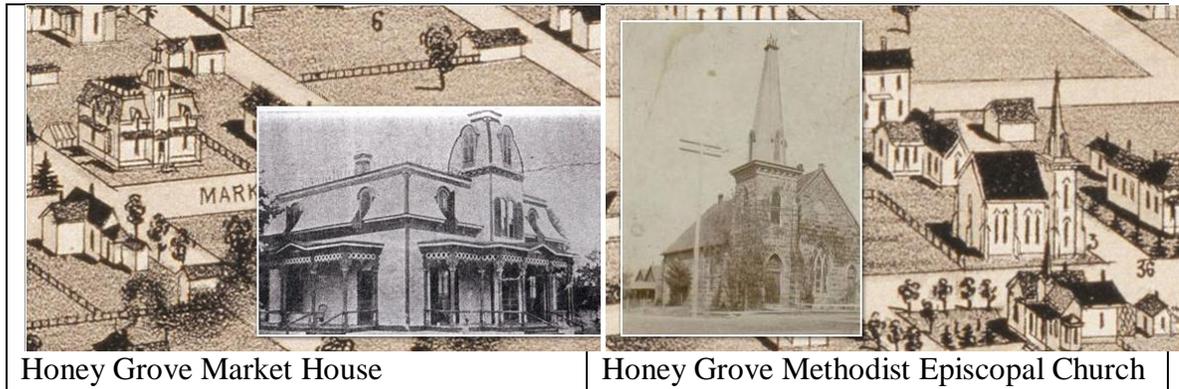
further distancing of the artist from his subject (Figure 7). Ultimately, the use of the higher perspective resulted in much less intimate town portraits while moving the genre one more step into the cartographic realm.

While the high-oblique panoramic views of large cities were quite popular in the decade prior to the beginning of the Civil War, Reps (1984) reports that the first insider views (the bird's eye maps) appeared sometime around mid-century. Drawn from a much higher perspective (2,000 to 3,000 feet above the ground) these maps are less dependent on the artistic skills of their predecessors and more reliant on the technical expertise required to quickly produce hundreds of views within a relatively short span of time. The bird's eye views are drawn using a one-point perspective that draws the eye to a limitless horizon. Soft clouds drift across a blue sky; the sun is always shining and flags wave in a gentle breeze. There is a bucolic feel to the maps, but if one looks closer, the hustle and bustle of a prosperous business district belies the pastoral setting. Less attention is given to the natural setting and the focus of the maps switches to the man-made environment. Homes, civic buildings and businesses are given precedence in the views and a new intimacy is achieved by the artists who are required to walk the streets of the town to achieve the detail that is one of the hallmarks of the insider views. The detail remains constant throughout the map; the map makers would improvise a "tilted" grid to ensure that all of the houses could be seen with the human eye. While the bird's eye artists undoubtedly used existing maps of the towns to create an accurate street grid, the bird's eye views were actually constructed using hundreds of sketches that recorded the architectural detail and correct placement of buildings throughout the town (Figure 8). These maps were popular with the people who lived in the town because of the familiar environment established by the artist on the map. One could

proudly point to his house on the map, an acknowledgement of hard work that proves that the owner has “made it” in the new middle class.



**Figure 7. Outsider View of Philadelphia.** Drawn by John Bachmann, c. 1857. By elevating the imaginary vantage point of this bird’s eye view the areal extent of Philadelphia is captured in its entirety. The foreground is rendered in striking detail, while the area towards the horizon becomes much more indistinct. [Downloaded from <http://lcweb2.loc.gov/ammem/pmhtml/panmap.html>, 06/10/08.]



**Figure 8. Scenes from Honey Grove, Texas, 1891.** Drawn by Thaddeus Fowler. These sketches demonstrate how the insider view artists diligently strove to achieve architectural and spatial accuracy on their maps. [Downloaded from *Texas Bird's Eye Views*: The Amon Carter Museum, <http://www.birdseyeviews.org/index.php>, 6/10/08.]

Following the Civil War, the insider bird's eye maps quickly became the dominant style of perspective maps for all but the largest cities (Williams, 2004). This adoption of the large scale maps over the small scale panoramic views grew out of a number of cultural changes that took place following the War.

Kasson (1990) looked at the growth of the urban population of the U.S during the nineteenth-century. He defined "urban" population as places consisting of at least 2,500 people. By 1830, the population of these towns rose by about 64 percent over the previous decades, by 92 percent between 1840 and 1850, and again by 75 percent from 1850 to 1860. By 1860 New York's population had exceeded a million, while Philadelphia, Chicago and San Francisco all experienced tremendous population growth. Meinig notes that population growth during the nineteenth-century was about "33 percent per decade, the total rising from 5,306,000 in 1800 to 23,192,000 in 1850" (Meinig, p. 71). Population increase was due mainly to European immigrants, with many moving

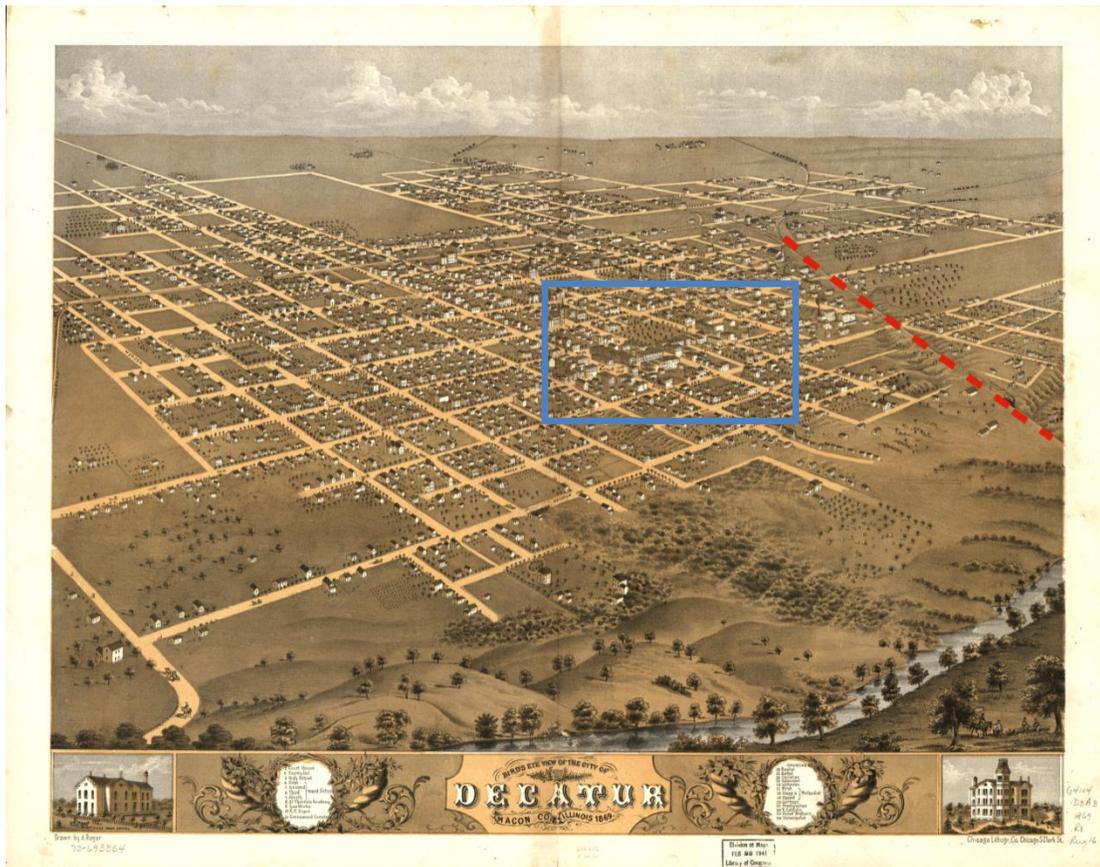
into the Midwest and prairie states. In these regions thousands of small settlements, sometimes containing only a few hundred residents were founded. These smaller communities appeared to be the perfect market for the itinerant bird's eye map makers, easy to sketch, quickly expanding real estate markets, and well connected to printing houses in Milwaukee and Chicago via the new rail lines. In addition their relatively small size meant that they did not attract the attention of the large national print making firms such as Currier and Ives, the Kellogg brothers (Hartford, CT) and John H. Bufford (Boston, MA)

The Homestead Act of 1862 made millions of acres of land available to those capable and hardy enough to brave the wilderness. The lure of land ownership and its concomitant prestige was strong enough to draw thousands of Americans and European peasants to the uncertainties of life on the western frontier and small towns began to appear on the landscape.

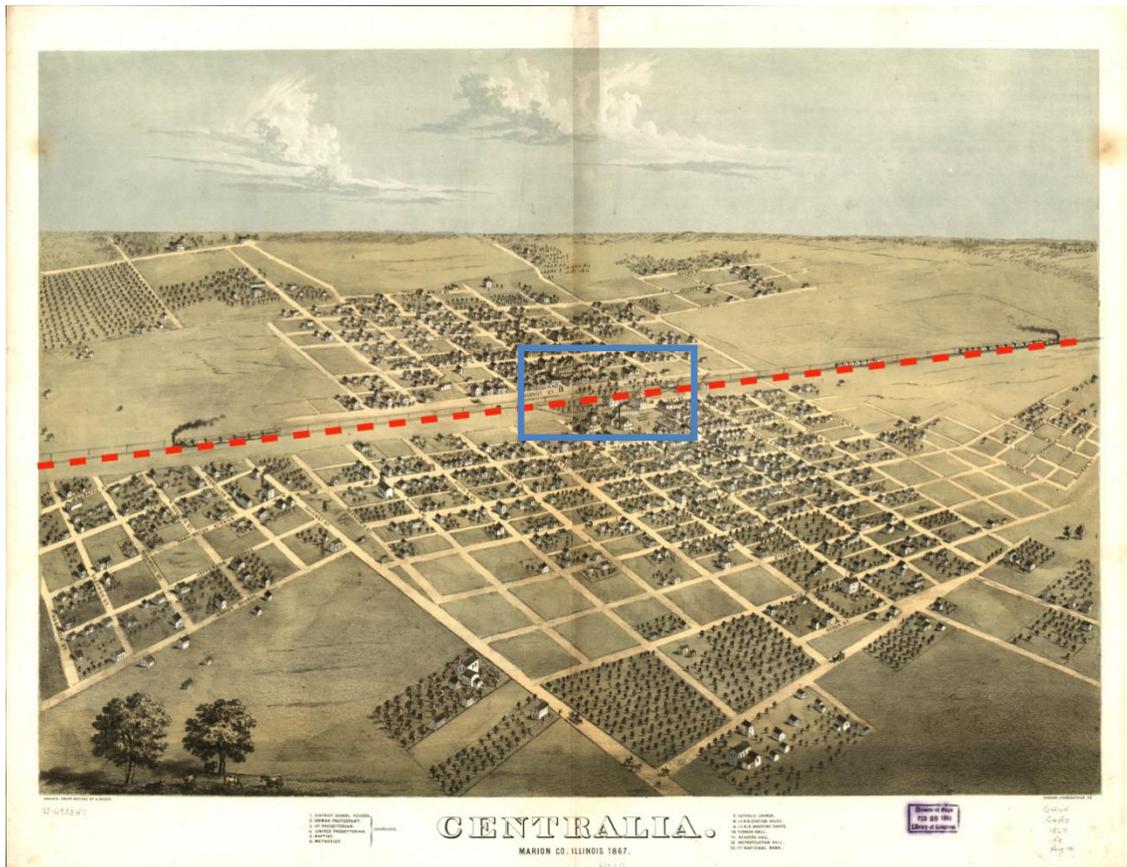
The growth of frontier towns was consequently spurred by the United States government when, in 1850 and 1871, the United States Congress allocated approximately 40,000,000 acres of unusable and/or unsalable land to facilitate the expansion of rail systems across the nation. However, federal land grants came with specific stipulations. In the case of the transcontinental railroad, four-hundred foot right-of-ways were granted. The railroads received ten square miles of land for every mile of track laid. To ensure public access to the rails, the government retained control of alternating parcels of land, creating a checkerboard pattern of land ownership along rail lines. Similar land giveaways

were designed to promote rail expansion throughout the Great Plains and western states. As a result, the railroads became leading land owners and speculators enticing thousands of immigrants to towns they carefully planned and marketed. Railroads aggressively “engaged in town site activity whenever and wherever they built new lines” (Hudson, 1985, p. 49). Corporate-designed towns sprouted on the landscape at each new terminus of laid track. Many towns flourished while others did not, but there can be little doubt that the creation of railroad towns depended on the ever changing fortunes of the railroad companies.

The bird’s eye maps are a unique documentation of the types of railroad towns that developed in response to the presence of the railroads. Four types of towns seem to be especially prevalent. The “T-Town” was constructed with the railroad located at the periphery of the business district (Figure 9); the “Symmetric Town” demonstrates how the railroad lies within and parallel to the business district (Figure 10); the railroad track intersects the business district in the “Orthogonal Town” (Figure 11); and the “Parallel Plan” shows how the railroad runs parallel to, but is one block removed from the town’s central business district (Figure 12).



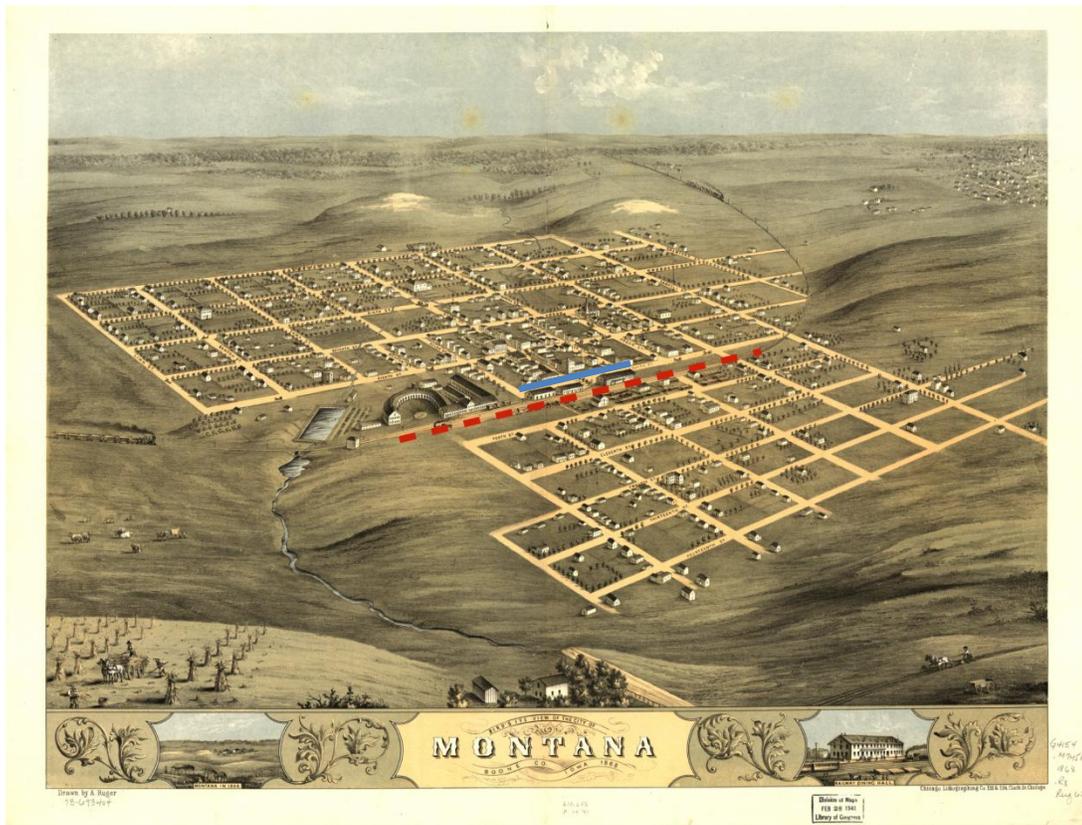
**Figure 9. T-Town Plan.** DeWitt, Iowa, 1874. Drawn by A. Ruger. An example of the “T-Town,” an urban design promoted by the railroads. Note that in this type of railroad town, the tracks (red dashed lines) are located on the periphery of the business district (solid blue rectangle). [Downloaded from LOC, <http://memory.loc.gov> 1/28/08.]



**Figure 10. The Symmetric Town Plan.** Centralia, Illinois, 1869, drawn by A. Ruger. This plan is plainly seen, as two trains crisscross on tracks (red dashed line) lying within the business district (solid blue rectangle) dividing the town into two sections. [Downloaded from LOC, <http://memory.loc.gov> 1/28/08.]



**Figure 11. Orthogonal Town Plan.** El Paso, Illinois, 1869, drawn by Albert Ruger. This map demonstrates the orthogonal type of railroad town where the train (red dashed line) intersects the main business district (solid blue line). [Downloaded from LOC, <http://memory.loc.gov> 1/28/08.]



**Figure 12. Parallel Town Plan.** Montana, Iowa, 1868, drawn by A. Ruger. This map represents the “Parallel Plan” where the railroad divides the town (red dashed line), but lies one block removed from the town’s business district (solid blue line). [Downloaded from LOC, <http://memory.loc.gov> 1/28/08.]

For railroad barons, the success or failure of a town along the rail lines was inconsequential compared to land sales, and undoubtedly one of the best ways to promote sales was to entice immigrants to settle the frontier. It is not surprising, therefore, that the cost of producing the early bird’s eye maps of towns in the Midwest and prairie states were frequently underwritten by the railroads. The maps could be easily understood by both the illiterate and non-English speakers, and the idyllic sense of place typical of these images undoubtedly offered a seductive view of the American Dream.

The ease and availability of train travel increased the mobility of the nation and became the primary mode of transportation for bringing new settlers to the west. Rail travel also affected the production of the bird's eye maps. Accessibility to more remote towns was made easier by rail, increasing the number of town maps the artist could produce while supporting his itinerant lifestyle. As seen in Figure 4 above, the artist's path to prospective cities is clearly linked to the route of the railroads, especially in the prairie states. It is easy to see the impact of rail in the record of towns drawn by various artists. For example, in the year 1891, Albert Ruger completed views of Greensboro, Winston-Salem, Asheville, and Durham, towns all located along the main east-west rail corridor in North Carolina. The speed of rail travel may also have affected the turnaround time required to produce and deliver the finished prints.

The arrival of an immigrant population brought commerce and industry that created a self-supporting economy engendered by the rise of the middle-class tradesmen and businesses. The small towns and cities of the developing frontier were the perfect niche market for the post-War bird's eye map makers.

### **Civil War Mapping and Bird's Eye Maps**

Like most military confrontations, the American Civil War was the vehicle of death and destruction as well as the proving ground of great technological change. The War forever changed how maps were produced, seen and utilized by Americans, and the bird's eye maps were part of this cartographic revolution.

Prior to the War, imported and domestic atlases produced by copperplate printing were available, but were expensive, restricting their availability to wealthy patrons

(Shulten, 2001). As advances in printing technology (such as wax engraving) and the use of inexpensive pulp paper reduced the cost of maps, public interaction with maps became an everyday occurrence. Important to the development of the bird's eye maps were the battlefield maps that had become a staple of newspapers and magazines. "These were not the products of skilled cartographers striving for topographic accuracy but rather of journalists and artists hoping to convey a sense of battlefields and their general geographic situation" (Shulten, p. 22). These maps were often only hand drawn maps, perhaps hastily sketched in the midst of combat, that were meant to provide the reader with a sense of place in the battlefield. The privileging of sense of place over topographic accuracy would become a hallmark of the insider bird's eye maps of the post-Civil War era.

Military service played a very direct role in the development of the bird's eye maps since many of the more successful bird's eye map artists were trained as topographic engineers during their enlistment. Prior to the Civil War, the United States Corps of Topographical Engineers was responsible for documenting civil improvements and making maps for the western surveys conducted by the military.

As prescribed in the regulations, the duties of the topographical engineers were 'to make such surveys and exhibit such delineations as the commanding generals shall direct; to make plans of all military positions which the army map occupy and of their respective vicinities, indicating the various roads, rivers, creeks ravines, hills, woods, and villages to be found therein... (U.S. Corps of Topographical Engineers 1818-1863).

With the advent of the War, the Corps of Topographical Engineers was eventually absorbed into other military divisions, but map making remained an important aspect of their duties. As the war moved south, away from established government printing offices in Washington, D.C., it became necessary for the Army “to have a complete map establishment of its own. Accordingly, the office of the chief topographical engineer contained a printing press, two lithographic presses, one photographic establishment, arrangements for map-mounting, and a full corps of draughtsman and assistants” (LOC, Civil War Maps). These teams of artists, photographers and cartographers were often assigned to fighting regiments in order to provide maps of the battlefield and surrounding environs that were easily accessible and could be rapidly reproduced. Though the size and weight of the lithographic stones made them difficult to transport they were still frequently placed in the front lines of battle (Figure 13).

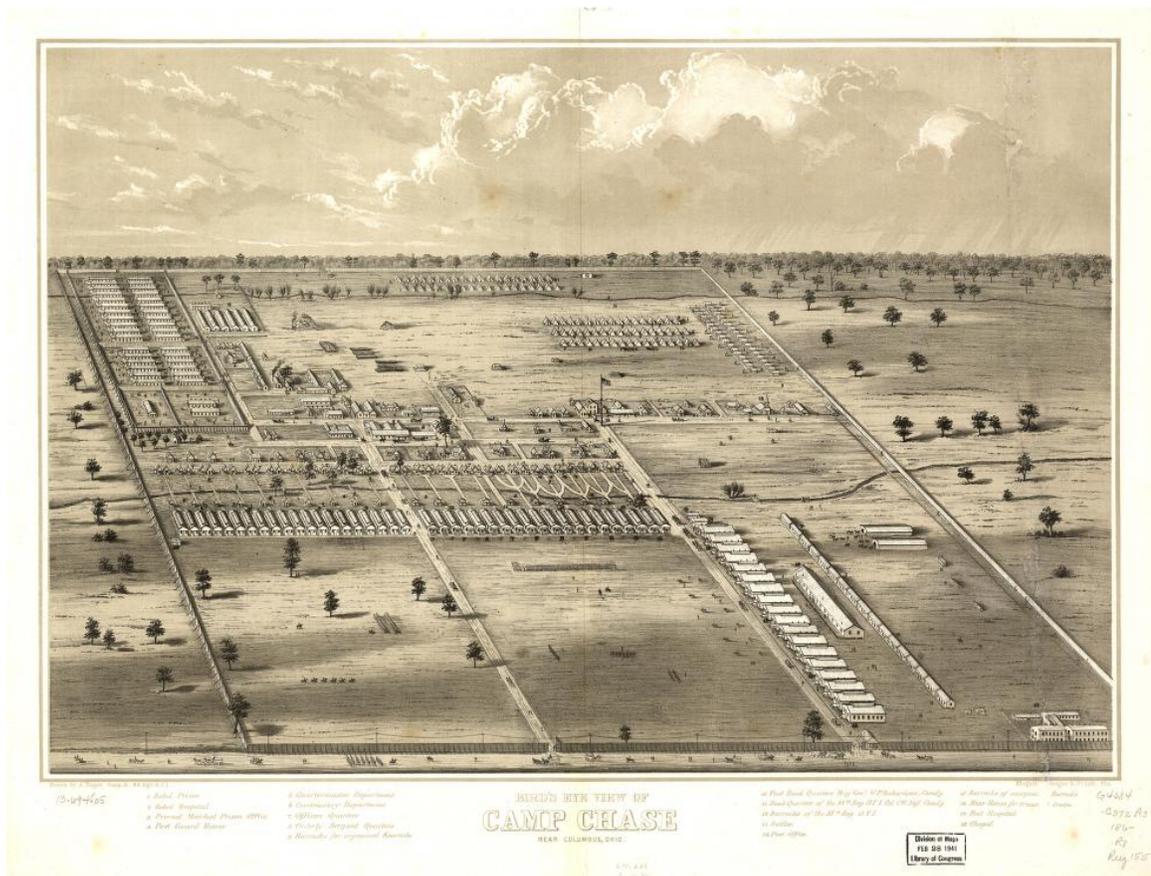


**Figure 13. Topographical Engineers, Camp Winfield Scott.** Yorktown, Va., vicinity. “Photograph from the main eastern theater of war, the Peninsular Campaign, May-August, 1862” (LOC). Notice the surveying equipment and a smaller tent perhaps used as a darkroom. Selected Civil War Photographs, 1861-1865, Library of Congress. [Image downloaded from the Library of Congress: [http://memory.loc.gov/cgi-bin/query/r?ammem/cwar:@field\(NUMBER+@band\(cwp+4a39463\)\)](http://memory.loc.gov/cgi-bin/query/r?ammem/cwar:@field(NUMBER+@band(cwp+4a39463)))), 1/09/08.]

For those men who would eventually go on to become bird’s eye map makers, the battlefields of the Civil War proved to be an important training ground. Quickly drawn, detailed sketches that communicated the flow of strategic events would provide them with the ability to produce accurate town maps in a timely manner, and their experience with the lithographic process would prove invaluable in the overall design and production of the maps.

Battlefield maps were, by necessity, simple and easy to understand. This meant that the maps that were produced were highly pictorial in nature, particularly for the representation of topography, as few officers or enlisted men were trained to read isolines

or scientific hachures. In addition, areas were often portrayed from an oblique perspective as it would be much more “familiar” than the planimetric viewpoint employed on most maps. Strategic areas, important structures such as fortifications and bridges, and enemy encampments could be recorded and rapidly reproduced. However, when the artists were not engaged in the field, they were able to create more detailed views of military installments, such as Ruger’s drawing of Camp Chase (Figure 14), a Confederate prisoner of war camp in Ohio, clearly a prototype of the post-War insider bird’s eye maps.



**Figure 14. Camp Chase, Near Columbus, Ohio.** Drawn by Albert Ruger, 1867 "Comp. H. 88 Rgt. O.V.I." (LOC, Geography and Maps Division). One of the many camp scenes that were popular with the general public. Ruger drew this when he was a private in the army at 36 years of age (Camp Chase Chronicles). [Downloaded from <http://lcweb2.loc.gov/ammem/pmhtml/panmap.html>, 06/10/08.]

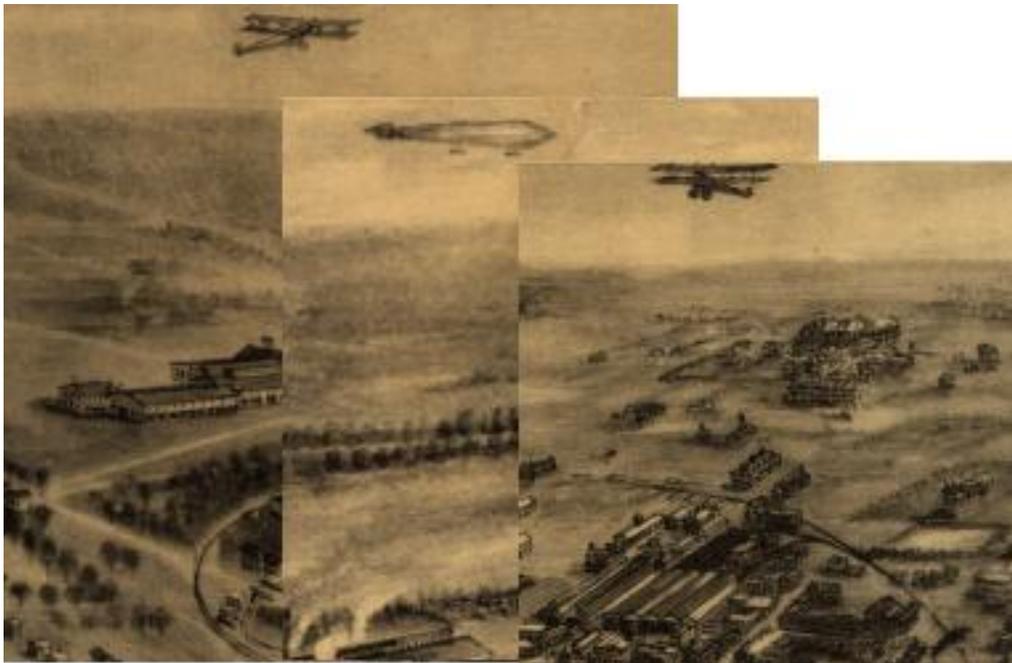
**Bird's Eye Maps and the Media**

It may be that the popularity of the panoramic views and bird's eye maps was greatly aided by the American public's fascination with the new science of photography. The first air photo taken from a tethered balloon appeared in 1860 with James Black's photo of Boston (Figure 15).



**Figure 15. Air Photo of Boston, MA.** This air photo of Boston is considered to be the first successful image taken from a tethered balloon. This new technology was soon adopted by the U.S. Army to perform reconnaissance missions during the Civil War. The Boston Public Library, Print Department, used by permission.

Widely published in magazines and newspapers, these photos created a national sensation (Orvell, 2003). Bird's eye view artists sometimes capitalized on the public's fascination with this cutting-edge technology by falsely intimating that their views were constructed using balloons or later, aircraft. In twentieth-century views, "Airplanes and a dirigible circling the city were included in the trademark of the aero view to give the impression that some of the information was derived from aerial reconnaissance, which, of course, was not true" (LOC, Geography and Map Division). (See Figure 16.)



**Figure 16. Hints of Aviation.** Drawn by Thaddeus Fowler. The aircraft in these sections from Fowler's bird's eye map of Allentown are indicative of how the artists capitalized on America's fascination with aviation by suggesting the views were drawn from the perspective of planes hovering over the city. (LOC, Panoramic Maps)

No matter how the artists and mapmakers achieved the finished product, the elevated perspective presented a view of a town or city that was not available through personal

experience. In the panoramic views of larger cities, the overall representation of the city as an organic entity must have been quite astounding to those whose geographic frame of reference rarely extended beyond their own neighborhoods. The bird's eye maps of smaller towns, on the other hand, reveal the unbridled optimism of settlers who had achieved their own version of the American Dream.

### ***The Men Behind the American Bird's Eye Maps***

As stated above, the Civil War had an inadvertent but vital impact on the view making trade. John Bachmann, a successful panoramic view maker before the War, was one of the first artists to recognize the commercial potential of rendering views for public consumption. He is credited for creating numerous maps of eight battlefields which were “visually attractive panoramas [that] were easily understood and perhaps more meaningful to a public largely unskilled in map reading” (LOC, History of Mapping the Civil War). Popular magazines, such as *Harper's Weekly*, often reprinted panoramic maps and played an essential role in the development of the view making trade by exposing millions of readers to this new style of map making.

In the decades following the Civil War, the era with which this study is chiefly concerned, countless artists tried their hands at creating a bird's eye map, but only a handful were able to sustain successful careers as itinerant map makers. Most prolific among these men were Albert Ruger, O.H. Bailey, Henry Wellge, Thaddeus Fowler, and Lucien Burleigh. The work of these five men comprises more than half of the almost 1800 bird's eye views held by the Library of Congress. Other significant artists include

Augustus Koch, James Palmatary, Herman Brosius, Eli Glover, Camille Dry and George Norris.

During their military service, Ruger and Koch were trained as topographic engineers in the U.S. Army, Wellge served in the same capacity in the Prussian Army and Camille Dry was a civil engineer with the French military. Most influential among these men was Albert Ruger who initiated the view making trade in the Midwest (Reps, 1984; LOC, Geography and Map Division).<sup>2</sup> By adapting the system of subscription sales originally devised by eastern landscape artists to the particular needs of the expanding Midwest, Ruger established himself as one of the earliest and most successful itinerant bird's eye view artists.

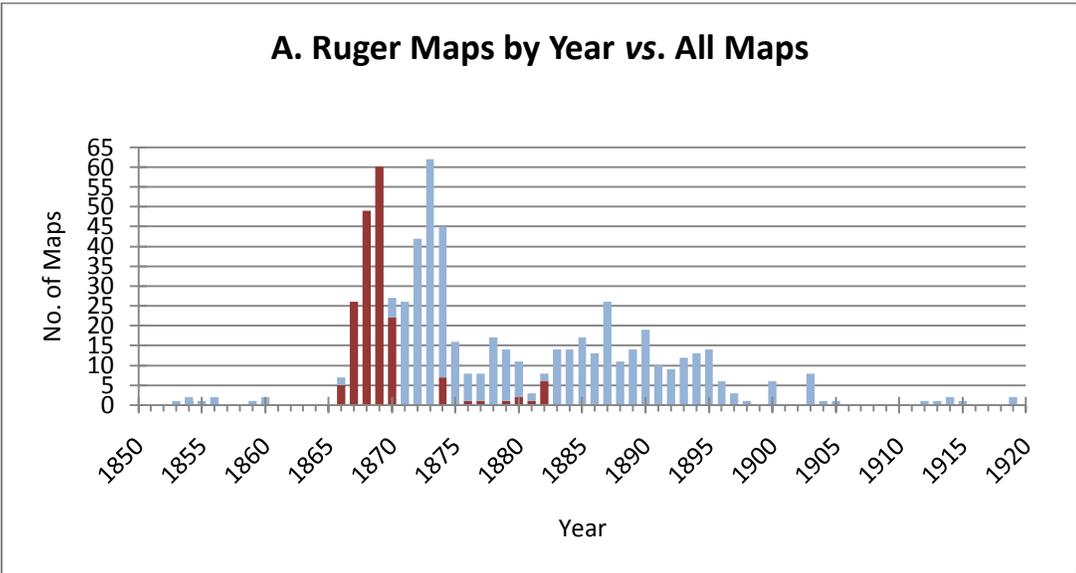
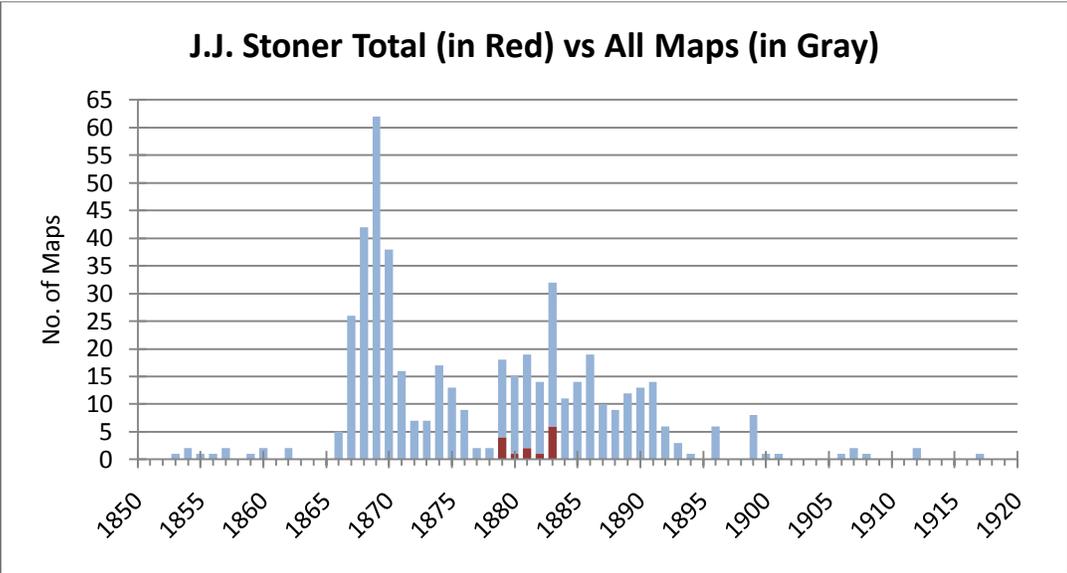
Trained in the tradition of European landscape painters, Albert Ruger immigrated to the United States from Germany and enlisted in the Union Army where he learned the skills of a "topographic engineer." His first maps were perspective drawings of military encampments. After the Civil War, he turned his talent into a more commercially lucrative enterprise by joining the ranks of the bird's eye map makers. He was eventually joined by other artists, publishers, lithographers and together they formed a loose association of artists, apprentices and agents.

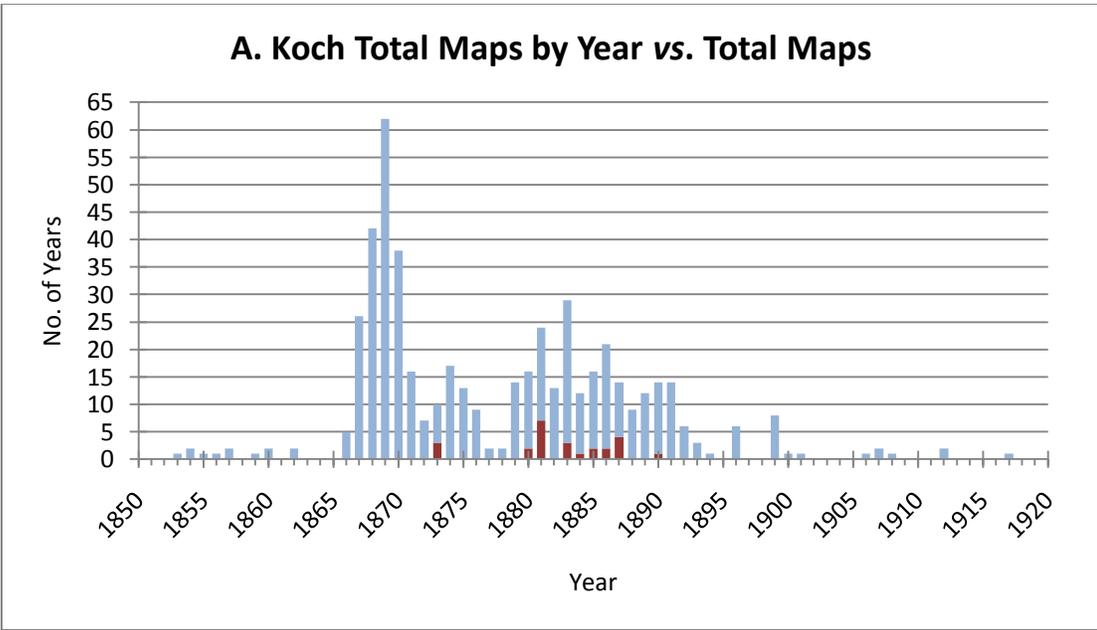
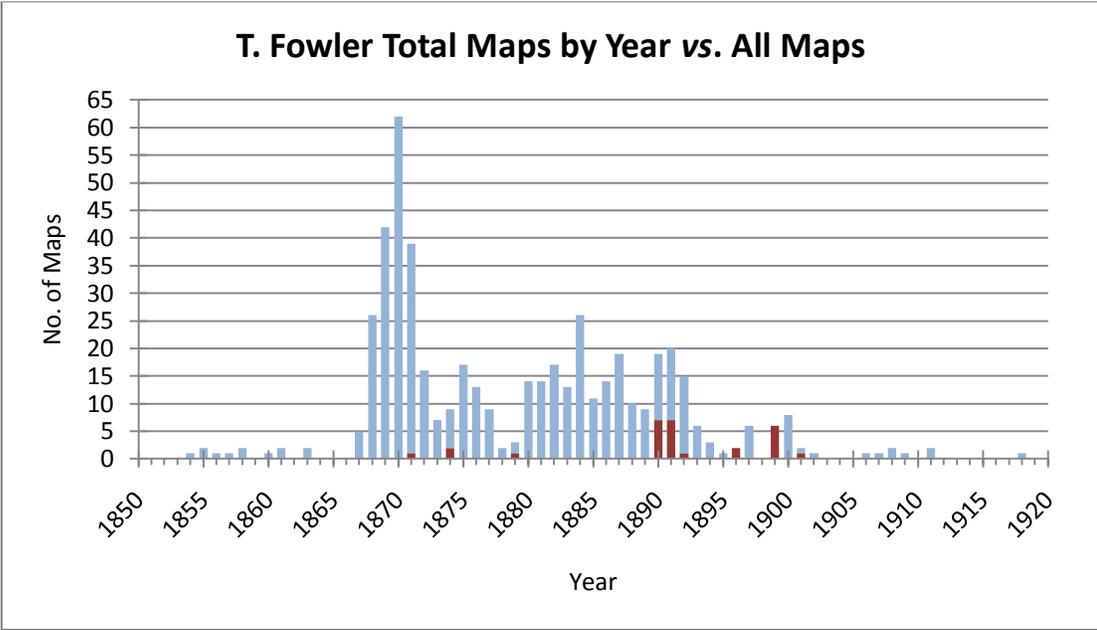
While it appears that there could have been competition between the artists for specific territorial rights, it is doubtful that these men came to any formal (or informal) agreement concerning where they worked. O. H. Bailey in an interview that appeared in the Sebring Times in 1932 was quoted as saying: "*The business has been practically*

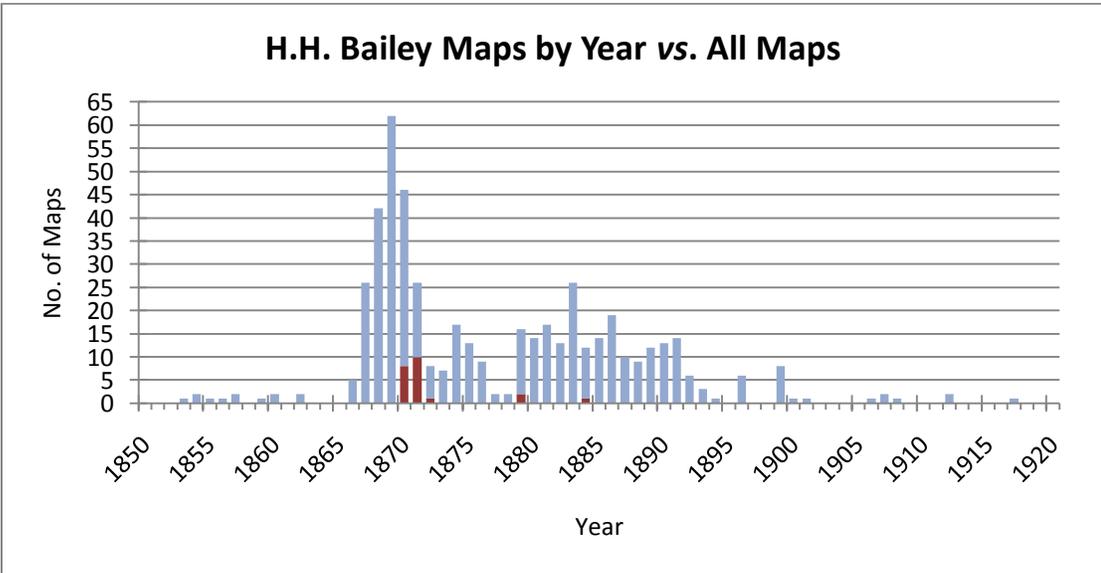
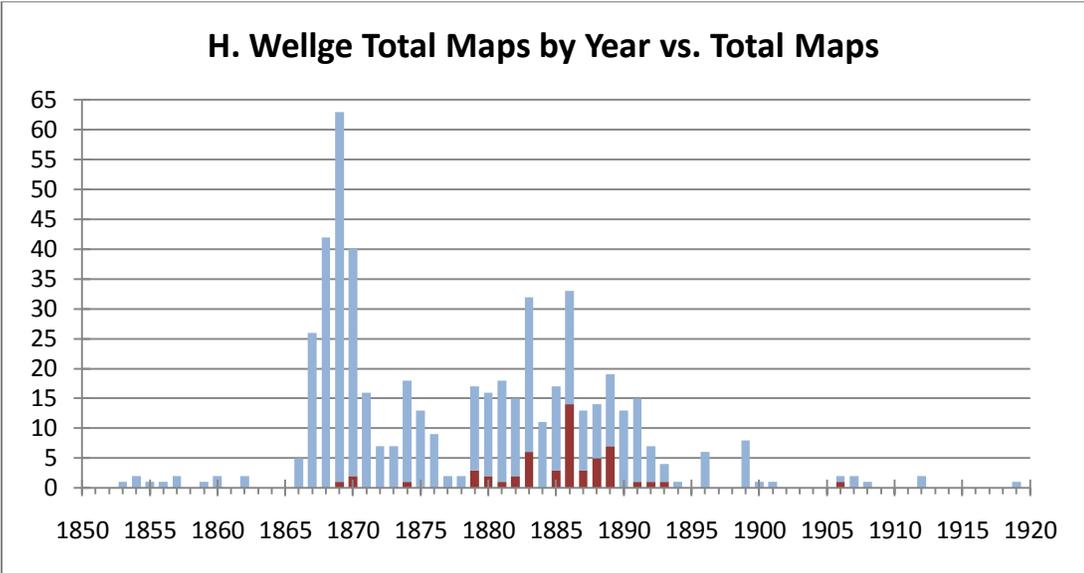
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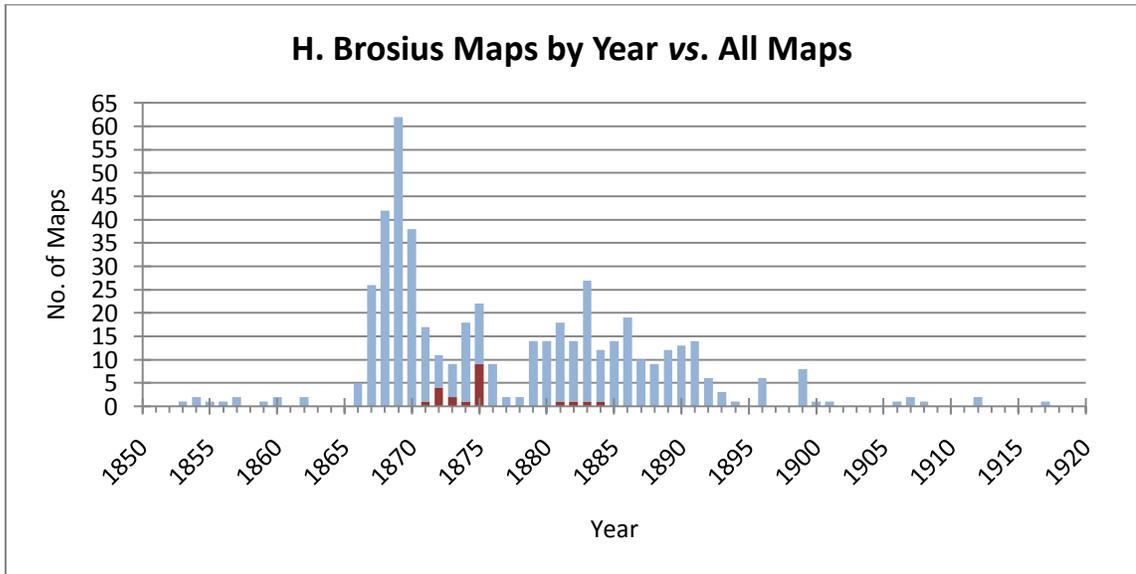
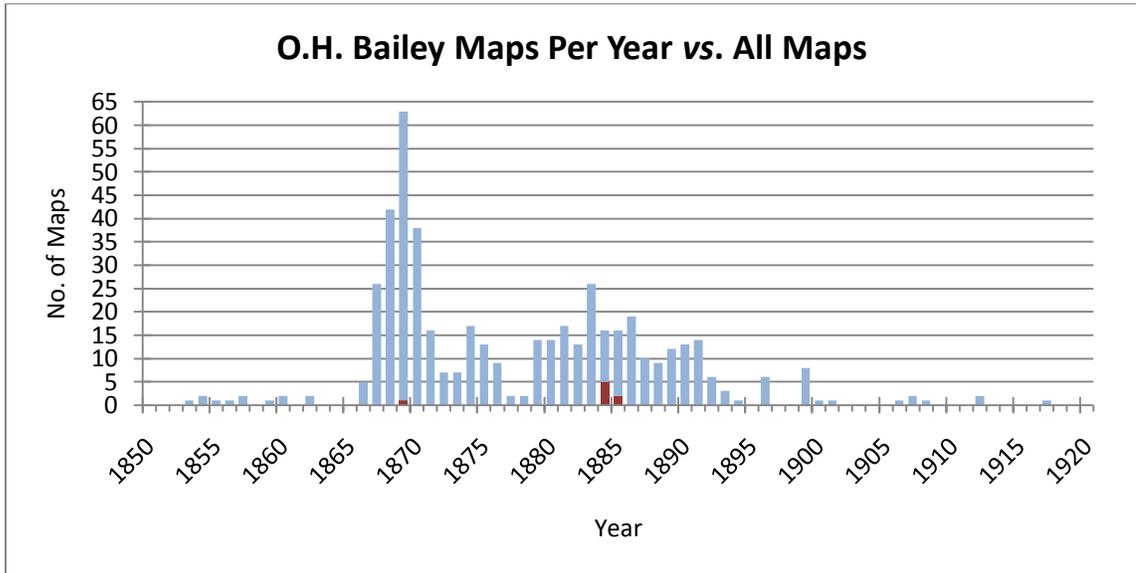
<sup>2</sup> According to the Library of Congress, Ruger was involved in the production of approximately 213 maps, either as an artist, publisher or lithographer.

*without competition as so few could give it the patience, care and skill essential to success*” (LOC, 2005). Ruger was responsible for quite a diverse portfolio of the bird’s eye maps that ranged from urban views of cities in the Northeast, the Midwest (as far as Minnesota), Missouri, Kentucky and, towards the end of his career, he made a foray into North Carolina. Fowler and Burleigh apparently concentrated on specific areas of the country (Pennsylvania and New York, respectively), with occasional excursions to the South and West. However, as the country continued to expand, the market for the bird’s eye maps also grew. Fowler would eventually combine his talents with that of brothers Oakley H. and H.H. Bailey producing Western views; the Bailey brothers were particularly prolific in the Northeast. Augustus Koch and Henry Wellge in particular covered more of the U.S. than their contemporaries. “It is probably a combination of career duration and their willingness/ability to travel that finally affected the number of maps these men drew, for while Ruger probably traveled more than Fowler, it is Fowler who benefited most from concentrating on a single region, for his total output over his career amounted to 426 views” (Williams, 2004, p. 34). Figure 17 (below) conveys the length of careers and number of maps for each of the major artists in the Midwest and prairies. The red bars indicate the number of maps created by a specific artist compared to the total number of maps created for that year. Caution should be used when evaluating the artists and the number of maps they produced since it has been suggested by Reps (1984) that the artists/agents employed by another view maker would draw the map but sign their employer’s name. Another issue that compounds the problem of authenticity is that no accurate catalogue of all maps created has ever been compiled.









**Figure 17. Career Production of Major Post-War Bird’s Eye Map Makers in the Study Area.** These graphs shows the number of years that each artist spent as map makers and the number of maps produced per year as compared to the total number of maps by year. Note that Albert Ruger produced an impressive 60 maps in 1869 alone. The greatest period of map making occurred between the years of 1865 to 1899. Although Thaddeus Fowler continued his career well into the twentieth-century, the popularity of the maps began to fade around 1900.

### *The Bird's Eye Map Trade*

The bird's eye maps (as well as the panoramic views) were first and foremost a commercial endeavor and the target audience of the view/map makers had always been the town's inhabitants. While the railroads played an important role in the production of the post-War bird's eye maps, profit through individual sales of the maps depended almost entirely on the artists ability to produce a map that captured more than the schematic layout of the town. In essence, they needed to capture the soul of the towns and cities they drew, which they did with aplomb.

It is well accepted that the bird's eye map makers played to the civic pride of local townspeople as well as the boosterism impulse of civic leaders and businessmen. For the first two decades after the Civil War, newly arrived immigrants and their descendants proud of their hard-won accomplishments undoubtedly invested in the bird's eye maps as commoratives to be passed down to successive generations. They were hung in civic buildings, business offices and in the parlor of American homes which was, at that time, the most important room in the house.

Owners of these prints displayed them on the walls of parlors, offices, and such public places as banks, hotels and government buildings. Everyone regarded these urban views as convincing evidence of their city's prosperity and importance and looked on them with pride, consulted them for information, sent them to friends, or admired them as decoration for their homes or places of business (Reps, 1994).

There doesn't seem to be a fixed point in the history of these towns when it was decided that the view or map was necessary. Certainly the "portraits" of the railroad towns were done soon after land sales and settlement to encourage immigration, but in an evaluation of 54 cities in Illinois, there did not seem to be correlation between when the town was incorporated and the year that the bird's eye map was produced. While many cities were only drawn once, subsequent maps of the same city generally seem to be approximately twenty years apart, when the city size had increased and was probably populated by second- or third-generation inhabitants. These later prints seem to mark a turning point in the function of the bird's eye maps.

Originally created as items meant to encourage settlement and proclaim the achievements of industrious pioneers, the bird's eye maps eventually became more promotional in nature, emphasizing the commercial activities of the town. What was once considered fine art was transformed into inexpensive giveaways by businesses to encourage patronage of their stores and trades. Vignettes, that on earlier maps had contained illustrations of civic buildings such as court houses and schools, now focused on businesses such as banks, hotels and whole sections of the business district. Simple legends that had once contained information about the location of civic institutions, cemeteries and churches had expanded to include whole categories of individual businesses, grand private homes, offices of lawyers, physicians, and realtors. For towns that developed into major trading centers, the bird's eye maps grew to be an exposé of American capitalism.

While some map makers began their careers as landscape artists, most learned the trade while in the employ of established map makers. This cooperative arrangement created a relatively small fraternity of individuals involved in the view making trade.

At some point in their careers, and for varying lengths of time, almost all of the relatively prolific artists worked with or for Albert Ruger, Thaddeus Fowler and Henry Wellge. For example, Fowler “joined Albert Ruger of Chicago as an assistant, or agent, as early as 1868 and went on his own in 1870. He was involved in several partnerships with other established bird’s-eye-view artists and publishers such as H.H. Bailey, O.H. Bailey, and J.J. Stoner” (Texas Bird’s Eye Views). Stoner, a print publisher based in Milwaukee, worked with August Koch, O.H. Bailey, Fowler and Lucien Burleigh at different times during their careers. He seems to have developed an especially close working relationship with Albert Ruger, and the two became partners in the publishing business. Stoner was also successful as a bird’s eye map maker on his own. The lithographic firm of Adam Beck and Clemens J. Pauli, also based in Milwaukee seems to have been the favorite of many of the bird’s eye map makers; Pauli also tried his hand at drawing the maps. Whether it was to maximize profits or to exert more control over the final product, the most successful artists also delved into publishing and lithography (Table 1).

| <b>Interchanging Roles in the Creation of the Insider Bird's Eye Maps</b> |               |                     |                  |
|---------------------------------------------------------------------------|---------------|---------------------|------------------|
| <b>Name</b>                                                               | <b>Artist</b> | <b>Lithographer</b> | <b>Publisher</b> |
| Ruger                                                                     | •             | •                   | •                |
| Bailey, HH                                                                | •             |                     |                  |
| Bailey, OH                                                                | •             | •                   | •                |
| Beck                                                                      |               | •                   | •                |
| Brosius                                                                   | •             |                     |                  |
| Burleigh                                                                  | •             |                     |                  |
| Fowler                                                                    | •             |                     | •                |
| Glover                                                                    | •             |                     | •                |
| Pauli                                                                     | •             | •                   | •                |
| Stoner                                                                    | •             |                     | •                |
| Wellge                                                                    | •             |                     | •                |

**Table 1. Interchanging Roles in the Creation of the Insider Bird's Eye Maps.** This table describes the documented roles taken on by the bird's eye map makers in the production of the views. In addition many of the individuals listed served as agents for other established artists.

The close working relationship between the artists, publishers and lithographers undoubtedly influenced the uniform appearance of the maps. This intermingling of roles may also explain the similarity in approach to promotion, sales and production. This highly formulaic approach to the marketing and sales, developed by Edwin Whitefield and others prior to the Civil war and refined by Albert Ruger, proved to be a successful business plan for over 60 years.

**Constructing the Map**

The actual creation of the average bird's eye maps was probably not a lengthy undertaking. Existing maps provided the layout of the street grid and the artist needed only to determine the most advantageous point of view that would best provide the most flattering representation of the city. In order to achieve the detail that is the hallmark of the bird's eye maps, the artists would then walk the streets of the city, creating sketches

of the homes and buildings; by tilting the plane upon which the town was positioned, the detail in the foreground could be carried through to the buildings at the map's horizon. When final approval was given by the subscribers, the drawing would then be sent to the lithographer (also an artist) to prepare the work for publication. The template employed and the mechanical approach to their construction resulted in great stylistic similarity that may have helped to foster a stereotypic image of small town America.

Of the more intriguing cartographic components of the bird's eye view maps is the iconography and symbology employed by the mapmaker and lithographer. Many types of buildings are typically represented from map to map, but some may have more significance than others. Buildings depicting commerce indicated a growing economy and the existence of a prosperous middle class. Schools, and especially women's colleges indicated a dedication to progressivism; churches assured a moral and God fearing citizenry. Smokestacks bellowing black "wealth" from factories and foundries indicated a town's commitment to industrialism and jobs for those unable to find work in the large urban areas. Of course, steamships in the harbor and trains running on railroad tracks were indications of trade, commerce and transportation. The map makers captured these icons of expansion and industrialization and repeated them from town to town.

Certain elements of the map give great insight into the value that the town's inhabitants placed on nineteenth-century American ideals, as well as their optimism for the future of their town and country. Simple titles and more expensive elaborate cartouches speak to both the artistry of the mapmakers and the importance a growing community placed on their identification. Local and national symbols of patriotism, such

as heraldic shields that contained references to state and county were often combined with draped American flags. The American Bald Eagle held a ribbon in his beak on which was written national or local patriotic mottos. These symbols of national unity and local governance reflect the patriotic fervor of both newly arrived immigrants as well as American migrants.

Elongation of church steeples, the rotation of buildings to provide a better view and the enlargement of specific buildings are but a few methods devised by Renaissance view makers and adopted by the American bird's eye map makers to give prominence to important buildings on the map. The artists were not above using artistic license to present a more alluring vision of the cities and towns they drew. Narrow, rutted roads, perhaps only footpaths, were widened and smoothed by the artist's hand. Widening the road allowed for equal visual access to buildings (especially those whose owners paid to have their businesses represented on the map) and may also have been suggestive of increased wheeled traffic, another sign of prosperity. The artificially high contrast and the widening of the roads gave the road grid a dominant visual position on the map. The portrayal of wide, uncluttered roads and the general precision of line work suggested a level of order on the wilderness; what was once unsettled frontier had become civilized.

### **Marketing the Map**

Early landscape paintings, panoramic views and the bird's eye view maps created by itinerant artists were mainly sold by subscription to local residents. The origin of this approach to making and marketing the views is most often ascribed to Edwin Whitefield who was responsible for landscape and panoramic views of cities in the eastern United

States and Canada (Reps, 1984; Grim, 2008). As is evident in his field notebooks, Whitefield kept meticulous records of subscriptions and payments and also employed sales agents who would do the same in cities that the artist planned to visit. This method of sales and promotion was adopted by the post-War artists working in the Midwest and prairie states and largely improved upon by Albert Ruger. By adapting the system of subscription sales originally devised by eastern landscape artists to the particular needs of the expanding Midwest, Ruger established himself as one of the earliest and most successful bird's eye map makers.

“For a town's status, it was just as important to produce a view, as it is today to maintain a town web page [and] a similar intensity of desire existed” (Kreiger, 2008, p. 16). The fervor for the views undoubtedly heightened the anticipation of the artist's arrival so that newspapers would often promote the event by running an advertisement (often written by the artist himself) as a news story worthy of the front page (Reps, 1984).

‘...we welcome to our city, Mr. J. T. Palmatary, who...in connection with Geo F. Schuchman & Co., will shortly publish a “Bird's Eye View of Pittsburgh, Allegheny, Birmingham, South Pittsburgh, Sligo, Manchester and Lawrenceville. The view will be similar in extent and view to those which Mr. P. has already prepared of the cities of New York, Philadelphia, Boston, Cincinnati, Chicago, etc... The view of Pittsburgh will be six feet in length by four in width, and will exhibit to the eye every street, square and lane in the two cities and boroughs, with a correct and life like drawing of every public building, store, manufactory and private dwellings...so minutely described that more than two hundred signs of stores, etc., may be distinctly read...Palmatary is now busily engaged in completing the drawings...The lithography...will be printed in oil colors.’ (Wolf, 2004, p. 33 after the *Daily Pittsburgh Gazette*, 2/22/1859, p.3.)

As suggested in the above quote, the accurate naming of buildings and businesses was an important selling point to potential clients as they were the advertising links that described the services available to customers. These “links” were often in the form of referenced items contained within the legend of the map that corresponded to numbered buildings within the map itself. Additional fees paid by those referenced in the legend increased the artist’s profits as did the sale of small vignettes featuring the homes of wealthy families, successful businessmen and important civic leaders, often located near the border of the map.

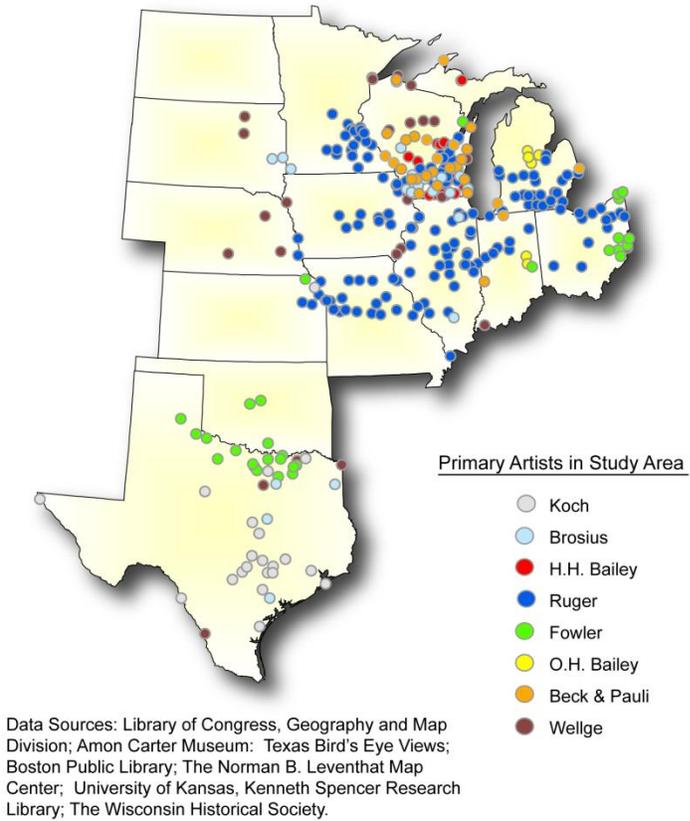
To immigrants farmers and successful businessmen alike, the sales agents were the purveyors of the conceptualized American Dream. “The sun is always shining, the season is usually early summer, and the gentle breeze blows just enough to unfurl the flags of freedom...” (Danzer, 1990, p. 144). This idyllic scene was hardly reality; however, and the sales agents may have been hard pressed to sound convincing. In his book *How ‘tis done: A thorough ventilation of the numerous schemes conducted by wandering canvassers, together with the various advertising dodges for the swindling of the public*” a recounting of the county atlas trade, Harrington Bates wrote an imagined sales pitch aimed at a local farmer. This vignette is oddly reminiscent of a scene from “The Music Man.” The eager representative plays upon the farmer’s vanity by explaining that the many imperfections in the construction of the house and the general disrepair of the farm yard need not appear on the map “as the farmer’s inevitable future success would make the artist’s improved vision a reality” (Williams and Patton, 2008).

For instance, you would want that pile of wood near your house left out of the sketch, and the rubbish about the back-yard, which you are about to cart off, should not appear. You had better have a picket fence in front, instead of those rails as you undoubtedly will have a picket fence there someday...we will have the sketch made giving you just such a house and yard as you will probably have three or four years from this time (Reps, p. 69, after Harrington Bates, 1890).

Bates was apparently wary of the county map trade, the sales methods of which were similar to those employed by the bird's eye sales agents. However, it is obvious that the appeal of the maps, especially those done of the developing towns throughout the Midwest, was directly associated with the pride of place and sense of optimism felt by the people who lived there.

After the Civil War, numerous new towns that developed throughout the Midwest and prairie states created a new market for established and aspiring bird's eye map makers (Figure 18). Their success, however, seems to have been more dependent on the system of organization, sales and promotion established by Ruger. "The formula he used for garnering pre-sale subscriptions, the rapid drafting of the view, and the development of a network of lithographers and publishers became the *modus operandi* for other major map makers of the nineteenth-century" (Williams and Patton, 2008).

TERRITORIAL COVERAGE OF MAJOR BIRD'S EYE MAP MAKERS  
IN THE MIDWEST AND PRAIRIE STATES, 1853-1918



**Figure 18: Primary Artists in Study Area.** The post-War bird's eye map makers were required to travel further afield than their eastern counterparts. Train travel, however, must have made their journeys considerably easier. Note the linear pattern of the train routes defined by the artist's travel.

An integrated team of skilled artists, sales agents, lithographers and publishers was incorporated into the production equation, resulting in higher productivity and the ability to maximize profits. This approach to the production of the maps benefited both the business end of the trade, as well as the cartographic design of the maps. This included the consistent use of a modified two-point perspective to construct a grid upon which labeled roads and buildings were placed, as well as the inclusion of elaborate cartouches and extensive legends.

The creation of any map is largely dictated by decisions by the cartographer regarding content—that is, what should be left in or taken out. These decisions are often influenced by the directives of the map maker's patron in order to promote the message of the map. The American bird's eye maps are especially good examples of this decision-making process.

In order to create the bird's eye maps typical of the post-War era, the artist was required to walk the streets of the town in order to record the placement of buildings and structural details that are the defining characteristics of the maps. This method of mapmaking resulted in an intimate association with the city and the people who lived there, creating a relationship between the mapmaker and his subject that is uncommon in cartography. However, it is this relationship between the artist and the community that influenced the content of the bird's eye maps. The artist undoubtedly came into contact with the town's residents and these casual encounters may have resulted in increased sales as well as changes in how the property was portrayed. To a degree unknown in most cartographic endeavors, the decisions of the mapmaker to include additional detail,

highlight areas or delete features was influenced by the casual conversations with the citizens of the area portrayed.

The expansion of railroads into the Midwest and prairie states and the movement of people into these two regions had a direct effect on the American economy. As businesses flourished, these new cities and towns became less dependent on trade with eastern cities, and large metropolises such as Chicago and St. Louis soon became centers of American capitalism. This shift in economics and productivity had a significant effect on the map printing trade and, consequently, on the production of the bird's eye maps. The center of printing experienced a transition from the large printing houses in Boston, New York and Philadelphia to midwestern cities, especially, Chicago. George F. Cram and Rand McNally became highly successful by producing popular school and family atlases. Rand McNally also capitalized on the growth of the railroads by becoming the major producers of railroad maps. While the bird's eye map makers rarely, if ever, used these large map printing houses, they did benefit from the influx of skilled tradesmen into the area and formed working relationships with small, specialized lithographers and publishers.

Information gleaned from the maps gives some insight into the interaction between the map makers and specific publishers. J.J. Stoner, based in Milwaukee, was one of the, if not the most prolific publisher of the bird's eye maps made by many of the post-War artists, especially Albert Ruger. Perhaps due to availability or geographical proximity, Ruger often used small publishers based in Chicago, such as the Chicago Lithographing Co., and Charles Shober and Company. Henry Wellge formed his own

publishing company (“The American Publishing Company”), as did Thaddeus Fowler, who published virtually all of his own maps as well as those of other artists. The role of the publishers and lithographers are not easily fleshed out, as discussed above (pp. 92-94), but the lithography firm of Beck and Pauli (also based in Milwaukee) seems to be a favorite of most of the more successful mapmakers. The myriad roles assumed by the men involved in the view making process can make it difficult to ascribe the appropriate contributions of each to a particular view. For example, J.J. Stoner has been credited as the artist on many of the maps held by the Library of Congress, when, in fact, he is named as the publisher on the map itself, making his participation in the creation of the map unclear.

As the nineteenth-century progressed, tactics used in the sales and production of the maps improved as printing technology improved and became more easily available. A number of men attempted—at least once—to delve into the bird’s eye map making trade, but only those who had established networks of publishers, engravers and sales agents were able to turn their efforts into successful careers. More importantly, it was the change of functionality in the bird’s eye maps that made the greatest impact. The maps had evolved from promotional items designed to encourage settlement to views that espoused success and invited people to come into the city for supplies.

## CHAPTER VI

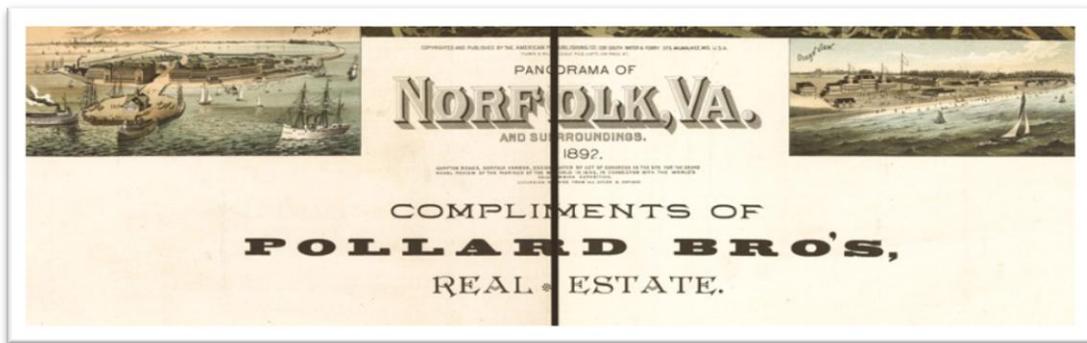
### REALITY, MYTH, AND SENSE OF PLACE IN AMERICAN BIRD'S EYE MAPS

*“What begins as undifferentiated space becomes place as we get to know it better and endow it with value.”*  
(Tuan, 2001, p. 6).

Because of their continuity of style and considerable longevity (the first bird's eye maps appeared early in the century and lasted until the early twentieth century), they are important graphic representations of the nation's growth and expansion throughout the nineteenth and into the first two decades of the twentieth century. Undoubtedly, the maps were useful devices that served specialized needs of large conglomerates, small business owners and local governments. In addition, the bird's eye maps also have a very compelling story to tell about the inhabitants of these places.

The nineteenth-century bird's eye maps were created to serve the various needs of commercial enterprise and to be memorials of the hard work and accomplishments of local citizens; often underwritten by town councils, they were vehicles of community boosterism and on a more personal level, they served a commemorative and aesthetic function within the American home. Because the bird's eye maps were visually pleasing, they may also have been part of the advertising campaigns designed by railroad corporations to promote rail commerce. Hine states that “After the first [railroad] lines

were created, they began through pamphlets, posters, agents and handbills to generate traffic—an early example of advertising creating demand” (Hine, pp 262-263, 1973). As Reps (1984) suggests, the railroads may have used the maps to promote settlement. It is likely that these promotional practices would have benefited from the aesthetically appealing bird’s eye maps that depicted the ideal small town with land stretching to as far as the eye could see. At the time, land was the greatest commodity available to the railroad barons for it was through the sale of land that railroads were able to expand. Railroads and associated land developers contracted with real estate companies to promote land sales undoubtedly assuming that the orderly yet open spaces on the bird’s eye maps would certainly attract settlers. As a result, real estate companies would



**Figure 19. Bird’s Eye Maps and Land Development.** This section of a bird’s eye map of Norfolk, Virginia from 1892 demonstrates how the production of the map was used by real estate companies to promote land sales. [Downloaded from the Library of Congress, 1/27/09. <http://lcweb2.loc.gov/ammem/pmhtml/panhome.html>.]

underwrite the production and distribution of the maps (Figure 19). On a smaller scale, local shop owners would use them for advertisement and town councils requisitioned them to promote economic prosperity and, for some time, population growth.

It has been well documented that people develop intimate, emotional connections to places they have lived or to which they have traveled. According to Stokowski (2002) places are “fluid, changeable, dynamic contexts of social interaction and memory” and that they are embedded with “place-making behaviors, notions of ideology, power, control, conflict, dominance, and distribution of social and physical resources” (Stokowski, p. 368). Many immigrant families, both American and foreign-born, formed an emotional bond to place--to their homes and land--in the Midwest and prairie states of the nineteenth-century which is aptly captured by the bird’s eye maps. With their icons of prosperity and civil obedience, religious righteousness and upward mobility, the maps are imbued with indicators of place-making behaviors. Factory smokestacks billow smoke into the clear blue skies suggesting an optimism that is based on industrial strength. Jails and courthouses, often featured in vignettes speak to lawfulness and concern for the safety of the inhabitants of the town. Churches of many denominations are drawn with exaggerated steeples reaching up to heaven, an indication of communal piety and godliness. Local businesses were proudly displayed on the map indicating that upward mobility was available to everyone who had the capacity for hard work that would eventually facilitate change in social positions.

While the maps could usually be found hanging in civic offices and businesses, they were also featured decorations of the American parlor which was the most important room in many nineteenth-century homes. When describing the many social adaptations of the parlor, Kasson notes that “for most middle-class families the parlor doubled as the family sitting room. Nonetheless, they furnished it as a carefully elaborated social

statement with their most treasured objects and best furniture” (Kasson, 1990, p. 174).

Obviously, the bird’s eye maps were such an important repository of memories and hopes for the future that they were given a special place within the American home.

The bird’s eye maps appear to present a democratic, class free living and working space. Certainly this is true of the maps created shortly after the end of the Civil War that recorded the development of smaller, less populated places throughout the Midwest and prairie states.<sup>3</sup> These maps often conform to a preconceived notion of small town nineteenth-century America. Generally, streets are drawn as being wide and smooth; homes are aligned on tree-lined streets and small neighborhoods exist on carefully surveyed square plots. Work places form a small central business district on Main Street and all of the buildings are carefully sketched so that the residents could easily identify their homes or businesses on the map. Trains are often seen coming and going on a single rail, an indication of progress and the promise of a country recently united with seemingly unlimited potential. Close to one hundred and fifty years later, the overall feel of the image is one of bucolic peacefulness, when at the time, the maps captured the energy and enterprise of a rapidly growing country immersed in its own vivacity. In essence, the bird’s eye views reinforced the growing ideology of the American Dream.

It is important to remember that to some extent the bird’s eye maps were the product of those who paid for their creation. As discussed above, the railroads may have paid to use them to promote settlement and land sales; real estate companies underwrote their financing to sell land, and local businesses and town councils used them to promote

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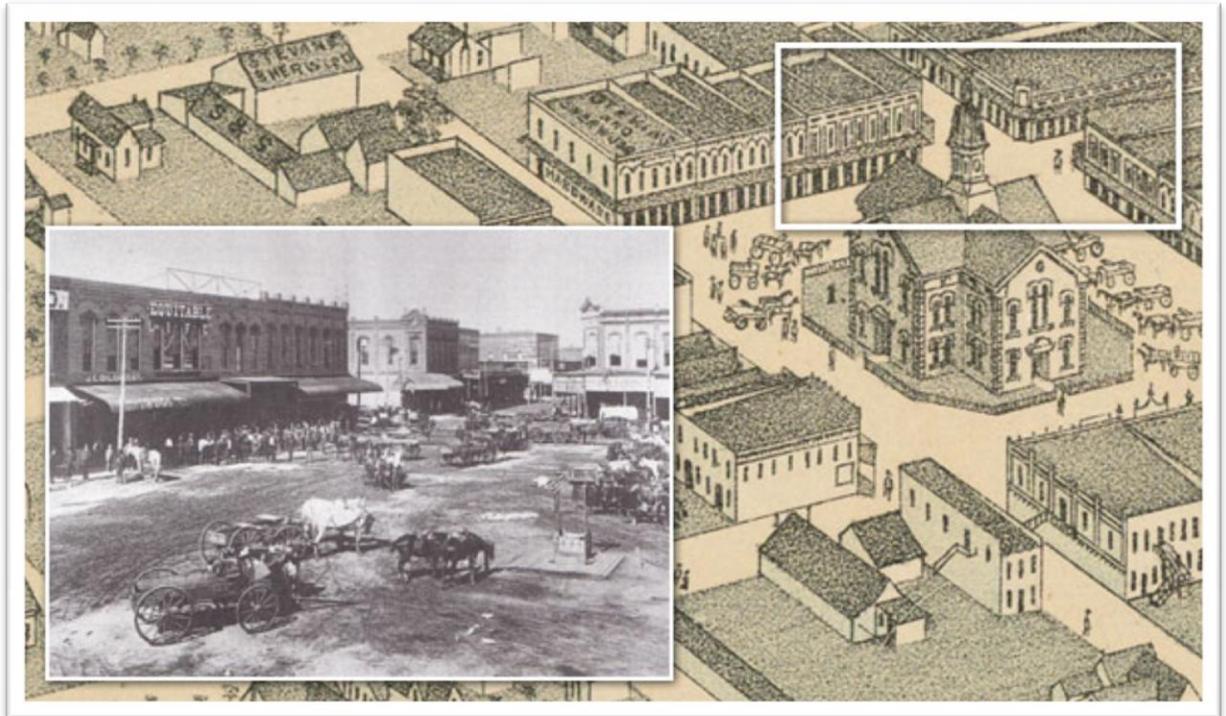
<sup>3</sup> In this study, small towns are defined as being  $\leq$  15,000 people.

prosperity. The people who lived in the towns and cities rendered on the maps used them to promote the myth “of small town life [of a] homogenous, classless society in which anyone with ambition, thrift and diligence could easily move upward” (Hine, p. 257). Reality, of course, was quite different. Class distinctions, whether they were acknowledged or not, existed in even the smallest towns and often it was land ownership that determined to which class one belonged. Thriving businessmen, local officials and other successful entrepreneurs who occupied the upper strata of society could hold up to eighty percent of the land within a given town (Hine, 1973). Blue collar workers, transients and ethnic groups occupied the bottom rung of the social ladder with little or no chance of upward mobility except within their own class. Land ownership was equated with wealth. For those unable to purchase land, the chances of moving into a higher social status were practically nonexistent.

In a study from 1986, Hibbard and Davis discuss how the perceived ideology of small town America is played out in the town of Oakridge, Oregon. “The spirit of improvement and desire to present the town in a positive light are based in the idea that community churches, library, schools and other public institutions and facilities are the products of its citizens own participation” (Hibbard and Davis, p. 424). This idealized community, the authors conclude, is based on the myth of communal productivity and cohesiveness and is not what it seems to be. This is also true of the nineteenth-century towns re-presented on the bird’s eye views. The congenial environment depicted on the maps is a convention of middle class idealism, similar to the attitude of the residents of Oakridge. The sun was always shining, public areas were clean and orderly; private

sectors were pristine and free of blemishes. Selected streets were wide, smoothly paved and well maintained. Reality, of course, was significantly different. In describing the road conditions, Reps (1980) states that “The streets were so wide and in rainy weather so muddy that some of the local citizens claimed that strangers sometimes were swallowed up in the mud and never seen again. The condition doubtless was shared by other frontier towns, for under the primitive conditions that prevailed it was many years before streets were properly filled and graded” (Reps, p. 204). The bird’s eye maps represented the place as the town’s residents envisaged their surroundings in the past and the future, but not as they actually were.

Reps states that the maps probably cost between three and five dollars, which was a significant investment for those with limited economic resources. Therefore, it appears that the maps were marketed to those who could afford to pay for at least a single copy of the view.

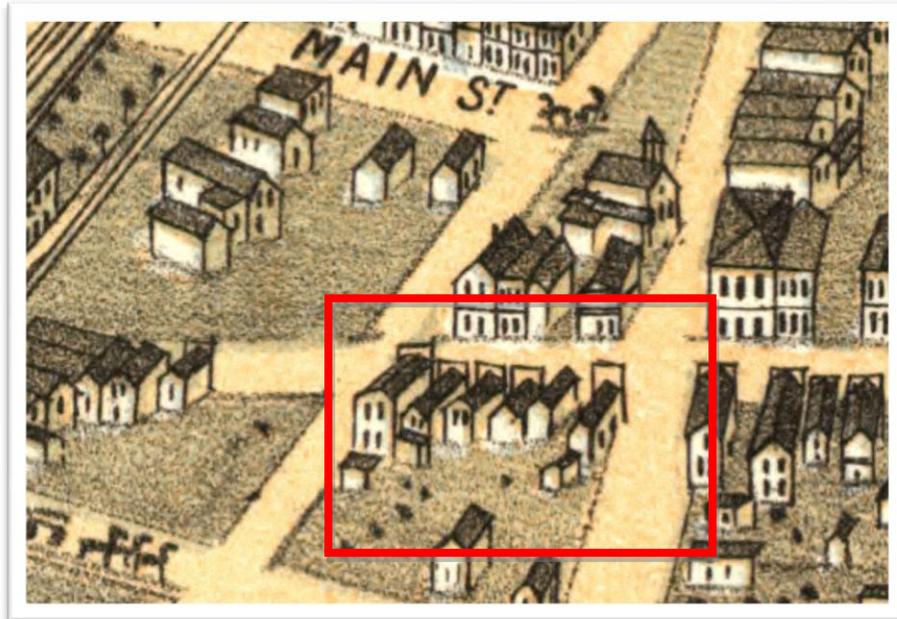


**Figure 20. Gainesville Town Square, Gainesville, Texas, 1883.** This bird's eye map of drawn by Augustus Koch demonstrates how the artists “sanitized” reality that presented the city according to the wishes of those who subscribed to the view. Downloaded from the Amon Carter Museum: Texas Bird's Eye Views, 1/26/09.

[http://www.birdseyeviews.org/images/features/Gainesville\\_Texas\\_1883\\_2.jpg](http://www.birdseyeviews.org/images/features/Gainesville_Texas_1883_2.jpg)

The poor and disenfranchised were not only part of the target audience but they are only given minimal notation on the maps. The only mention of racial diversity is to be found in the legends which, at times, will include references to “colored” churches and schools; ethnicities are usually found listed in association with places of worship, such as “German Roman Catholic” churches and Jewish synagogues. However, these references tend to be more atypical than the norm. Undoubtedly, middle and upper class values resulted in a much sanitized view of the town on the map. Not only are unsightly buildings and undesirable fixtures (such as outhouses and broken fences) missing from the maps, there is also a noticeable lack of any ethnic variety in the architecture. Just as

false façades affixed to storefronts (Figure 21) presenting a homogenous, “whitewashed” version of the city, so did the bird’s eye maps.

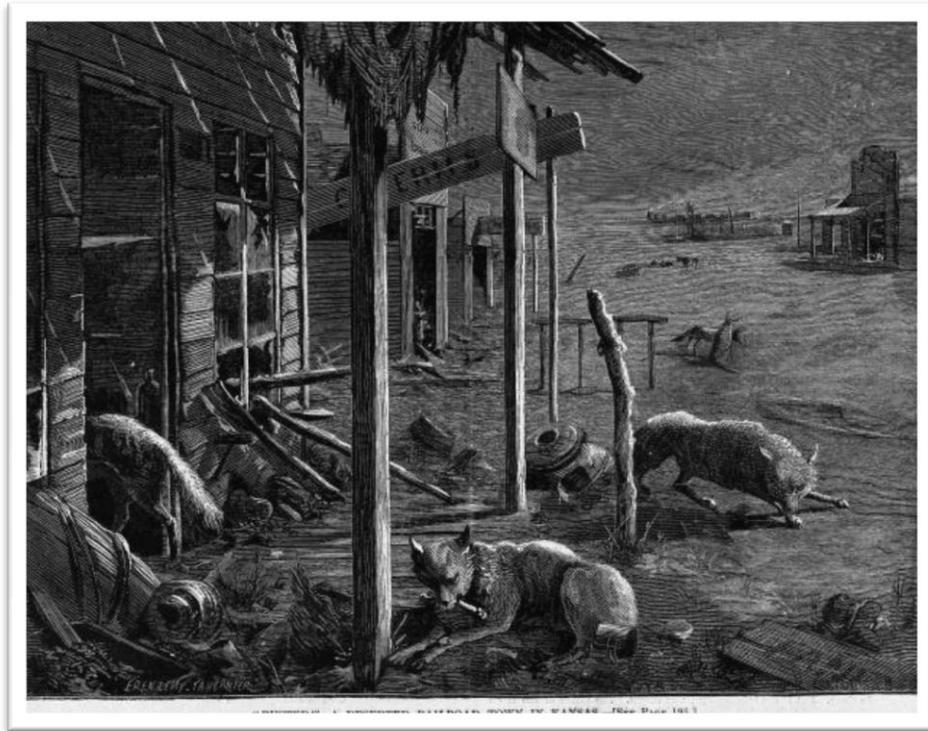


**Figure 21. Champaign, Illinois, 1869.** Drawn by Albert Ruger. This section of Champaign shows how business buildings were often fitted with a false front (facing the road) in order to present the illusion of success to their customers. [Downloaded from the Library of Congress, 1/28/09.]

Small towns continued to appear on the landscape but in many cases, their vision of the future, inherent in the bird’s eye maps, was never realized. Economic troubles such as the depressions following 1873 and 1893, as well as the unfulfilled promises of the railroads caused the inhabitants of these towns to turn inwards in order to avoid any type of change. Social cohesiveness fell apart and “Conflicts within the community grew more overt [as] the hardening of class lines bred dissatisfaction” (Hine, p. 258).

Hundreds of towns failed in the Ohio Valley; two hundred towns in Iowa alone were

abandoned over the course of one hundred years (Hine, 1973). (See Figure 22.) Other towns proved to be more prosperous and grew into cities by the end of the century.



**Figure 22. Deserted Railroad Town.** An artist's rendering of a deserted railroad town in Kansas. From, *Harper's Weekly*, February 28, 1874. [Downloaded from <http://app.harperweek.com> , 1/23/09.]

From approximately 1880 and into the twentieth-century, certain cities that were well placed geographically and/or tied to prosperous railroad lines became somewhat larger.<sup>4</sup> Because the early mapmakers had developed a certain formula to produce large scale bird's eye maps of small towns, only a few adapted to creating small scale bird's eye maps of larger populated cities. Those who continued to create small town views

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<sup>4</sup> Population of these cities could be as much as 60,000+

were required to expand their territories. For instance, Thaddeus Fowler, one of the most prolific bird's eye map creators, initially concentrated on small towns in Pennsylvania, but eventually moved west and south as far as Texas, presumably in search of new small town markets that would fit into his established methods of creation and production of the bird's eye maps.

### **Larger Cities Reflected in the Bird's Eye Maps**

The influx of more people and commerce may have created a better economic climate in larger cities, but the community became less cohesive. "In the city, class proportions shifted. Workers became far more numerous and usually ethnic groups expanded" (Hine, p. 260). The new middle class strove to imitate the upper class and Eastern values by acquiring the trappings of "culture" such as theaters, libraries and lyceums. Opera houses were built as expressions of refinement, when in fact they were theaters for vaudeville acts (Hine, 1973). All of these buildings often appear on the bird's eye maps, identified in lengthy legends that emphasize the city's aspiration to sophistication, when in fact, these expressions of a more urbane sense of place were fanciful imitations of reality.

Cultural practices of the upper classes were eventually brought to the city in the last two decades of the nineteenth century due to increased tourism. "By the thousands travelers came, most of them rich. Europeans were particularly attracted, fascinated by an increasingly romanticized vision of the rugged wilderness" (Hine, p. 262). Wealthy travelers were also potential land developers. It is at this time when the bird's eye maps of larger cities essentially branch off from the group of maps of smaller towns, creating a

class of maps that may be considered to be more mercantile in nature. These maps reflected a change in function of the map from an item that memorialized the town and its habitants to a map that more overtly invited investment in the city by promoting land sales and goods and services that were only available in the city. Dozens of real estate, attorney and land offices, as well as other professional and non-professional services, appear in the legends, individually categorized by type. The rise of the middle class is ultimately reflected in the maps by the emphasis placed on depicting larger, well attended homes, a bustling business sector comprised of small business and industry, and numerous trains that, at times, forged their way through the center of the city.

Certainly, the American bird's eye maps are reflections of middle-class idealism. Elegant homes placed at strategic points on the map, exaggerated steeples and spotless environments all seem to support the myth that only a portion of the populace is trying to communicate. While it may seem that this makes the maps anything but democratic, on closer inspection one can find small homes and farmsteads that suggest a working population is still included as part of the city. The function of the map may have changed, but the message of American idealism remains constant.

The early maps of small towns were initially marketed to and seen by those who purchased them as fine art to commemorate the work and sacrifices made by first and second generation settlers who created a town where none had been before. Legends and images emphasized the small town's roots by listing buildings that suggested more heartfelt ties to place, such as churches, schools and civic buildings. For this reason, the

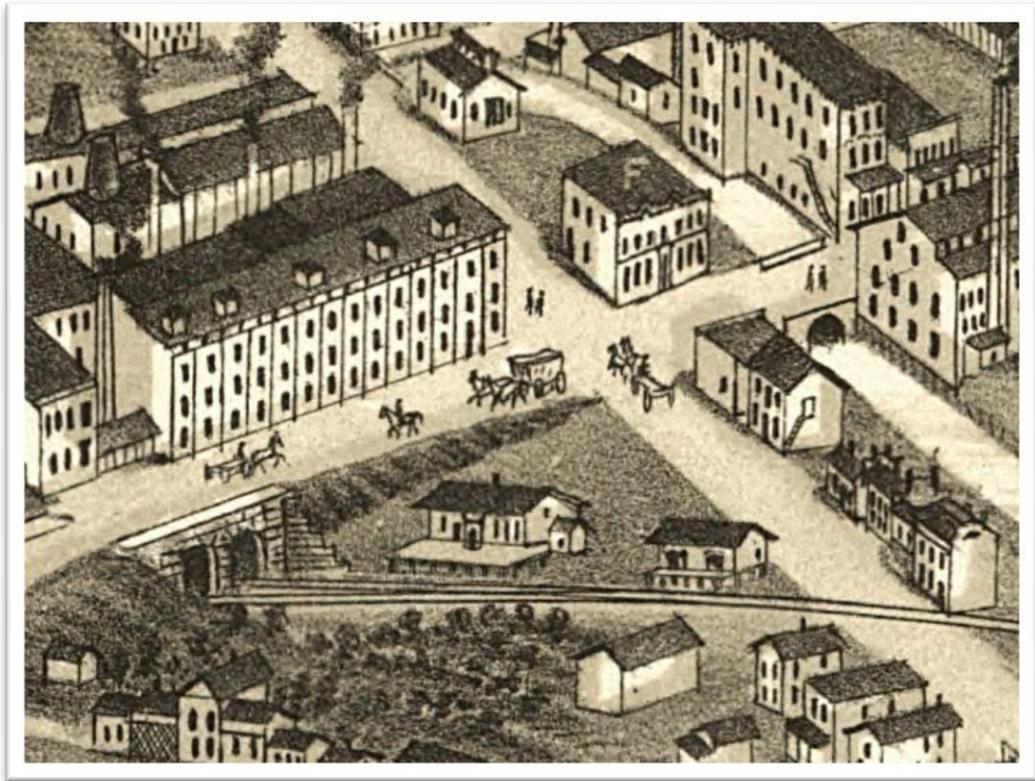
bird's eye maps were valued as emotional attachments to the past and a reminder to successive generations of their connections to those who came before.

As some towns grew into larger cities and the population became more mobile, personal attachment to place weakened, the primary function of the bird's eye maps changed from that of a memorial to an instrument designed to advertise services and products that would bring people and money into the city. The legends and vignettes found on city maps indicate the change in the perception of place. The emotive ties to place may still exist, but they are no longer the primary components of the legend. Instead, they are incorporated into proliferative listings of businesses available to consumers. Despite the difference in function, however, the message remains the same: this is what we have wrought with our own hands and we are proud of our accomplishments.

The influence of dominant social groups is evident in the images contained within the bird's eye maps created towards the end of the century. Neighborhoods are more densely populated than in earlier views, and the homes are more grandiose. Even the names of the streets, such as Bank St. and Exchange St. in the map of Akron, Ohio, created in 1882, attest to the broadening scope of purpose of the city's inhabitants.

Interestingly, the social hierarchy of the city makes little difference in the message the maps are attempting to communicate. People—essentially men—are mere “stick figures” and women, children and minorities are virtually non-existent (Figure 23). It is doubtful that the absence of people suggests a value judgment placing the importance of buildings above people, but it is obvious that those who subscribed to, or underwrote

the map meant to promote the idea of a progressive, modern city and people seem to be mere decoration. In the earlier bird's eye maps of small towns, the mapmaker often chose to put well-defined people, including Native Americans, in the front section of the map and these people (again, mainly men) were often seen hunting, fishing, or swimming in a river. This difference in approach may suggest that those living a more rural lifestyle had time for more leisurely pursuits than those living in the city.



**Figure 23. Street Scene from Akron, Ohio, 1892.** Artist unknown. Published by Ruger and Stoner, Madison, Wisconsin. Men on horseback and in covered wagons doing business in Akron. More attention has been paid on depicting the factories and homes of Akron, while the people are represented by quickly sketched stick figures. These are the only representations of people in the entire map. [Downloaded from the Library of Congress, January 21, 2009. <http://lcweb2.loc.gov/ammem/pmhtml/panhome.html> ]

Nineteenth-century America was certainly a man's world, and in spite of the absence of women in the bird's eye maps, they may have inadvertently affected the sales of the maps. Sold by subscription by agents who acted as front men for the artists, the woman of the house may have been the first person the subscription agents encountered. The home was the woman's domain and they probably had the last say in what decorated their parlors. However, as Kasson points out, middle-class women had little direct access to money, and ultimately the sale of map would be decided by the man of the house.

### **Summary**

Reps (1984) has suggested that the nineteenth-century American bird's eye maps can be separated into two categories, the "insider" and the "outsider" view. The insider views were created by the artist who would walk the streets of the towns and cities, drawing the buildings and placing them on a simple street grid. They were drawn from an imagined elevation, as if the artist were sitting on a nearby hill, and buildings remain in focus even at the horizon. The outsider views were drawn from a much higher elevation and the cities are much larger with populations in the hundreds of thousands. The perspective is much more elevated and, in order to capture the entire city, the artist must stand at a distance from his subject; only the buildings in the foreground are drawn in detail and the intimacy of the insider view is lost to the grandeur of the map.

The insider views are particularly applicable to the small towns of the Midwest and the prairie. The population of the city was generally less than 1500 and the extent of geographical space was only limited by the artists' discretion. The technique involved in

creating the insider maps was successfully adapted by some artists to the larger, mainly mercantile cities that appeared later in the century. While the “mercantile maps” probably required a greater investment of time and resources on the part of the mapmaker, the revenue was, no doubt, worth the effort.

Bird’s eye map users today might view them as quaint reminders of a bygone era; they were, in fact, a highly commercial endeavor. And they could only be a profitable venture if those who invested in the map were satisfied with the results—those who paid their hard earned money to own a view of their town that would allow them to feel part of a community, even if the conceptualized town or city was an illusion.

Although the insider and mercantile bird’s eye maps were the “invention” of the middle and upper classes, they must have also appealed to those who lived at the periphery of proper society. This class of people, made up mostly of immigrants from Eastern Europe and Ireland, African Americans, and other minorities were also inhabitants of the towns and cities depicted in the bird’s eye maps and the mapmakers were not ignorant of their existence. For these people, land ownership and the ability to be part of the communal experience, no matter the extent of their involvement, might have been enough of an incentive to invest in the bird’s eye maps. For these people who had risen from abject poverty and slavery, to be able to point to their home on the map must have reinforced their new found liberty and prosperity. While the houses of the more wealthy patrons may have received special attention, and businesses are promoted both on the map and in the legends, the farms and homes of the less affluent can always be found on the views, making the maps an important vision of American democracy.

While Crang's definition emphasizing the importance of continuity in construction of place is best represented by the inherent message of the early bird's eye views, it may also be echoed in the later views of larger towns and cities, but to a different degree. If space is the result of place building (Crang, 1984), then the later maps demonstrate the fluidity of place. The flexibility of place results in more sophisticated space that has been changed by power, politics and individual ideologies.

Crang (1998) states:

Places provide an anchor of shared experiences between people and continuity over time. Spaces become places as they become 'time-thickened'. They have a past and a future that binds people together round them. The lived connection binds people and places together. It enables people to define themselves and to share experiences with others and form themselves into communities.

The question that begs to be answered is *who* is invited into this shared experience in the small towns of the Midwest and prairie states and how are they incorporated into the bird's eye maps, if at all?

CHAPTER VII  
QUANTITATIVE INTERPRETATIONS OF THE EVOLVING  
AMERICAN BIRD'S EYE MAPS

**Using Content Analysis to Evaluate the Importance of Cartographic Design**

Content analysis is a methodology that has long been used by social scientists and others to evaluate the nature of messages within speeches or written texts. It is:

...a research tool...to determine the presence of certain words or concepts within texts or sets of texts. Researchers quantify and analyze the presence, meanings and relationships of such words and concepts, then make inferences about the messages within the texts, the writer(s), the audience, and even the culture and time of which these are a part. (Colorado State University)

Content analysis was the product of social scientists of the 1960s. These researchers used the analysis of the written text to infer the meaning of a message within a particular document or sets of documents. Kriffendorff (2004) states that subsequent researchers, who worked in more visually intense media environments of later decades, suggested that this methodology could be well suited to the study of graphic imagery. Subsequently, a purpose of this study was to determine if content analysis would be an appropriate method for the analysis of the graphic content of the bird's eye maps. All maps communicate messages through the selected interplay of symbols, icons

and text. These elements can be entered into a matrix for examination by the content analysis methodology.

Harley and Woodward (1984) state that icons, symbols, color, labels and other graphic elements found within maps may be considered to be the vocabulary of the map and the context and sequencing in which they are used is the grammar. They note that:

...the concept of a graphic language—and the map as a graphic text—is valid. The significance of maps—and much of their meaning in the past—derives from the fact that people make them to tell other people about the places of space they have experienced” (Harley JB and Woodward D, 1984 after Head CG, “The Map as Natural Language: A Paradigm for Understanding,” 1984).

Choices of the symbolic and textual vocabulary, as well as the grammatical structure of a map, are both conscious and subconscious decisions of the cartographer. These decisions form the message of the map. It was determined that a modified form of content analysis in which the graphics and text choices made by the cartographer in constructing the map were recorded would be useful in revealing the nature of the message of the bird’s eye maps. By applying this methodology to a series of maps created between 1854 and 1918, it would be possible to see if the message of the bird’s eye maps change over time.

## **Methods**

The study area for this work was a region of fifteen states covering the Great Plains and the Upper Great Lakes. Four hundred and eighty-three maps completed between 1854 and 1918 were examined. Four distinct components of the bird's eye maps were evaluated for this study. They were: 1) the legend; 2) icons on the map; 3) the title and 4) the vignettes that appeared on the border of the map. Legend information recorded for input for content analysis were all text labels that identified specific buildings or other features on the map. From the map itself, icons such as trains and boats were included in the data collection. If present, cartouches were searched for symbols of patriotism, text information concerning the town's population, and the name of other political units (i.e., state and county). Vignettes contained perhaps the most arbitrarily selective item on the map; they typically occupied the area in the border of map and varied in content from churches to court houses to imagined spaces yet to be constructed. In all the presence or absence of seventy-three specific features were searched for in the four areas noted above that appeared as text, symbols or vignettes.

Content analysis traditionally records the occurrence of words that can be categorized as comments that are positive, negative or neutral in nature. Thus, for example, all articles written concerning President Bush in the Washington Post during his first year in office might be compared to all of the articles in the New York Times and USA Today over the same time period to determine if differences occur in coverage of his presidency. A higher number of negative or positive comments might be inferred as indicating bias in the press coverage by a particular newspaper. In order to assess the

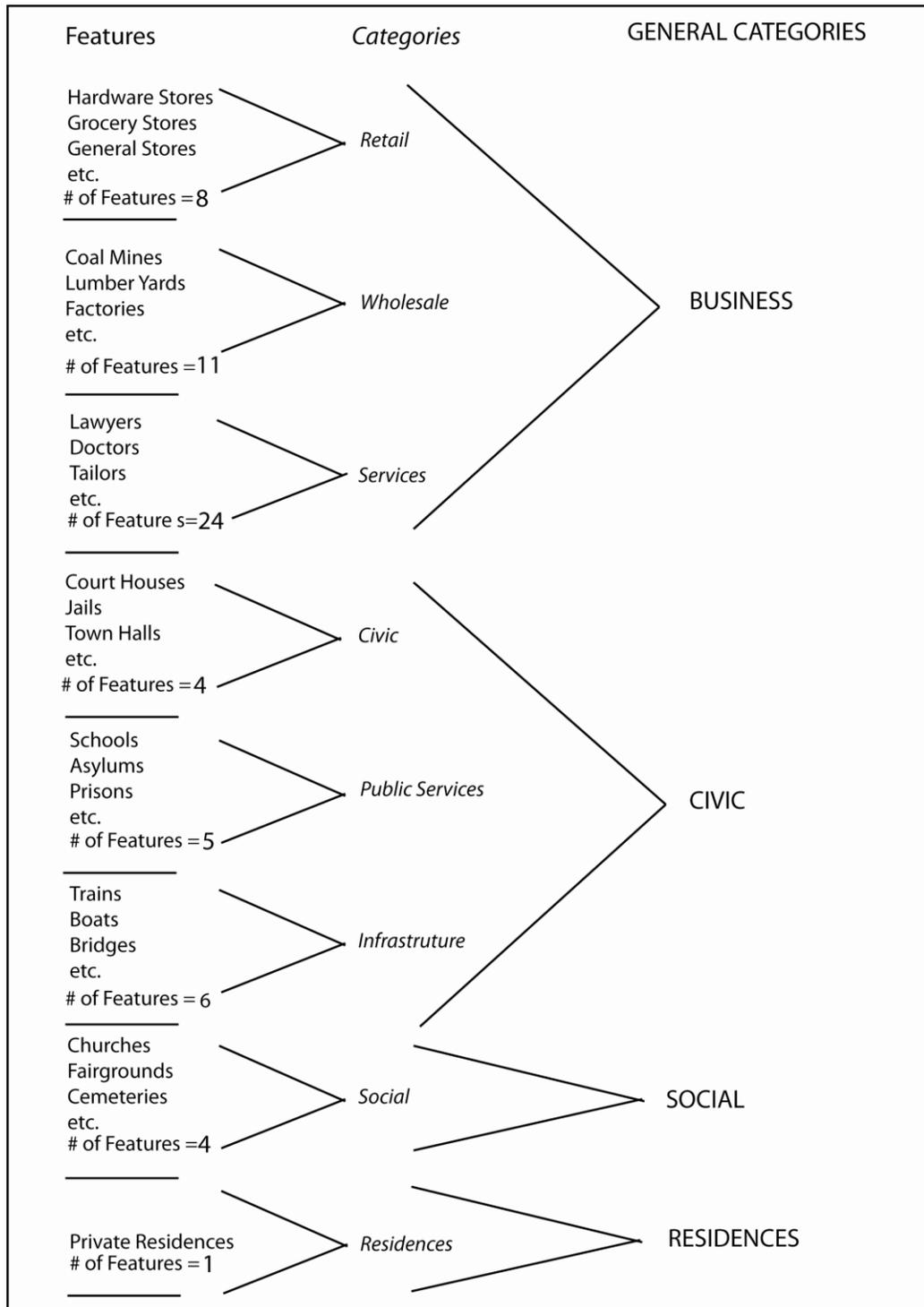
nature of the messages carried by the bird's eye maps during the period of 1853 and 1918, seventy-three features were searched for and recorded on 483 bird's eye maps. The maps in the study were divided into groups, each representing five-year time increments. Each time period is analogous to an individual newspaper in the preceding example.

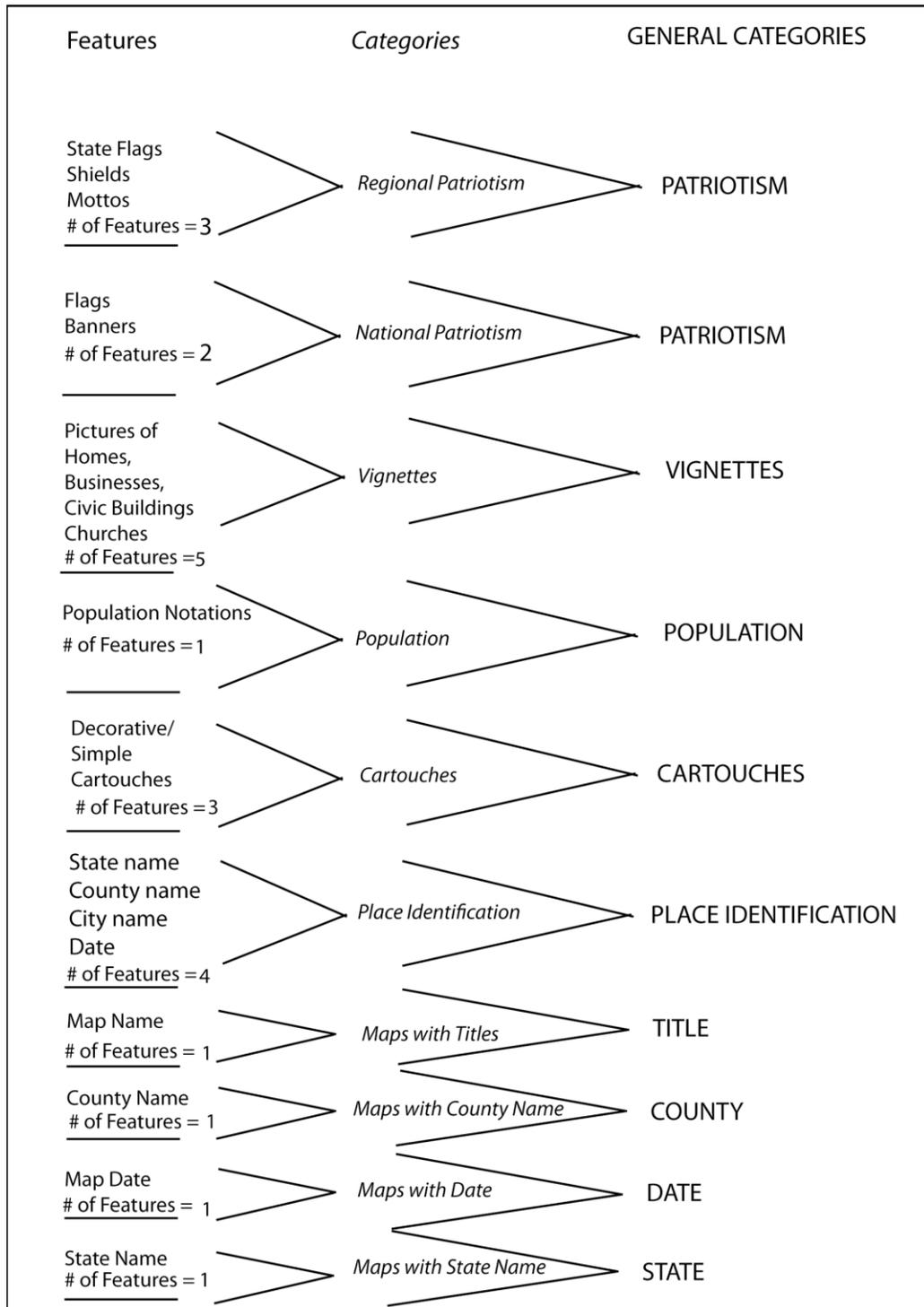
Labeling of a feature on the map was considered to be a positive comment as labeling privileges that item in comparison to those features not considered important enough to label. However, selective elimination (the practice of not including less desirable buildings such as low quality houses, outhouses or storage sheds) does impact the nature of the message and has been well documented on the bird's eye maps (Reps, 1984). While it would have been preferable to record such negative cartographic comments it is not possible given that for the vast majority of maps no other record of what buildings actually existed in the town is available for comparison. As a result, this study examined what were considered to be positive comments.

The features recorded in this study were incorporated into three broad categories—Business (Retail, Wholesale and Services), Social (public interactions) and Civic (government-supported entities). For instance, if a certain feature such as McCoy's Lumber Yard appeared in the legend it would be recorded as a business feature in the "Business-Wholesale" category. Churches and fairgrounds were considered to be public features and would be listed in the "Social" category. Courthouses, jails and post offices were included in the "Civic" category (Table 2).

As noted above, the maps were divided into eleven groups, each representing five-year increments of time from 1853 to 1918. As there were very few maps in the

sample population completed of towns in the study area done before 1865 and very few completed after 1895, it was decided to consider all maps created before 1865 as a single group and all maps created after 1895 as another group. Thus, group one covers the time periods 1853 to 1864 while Period 7 covers the time period from 1895 to 1918. (See Table 3.) All other groups represent only a five-year period. Even by extending the length of the period covered by groups 1 and 7, not enough maps could be found to produce a sample size large enough to be considered valid for content analysis. While these time periods will be discussed in other sections of this study, only maps created between 1865 and 1895 were examined using content analysis.

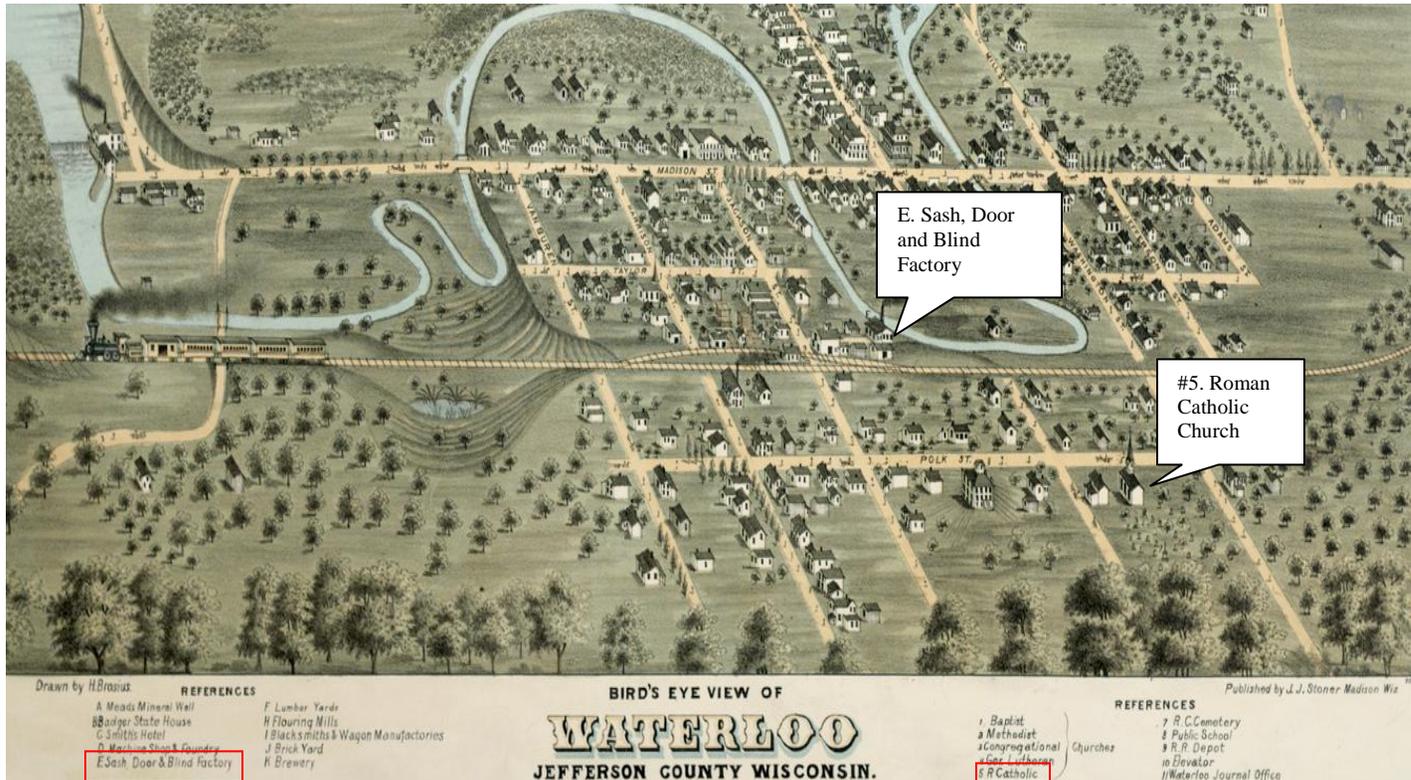




**Table 2 Categorical Divisions.** This table shows how individual features were condensed into categories and then into overarching general categories that were used to organize the maps.

| Time Period | Years       |
|-------------|-------------|
| 1           | 1853 - 1864 |
| 2           | 1865 - 1870 |
| 3           | 1871 - 1876 |
| 4           | 1877 - 1882 |
| 5           | 1883 - 1888 |
| 6           | 1889 - 1894 |
| 7           | 1895 - 1918 |

**Table 3. Time Periods and Corresponding Dates.** The bird's eye maps in this study were Organized into seven time periods of five year increments.



**Figure 24. Bird's Eye Map of Waterloo, Wisconsin.** This is an example of how different features were categorized. The “Sash, Door and Blind Factory” (left hand legend) is a business reference and would be placed in the Business-Wholesale category. In the right hand legend #5 is listed as “R. Catholic” within the list of Churches. The church would be listed in the “Social” category (Table 2). Used by permission of the Wisconsin Historical Society.

For analysis purposes, the extensive list of individual features was grouped into 14 general categories based on their inherent roles in communicating the message of the maps. Their content and associated categories are described in Table 4.

**Table 4. Organization of Map Features**

| <b>Categories of Map Features</b> | <b>Example of Features</b>                                                                                                                                                                                                       |
|-----------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Business – Retail                 | Hardware stores, grocery stores, general stores and breweries, cigar and tobacco stores, jewelers, books and stationary and music stores                                                                                         |
| Business - Wholesale              | Coal mines, lumber yards, iron works, agricultural needs, planning mills, factories, foundry and machine shops, packing houses, stone quarries and brick factories                                                               |
| Business - Services               | Lawyers, doctors, dentists, land companies, butchers, tailors, furniture makers, undertakers, newspapers, photographers, hotels, banks, elevators, manufacturers, opera houses, livery and cotton, woolen, paper and flour mills |
| Civic                             | Court houses, jails, town halls and post offices                                                                                                                                                                                 |
| Public Services                   | Schools, asylums, prisons, fire departments                                                                                                                                                                                      |
| Social                            | Churches, cemeteries, fairgrounds, horse racing tracks                                                                                                                                                                           |
| Infrastructure                    | Trains, boats, bridges, water, gas and electricity                                                                                                                                                                               |
| Place Identifiers                 | City/town name, county name, state name and date                                                                                                                                                                                 |
| Residences                        | Private residences                                                                                                                                                                                                               |
| Cartouches                        | Decorative/Simple cartouches                                                                                                                                                                                                     |
| Icons of National Patriotism      | Flags, banners                                                                                                                                                                                                                   |
| Icons of Regional Patriotism      | Mottos, shields, state flags                                                                                                                                                                                                     |
| Vignettes                         | Homes, businesses, civic buildings, churches                                                                                                                                                                                     |
| Population                        | Population notation                                                                                                                                                                                                              |
| Title                             | The title of the map                                                                                                                                                                                                             |

|        |                                         |
|--------|-----------------------------------------|
| County | The name of the county                  |
| Date   | The date (year) the map was constructed |
| State  | The name of the state                   |

### **Statistical Analysis**

To avoid undue influence of a single map on the data counts, it was decided to simply record the absence or presence of individual items; therefore, the data for each of the 14 groups was categorical in nature and not ordinal. The occurrence of a feature was observed for each map by year and entered as either a 1 or 0. The number “1” indicated that the feature did exist on the map in question and the number “0” indicated that the feature did not exist.

Because categorical data were used to record the frequency of feature occurrence, the Chi-Square test was considered to be the most appropriate statistical technique to determine if there was significant difference in feature usage over time. The null hypothesis tested was that *there was not a significant difference in the occurrence of specific features among the seven five-year time periods delineated between 1865 and 1894.* (See Appendix for explanation of Chi-square.)

### **Decorative Cartouches and Vignettes**

This category recorded elements including decorative cartouches, icons of national patriotism, icons of local or regional (state, county and city) patriotism, the surrounding vignettes, and notation of the population of the town when the map was made. Cartouches were one of the many ornamental items used by the map makers. These cartouches often framed icons of local patriotism (usually the state flag or state shield accompanied by the state motto) and national patriotism (such as flags and scenic

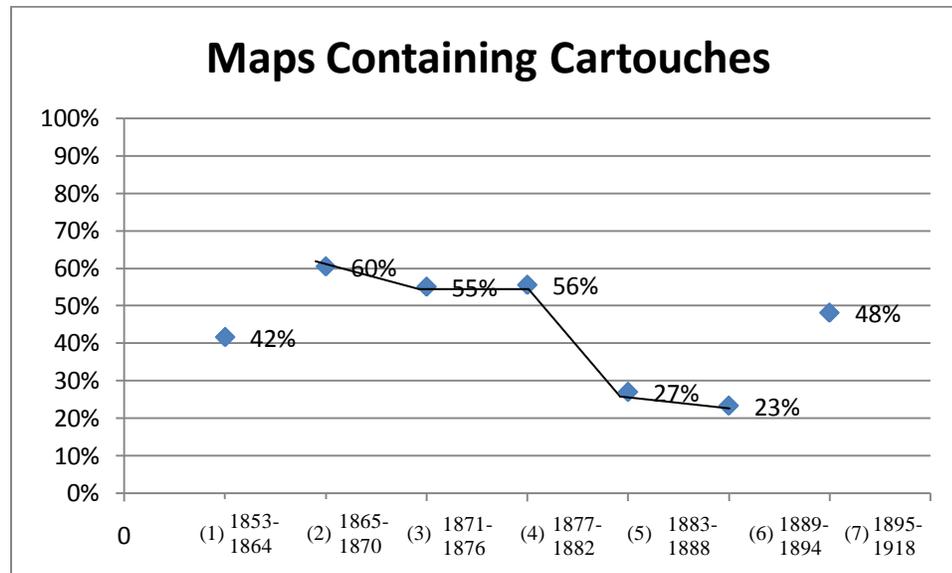
landscapes) that reflected the national pride of the inhabitants of the city or town. (See Figure 26.) It is important to note that these elements contributed directly to the message(s) of the bird's eye view illustrations they were not recording features on the earth's surface, the traditional realm of the map.

**Table 5. Percentage of Maps with Cartouches**

| Time Period     | % with Cartouches | No. of Maps in Sample* |
|-----------------|-------------------|------------------------|
| 2 (1865 – 1870) | 60.47             | 172                    |
| 3 (1871 – 1876) | 55.07             | 69                     |
| 4 (1877 – 1882) | 55.56             | 63                     |
| 5 (1883 – 1888) | 27.06             | 85                     |
| 6 (1889 – 1894) | 23.40             | 47                     |

$\chi^2 = 39.80, df=4, p<.0001$

\*Number of maps is base for the percent



**Figure 25. Percentage of Maps Containing a Decorative Cartouche, 1853-1918.** Four hundred and eighty-three maps were evaluated for their cartouches.. This table shows the percentage of maps with the occurrence of cartouches from 1853 to 1918.

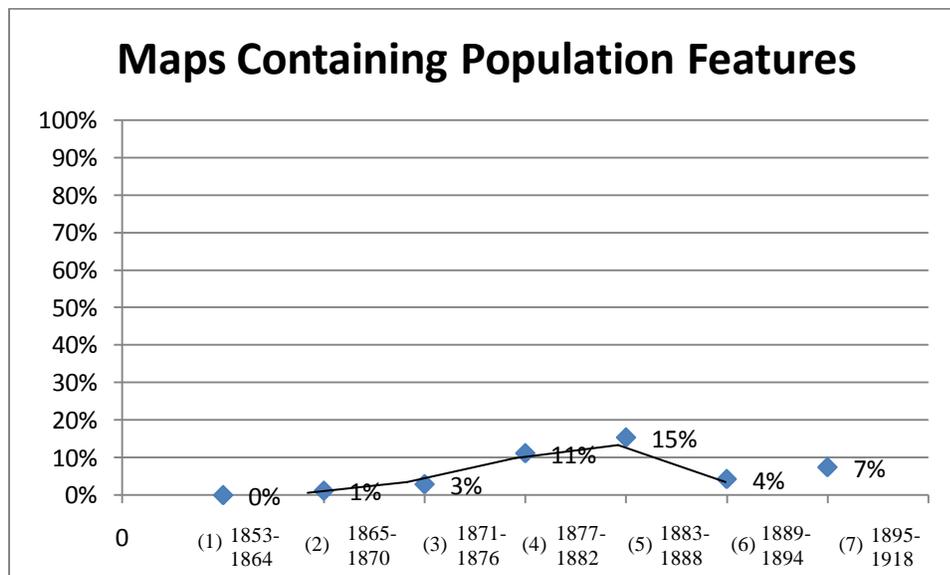
**Population Notation**

**Table 6. Percentage of Maps with Population Notation**

| Time Period     | % with Population | No. of Maps in Sample* |
|-----------------|-------------------|------------------------|
| 2 (1865 – 1870) | 1.16              | 172                    |
| 3 (1871 – 1876) | 2.90              | 69                     |
| 4 (1877 – 1882) | 11.11             | 63                     |
| 5 (1883 – 1888) | 15.29             | 85                     |
| 6 (1889 – 1894) | 4.26              | 47                     |

$\chi^2 = 24.64, df=4, p<.0001$

\*Number of maps is base for the percent



**Figure 26. Percentage of Maps Containing Notation of Population, 1853-1918.** Four hundred and eighty-three maps were evaluated for Population content. This graph shows the percentage of maps with the occurrence of Population features from 1853 to 1918.

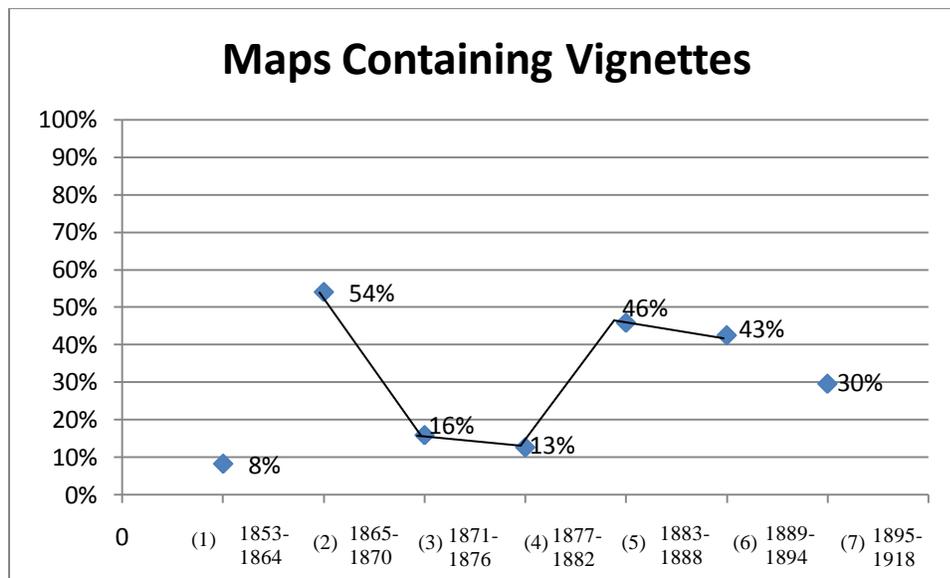
Vignettes

Table 7. Percentage of Maps with Vignettes

| Time Period     | % with Vignettes | No. of Maps in Sample* |
|-----------------|------------------|------------------------|
| 2 (1865 – 1870) | 54.07            | 172                    |
| 3 (1871 – 1876) | 15.94            | 69                     |
| 4 (1877 – 1882) | 12.70            | 63                     |
| 5 (1883 – 1888) | 45.88            | 85                     |
| 6 (1889 – 1894) | 42.55            | 47                     |

$\chi^2 = 51.98, df=4, p<.0001$

\*Number of maps is base for the percent



**Figure 27. Percentage of Maps Containing Vignettes, 1853-1918.** Four hundred and eighty-three maps were evaluated for Vignette content. This graph shows the percentage of maps with the occurrence of Vignettes from 1853 to 1918.

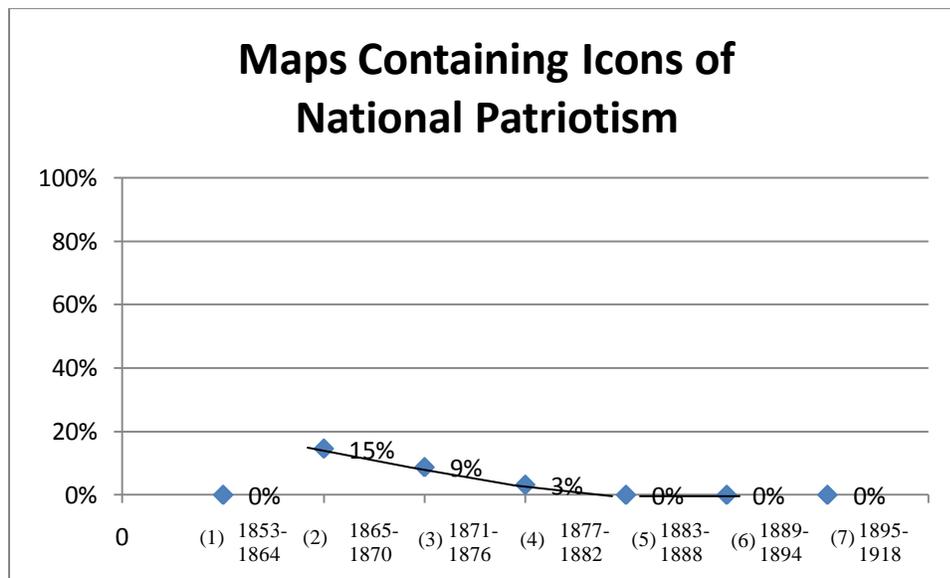
**National Patriotism**

**Table 8. Percentage of Maps with Icons of National Patriotism**

| Time Period     | % with Nat Pat | No. of Maps in Sample* |
|-----------------|----------------|------------------------|
| 2 (1865 – 1870) | 14.53          | 172                    |
| 3 (1871 – 1876) | 8.70           | 69                     |
| 4 (1877 – 1882) | 3.17           | 63                     |
| 5 (1883 – 1888) | 0.00           | 85                     |
| 6 (1889 – 1894) | 0.00           | 47                     |

$\chi^2 = 24.60, df=4, p<.0001$

\*Number of maps is base for the percent



**Figure 28. Percentage of Maps Containing Icons of National Patriotism, 1853-1918.** Four hundred and eighty-three maps were evaluated for containing national patriotic icons. This graph shows the percentage of maps with the occurrence of icons of national patriotism from 1853 to 1918.

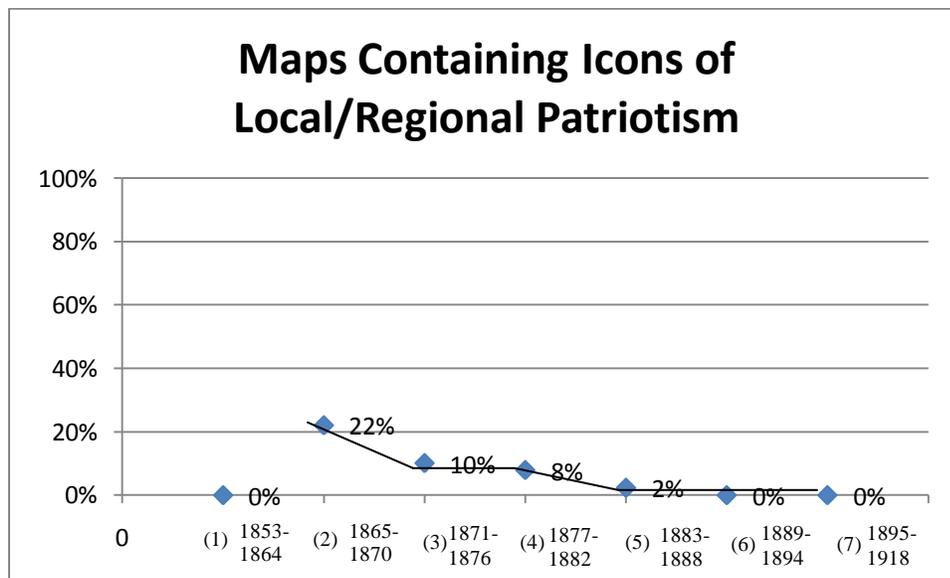
**Local/Regional Patriotism**

**Table 9. Percentage of Maps with Icons of Local/Regional Patriotism**

| Time Period     | % with Retail | No. of Maps in Sample* |
|-----------------|---------------|------------------------|
| 2 (1865 – 1870) | 22.09         | 172                    |
| 3 (1871 – 1876) | 10.14         | 69                     |
| 4 (1877 – 1882) | 7.94          | 63                     |
| 5 (1883 – 1888) | 2.35          | 85                     |
| 6 (1889 – 1894) | 0.00          | 47                     |

$\chi^2 = 31.86, df=4, p<.0001$

\*Number of maps is base for the percent



**Figure 29. Percentage of Maps Containing Icons of Local/Regional Patriotism, 1853-1918.** Four hundred and eighty-three maps were evaluated for containing icons of local/regional patriotism. This graph shows the percentage of maps with the occurrence of these icons from 1853 to 1918.

### **Place Identifiers**

The features that define place are included in this category. They are the city or town name, the county name, state name and the date of the map's creation. The city name is almost always accompanied by a state name but there is little consistency in the use of the state and/or county names, one was often paired with the other or either could be left off entirely.

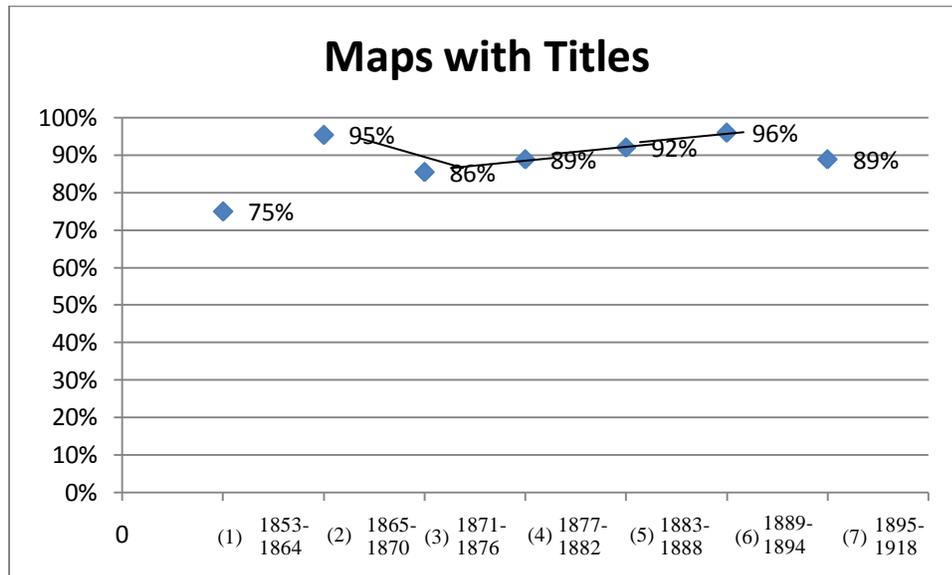
**Titles**

**Table 10. Percentage of Maps with Titles**

| Time Period     | % with Retail | No. of Maps in Sample* |
|-----------------|---------------|------------------------|
| 2 (1865 – 1870) | 95.40         | 174                    |
| 3 (1871 – 1876) | 85.51         | 69                     |
| 4 (1877 – 1882) | 88.89         | 63                     |
| 5 (1883 – 1888) | 92.05         | 88                     |
| 6 (1889 – 1894) | 96.00         | 50                     |

$\chi^2 = 8.88, df=4, p<.0641$

\*Number of maps is base for the percent



**Figure 30. Percentage of Maps with Titles, 1853-1918.** Four hundred and eighty-three maps were evaluated for whether or not they had a title. This graph shows the percentage of maps with the occurrence of these maps from 1853 to 1918.

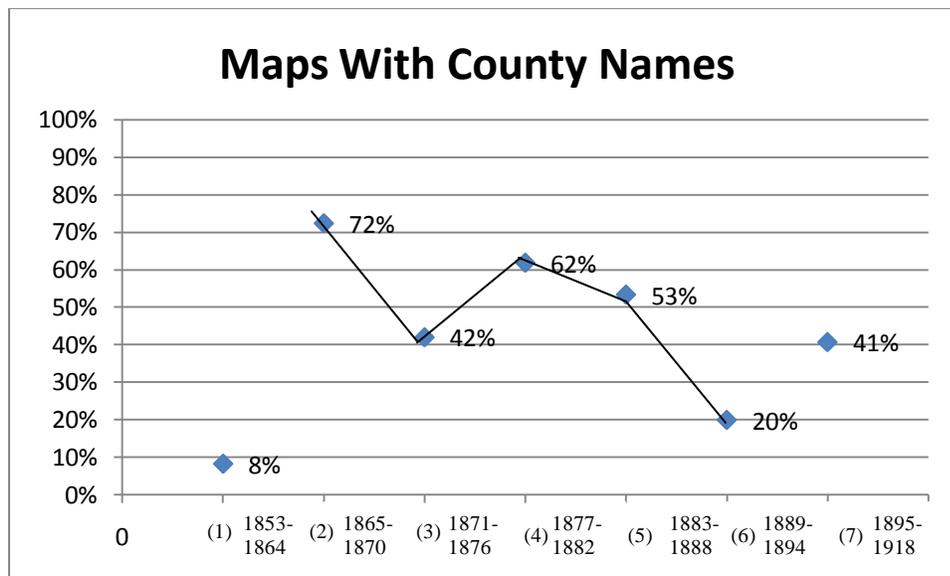
**Maps with County Names**

**Table 11. Percentage of Maps with County Names**

| Time Period     | % with Retail | No. of Maps in Sample* |
|-----------------|---------------|------------------------|
| 2 (1865 – 1870) | 72.41         | 174                    |
| 3 (1871 – 1876) | 42.03         | 69                     |
| 4 (1877 – 1882) | 61.90         | 63                     |
| 5 (1883 – 1888) | 53.41         | 88                     |
| 6 (1889 – 1894) | 20.00         | 50                     |

$\chi^2 = 52.01, df=4, p<.0001$

\*Number of maps is base for the percent



**Figure 31. Percentage of Maps Containing County Names, 1853-1918.**

Four hundred and eighty-three maps were evaluated for containing county names. This graph shows the percentage of maps with the occurrence of these maps from 1853 to 1918.

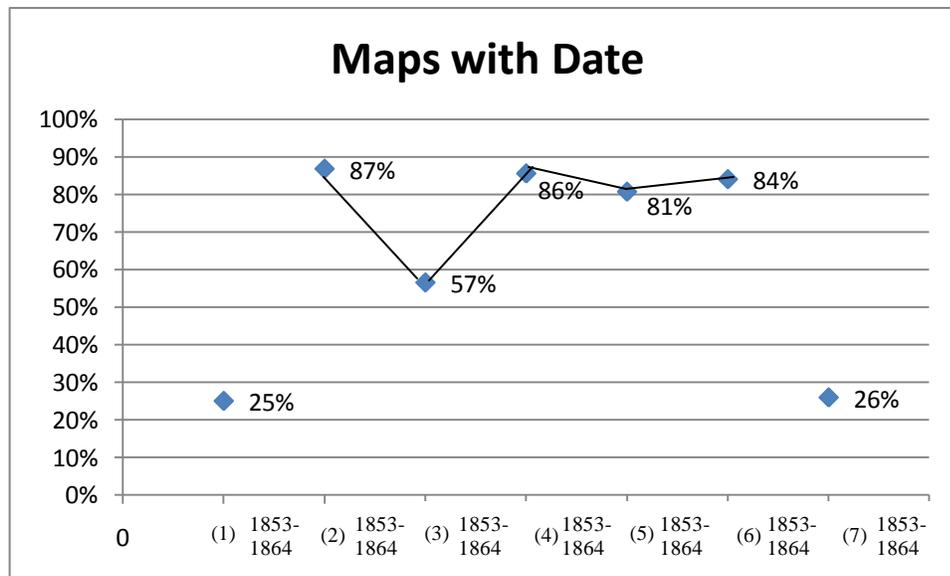
**Maps with Date**

**Table 12. Percentage of Maps with Date**

| Time Period     | % with Retail | No. of Maps in Sample* |
|-----------------|---------------|------------------------|
| 2 (1865 – 1870) | 96.78         | 174                    |
| 3 (1871 – 1876) | 56.52         | 69                     |
| 4 (1877 – 1882) | 82.54         | 63                     |
| 5 (1883 – 1888) | 80.68         | 88                     |
| 6 (1889 – 1894) | 84.00         | 50                     |

$\chi^2 = 29.50, df=4, p<.0001$

\*Number of maps is base for the percent



**Figure 32. Percentage of Maps with Date of Creation, 1853-1918.** Four hundred and eighty-three maps were evaluated for Retail content. This graph shows the percentage of maps with the occurrence of these features from 1853 to 1918.

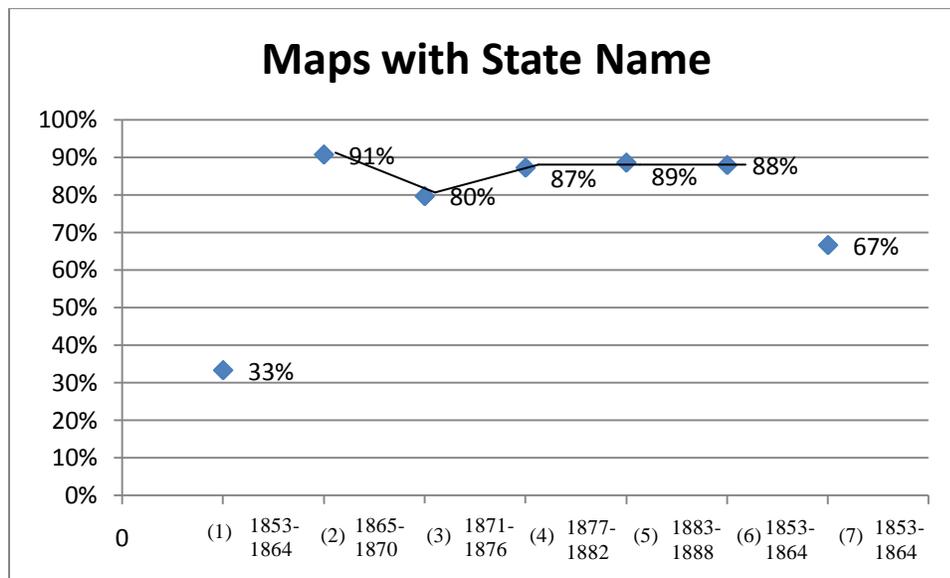
**Maps with State Name**

**Table 13. Percentage of Maps with State Name**

| Time Period     | % with Retail | No. of Maps in Sample* |
|-----------------|---------------|------------------------|
| 2 (1865 – 1870) | 90.80         | 174                    |
| 3 (1871 – 1876) | 79.71         | 69                     |
| 4 (1877 – 1882) | 87.30         | 63                     |
| 5 (1883 – 1888) | 88.64         | 88                     |
| 6 (1889 – 1894) | 88.00         | 50                     |

$\chi^2 = 5.77, df=4, p<.2169$

\*Number of maps is base for the percent



**Figure 33. Percentage of Maps with State Name, 1853-1918.** Four hundred and eighty-three maps were evaluated for state names. This graph shows the percentage of maps with the occurrence of these features from 1853 to 1918.

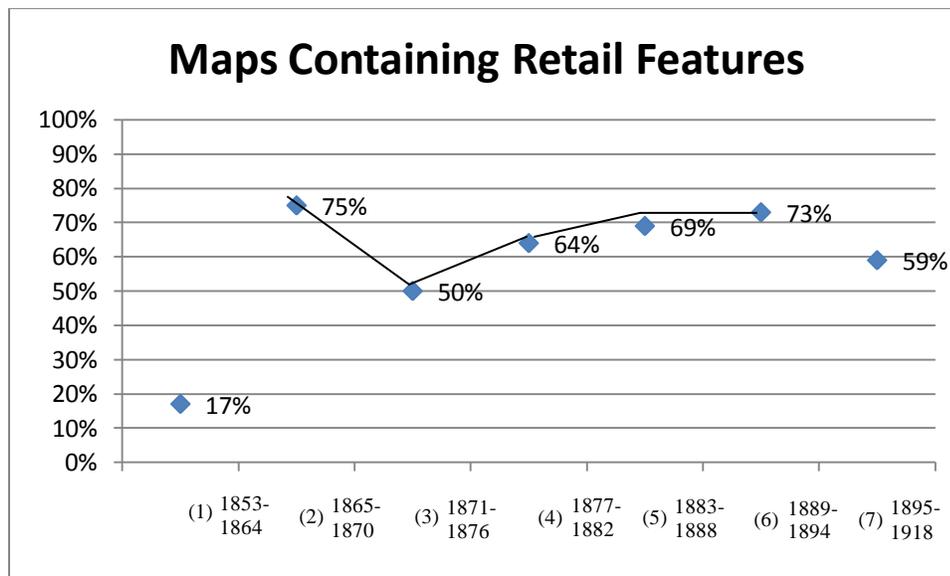
***Business-Retail***

**Table 14. Percentage of Maps with Retail Features**

| Time Period     | % with Retail | No. of Maps in Sample* |
|-----------------|---------------|------------------------|
| 2 (1865 – 1870) | 75.29         | 174                    |
| 3 (1871 – 1876) | 50.00         | 68                     |
| 4 (1877 – 1882) | 64.06         | 64                     |
| 5 (1883 – 1888) | 68.97         | 87                     |
| 6 (1889 – 1894) | 72.55         | 51                     |

$\chi^2 = 15.40, df=4, p<.0039$

\*Number of maps is base for the percent



**Figure 34. Percentage of Maps That Contain the Retail Feature, 1853-1918.**

Four hundred and eighty-three maps were evaluated for Retail content. This graph shows the percentage of maps with the occurrence of these features from 1853 to 1918.

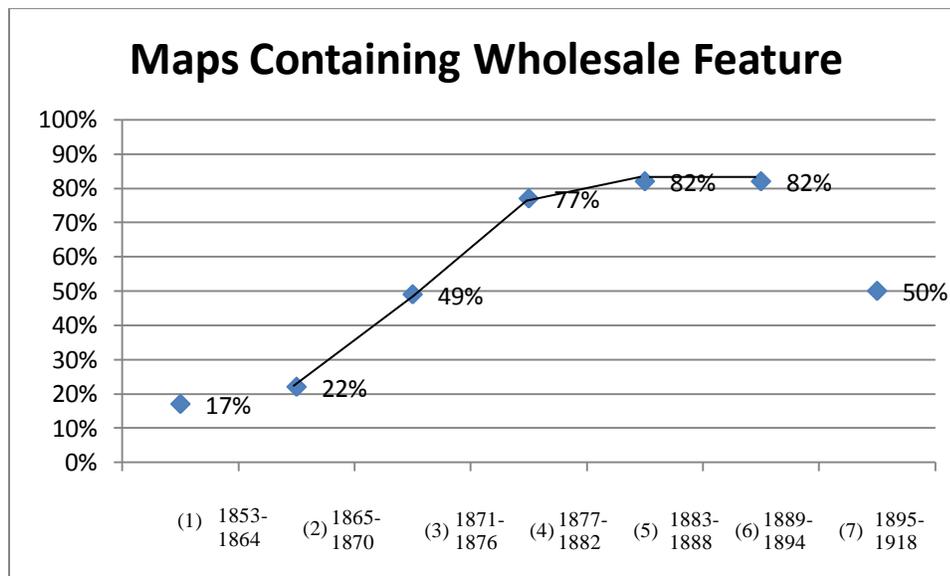
**Business-Wholesale**

**Table 15. Percentage of Maps with Wholesale Features**

| Time Period     | % with Wholesale | No. of Maps in Sample* |
|-----------------|------------------|------------------------|
| 2 (1865 – 1870) | 21.84            | 174                    |
| 3 (1871 – 1876) | 48.53            | 68                     |
| 4 (1877 – 1882) | 76.56            | 64                     |
| 5 (1883 – 1888) | 81.61            | 87                     |
| 6 (1889 – 1894) | 82.35            | 51                     |

$\chi^2 = 128.66, df=4, p<.0001$

\*Number of maps is base for the percent



**Figure 35. Percentage of Maps That Contain the Wholesale Feature, 1853-1918.** Four hundred and eighty-three maps were evaluated for Business-Wholesale content. This graph shows the percentages of the features for all periods.

**Business-Services**

Four hundred and forty-four maps were evaluated for Business-Services content.

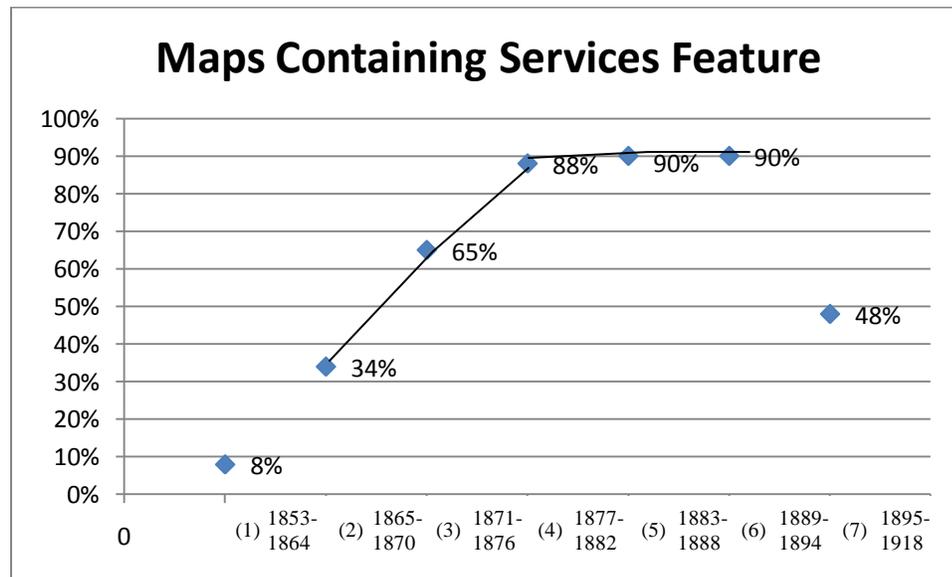
Table 16 shows the percentage of maps with the occurrence of wholesale features from 1853 to 1918. Figure 37 is a graphic representation of the data for all periods.

**Table 16. Percentage of Maps with Services Features**

| Time Period     | % with Services | No. of Maps in Sample* |
|-----------------|-----------------|------------------------|
| 2 (1865 – 1870) | 34.48           | 174                    |
| 3 (1871 – 1876) | 64.71           | 68                     |
| 4 (1877 – 1882) | 87.50           | 64                     |
| 5 (1883 – 1888) | 89.66           | 87                     |
| 6 (1889 – 1894) | 90.20           | 51                     |

$\chi^2 = 121.14, df=4, p<.0001$

\*Number of maps is base for the percent



**Figure 36. Percentage of Maps that Contain the Services Feature, 1853-1918.** Four hundred and eighty-three maps were evaluated for Service features. This graph represents the percentages of maps containing the feature.

**Civic**

Four hundred and forty-five maps were evaluated for Civic content. Table 18 shows the percentage of maps with the occurrence of Civic features from 1853 to 1918.

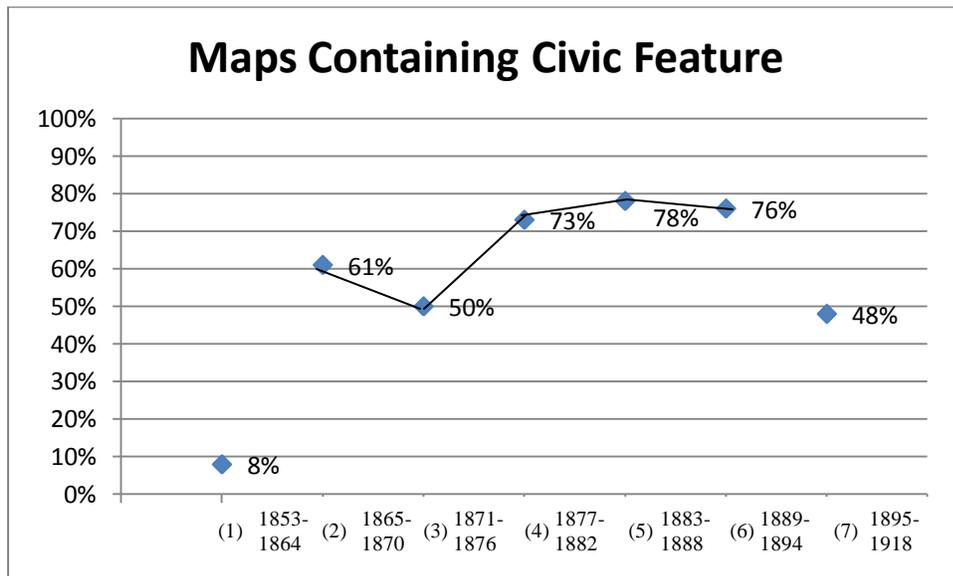
Figure 38 is a graphic representation of the data for all periods.

**Table 17. Percentage of Maps with Civic Features**

| Time Period     | % with Civic | No. of Maps in Sample* |
|-----------------|--------------|------------------------|
| 2 (1865 – 1870) | 60.92        | 174                    |
| 3 (1871 – 1876) | 50.00        | 68                     |
| 4 (1877 – 1882) | 73.44        | 64                     |
| 5 (1883 – 1888) | 78.16        | 87                     |
| 6 (1889 – 1894) | 73.08        | 52                     |

$\chi^2 = 18.19, df=4, p.<0011$

\*Number of maps is base for the percent



**Figure 37. Percentage of Maps that Contain the Civic Feature, 1853-1918.** Four hundred and eighty-three maps were evaluated for Civic features. This graph represents the percentages of maps containing the feature.

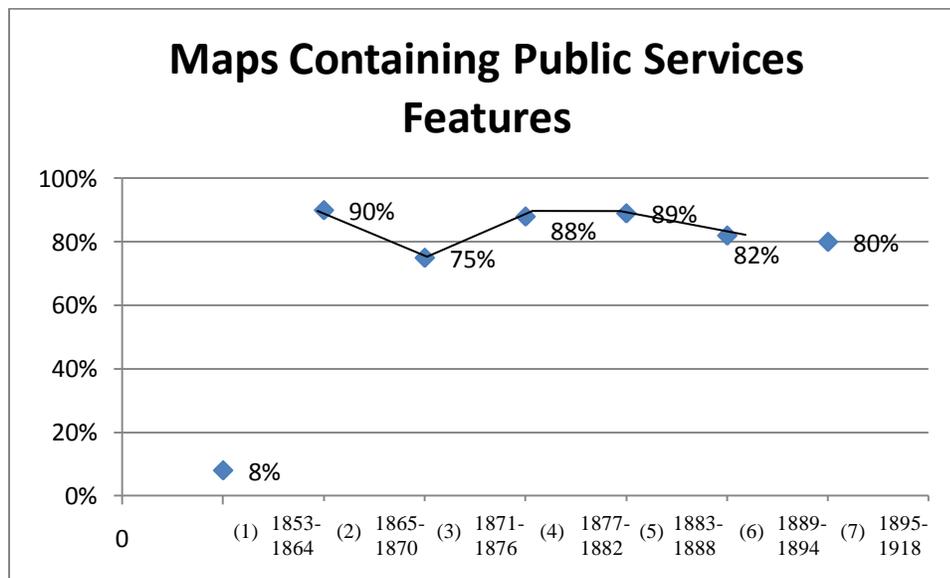
**Public Services**

**Table 18. Percentage of Maps with Public Services Features**

| Time Period     | % with Public Services | No. of Maps in Sample* |
|-----------------|------------------------|------------------------|
| 2 (1865 – 1870) | 89.66                  | 174                    |
| 3 (1871 – 1876) | 75.00                  | 68                     |
| 4 (1877 – 1882) | 87.50                  | 64                     |
| 5 (1883 – 1888) | 88.51                  | 87                     |
| 6 (1889 – 1894) | 82.35                  | 51                     |

$\chi^2 = 9.92, df=4, p<.0418$

\*Number of maps is base for the percent



**Figure 38. Percentage of Maps that Contain the Public Service Feature, 1853-1918.** Four hundred and eighty-three maps were evaluated for the Public Services features. This graph represents the percentages of maps containing the feature.

## Social

Four hundred and twenty-five maps were evaluated for Social content. Table 19 shows the percentage of maps with the occurrence of Social features from 1853 to 1918.

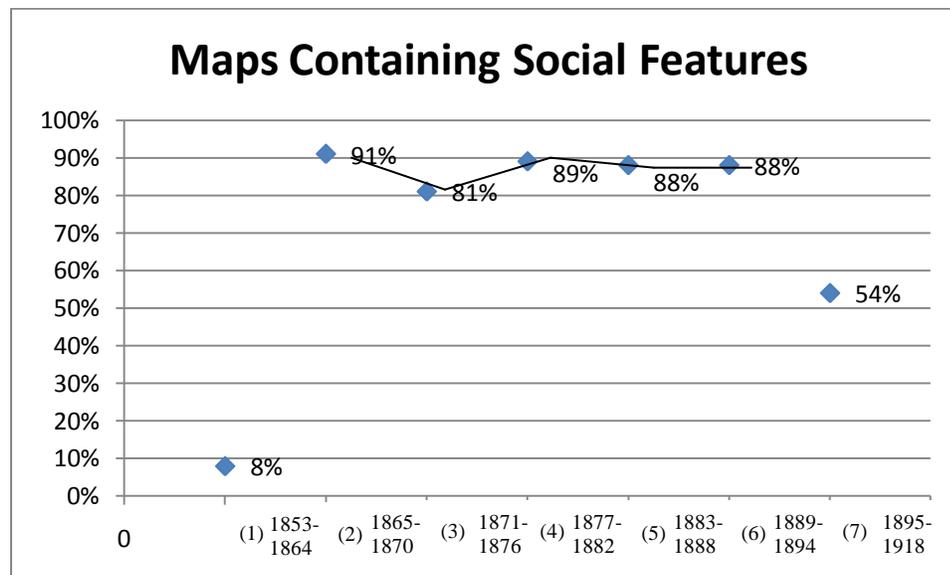
Figure 40 is a graphic representation of the data for all periods.

Table 19. Percentage of Maps with Social Features

| Time Period     | % with Social | No. of Maps in Sample* |
|-----------------|---------------|------------------------|
| 2 (1865 – 1870) | 91.38         | 159                    |
| 3 (1871 – 1876) | 81.43         | 70                     |
| 4 (1877 – 1882) | 89.23         | 65                     |
| 5 (1883 – 1888) | 87.50         | 88                     |
| 6 (1889 – 1894) | 88.46         | 43                     |

$$\chi^2 = 4.94, df=4, p<.2931$$

\*Number of maps is base for the percent



**Figure 39. Percentage of Maps that Contain the Social Features, 1853-1918.**

Four hundred and eighty-three maps were evaluated for Social features.

This graph represents the percentages of maps containing the feature.

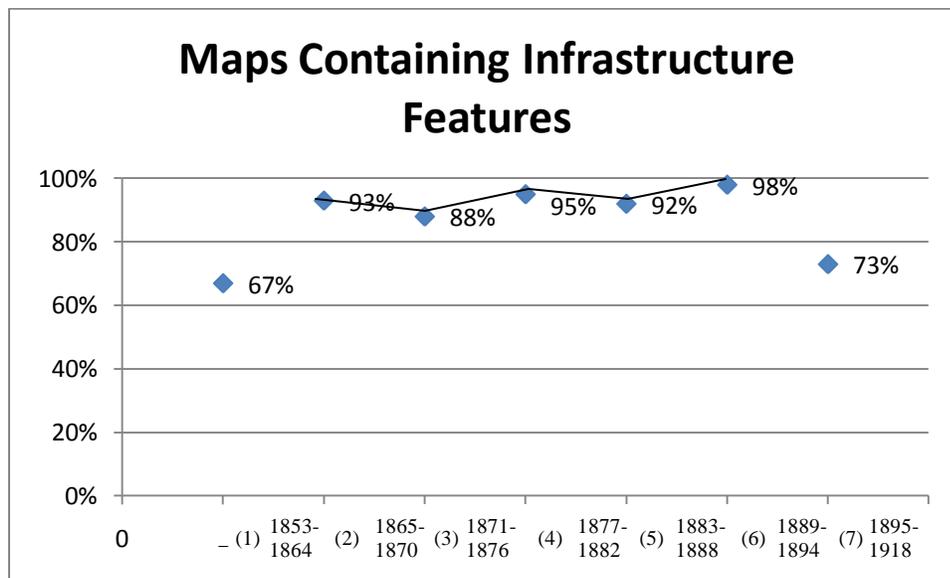
**Infrastructure**

**Table 20. Percentage of Maps with Infrastructure Features**

| Time Period     | Percent with Infrastructure | No. of Maps in Sample* |
|-----------------|-----------------------------|------------------------|
| 2 (1865 – 1870) | 92.53                       | 174                    |
| 3 (1871 – 1876) | 88.24                       | 68                     |
| 4 (1877 – 1882) | 95.31                       | 64                     |
| 5 (1883 – 1888) | 91.95                       | 87                     |
| 6 (1889 – 1894) | 98.04                       | 51                     |

$\chi^2 = 4.93, df=4, p<.2947$

\*Number of maps is base for the percent



**Figure 40. Percentage of Maps that Contain the Infrastructure Features.** Four hundred and eighty-three maps were evaluated for Infrastructure features. This graph represents the percentages of maps containing the feature.

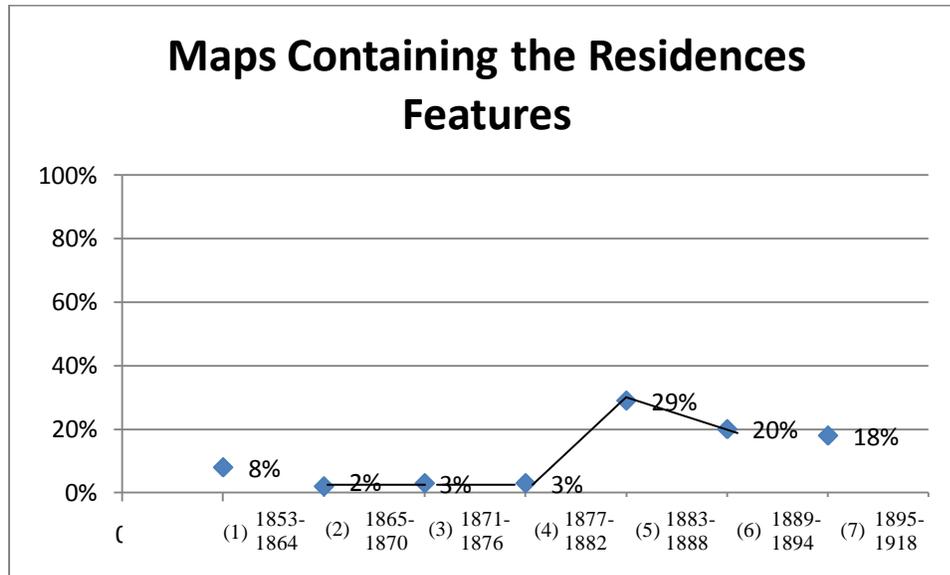
Residences

Table 21. Percentage of Maps with Residences Features

| Time Period     | Percent with Residences | No. of Maps in Sample* |
|-----------------|-------------------------|------------------------|
| 2 (1865 – 1870) | 1.72 (174)              | 174                    |
| 3 (1871 – 1876) | 2.90 (68)               | 68                     |
| 4 (1877 – 1882) | 3.08 (64)               | 64                     |
| 5 (1883 – 1888) | 28.74 (87)              | 87                     |
| 6 (1889 – 1894) | 19.61 (51)              | 51                     |

$\chi^2 = 62.84, df=4, p<.0001$

\*Number of maps is base for the percent



**Figure 41. Percentage of Maps that Contain the Residences Feature, 1853-1918.** Four hundred and eighty-three maps were evaluated for Residences feature. This graph represents the percentages of maps containing the feature.

### **Summary and Interpretation**

At no time during the course of the  $\chi^2$  analysis of each feature category did the observed value differ from the expected value thereby disproving the null hypothesis that there was not a significant difference in the occurrence of specific features among the seven five-year time periods delineated for this study. As noted earlier the Chi-square test was applied to the maps created between 1865 and 1894, as there were not enough maps before or after that time period to provide a reliable sample size for the Chi Square technique. No  $p$  value was greater than .2136, and all  $p$  values proved to be statistically significant across all feature categories.

The items that contributed to the aesthetics of the bird's eye maps (decorative cartouches, vignettes, patriotic icons) were evaluated and the resulting percentages showed that cartouches and vignettes were, by far, the most notable features on the maps. Icons of national and regional patriotism share the same graphic pattern of percentage scores, but the highest percentage number for these features were less than half that of the highest percentages for cartouches and vignettes. Population, too, seems to be infrequently noted. Cartouches reached their zenith in Period 2 and remained high for Periods 3 and 4. Undoubtedly, these high numbers are the result of the work of Albert Ruger and Howard H. Bailey, who quite often used decorative cartouches on their maps. The significance of this finding is discussed below. The sudden drop in percentages in Periods 5 and 6 could be attributed to the selectivity of the map makers, but may also be a consequence of city building—maps that feature numerous buildings and services might not have needed a fancy cartouche to sell their city.

As one might expect the percentage of maps with titles (Fig. 31) was consistently high in Periods 2-6 as were the maps with dates (Fig. 33), although their percentages were lower and the drop in Period 3 was more dramatic. Perhaps more interesting is the difference between maps with county names (Fig. 32) and maps with state names (Fig. 34). The percentage of maps with county names begins relatively high at 72 percent in Period 2, drops to 42 percent in Period 3 and never fully recovers. The percentage of maps with state names remains consistently strong across all time periods but the deviation between the two data sets is rather remarkable. The strong deviation could, again, be due to the selectivity of the map maker, but perhaps there is another component--a rising sense of nationalism--that needs to be considered. Patriotic fervor was extremely high after the Civil War and for the first time, America became known as "The United States." This new sense of unity no doubt spilled over into the lives of many Americans and they came to value a wider sense of association with the state rather than a local identification with the county. The bird's eye maps may reflect this new sense of patriotism as the inhabitants of small towns and cities who subscribed to the maps came to appreciate their connection with the state over their relationship to the county.

The percentage of features in Period 2, immediately after the Civil War when the bird's eye maps became popular, is low when looking at the business features, but high in almost all of the rest of the categories. These results may be due to the selectivity of the map maker. This era (1865-1870) saw the emergence of many of the major map makers (Ruger, Fowler, the Bailey brothers). Ruger in particular was very productive during this time and his style of map making greatly influences what features are documented on his

maps. Ruger was very consistent in what he included in the legend, such as civic buildings, churches, schools and frequently trains. Ruger's proclivity towards producing a standardized legend coupled with his great productivity may well be a factor in explaining the high percentage of occurrences in the Civic (Civic, Public Services, Social) and Infrastructure (Trains, Boats, Water, Gas and Electric) categories from 1865 to 1870.

As Ruger trained many of the bird's eye map makers that were to follow him, it is not surprising that the standardization of the form established in Period 2 can also be seen in Period 3. While Ruger's influence would be expected to impact the number of civic features identified on the map it is interesting that there is also a rise in the number of businesses identified, specifically Wholesale and Services. By mid-century, trains had become the preferred method of travel and trade. Many trains in larger cities began to appear on the bird's eye maps and businesses, the result of increased trade, began to use the maps as a means of advertising. For this reason, an increase in business features is seen, as well as a slight decrease in the percentage of civic features.

By 1877 (Period 4), almost all Civic features, as well as Infrastructure, see a slight increase in percentage, while the business features all see a significant increase. This change probably was a result of more subscription sales to business advertisers. The inclusion of a feature in the legend, especially for businesses, meant that the advertiser had to pay an extra fee (Reps, 1984). The map makers knew a good thing when they saw it. More paid advertising meant more profit. High percentages across all categories

(except Residences which will be discussed below) continued throughout Periods 5 and 6.

The occurrence of the Residences feature is statistically very small, even though there is a significant rise in percentage during Period 5. This feature appears to be dependent upon town size and the preferences of the map maker. A well-developed town could have several layers of social strata and those occupying the highest levels may have wanted to show off their houses. The map maker (or his agent) may have selected wealthier patrons in order to sell space surrounding the map to feature their homes. However, during the first four periods, as the towns' characters began to evolve, there is little reference to private residences. It was not until 1883 (Period 5), that residences are frequently named in the legend. The houses featured in the legends were normally large homes of the town's "elite," such as bank owners, doctors, physicians and business owners that only exist in more well developed cities. As with advertisers, those who were named in the legend had to pay extra to have their house mentioned on the map (Reps, 1984).

It is important to keep in mind that all of the mapped towns included in this study had a population of 15,000 or less. The size of the town appears to have been an important consideration in whether or not a bird's eye map would be made of a town or city. More populated cities (>15,000) may have simply been too large to profitably fit the model of the "insider" view that is the focus of this study. In fact, most map makers seem to prefer towns of only a few thousand residents that were more easily accessible by rail or by river transport. As noted earlier, there was an established method to producing

these maps that required not only the map maker's talent, but also the skills of agents, lithographers and publishers. The lithographers and publishing houses, especially, needed to be within close proximity to the traveling agents and map makers. With a few exceptions, "insider" maps of small towns were only drawn once, while larger cities such as Milwaukee and Chicago had numerous views (usually "outsider" maps) drawn as the city expanded. It was rare for one map maker to draw the same city twice, no matter what the size of the town. For instance, it appears that Henry Wellge often would draw the same towns originally done by Ruger some 20 years earlier.

As noted, nineteenth-century America experienced extraordinary social, scientific and economic change as belief in the concept of Manifest Destiny rapidly propelled rural and urban settlement from the Atlantic to the Pacific coasts within a little more than a half-century. The tempo of change was particularly rapid in the Old Northwest Territory and prairie states following the Civil War, and the bird's eye maps were especially effective in recording the growth and development of this area.

Content analysis proved to be an excellent tool in understanding how the occurrence of symbols, icons and text on the maps reflected changing attitudes towards the function of the bird's eye maps over time and statistical analysis using Chi-square successfully disproved the null hypothesis that there was not a significant difference in occurrence of features throughout the study period. The graphs associated with the Chi-square tables, however, may offer additional insight into not only how the semiotics changed with the function of the map, but also *why* they changed.

Early bird's eye maps (those created between 1870 and 1880) were not only intended to be used as commemoratives; they were also meant to be items that would attract settlers into burgeoning towns and cities. In order to achieve this objective, decorative items that would be useful in creating a map that would attract people to the towns had a high rate of occurrence early in the study period. Often elegant and stylish cartouches would contain icons of American patriotism--images that contained special conceptual meaning to prospective immigrants. Similar elements that promoted the permanence of the early towns and cities such as civic, public, and social features also appeared in the early maps.

Maps created after 1880 continued to commemorate the achievements of the town's inhabitants; however the purpose and the content of the map became altered. As content analysis has shown, only certain civic or social features, such as churches and schools, continued to be included on the maps. Patriotic features and decorative items begin to give way to more pragmatic elements that will draw people to the city for the services that are available there. Map legends are so heavily populated with business-related references that there is barely enough room for the name of the city. Not all towns were as prosperous as others and for every town that flourished, another town failed (Reps, 1984). These towns found themselves in increased competition with each attempting to lure farmers and ranchers of the surrounding area to their city and into their stores, banks and to utilize local professional services. The desire for mercantile dominance is reflected in the results of the content analysis. The bird's eye maps became instruments advertising an exhaustive list of services and products. The result of the

content analysis of these later maps (1880 to approximately 1900) where a significant increase in the labeling of businesses and service features was found supports the hypothesis that a new function was added to the role of the bird's eye maps. In addition to commemorative documents, they touted the commercial activity of the city. These two functions were not at odds with each other, in fact, a thriving commercial center was one more sign of the city's success and a noble accomplishment worthy of commemoration.

As discussed above, there were very few maps produced in the study area after 1894 even though the production of the bird's eye views continued into the first two decades of the twentieth-century. While out of the scope of this study it appears that by 1920 the maps had become primarily vehicles of advertisement. The information found in the legend eventually disappeared from the map, either supplanted by photographic references or written text and the map itself became relegated to the background. Technological changes such as the development of photolithography and the use of cheap pulp paper made the maps easier and cheaper to produce which meant that they could also be produced in larger quantities. The bird's eye maps that were once intimate portraits glorifying the new American towns would evolve into cheap giveaways specifically designed to promote business and tourism.

Interestingly, the decline in the quality of the bird's eye map and the change in their purpose is similar to the fate of their rural counterparts, the county atlases. What had begun as lavish testaments to agricultural communities and the families that populated the American farmsteads eventually succumbed to the same financial and construction concerns of a changing printing industry. Originally leather bound

manuscripts that featured handsomely lithographed portraits of farmsteads and colorful maps of the county, the county atlas at the turn of the twentieth-century became a cardboard bound list of family names more akin to the modern telephone book than a treasured cartographic history.

## CHAPTER VIII

### CONCLUSIONS

Content analysis has long been seen as a reliable and insightful methodology by researchers who study the use of words within specific texts and how these words convey an idea or concept. “Text” can take the shape of a wide range of formats from historical documents, speeches, and newspaper articles to books, interviews and advertisements. By counting the occurrence of words within the text, content analysis can quantify the relationships between words and phrases in order to “explore mental models and their linguistic, affective, cognitive, social, cultural and historical significance” (Colorado State University). This study has shown that content analysis can also be an effective tool in the evaluation of map symbology and text, in particular the analysis of nineteenth-century and early twentieth-century American urban bird’s eye views. Heavily iconic in nature, these maps were carefully examined for the occurrence of a variety of symbols, as well as text that reflected the map maker’s conceptions of how the inhabitants viewed their town.

The principle that maps are constructed conceptions of the world and not simple reductions of reality and that these constructions are designed to promote a particular point of view or message is generally seen as an inherent reality of the mapping process accepted by the academic and professional cartographic community but not always understood by the various map-using audiences. Harley suggested that maps may actually be read as text.

Maps are text in the same senses that other nonverbal sign systems—paintings, prints, theater, films, television, music—are texts. Maps also share many common concerns with the study of the book...[they are] a graphic language to be decoded. They are a construction of reality, image laden with intentions and consequences that can be studied in the societies of their time (Harley, 2001, p. 36).

It was in this context that the American bird's eye maps were examined. At a single glance, the message of the maps is clear: these are detailed portraits of the ideal nineteenth- or twentieth-century American town that boast of past accomplishments and trust in the future. Flags wave in the breeze, yards are clean and tidy, smoothly paved roads take people in wagons and carriages to and from their destinations and business is booming. Listed in numeric order, business buildings are easily identified in the legend, while civic buildings are alphabetically organized. As noted earlier, for bird's eye maps, two general methods of construction were employed, which have been categorized as the "insider" or "outsider" approaches. The method of construction resulted in significant differences to the nature of the message conveyed by the maps. Outsider views are small scale maps, drawn as if the map maker were quite removed from the town, on the outside looking in, perhaps seated on a nearby hill. Most of the detail is in the foreground of the maps; on the other hand, the detail begins to blur, and buildings become indistinguishable as the scene virtually dissipates as the viewer's eye moves toward the horizon. There is a sense of detachment and the message of the map is more opaque and impersonal. Insider views are more intimate resulting from the fact that the map maker walked the streets of the town, sketching buildings, undoubtedly meeting the town's inhabitants as he worked. A high level of detail in the map is maintained from foreground to the horizon creating

clear renditions of virtually every building in the town, even those at the periphery of the town's borders. Because the detail on the map is maintained to the very margins of the sheet, the message of the map is more inclusive and democratic, focusing not only on the central business district, but also on the surrounding homes and parcels of land yet to be sold. While much of the content of the map remained constant, new functions of the bird's eye maps were added over time. Initially, the purpose of the maps was commemorative--a narrative of past triumphs as well as a symbolic image of hope for the future. They were proud portraits of the town to be handed down to future generations. Towards the end of the century, a new function emerged--that of a commercial advertising medium, designed to entice people into the city to purchase goods and services. Businesses were often named on the map itself as well as listed in the legends, (while others were only named in the legend) as business owners vied for customers through the dissemination of the bird's eye maps. Commemoration and commercialism coexisted easily on these maps. These functions are communicated by the maps through the selected use of the text of the map, *e.g.*, icons, symbols and labels that convey the message. Icons can be something as simple as a cross on a church steeple that conveys the religious beliefs of the townspeople, smoke billowing from a factory tower becomes a symbol of prosperity and text labels found in the legend reflect what is important enough to the town's inhabitants to be highlighted for the viewer.

This analysis revealed a series of underlying messages communicated by the map. For instance, most maps show large tracts of land that extend toward the horizon, suggestive of the limitless promise of a young nation. Clouds drift across a blue sky, the

sun is always shining; peace and prosperity is available to everyone. These particular ideations are inherent in the sub-text of the bird's eye maps. Contrary to Harley's statement that maps are "constructions of reality" (Harley, p. 36), the bird's eye maps are more a construction of a *perceived* or perhaps a *hoped-for* reality that reflect how the inhabitants imagined their town not only in the present, but also in years to come.

Four-hundred and eighty-three maps created between 1853 and 1918 of the Midwest and prairie states were examined for their content (the "text" of the map). The maps were limited to towns and cities with a population of less than 15,000 and all of the maps utilized the "insider" methodology in their construction. Because the insider view incorporated more traditional cartographic elements into their design, such as named roads, a legend and a title (or cartouche), the image had a decidedly more map-like appearance than outsider maps constructed of larger cities. The map makers began by creating a grid, typically obtained from an existing map, upon which homes, office buildings and businesses could be recorded. The roads were often drawn wider and straighter than in reality, to reduce overlap of buildings, to appear more accommodating to traffic and to give the illusion of neat elegantly planned cities. The illusion is carried over into the use of a lighter color for the roads that emphasizes their pattern against the darker hues of well-manicured lawns. Bird's eye mapmakers typically utilized existing maps to create an oblique grid of the street system upon which buildings and other features were placed. This simple geometric realignment of the street grid as the basis of composition so dominated the field that the end result was a homogenous look to the insider maps.

The town and the aspirations of its citizens, remain the focus of the map, evidenced by the contents of the maps' legends. In the maps created immediately after the Civil War, the legends focused more on institutions that bound a community together, such as churches, schools and places of public gatherings. These maps were much more personal in nature, simple homes were an integral part of the landscape and the overall image validated the personal pride that the inhabitants felt towards their town. Later maps created towards the end of the century lost some of the communal appeal of earlier maps, privileging the prosperity of businesses and the individual over the communal achievements of the town. While one can compartmentalize the earlier maps into commemorative items and the later maps into commercial objects based on their change of content and function throughout the study period, realistically, the role of the maps as commemoratives remained a central rationale for their creation. Both cities and small towns continued to commission these portraits as concrete evidence of their achievements. As they became increasingly commercial they were seen less as a precious piece of artwork to be hung on the walls of homes, offices and businesses, and more as an inexpensive giveaway used to advertise businesses and services.

The ability to mass produce the bird's eye maps was a result of the technological improvements of the lithographic process throughout the nineteenth-century. The lithographic press was invented in Austria in the late eighteenth-century, but most European map makers preferred to work with copperplate printing and were slow to adopt the new printing technology. Copperplate was a more elegant printing method producing finer lines more suitable to map making than other printing techniques.

However, the copper sheet was rather delicate and could only produce a limited number of prints before it was no longer viable. In the United States, cerography (wax engraving) was the printing method of choice for creating prints and map making. The start up costs for the wax-engraved printing may have been prohibitive for small publishing houses, larger establishments became very successful in the publication of school atlases and geography text books. Although the results were not as aesthetically pleasing as the copperplate prints, the process was more productive, the materials were less expensive, and errors or changes to the map were easy to correct. Despite the popularity of lithography and other printing techniques, wax engraving continued to be used well into the 1950s. Because the lithographic process caught on quickly in America, printing houses were more likely to hire well-trained European lithographers to run the presses. Lithography was a laborious, time-consuming process. The lithographer's job was to etch original drawings in reverse by hand onto a flat stone. The stone was then inked and the areas not to be printed are treated to repel the oil-based ink. The image was then pressed onto paper and only the inked areas left an imprint. This method, with some modifications, continued until the middle of the nineteenth-century when the steam powered press was invented. Steam powered presses greatly improved production time and the number of copies that could be printed also rose sharply. According to Reps, the steam presses became popular in America around 1870 and large city views such as Boston, New York or Chicago, as well as smaller city prints published in large volumes to be given away as promotional items, were printed using the steam-powered press (Reps, 1984, p. 33).

While stone lithography was a relatively cost effective method of production from the publishers' point of view, individual maps were still somewhat expensive due to the short runs being produced. The maps could cost anywhere from one to five dollars (\$17 to \$85 in today's economy), depending on the size of the print, how many subscriptions were taken for the print, and the number of special decorative features included on the map. Toward the end of the bird's eye era the ability to mass produce the prints would have helped to reduce the cost as did the introduction of cheap pulp paper.

One should always remember that the reality of the bird's eye map making trade was the expectation of a profit. To make a profit the mapmakers had to balance how much they could charge per map with the need to sell enough subscriptions to make the project profitable. One must wonder where the map makers could find a large enough customer base in some of the towns that they drew. In towns with populations of 400 or less, it is difficult to believe that the creation of the bird's eye maps would be a worthwhile endeavor unless there was another financial backer, as the maps were usually printed in runs of 200 – 500 prints. One of the more commercial aspects of the maps was to sell land. It is well known that land developers and real estate companies would often sponsor the production of bird's eye maps in order to advertise plots of land for sale, but it was the railroads, the largest land holders in the country, that were probably most involved in underwriting the cost of the bird's eye maps. The interests of the railroads was two-fold, on the one hand, railroad corporations were large land holders hoping to sell land to recently arrived immigrants, on the other hand, they saw the immigrants as future customers who would utilize the railroads to send their crops to market.

The bird's eye maps became an essential tool to entice people to immigrate westward and to sell land. Between 1850 and 1870, the Federal Land Grant would cede over 100 million acres of land to private and public railroads, much of which was in the states included in this study. In order to continue laying track, the railroads would re-sell land ceded to them by the federal government to finance new railroad building. By underwriting the bird's eye maps and distributing them to potential pioneers they could encourage settlement of small towns along rail lines. Railroads would send land agents abroad, bird's eye maps in hand, to entice foreign immigrants to uproot themselves and come to America. For peasants and farmers wishing to escape a life of feudal servitude and the uncertain future of the coming Industrial Revolution in Europe, the bird's eye maps must have truly represented the Promised Land.

Since the lithographic press was invented in Central Europe, it is perhaps, no coincidence that many of the men involved in the production of the bird's eye maps were of European origin, especially Germany, France and England. In addition, many of the major bird's eye map makers received their training as topographic engineers while serving in the military. Albert Ruger and Augustus Koch (both German-born) served in the U.S. Army during the Civil War, Henry Wellge served in a similar capacity in the Prussian Army and Camille Drie (a.k.a. Dry) trained in the French Army as a civil engineer.

During the Civil War, map making was an essential part of the war effort and map makers often found themselves at the front lines of battle. Despite the weight of the lithographic stones, the press became an indispensable device for map making that was

both quick and versatile. Making maps in the midst of battle required accuracy and rapid production so it is likely that the bird's eye map makers not only honed their map making skills, but also became proficient lithographers.

Because this study focuses on the Midwest and prairie states, it did not include many of the works of the map makers in other regions of the country. However, the most prolific map makers, according to the Library of Congress (Albert Ruger, Oakley H. Bailey, Thaddeus M. Fowler, and Henry Wellge) are represented, as well as other important map makers, Howard H. Bailey, and Augustus Koch. Although they were quite active in separate regions of the country, all of these men were itinerant artists who at one time or another made a foray into the Midwest.

Undoubtedly, the bird's eye map makers followed the waves of immigrants into the Midwest and the trans-Mississippi region in order to exploit the new market for potential earnings. It was Albert Ruger, living in a Michigan after the War, who was the first to use his artistic and technological knowledge to create the first bird's eye maps of the Midwest in the post-War era. Ruger was most active in the 1860s and, in 1869 alone, he produced more than 60 maps (LOC), an extraordinary feat considering the time required traveling from place to place, the hazards of inclement weather and the time needed to produce and publish a map. Ruger is an important figure in the creation of the bird's eye maps, not only for his productivity, but also because it appears that he played a vital role in establishing the system of production and sales that was emulated by most of the major map makers.

After the Civil War, Chicago became the map publishing capital of the country. Many different types of maps were being created and published but the atlas production of two major cartographic houses, George F. Cram and Rand-McNally, confirmed Chicago as “the premier subscription publishing center in the country, outstripping Philadelphia in cartographic output and New York in the pure book trade...” (Conzen, 1984, p. 8). With their proximity to the city of Chicago, it may seem natural that the bird’s eye map makers would use the large printing centers in the city, but instead they chose smaller, lesser known publishing houses for their maps. This study suggests that the map makers used smaller publishing houses for several reasons. The first is that since the map makers traveled exhaustively throughout the Midwest the use of publishers in close proximity to their work that were easily accessible by train greatly reduced the turnaround time from when the map was first sent to the publisher until the final print was delivered to the subscriber (Reps estimates the turnaround time to be approximately two weeks). Chicago and Milwaukee were ideally situated as major hubs on the railroad network that served both cities; their proximity to each other made them easily accessible and major publishing firms capitalized on their centrality. Because the prints were run in smaller numbers (200 to 500 per map), local publishers may have been more suited and more willing to print the bird’s eye maps rather than larger commercial establishments. At times, this accessibility to specific publishers resulted in the establishment of partnerships between the map makers and publishers. Perhaps the most successful partnership was between Albert Ruger and J. J. Stoner. Stoner and Ruger were located in Madison, Wisconsin, which was the center of bird’s eye map making in the 1860s, and

presumably where Ruger had trained other important map makers who eventually headed east (LOC). Ruger and Stoner created a prolific publishing house in Madison, while lithographers Adam Beck and Clemens J. Pauli became successful in Milwaukee. While some map makers went on to create their own publishing firms (e.g., Fowler and Wellge), the Madison-Milwaukee region remained the center of bird's eye map publishing in the Midwest for the remainder of the nineteenth-century. Other publishers, such as Merchants Lithographers, Chicago Lithographers and Charles Shober, were successful bird's eye map publishers, but "Joseph J. Stoner was the Madison publisher most identified with the Milwaukee-Chicago area panoramic map [bird's eye map] business. Every major view artist except Lucien R. Burleigh had works published at one time or another by Stoner" (LOC).

According to the Library of Congress, Albert Ruger was the first bird's eye map maker to become financially successful at his craft. He not only trained future map makers in the technical aspects of the craft, but it is more than likely that he also was instrumental in the development of the process by which the maps were promoted, sold, created, lithographed and published. It is well established that these men possessed a special skill needed to draw the maps, but others involved in the creation of the maps had equally important roles. Edwin Whitefield (who primarily worked in the Northeast) may have been the first to use sales agents to promote his maps, but it was Albert Ruger who organized the entire process from sales to final delivery of the product in the decade following the Civil War. Undoubtedly, train travel facilitated the movement of the map makers throughout the Midwest, but it also played an important role in the travel of

others involved with the creation of the maps. Sales agents would travel ahead of the map maker to promote sales and solicit subscriptions. If enough subscriptions were taken to make the project profitable, the map maker would go to the town and create a sketch of the town. While the sketch was highly detailed, it was not the final version of the map. The final sketch would be sent (by rail) to a trusted lithographer who more than likely worked for the publisher. The lithographer would then transfer the sketch to stone and the publisher would oversee the printing of the final map. While one would normally think that the final map was the result of the artist drawing the town in the field, the *lithographer's* skills also greatly impacted the look of the map. The publisher, who held the purse strings to the entire project, may have been the person to whom agents reported, not the map maker. Who is responsible for creating the look of the American bird's eye maps is complicated by the exchange of roles among the participants. Lithographers are often listed as publishers, publishers are sometimes listed as map makers, map makers could also be lithographers and, at times, no one wants to take credit for the map! Despite the confusion in understanding each man's role in the creation of the bird's eye maps, the process of creating the map and the interplay between participants was a development that undoubtedly streamlined the creation of the maps.

Having established a system of promotion, sales and production, the map makers needed only to find an audience. With the arrival of thousands of immigrants in the Midwest, new towns began to develop on the landscape in juxtaposition with railroad building. As stated above, railroads probably underwrote the cost of the maps in order to entice settlers into the region. Once the immigrants arrived, the railroads could use bird's

eye maps as a promotional tool to sell land. They were attractive images of small town America and were particularly useful to immigrants who may not have been able to speak English. The graphic content of the bird's eye maps did not need interpretation—these maps did, indeed, speak a thousand words. As land agents, once the land was sold the railroads took little interest in the prosperity in the communities created by land sales and “railroad towns” either succeeded or failed according to the level of commitment the settlers were willing to invest in the development of the land. Many of the people who populated these new towns were from an agricultural background and it is probably safe to assume that the towns that succeeded did so because those who lived there knew how to work the land. Eventually industry did come to these towns which brought with it all the trappings of a middle-class lifestyle, but many towns retained their rural affinity which persists even in the twenty-first century.

This study has stressed the role of the bird's eye maps as treasured commemorative items that recorded a specific moment in time in the history of cities and towns in the Midwest and prairie states. However, one of the many questions that remain unanswered is to whom were these maps being marketed by the sales agents? The invention of the middle class had the greatest impact on American society in the nineteenth-century. This new social strata, a direct result of the Industrial Revolution was comprised of supervisors, mid-level managers and self made businessmen. Wealth was no longer the privilege of a few and those with new found spending power were anxious to purchase items that reflected their riches. The bird's eye maps were the perfect show piece that told the story of where one had been and where they were going.

A beautifully lithographed print of a prospering town that featured a private residence and/or a thriving business literally put the owner “on the map.” While the maps strove to be democratic in nature, it is obvious that the target audience was the middle and upper classes.

Reps reported that approximately 5,000 of the bird’s eye maps were created during the nineteenth-century and into the first two decades of the twentieth-century but nothing has been written about the number of maps produced during different time periods. From this study, it is reasonable to assume that the production of the maps increased over time. The invention of the steam powered printing press and the use of cheap pulp paper made the maps less expensive and more rapidly produced. Most importantly, the function of the bird’s eye maps changed from an image that drew settlers into the frontier to a map that drew people living at some distance away into the town for the services and goods available in the city. Undoubtedly map production increased as businesses used the map to advertise their goods and they probably reached a wider audience. However, this was not until the twentieth-century when the change in function from a commemorative item to a commercial one created a dramatically different bird’s eye map. The map became relegated to the background, advertisements replaced the vignettes and photographs replaced the hand drawn images that were the defining characteristic of the bird’s eye map during the nineteenth-century. The twentieth-century changes allowed for the mass production of a radically changed bird’s eye map that were so inexpensive to make that they were often used as “give-aways” to promote business.

It is not difficult to imagine that this was the era of the greatest map production, even though the maps had undergone a radical change.

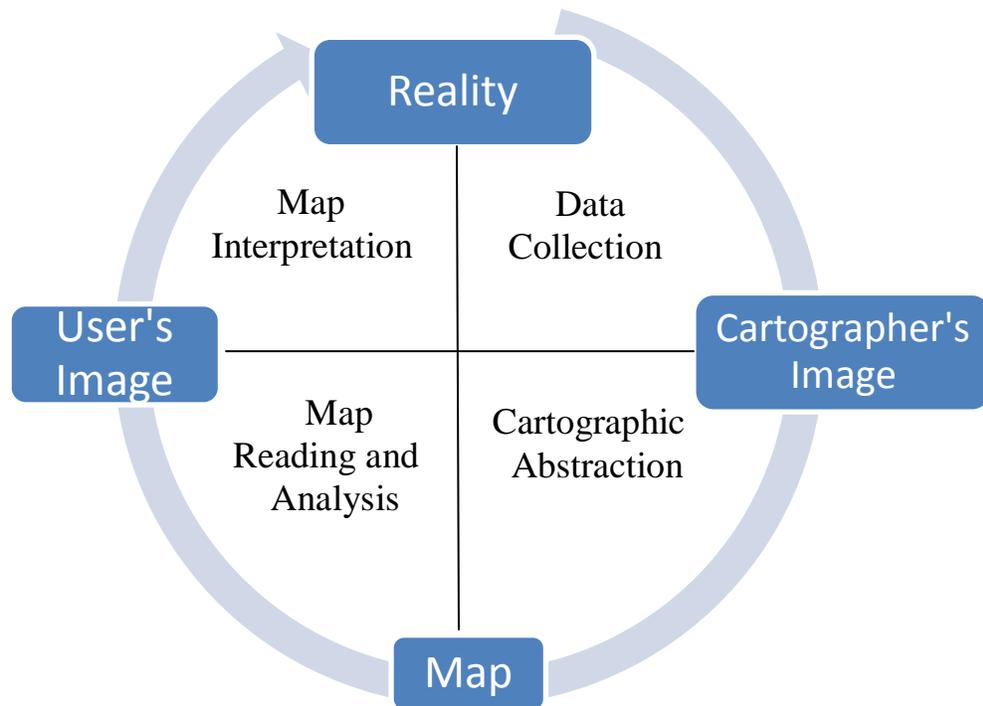
Many of the elements of the bird's eye maps remained constant throughout the nineteenth-century and into the first decade of the twentieth. This consistency helped to shape a sense of place that was both analogous and unique to each town. The emphasis of the road network and attention to detail was a common thread woven through each map. The proliferation of churches with exaggerated steeples on the map and listed in the legends underscores the importance the community placed on religion. Schools are often featured in the vignettes and listed in the legend suggesting the value placed on education. Civic buildings, such as courthouses, town halls, and capitol buildings (usually drawn larger than life), emphasize the importance of a law abiding community and the appearance of asylums and orphanages in the legend and in vignettes proclaim the Christian beneficence of the towns' inhabitants.

The bird's eye maps communicate sense of place by using icons, symbols and text to ascribe cultural meaning to the elements of the map. The use of elements may differ from map to map but they all contain important visual cues that provide accents to the narrative of the map.

The culturally-defined attributes of the bird's eye maps certainly project the inhabitant's sense of place, but it is the selectivity of the map maker that determines the final content of the map and, concomitantly, the message of the map. Cartographic abstraction, *i.e.*, selection and generalization, is probably the most important part of the map making process used by the cartographer to accurately relay the message of the map.

A simple cartographic communication model displays the way that information is processed by the map maker to convey the message of the map that can be easily understood and interpreted by the map user (Figure 43). Undoubtedly, the practice of cartographic abstraction has the greatest impact on the design of the map and, ultimately, the message that is being communicated.

Cartographic abstraction encompasses two operations that were particularly important to the creation of the bird's eye maps, selection and generalization. Selection is primarily used to decide what attributes are needed to serve the purpose of the map. The bird's eye map makers might have chosen to include some roads, while excluding others; he may have decided what features need to be labeled as well the number of vignettes to be included around the border of the map. Selection allows the map maker to make a preliminary design of the map.



**Figure 42. Cartographic Communication Model.** This is a basic diagram showing the process of map making. The resulting map depends on the skill and knowledge of the cartographer in designing a map that can communicate a message that is easily analyzed and interpreted by the map user.

While selection addresses the content of the map, generalization plays an important role in how the content will be displayed. There are five elements of generalization: 1) classification—grouping features by their attributes in order to obtain simplicity; 2) simplification—the practice of choosing important characteristics of a feature while eliminating unnecessary detail; 3) exaggeration—emphasizing some features perhaps to underscore their importance, 4) symbolization—creating graphic images that are representational rather than iconic that are more pictorial in nature and 5) induction—inferring relationships between features based on some commonalities

(Robinson, et al, 1995). The bird's eye map makers undoubtedly used some of the elements of generalization, especially simplification and exaggeration, in the creation of their maps in order to produce a map of the town that reflected the achievements and aspirations of the townspeople.

Maps created soon after the end of the Civil War were representative of a reality as envisioned by the town's inhabitants. The message of the maps was that there was prosperity, freedom, and Godliness to be found in the town and in those who lived there. These towns were the perfect environment in which to settle and raise a family, and it was the map maker's job to create a map that would proclaim that message. Later in the century (around 1880) the function of the map evolved. As towns became more settled and business were booming the use of the map as a commercial advertisement for goods and services was growing in importance. The evolution of the bird's eye maps underscores the importance of analysis and interpretation in map reading. All maps are designed to serve a purpose. They can be used for wayfinding, for the presentation of spatial data or to show the topography of a surveyed area. Therefore, each map is utilized for different purposes which results in the classification of the map user into two distinct categories: those who use maps for its functionality and those who read maps to gain information about a place. These two categories are not mutually exclusive and are often used in tandem to fully comprehend the message of the map.

The need to attract people to the own or city is a recurring theme in the bird's eye maps and it was the map maker's job to create an image of the city that would draw people in. By using selection and the elements of generalization, they produced a map

that was both attractive and functional. The map maker carefully selected out items that were blemishes on the landscape, such as outhouses, decrepit fences, wood sheds and other unsightly buildings. Church steeples were exaggerated as if they were reaching to heaven, and important civic buildings were drawn at a larger scale than surrounding buildings. Generalization was used to portray roads as being wide, straight and without ruts as they ran along finely manicured lawns. Considering the methodological process of the traditional cartographic communication model shown above, the bird's eye map makers were successful in using elements of cartographic abstraction to interpret reality that fit the expectations of the map user while communicating the message of the map.

Although the bird's eye map making trade started before the Civil War in the Northeast, it wasn't until after the War that the trade became wildly popular, especially in the Midwest and plains states. By mid-century, the influx of thousands of European immigrants into the "Heartland" resulted in town building of unimagined proportion. After the Civil War, hundreds of young towns appeared on the landscape, eventually creating a niche market for the bird's eye map makers whose efforts were facilitated by the growth of the railroad. Initially created as commemorative items that recorded the accomplishments of the towns' inhabitants, the bird's eye maps changed with the city, eventually becoming instruments of commercialism but never losing their focus which was the promotion of the city, itself.

### **Future Research**

The bird's eye maps have never received much attention from the cartographic community so there are some areas that still require further study. First and foremost, is

the lack of information that is available on the map makers, themselves. The only known record of the bird's eye map making business by one of the itinerant artists is Edwin Whitefield's notebook that he created while drawing a map of Dedham, Massachusetts in 1876. This notebook contains drawings, newspaper clippings (announcing his intention to create the map), and a list of subscribers. The Library of Congress has some biographical information on Thaddeus Fowler and Oakley H. Bailey, but virtually nothing is known about the man who was, perhaps, the most important of the bird's eye map makers—Albert Ruger.

This study comprises the bulk of the maps made in the Midwest and plains states from 1853 to 1918. While this collection of maps were the work of the major bird's eye map makers, it might be interesting to follow the work of an individual map maker throughout the span of his career. Reps has suggested that it is possible that some map makers may have had several apprentices who were trained and sent out to create maps, but instead of signing their own name to the project, they would sign their employer's name. By tracing the movement of maps of one map maker by date, it may be possible to discern if Reps' is, indeed, correct.

The bird's eye maps are usually of interest to historians and genealogists and for that reason, they tend to be held by libraries and historical societies. Considering that 5,000 of these maps were produced in the nineteenth- and twentieth-centuries, a very small portion of them are available on-line, making them difficult to find and use for research. A concentrated effort to record the maps that do exist and make them available on-line would make these valuable records of nineteenth-century America available to

researchers in history, cartography, geography and other disciplines in the social sciences.

Finally, using a modified form of content analysis to study the bird's eye maps was successful on many levels. The ability to quantitatively measure the occurrence of specific features and their variance over time helped to better define the importance of the features as prescribed by the inhabitants of the towns. Being able to judge the changing importance placed on the features by their rate of occurrence was essential to understanding the changing message of the maps. The overall message of the maps remained proud statements of accomplishment and commemoration, but as the maps began to emphasize business features, the underlying message changed to encourage customers to utilize the businesses and services of the city.

Every map, not matter how it is designed, contains a message for the map user and, as this study has shown, content analysis is flexible enough to be an important tool in understand how the message is formed and manipulated. Chloropleth maps could be analyzed to determine how color changes with the data and how the data is organized to promote the message of the map. Just as the icons, symbols and text of the bird's eye maps were analyzed to understand the occurrence of features, the semiotics of modern maps could be analyzed using content analysis to understand how they impact on the message of the map, especially in a series of maps where change in the landscape or topography is not readily apparent. While not a new concept in cartographic circles, the untapped potential of content analysis to the study of the semiotics has yet to be applied to the quantitative study of maps.

## BIBLIOGRAPHY

- Amon Carter Museum: Texas Bird's Eye Views. <http://www.birdseyeviews.org/>
- Archer J (1988): Ideology and aspiration: Individualism, the middle class, and the genesis of the Anglo-American suburb, *Journal of Urban History*, 14(Feb): 214-253
- Brückner M (1999): Lessons in geography: Maps, spellers, and other grammars of nationalism in the Early Republic. *American Quarterly*, 51(2): 311-343.
- Casey ES (2002): *Representing Place: Landscape Painting and Maps*. Minneapolis: University of Minnesota Press.
- Colorado State University: An Introduction to Content Analysis. <http://writing.colostate.edu/guides/research/content/pop2a.cfm>
- Collins-Kreiner N (1997): Cartographic characteristics of current Christian pilgrimage maps of the Holy Land. *Cartographica*, 34(4): 45-53.
- Conzen MP (1984): The county land ownership map in America: Its commercial development and social transformation 1814-1939. *Imago Mundi*, 36: 9-31.
- Conzen MP (1990): North American county atlas maps. In (ed): Buisseret, D., *From Sea Charts to Satellite Images*. Chicago: The University of Chicago Press, pp. 187-211.
- Conzen M (1984) *Chicago Mapmakers. Essays on the Rise of the City's Map Trade*. The Chicago Historical Society.
- Crang M. (1998) *Cultural Geography*. London: Routledge
- Danzer G (1990): Bird's-eye views of towns and cities. In (ed): Buisseret, D., *From Sea Charts to Satellite Images*. Chicago: The University of Chicago Press, pp. 143-163.
- Edney M (1994): Cartographic culture and nationalism in the early United States: Benjamin Vaughan and the choice for the prime meridian, 1811. *Journal of Historical Geography* 20(4): 384-395.
- Espelt NG, Benito JAD (2005): The social construction of the image of Girona: a methodological approach. *Tourism Management* 26: 777-785
- Gilmartin P (1992): Twenty-five years of cartographic research: a content analysis. *Cartography and Geographic Information Systems*, 19(1): 34-47

- Grim RE, Pick R, Warburton E (2008). *Boston and Beyond: A Bird's Eye View of New England*. Boston: The Norman B. Leventhal Map Center at the Boston Public Library.
- Harley JB (1988): Maps, knowledge and power. In (eds): Cosgrove, D. and Daniels, S. *The Iconography of Landscape: Essays on Symbolic Presentation, design and Use of Past Environments*. Cambridge [Cambridgeshire]: New York: Cambridge University Press, chapter 14: 277-307.
- Harley JB (1989): Deconstructing the map. *Cartographica* 26(2): 1-20.
- Hibbard M, Davis L (1986): When the going gets tough: economic reality and the cultural myths of small-town America. *Journal of the American Planning Association*, 52:419-428.
- Hine RV (1973): *The American West: An Interpretive History*. Boston: Little, Brown and Company.
- Historic Cities: Braun and Hogenberg. *Civitates orbis terrarum*, [http://historic-cities.huji.ac.il/mapmakers/braun\\_hogenberg.html](http://historic-cities.huji.ac.il/mapmakers/braun_hogenberg.html)
- Hudson JC (1985): Railroad Towns. *Plains Country Towns*, Minneapolis: University of Minnesota Press
- Kasson JF (1990): *Rudeness and Civility. Manners in Nineteenth-Century Urban America*, New York: Hill and Wang.
- Kreiger A (2008): As though in flight: 19<sup>th</sup> century American urban views. In (eds.) Grim R., Pick R and Warburton E., *Boston and Beyond: A Bird's Eye View of New England*. Boston: The Norman B. Leventhal Map Center at the Boston Public Library.
- Krippendorff K (2004): *Content Analysis: An Introduction to Its Methodology*. Thousand Oaks, Calif.: Sage, 2<sup>nd</sup> ed.
- Library of Congress: History of Mapping the Civil War: Union Mapping. [http://memory.loc.gov/ammem/collections/civil\\_war\\_maps/cwmum.html](http://memory.loc.gov/ammem/collections/civil_war_maps/cwmum.html)
- Library of Congress: Panoramic Maps, 1847-1929. <http://lcweb2.loc.gov/ammem/pmhtml/panhome.html>
- Mann M (1981): American landscape prints. *Art & Antiques*, May-June, pp 90-98.
- Martin Edgar W (1942) *The Standard of Living in 1860-American Consumption Levels on the Eve of the Civil War*. Chicago: University of Chicago Press, p. 412.

- Meinig DW (1993): *The Shaping of America, Continental America, 1800-1867: A Geographical History on 500 Years of History*. New Haven: Yale University Press.
- Monmonier M. (1991): *How to Lie With Maps*. Chicago: University of Chicago Press.
- Murray JS (1991): The county map hustlers. *Canadian Geographic*, Dec. '90/Jan. '91: 76-80.
- Orvell M (2003): Photography and society, in, *American Photography*. New York: Oxford University Press.
- Patton DK, Lobben AK, Pape BMC (2005) Mapping cities and towns in the late nineteenth and early twentieth centuries: A look at plat, Sanborn, and panoramic mapping activities in Michigan. *Michigan Historical Review* 31(1): 93-122.
- Patton JC (1999): The American school atlas: 1784-1900. *Cartographic Perspectives* (33): 4-32
- Patton JC, Nelson E, Bunch RL, Williams R (2005) "Defining the Map Prototype." Presented at the North American Cartographic Information Society Annual Meeting, Portland, Maine, October 2004.
- Raisz E. (1967): *Principles of Cartography*. New York: McGraw-Hill Book Company, pp. 30-38.
- Reps JW (1984): *Views and Viewmakers of Urban America: Lithographs of Towns and Cities in the United States and Canada, Notes on the Artists and Publishers and a Union Catalog of Their Work*. Columbia: University of Missouri Press.
- Ristow WW (1985): *American Maps and Mapmakers: Commercial Cartography in the Nineteenth-Century*. Detroit: Wayne State University Press, pp. 240-301.
- Robinson A, Petchenik BB (1976): *The Nature of Maps: Essays Toward Understanding Maps and Mapping*. Chicago: University of Chicago Press.
- Robinson AH, Morrison JL, Muehrcke PC, Kimerling AJ, Guptill, SC (1995): *Elements of Cartography* (6<sup>th</sup> ed). New York: John Wiley & Sons, Inc.
- Roth RE, Stryker M, Brewer CA: A typology of multi-scale mapping operators. [http://www.geovista.psu.edu/publications/2008/RothEtAl\\_2008\\_ATypologyOfMultiScaleMappingOperators.pdf](http://www.geovista.psu.edu/publications/2008/RothEtAl_2008_ATypologyOfMultiScaleMappingOperators.pdf)
- Schein RH (1992): Representing urban America: 19<sup>th</sup>-century views of landscape, space and power. *Environment and Planning D, Society and Space*, 11:7-21.

- Schulten, S (2001): *The Geographical Imagination*. Chicago: The University of Chicago Press.
- Schuyler D (1986): *The New Urban Landscape*. Baltimore: The Johns Hopkins Press.
- Shaw D (2004): *City Building on the Eastern Frontier*. Baltimore: The Johns Hopkins Press.
- Stokowski PA (2002) Languages of place and discourses of power: constructing new senses of place. *Journal of Leisure Research*, 34(4): 368-382.
- Suchan TA, Brewer CA (2000): Qualitative methods for research on mapmaking and map use. *Professional Geographer*, 52(1): 145-154.
- Stilgoe JR (1982): *Common Landscape of America, 1580 – 1845*. New Haven: Yale University Press.
- Tuan Y-F (2001): *Space and Place: The Perspective of Experience*. Minneapolis: University of Minnesota Press.
- Williams R (2004): *Panoramic Maps: A Bird's Eye View of the American Town*, unpublished Masters thesis.
- Williams R, Patton J (2008): Cartography and the creation of place: American nineteenth-century bird's eye maps, submitted for publication.
- Wolfe, BM (2004): On the Trail of 19<sup>th</sup> Century Pittsburgh: Authenticating a Monumental Lithography at the Duquesne Club, *Western Pennsylvania History*, Spring, pp. 28-35.
- Woodbridge, WC (1826): *School Atlas Designed to Accompany Woodbridge's Rudiments of Geography*. Hartford: Oliver D. Cooke.
- Woodward, D (1977): *The All American Map: Wax-Engraving and Its Influence on Cartography*. Chicago: University of Chicago Press.

## APPENDIX A: Explanation of Chi-Square Analysis

Chi-square values for each feature were calculated in two steps. The first step was to calculate the difference between the observed value and the expected value, squaring it, and dividing it by the expected value for each of the seven time periods and then summing all of the resulting values. This was done for each entry and the sum is called Chi-Square. A significance level ( $\alpha$ ) of .05 was determined to be appropriate for this study. Generally the *chi-squared statistic* summarizes the discrepancies between the expected number of times each outcome occurs (the observed value) and the observed number of times each outcome occurs (the expected value). (See Dorak, 2006).

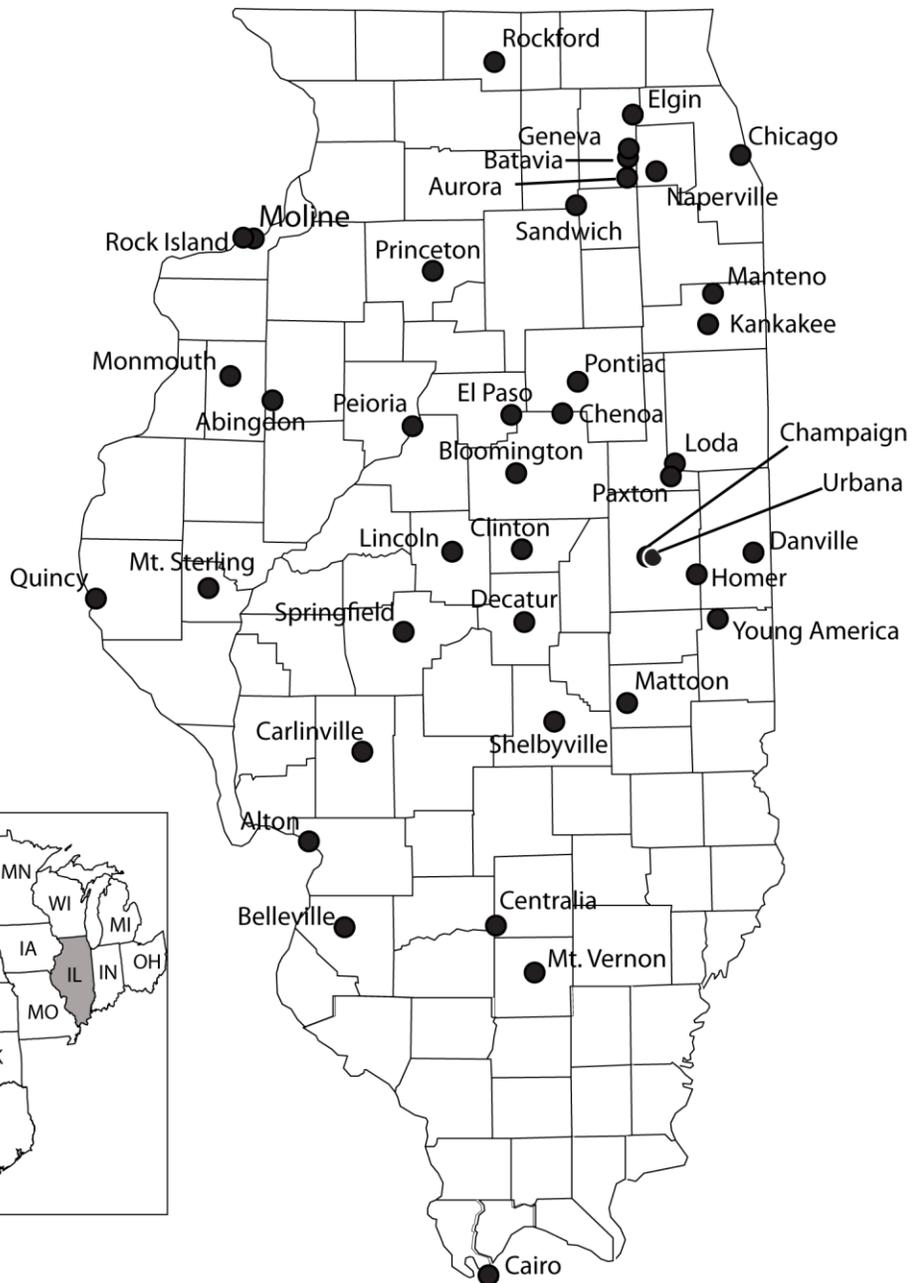
|                                                                        |                  |                  |                  |               |
|------------------------------------------------------------------------|------------------|------------------|------------------|---------------|
| No. of Maps                                                            | Group A<br>200   | Group B<br>300   | Group C<br>500   | Total<br>1000 |
| Observed Outcome                                                       | Feature 1<br>100 | Feature 2<br>300 | Feature 3<br>200 | 600           |
| Expected Outcome                                                       | 60               | 180              | 300              | 540           |
| Chi-Square<br>$\chi^2 = \sum \frac{(observed - expected)^2}{expected}$ | 26.67            | 8.00             | 33.34            |               |

**Figure 43. Difference between Expected and Observed Outcomes.** The difference between outcomes when N = 1000 and the expected outcome is 600.

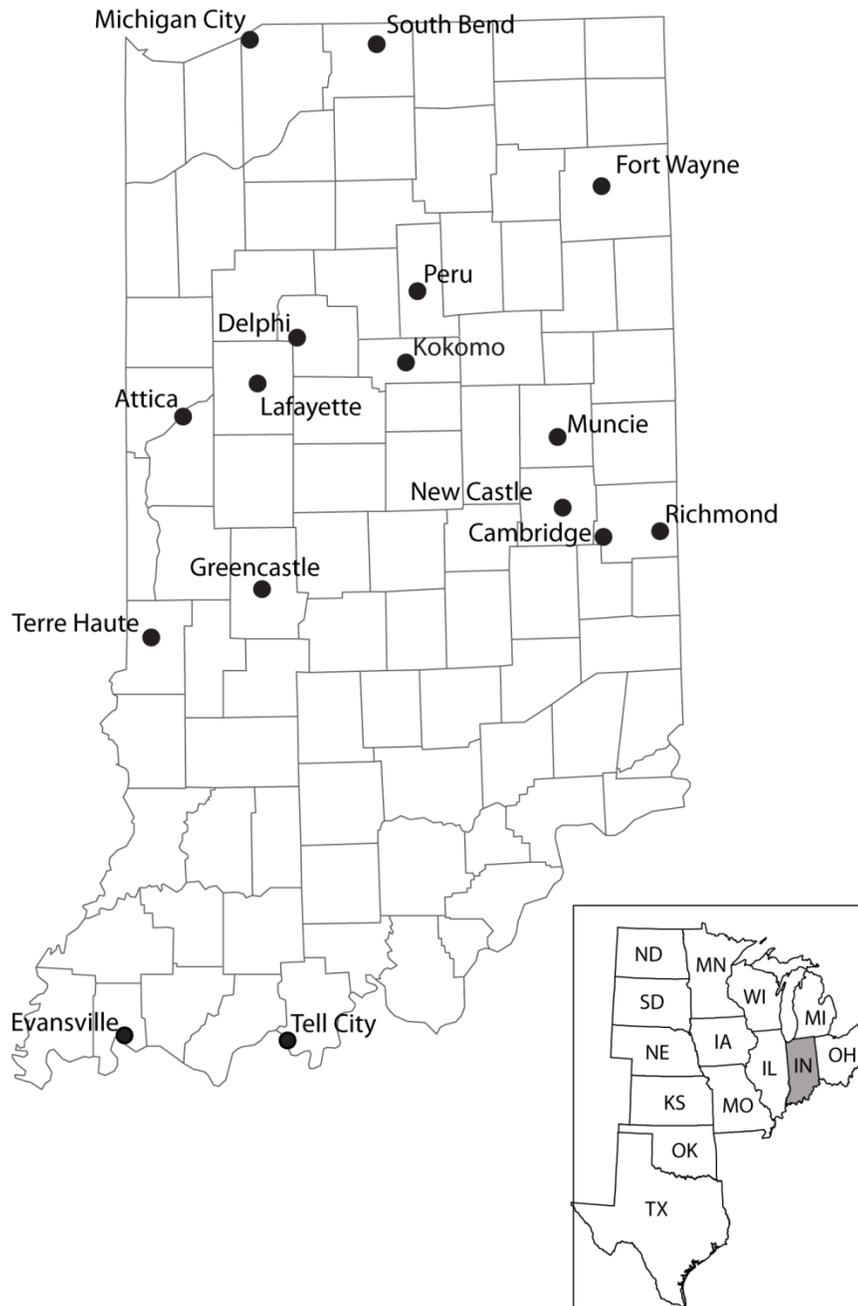
**APPENDIX B:**

**Bird's Eye Maps by State and County**

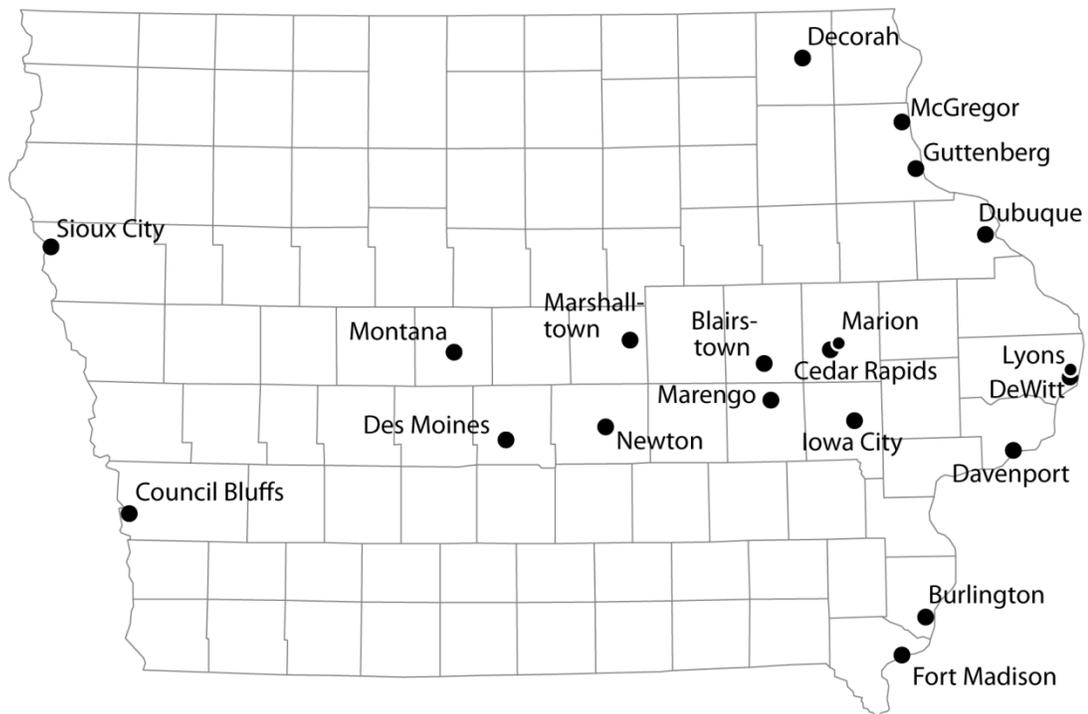
# Bird's Eye Maps of Illinois by County 1853 - 1894



# Bird's Eye Maps of Indiana by County 1866 - 1907



# Bird's Eye Maps of Iowa by County 1868 - 1889

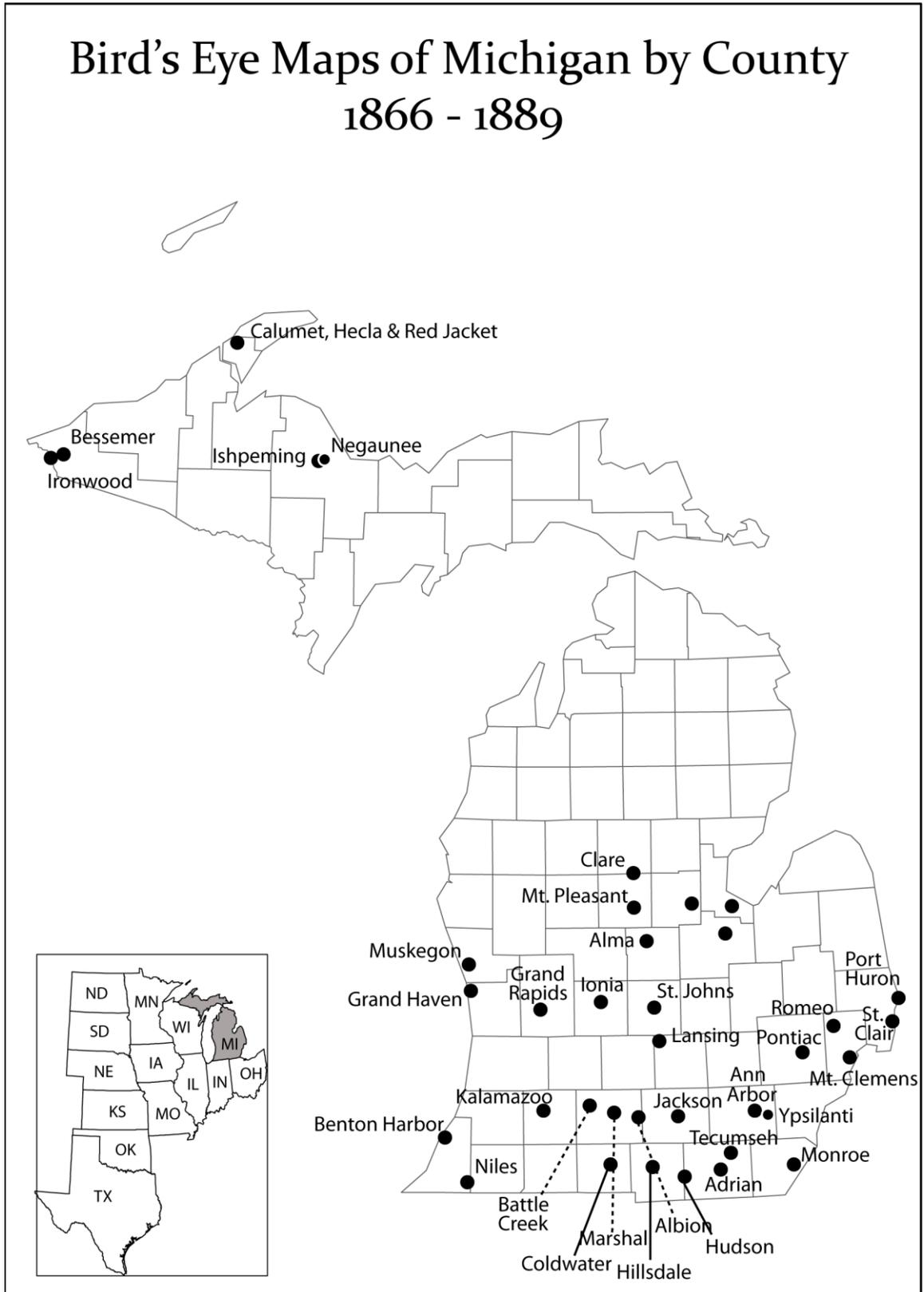


# Bird's Eye Maps of Kansas by County

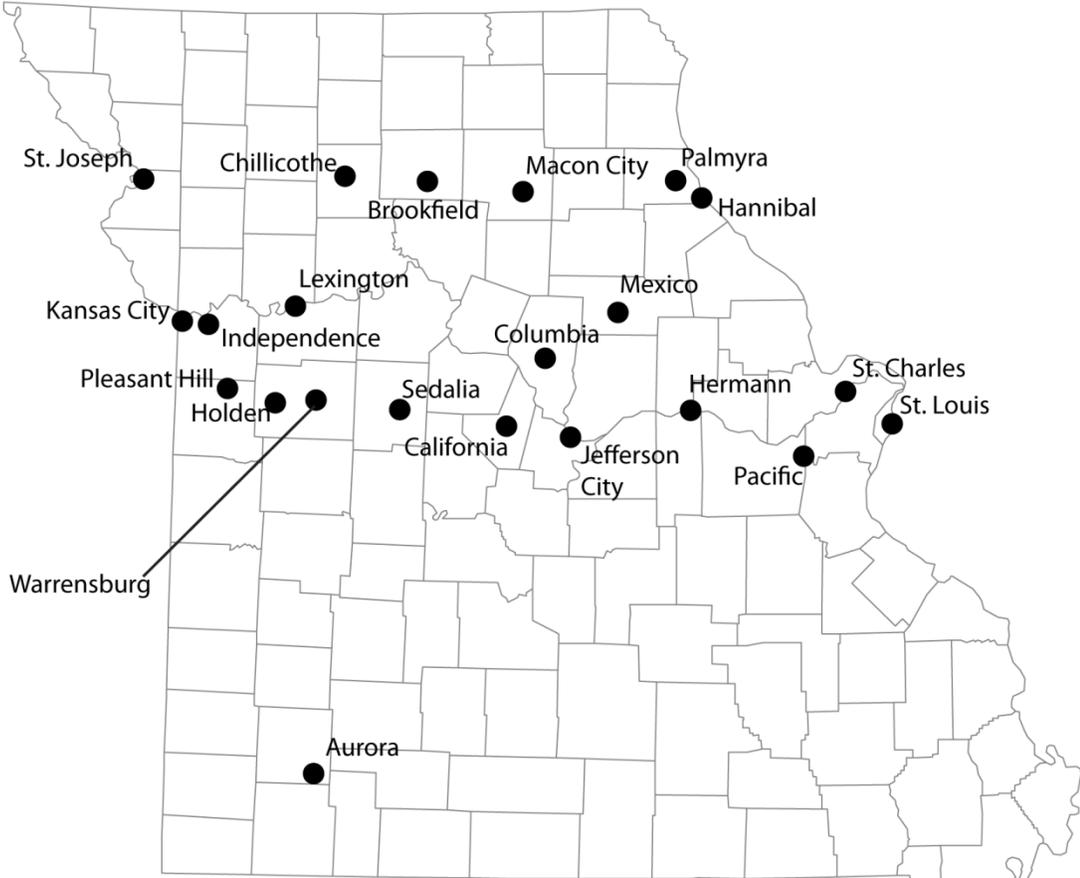
## 1869 - 1882



# Bird's Eye Maps of Michigan by County 1866 - 1889

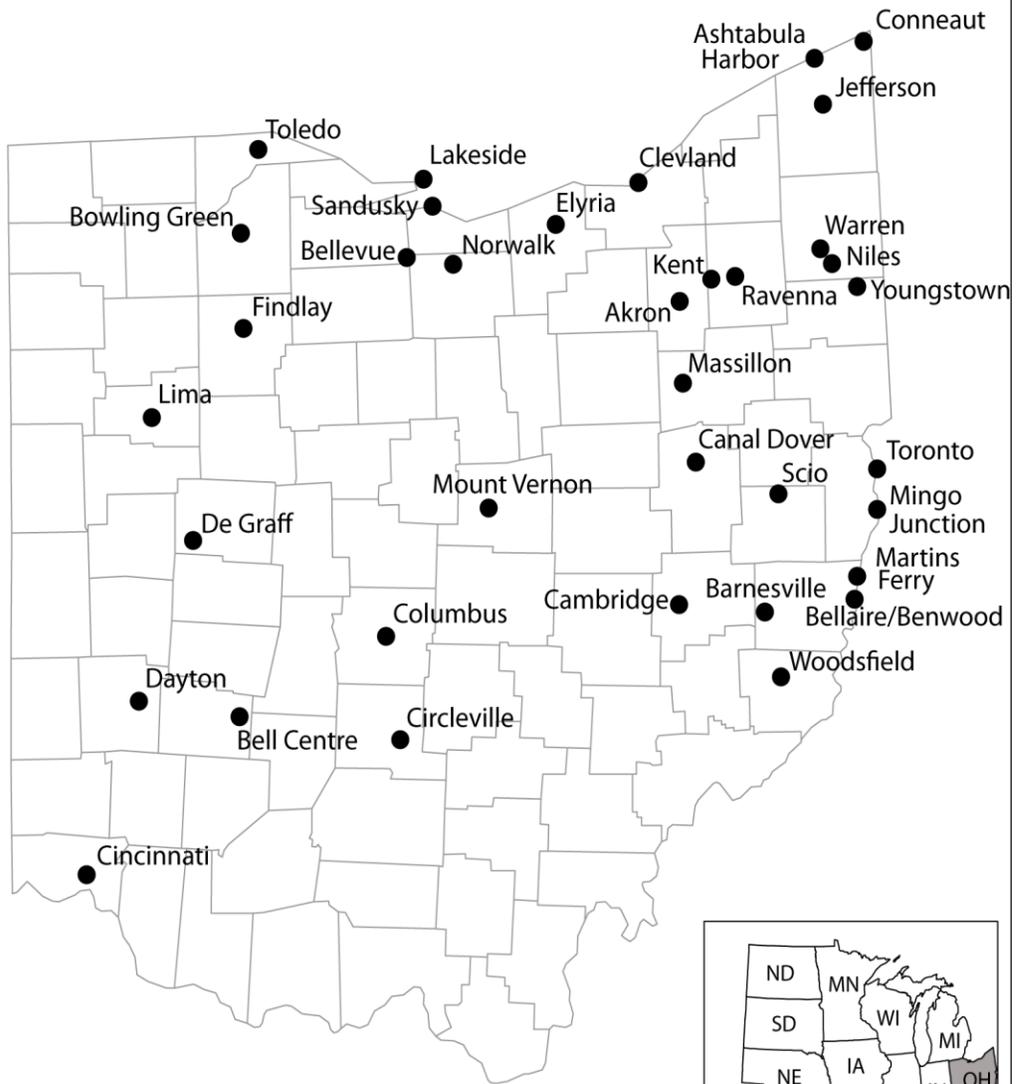


# Bird's Eye Maps of Missouri 1859-1891

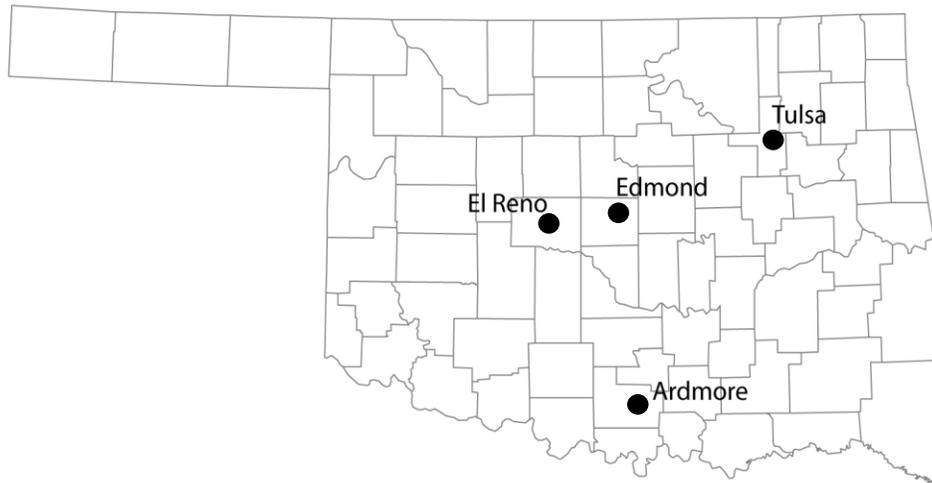


# Bird's Eye Maps of Ohio by County

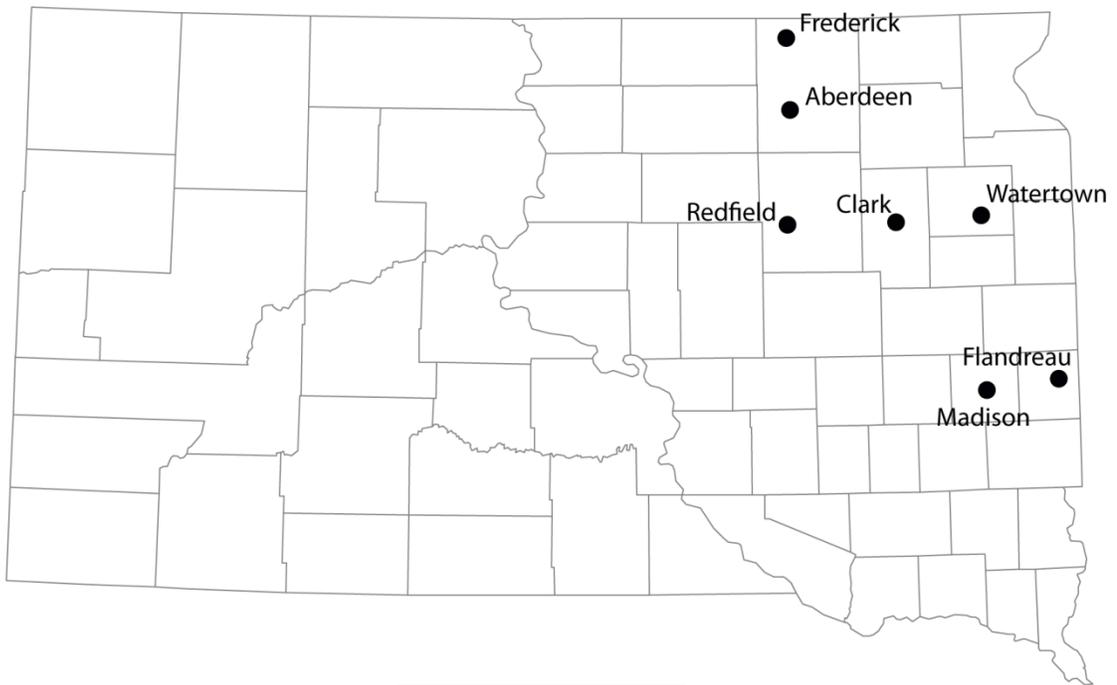
## 1868 - 1901



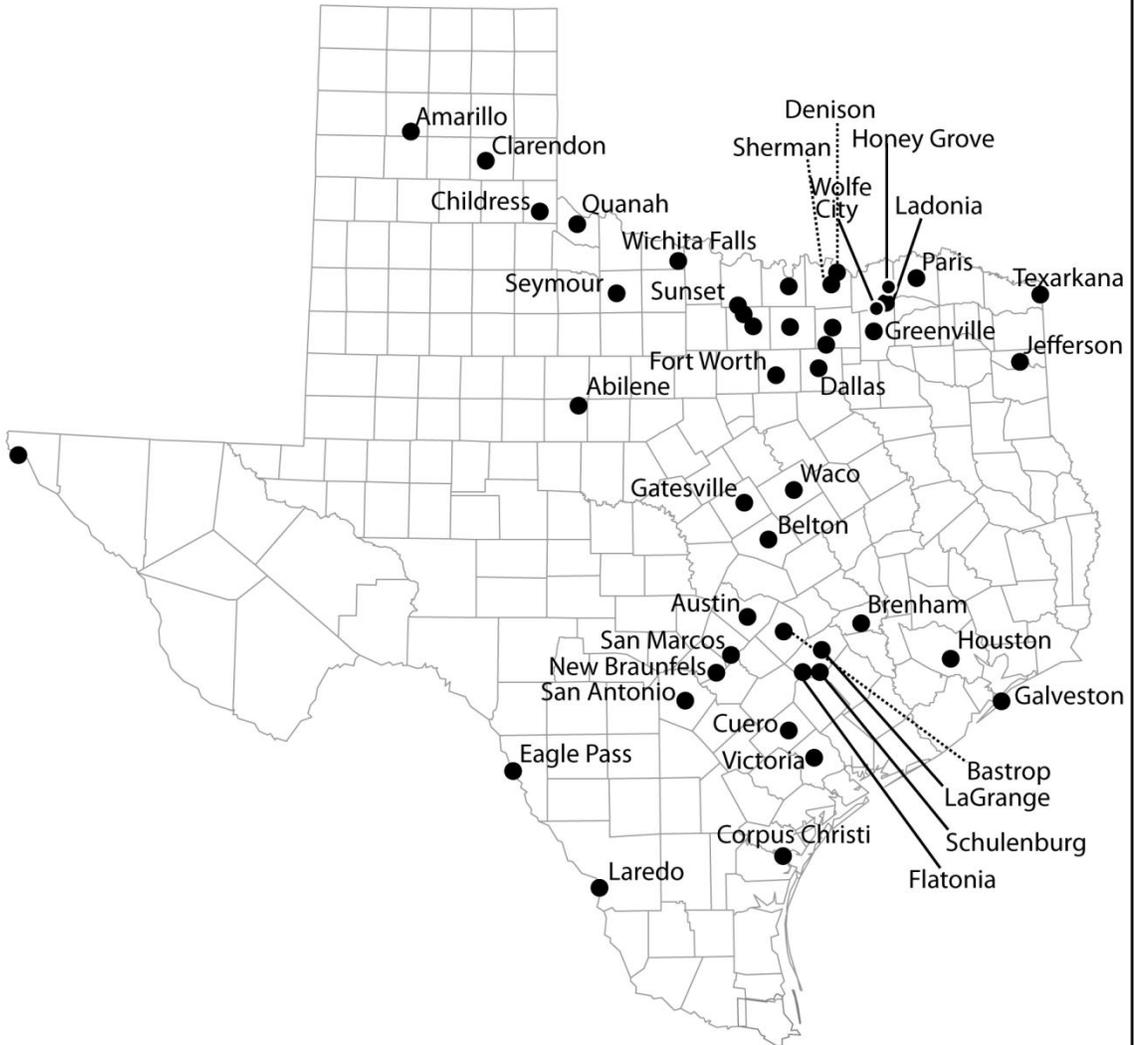
# Bird's Eye Maps of Oklahoma by County 1874 - 1918



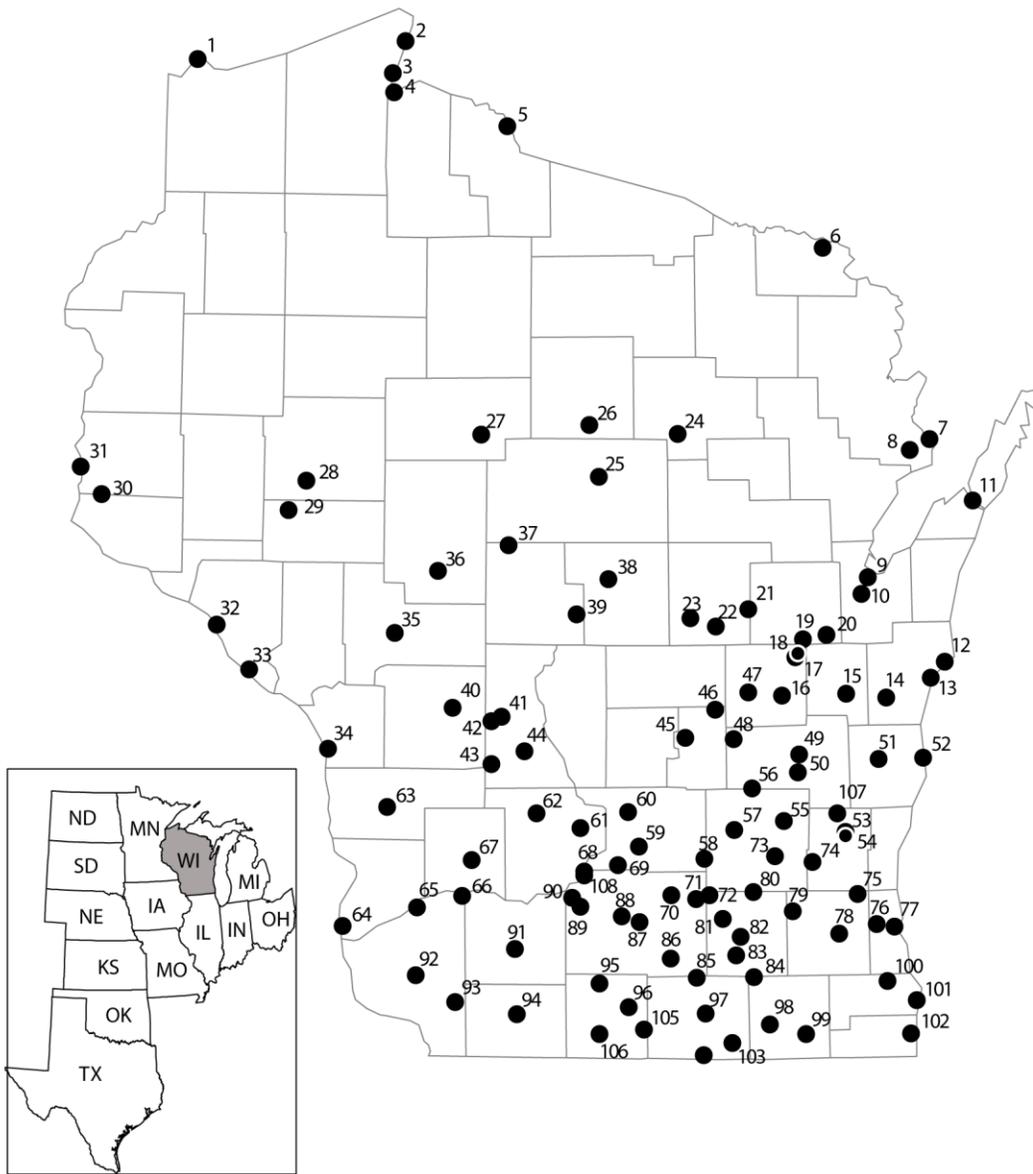
# Bird's Eye Maps of South Dakota by County 1883 - 1888



# Bird's Eye Maps of Texas by County 1883-1888



# Bird's Eye Maps of Wisconsin by County 1853 - 1892



## Index of Cities to Accompany Wisconsin Map

|                        |                     |                  |
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| 1 Superior             | 40 Tomah            | 79 Oconomowoc    |
| 2 Bayfield             | 41 Lone Rock        | 80 Watertown     |
| 3 Washburn             | 42 Camp Douglas     | 81 Lake Mills    |
| 4 Ashland              | 43 Elroy            | 82 Jefferson     |
| 5 Hurley               | 44 Mauston          | 83 Fort Atkinson |
| 6 Florence             | 45 Princeton        | 84 White Water   |
| 7 Marinette            | 46 Berlin           | 85 Edgerton      |
| 8 Peshtigo             | 47 Omro             | 86 Stoughton     |
| 9 Greenbay & Ft.Howard | 48 Ripon            | 87 Madison       |
| 10 DePere              | 49 Fond du Lac      | 88 Middleton     |
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| 12 Two Rivers          | 51 Plymouth         | 90 Mazomanie     |
| 13 Manitowoc           | 52 Sheboygan        | 91 Dodgeville    |
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| 15 Chilton             | 54 West Bend        | 93 Platteville   |
| 16 Oshkosh             | 55 Mayville         | 94 Darlington    |
| 17 Neenah              | 56 Waupun           | 95 New Glarus    |
| 18 Menasha             | 57 Beaver Dam       | 96 Mineral Point |
| 19 Appleton            | 58 Columbus         | 97 Janesville    |
| 20 Kaukauna            | 59 Poynette         | 98 Delavan       |
| 21 New London          | 60 Portage          | 99 Lake Geneva   |
| 22 Wayauwega           | 61 Baraboo          | 100 Kilbourn     |
| 23 Waupaca             | 62 Reedsburg        | 101 Racine       |
| 24 Antigo              | 63 Viroqua          | 102 Kenosha      |
| 25 Wausau              | 64 Prairie du Chien | 103 Clinton      |
| 26 Merrill             | 65 Boscobel         | 104 Beloit       |
| 27 Medford             | 66 Muscoda          | 105 Brodhead     |
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| 29 Eau Claire          | 68 Prairie du Sac   | 107 Kewaskum     |
| 30 River Falls         | 69 Lodi             | 108 Sauk City    |
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| 32 Alma                | 71 Marshall         |                  |
| 33 Fountain City       | 72 Waterloo         |                  |
| 34 La Crosse           | 73 Hustisford       |                  |
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