Omaha, Nebraska's Costly Signaling at the Trans-Mississippi and International Exposition of 1898

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OMAHA, NEBRASKA'S COSTLY SIGNALING AT THE
TRANS-MISSISSIPPI AND INTERNATIONAL EXPOSITION OF 1898

by

Courtney L. Cope Ziska

A THESIS

Presented to the Faculty of
The Graduate College at the University of Nebraska
In Partial Fulfillment of Requirements
For the Degree of Master of Arts

Major: Anthropology

Under the Supervision of Professor LuAnn Wandsnider

Lincoln, Nebraska

December, 2012
At the close of the nineteenth-century, Omaha, Nebraska hosted the Trans-Mississippi and International Exposition of 1898. Despite financial depression, drought, and war, the city chose to allocate its limited financial, time, and energy resources to the Exposition effort with no guarantee of success and little potential for profit. This thesis aims to make sense of this seemingly wasteful or irrational event by exploring its possible function as a costly social signal of Omaha’s qualities to potential residents, businesses, and city partners. Utilizing data from historical, geophysical, and demographic resources, this thesis assesses the Exposition as a costly signal and the degree to which this signal proved successful. In doing so, a greater understanding of the function of world’s fairs in general, and the potential of costly signaling in historical archaeology research will be determined.
ACKNOWLEDGMENTS

I would like to express my appreciation to those who supported this thesis through
the contribution of their ideas, opinions, assistance, and encouragement. My endless
gratitude goes to my entire committee, Dr. Peter Bleed, Dr. Douglas Scott, and my
advisor Dr. LuAnn Wandsnider for their patient guidance, enthusiastic encouragement
and useful critiques, not only in regards to my thesis, but throughout my entire graduate
career.

I would like to thank Omaha Parks and Recreation for permission to conduct
fieldwork in Kountze Park, and for the materials and information they provided me to
aid in my investigations. Special thanks also to the Midwest Archeological Center for
their generous and unrestricted assistance with my fieldwork in terms of crew and
equipment, as well as for providing me with a strong foundation of archaeological
knowledge and experience from my time employed there. Their contributions to the
Douglas Bereuter Fellowship in Anthropology I received which helped to alleviate
expenses associated with my research and fieldwork is also greatly appreciated.

Additional thanks regarding my fieldwork, and my graduate work in general, goes
to Rob Bozell, my supervisor, and my co-workers at the Highway Archeology Program
for their considerable patience and support while I directed my time and efforts towards
completing this thesis! My friend Andrew LaBounty is also owed much of my gratitude
for his help with my fieldwork and our many enjoyable discussions about my research
and life in general.
Finally, and more personally, I am forever indebted to my family, especially my parents and my husband, Aaron, for their endless encouragement of my education and ambitions. Your support and patience with my endeavors has made this thesis possible, and my appreciation for everything you have done is immeasurable. Thank you.
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Chapter 1: Introduction

In the 1890s, the world was changing. The grand allure of the frontier that had been bringing settlers west for decades, whether for adventure, new opportunity, the promise of fortune in fertile land and mineral resources, or otherwise, was essentially over. As Frederick Jackson Turner declared in 1893, "four centuries from the discovery of America, at the end of a hundred years of life under the Constitution, the frontier has gone, and with its going has closed the first period of American history" (Turner 1921:38). By Turner's estimation, most western settlements were reaching the latter stages of their inherent evolution, that of "the manufacturing organization with city and factory system," having advanced from "the disintegration of savagery by the entrance of the trader … the pastoral stage in ranch life … [and] the intensive culture of the denser farm settlement" (Turner 1921:11). Without frontier expansion to bring people west, the developing cities were left to their own devices, dependent on their successes and the degree of their resources to bring people in and keep them there. Unfortunately for these cities, however, a combination of severe drought and financial depression was proving too difficult for many settlers to overcome, sending many of the cities' current and potential residents back east with no intent to return. As one Nebraska farmer posted, "Good-bye, old homestead, I bid you fair adieu; Some day I may go to hell, but I'll never return to you" (Larsen and Cottrell 1997:83).

It is in these conditions that the city of Omaha, Nebraska found itself at the close of the nineteenth-century. As summarized in a book on its history, "Omaha's economy was nearly paralyzed. Factories and stores closed. The city, which had gained an
estimated 60,000 residents in the late 1880s, lost over 30,000 in the 1890s. For many of those remaining, soup kitchens and charity houses seemed the only flourishing establishments. Construction stopped; over five thousand homes stood empty. There was no money available. The Union Pacific was bankrupt, and the Nebraska hinterland prostrate" (Larsen and Cottrell 1997:83). This proved a difficult reality for the town that sought nothing less than to be the next Chicago, a great city of the West.

In spite of these rough times, or as this thesis explores, perhaps because of them, Omaha chose to become host to the Trans-Mississippi and International Exposition of 1898, one of a series of World's Fairs put on in the mid- to late nineteenth and twentieth centuries to showcase the latest technologies, the greatest innovations, and the different cultures from around the world. Like the other fairs before it, the focus of this Exposition was on its regional and national host, highlighting the resources and progress of the United States, and emphasizing "the products, industries and civilization of the States west of the Mississippi River" (Haynes 1910:12).

Given this widespread focus, the glories of success in the event would be shared with all those represented in the region. The burden of possible failure, however, fell largely on the event host alone. Omaha found itself responsible for all aspects of hosting this major event, including the financing, planning, and organization of the Exposition, from their initial show of interest in 1895 to its closing day on November 1st, 1898. Despite the potential for a temporary boost to the local economy from tourism and construction activities, Omaha did not stand to profit from this venture given the considerable cost involved in hosting an exposition, and the relative lack of any
intentional permanent improvements to the city’s infrastructure (Expositions were organized as temporary events, constructed to last only a few months and then be immediately dismantled). In fact, even today, economists are generally skeptical of the hosting of such ‘mega-events,’ as the large expenditures of time and money associated with such (i.e., the Olympics) “are not nearly compensated by either the revenues earned during the event or the legacy of large stadia or obscure facilities” (Rose and Spiegel 2011:655).

With the substantive opposition brought on by the harsh economic reality of the times, and given that proving unsuccessful would be "humiliating," and would tarnish their already precarious reputation, "the consequences of which would have been so damaging to Omaha in the eyes of the whole country that recovery could not have been expected within a generation" (Haynes 1910:303), what could have motivated a city like Omaha, and its citizens, to not only take on such a herculean task, allocating much needed resources to it, but to persevere in its efforts to host an International Exposition? And given the apparent inability to predict the outcome of such an event given the circumstances, what insured its success?

This thesis aims to answer these questions by utilizing the framework of Costly Signaling Theory (CST), an approach that explains seemingly irrational or wasteful behaviors as the means by which underlying traits and difficult to perceive strengths may be communicated and acted upon. Through an examination of historical, demographic, and geophysical data, this thesis explores how the Exposition functioned as a costly signal, how it was to benefit Omaha and the signal recipients, and to what degree it
proved successful. By doing so, the explanatory potential of Costly Signaling Theory may be assessed in regards to this site specifically and to historical archaeology as a whole.

Costly Signaling Theory

Signaling theory, developed out of an evolutionary framework in ecology, anthropology and biology, is based on the idea of "individuals as strategic decision-makers," who take the costs and outcomes of their actions into consideration to obtain the most advantageous benefits for themselves and their offspring (Bliege Bird and Smith 2005:221). Social signaling, or more specifically costly signaling, focuses more on those behaviors which, at first glance appear irrational, in that they provide no direct benefit to the signaler, and sometimes even result in a direct disadvantage. Upon further consideration, however, these behaviors appear to give the signaler, or their group, some sort of social or long-term gain.

Costly Signaling Theory functions as an avenue through which underlying attributes and abilities that are difficult to perceive directly are communicated. Recognition of and adherence to the signaled qualities benefit the different parties involved, allowing them to utilize gained knowledge to guide future actions and relationships appropriately and in their best interest. In order to make the signal reliable and accurate, so that it is worthwhile for the signaler while protecting the recipient from deception, the honesty of the signal is insured by its cost, in that it is quality dependent and thereby difficult, if not impossible, to fake. In other words, the cost of the signal is sufficiently high enough that those of 'lesser quality' would not be able to create or
maintain the signal successfully; to attempt deceit would prove too detrimental and inhibit their ability to survive (Bliege Bird and Smith 2005).

Because of its ability to bridge theories of "symbolic communication and social benefit" with those of "individual strategic action and adaptation," as well as its potential to increase the understanding of human behaviors that have previously been considered wasteful or irrational, costly signaling theory has been a popular research interest in anthropology in recent years (Bliege Bird and Smith 2005:221). Its potential to offer "a deep understanding of why material goods and the time and resource costs they represent are such good media for communication," has made it particularly interesting to archaeologists, who are often looking for new ways to understand and interpret the material record and the meaning behind seemingly unexplainable artifact patterns (Bliege Bird and Smith 2005:238). As Fraser Neiman pointed out, while archaeologists have often constructed narratives about social complexity and power based on costly and apparently non-utilitarian objects and attributes, "they have lacked a theoretical account of the causal dynamics that link extravagant artifacts to the social and cultural dynamics that are alleged to account for them" (comment to Bliege Bird and Smith 2005:242). With this link now more clearly defined, it has been used as an analytical tool in a number of archaeological studies, examining a wide variety of artifact, feature and site types as mediums for communication (see Galle 2006; Kuhn 2004; McGuire and Hildebrandt 2005; Trigger 1990 for examples).

However, while the consideration of costly signaling theory in archaeology is increasing, the reality of its application to archaeology is still questioned. Critics have
pointed to issues of data resolution, testability, and its visibility relative to other behaviors as primary issues associated with the theory, believing that its prevalence in human behavior and the material record has been largely overstated and approached from the wrong angle (Codding and Jones 2007). Critics and supporters alike, however, have both acknowledged that only with additional research and debate will the full extent of CST’s explanatory value be realized or known. As such, this thesis aims to contribute additional efforts to this topic of research in hopes of greater understanding of its full potential in the future.

Materials and Methods

In order to demonstrate the Trans-Mississippi and International Exposition’s (TMIE) function as a costly signal, assess the nature of the signal, and evaluate its effectiveness, a combination of historical, demographic, and geophysical resources are utilized. The integration of data from these different fields allows for a more complete and comprehensive understanding of costly signaling at the Trans-Mississippi and International Exposition, and how it impacted Omaha, both past and present. The different types of data are compared to the conditions of CST to address the following:

**Signal:** Historical documents help to establish the context of the Exposition, including the identification of what was being signaled through the event and Omaha’s motivations for hosting it. These motivations include the climate of the times that made other forms of advertising difficult, if not impossible, as well as the perceived benefits Omaha aimed to gain as a result of the signal. Newspaper articles and the official records of the Exposition are the primary resources examined for this information.
**Signal Cost**: In order for the signal to prove effective, its quality had to be maintained and kept honest. As determined by costly signaling theory, this was accomplished through its cost. A combination of historical documents and geophysical data and interpretation is used to evaluate the extent of this cost, including the monetary expenses involved as well as the time, energy and effort required for success. Here, special consideration of the Exposition’s ephemerality as a cost is made, as its transience precluded the continued use of at least some of the infrastructure and facilities built, with cost increasing relative to the shorter use-life. Primary resources include historical documents detailing the construction materials and expenditures of the Exposition, as well as geophysical data collected at the site of the Exposition’s Grand Court.

**Signal Effectiveness**: One of the conditions of a costly signal is that such a signal conveys a benefit, albeit not necessarily an obvious one, to the signaler as well as to the observer. Therefore, an evaluation of the Exposition as a costly signal needs to consider its effectiveness. Rather than an immediate economic benefit, an effective signal at the Exposition may have reached potential entrepreneurs and prospective residents, as well as other cities, as a means of providing them with information regarding the city in which they should base trade relations, establish new businesses, and raise families. To assess the extent to which benefits of long-term economic and population growth were realized, a combination of historical accounts including first-hand narratives and demographic data from prior to and after the TMIE are examined.
Significance

While the purpose of this thesis is to assess the Trans-Mississippi and International Exposition’s function as a costly signal, it holds the potential to contribute to various fields of research in other ways as well. Among the most prominent of these is the potential that historical archaeology holds in identifying and contextualizing patterns of human behavior in material culture—a potential not so readily attainable with prehistoric archaeology. This is due to the availability of historic documents and narratives that give credence to our interpretations, that detail intentions, to help make the past 'knowable.' As some have suggested, prehistoric archaeology lacks this, making "the archaeological interpretation of prehistory infinitely arguable because no one really knows what happened … the distance in years between a modern archaeologist and the prehistoric people under study ensures unknowability" (Orser 1996:4). While this position may be extreme, it does illustrate the strength of historic archaeology. By using historically documented sites, we may be able to make interpretations of the material record that are supported through both ethnographic and historical observations, and then translate these to less well-documented historic sites, and even prehistoric sites, based on patterns of human behavior (past and present) found archaeologically. If nothing else, finding a historic basis to a theory may at least garner additional consideration for it in the interpretation of prehistoric sites, a necessary step to determining the validity and explanatory value of any idea offered in the process of archaeological research.

Besides the potential in historical archaeology, additional motivation for examining signaling theory at the Omaha Trans-Mississippi and International Exposition
lies in increasing understanding on the event itself, and the nature of its deposits. Despite their popularity and importance in the mid-to late nineteenth and twentieth century, it seems the majority of people are unaware of the World's Fairs and the influence they had on modern cities and technology, and even fewer are aware of the Exposition held in Omaha in 1898, compared to the likes of Chicago and St. Louis. This project offers a chance to bring this event back into the light, providing a glimpse of an Omaha neighborhood's former glory to those familiar with the unrecognizable area today.

Finally, the multidisciplinary approach of this thesis may also contribute to a greater awareness of the strength in using a variety of data sources in the construction of a more comprehensive understanding of a given topic or historical event. It seems that although attempts at a more integrated approach have been made, researchers in history and archaeology/anthropology are still reluctant to incorporate one another's research into their own, despite the strengths of the long-term, big picture approach of archaeology and anthropology, and the great detail and perspective found in history. To separate the events and details of the past from the intentions and behaviors of the people who partook in them is a mistake, as the examination of material remains with little regard to the great resources we have to help us identify phenomena, context, and intention inherent in them. It is only preventing a more fully complete understanding of the past, an understanding for which we should instead be striving, especially with historical events that are difficult to explain in the greater scheme of things otherwise. This thesis will demonstrate the immense potential in combining different ways of knowing, allowing us
to see the Trans-Mississippi and International Exposition not only for its role in the past, but for its insight into human behavior today, as well.

Organization

This thesis is organized into seven chapters, with this first chapter having identified the research to be presented in the following chapters, and how it may contribute to broader topics within archaeological and historical research as a whole. Chapter 2 provides an overview of the anthropological and archaeological literature on costly signaling theory and that of world's fairs and other historic mega-events, noting areas of research where the application of CST has found support and success, and others where additional work may be needed. Chapters 3 through 5 explore the TMIE as a costly signal by examining the historical, geophysical, and demographic sources, respectively, for how data found in each align with expectations of signaling theory as set forth by Bliege Bird and Smith (2005). Chapter 6 then collectively looks at the evidence presented in the previous chapters to establish how the different data sets combine to support the Exposition's function as a costly signal and assessing the degree to which it proved successful, if at all. Finally, chapter 7 reviews the findings of this thesis, and highlights areas of research where additional attention in the future is warranted, both for the topic of the TMIE specifically and the field of archaeology in general.
As mentioned in chapter one, hosting the Trans-Mississippi and International Exposition required the city of Omaha to invest considerable time and money into the fair simply to see it to opening day, let alone a successful run through its closing on November 1st, 1898. Unable to guarantee its success, due in large part to the precarious social and environmental climate of the times, no certainty of a direct profit could be made, and any short-term benefit found in the way of jobs was minimal compared to the expenditures involved. With even the benefit of infrastructure improvements being minimal, as most were planned as impermanent structures to be demolished at the fair's end, what would have motivated a city like Omaha to take on such a burden, with no obvious benefit?

Much as evolutionary biologists and ecologists have examined the role of seemingly maladaptive behaviors and traits in nature (Searcy and Nowicki 2005; Smith 1976; Zahavi 1975, 1995), so too have sociologists, anthropologists, and others researched the motives behind similar irrational and disadvantageous behaviors in humans (Laland and Brown 2011). From altruistic giving and artistic endeavors to wasteful feasts and prestige hunting, these behaviors appear to not only provide little to no benefit to an individual or group, but may even prove to be a detriment to one's own fitness and success, whether that be biologically, economically, or otherwise. This is due to the reallocation of resources from where they are needed most, or from where they would at least prove most advantageous, to an area or activity where, seemingly, no direct benefit can be anticipated. However, much as a peacock's plumage provides it with
the benefit of greater sexual fitness despite the detriment of increased visibility to predators (Loyau et al. 2005; Smith 1976), so too, does it appear that these costly behaviors observed in humans result in an overall advantage, in spite of the initial expenditure. Through a review of literature on costly social signaling in anthropology, this chapter explores what these advantages are that motivate humans to engage in these costly behaviors, and how evidence for these behaviors is being researched in the past material record through archeology. This review is then followed by a look at the anthropology of world’s fairs, and how although not often used, a costly signaling theory may help to explain the motives behind these expositions, and other mega-events, including those of Omaha’s TMIE of 1898.

Among the first of the social theorists to examine the role of wasteful behaviors was Thorstein Veblen (1857-1929). In his book *The Theory of the Leisure Class* (1912[1899]), Veblen explores the means and motives of conspicuous consumption, focusing particularly on how partaking in such activity served to both establish and maintain the status of the upper class. This was accomplished because only the upper class could partake in leisure, which Veblen defines as a "non-productive consumption of time," because all others could not afford such non-productivity; "the lower classes, whose ordinary means of acquiring goods is productive labour…can in any case not avoid labour" (1912:35). As such, since only the upper class could afford to consume "freely and of the best, in food, drink, narcotics, shelter, services, ornaments, apparel, weapons and accoutrements, amusement, amulets, and idols or divinities," these came to be representative of that class (1912:73). In this way, Veblen was able to demonstrate that
material objects and actions could serve a purpose beyond simply utility; consumption of goods and time could function as a signal of underlying qualities, in this case, of wealth, power, and leisure.

Another early theorist that contributed to the foundations of thought surrounding costly and conspicuous behaviors was Marcel Mauss (1872-1950). While Veblen briefly mentioned the practice of extravagant gift giving to some degree in his discussion of how "the giving of valuable presents and expensive feasts and entertainments" are used to provide "evidence to [one's] opulence," the topic was certainly not his focus (1912:75). Mauss, however, chose to focus on these acts of conspicuous generosity and giving, in his book *The gift: Forms and functions of exchange in archaic societies* (1967[1923]). Based on practices found in precapitalist societies, such as the potlatch, Mauss sought to demonstrate that such activities and events were not engaged in for some direct immediate profit as commonly believed, but also not for purely altruistic purposes either. Instead, Mauss argued that such "prestations," while seemingly voluntary, are in fact "obligatory and interested," and even sanctioned at times by physical force (1967:1). These prestations, which Mauss found to be exchanges between groups, and not individuals, of "courtesies, entertainments, ritual, military assistance, women, children, dances and feasts" are determined to be entirely reciprocal, with cyclical obligations of giving presents, receiving presents, and repaying them (1967:3). Through his work, Mauss highlighted that some of the practices deemed wasteful or disadvantageous may in fact be instead the opposite, as part of a complete system of exchange, of 'total
prestations' - a system that works to build and define relationships, given that aspects of such exchanges are ever present in any and all social dealings.

While both Veblen and Mauss discussed the purpose of conspicuous consumption and generosity beyond immediate pecuniary profit or as an illegitimate expenditure, it was Pierre Bourdieu (1977, 1984), several decades later, who argued that such use of one's resources not only served a purpose, but was just as rational as any other economic behavior. This was due to the fact that such forms of costly displays led to the accumulation of what he termed "symbolic capital," the amount of which is gained based on the cost of the signal itself. The most valuable display involves a devotion of time, such as pictorial or musical culture, since these "cannot be acquired in haste or by proxy, and which therefore appear as the surest indications of the quality of the person" (Bourdieu 1984:281). The symbolic capital acquired through such quality displays can in turn be used to one's advantage in any sort of economic exchange, but especially in the way of gaining power, alliances, and other social favors that could benefit one's success and fitness in its entirety. Therefore, while the wasting of time and resources may appear to be quite detrimental in terms of productivity, the benefits of advantageous social relations outweigh these costs. Since only those who can afford to squander away their time and resources in this manner do so, as it would be entirely detrimental for others to try when these resources are required elsewhere, the associated benefits are retained among the highest-quality individuals, maintaining the level of prestige associated with them.
Based on the ideas and concepts surrounding conspicuous consumption in these earlier works by Veblen, Mauss, and Bourdieu, the foundations for a costly signaling theory were laid. More recently, scholars including James Boone (1998) and Rebecca Bliege Bird and Eric Alden Smith (2005) have worked to create a framework for this theory from which research can be conducted, and its tenets tested. While the specifics surrounding the conditions required for a costly signaling theory to be met varies somewhat among different authors, the basics in large part remain the same (Table 2.1). This is to say that, fundamentally, a costly signal involves the communication of underlying attributes and/or abilities that vary in "quality, intensity, or degree between signalers," and that are difficult to perceive otherwise (Bliege Bird and Smith 2005:224). Knowledge of and deference to these signaled qualities is of interest to both parties, as it allows the receivers to make informed decisions and guide their future actions and relationships appropriately, while providing the signaler with the benefit of some sort of increase to a component of their fitness (Boone 1998:7). While competing interests between the two parties would seem to motivate deceit at the expense of the observer

<table>
<thead>
<tr>
<th>Table 2.1. Conditions of a Costly Signal (Bliege Bird and Smith 2005:224)</th>
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<tr>
<td>1. Members of a social group vary in some underlying attribute that is difficult or impossible to observe but could in principle be reliably signaled.</td>
</tr>
<tr>
<td>2. Observers stand to gain from accurate information about this variation in attribute quality.</td>
</tr>
<tr>
<td>3. Signalers and recipients have conflicting interests in the sense that successful deceit would benefit signalers at the expense of the recipients.</td>
</tr>
<tr>
<td>4. Signal cost or benefit (to the signaler) is quality-dependent..</td>
</tr>
</tbody>
</table>
and/or noncompliance to the signal so as to not benefit the signaler in this way, the quality-dependent cost of the signal insures its honesty and accuracy, and as such adherence to it allows for a greater benefit to be realized than resistance would yield (Bliege Bird and Smith 2005:223).

With the basic tenets of costly signaling theory defined, a considerable amount of research has been done in recent years on the applicability of the theory to a number of behaviors perceived as irrational, having "little directly to do with energy acquisition, survival, somatic maintenance, or the production of direct offspring" (Boone 1998:2). In the same article in which they present the conditions of a costly signaling theory in anthropology, Bliege Bird and Smith (2005) examine the explanatory potential of the theory in regards to the conspicuous displays of unconditional generosity, "wasteful" subsistence behavior, and artistic/craft traditions, finding that the fundamental conditions for signaling theory appear to be met with each of these phenomena, and that "signaling theory does have considerable promise for generating novel and powerful insights into the ethnographic domain" (2005:237). They are careful to note, however, that their findings only suggest what signaling explanations might have to offer, and that a true assessment of the application of the theory to human social behavior requires more research and much greater evaluation in the future, a sentiment shared by both advocates and critics of the theory alike (Bliege Bird and Smith 2005:237; Coddington and Jones 2007; Giordani, Neiman comments in Bliege Bird and Smith 2005; McGuire and Hildebrandt 2005).
The three display types examined by Bliege Bird and Smith are not the only social domains in which costly signaling theory may prove useful in helping to explain. In fact, Bliege Bird and Smith mention several other costly displays, including religious ritual, monumental architecture, and embodied handicaps (body modification) that all appear to have high potential for examination through a costly signaling framework (2005:231-232). An examination of the literature published over the last decade or two suggests other researchers appear to be of much the same opinion. Monumental, nonutilitarian, or public architecture was among the first display types assessed for its potential as a costly signal (Abrams 1989; Aranyosi 1999; Barton 1997; Neiman 1997; Steadman 1996; Trigger 1990), due in part, at least, to its high visibility and endurance over time (Trigger 1990:127). It has more recently contributed to the consideration of multi-level social signaling, linking individual efforts to group success (Gintis et al. 2001; Roscoe 2009; Wandsnider 2011). Religion, too, has been a focus of costly signaling theory in recent years, especially in regards to the ritual costs of initiation and membership and ostentatious religious displays (Boone 1998; Henrich 2009; Murray and Moore 2009; Sosis and Bressler 2003). Besides these, other human behaviors and displays at the forefront of costly signaling research include magnanimous displays and altruistic acts (Boone 1998; Price 2003; Van Vugt and Hardy 2010; Zahavi 1995), wasteful subsistence behavior and prestige hunting (Bliege Bird et al. 2001; Fisher 2010; McGuire and Hildebrand 2005), technology and elaboration (Goodale et al. 2011; Kuhn 2004; Meltzer 1981; Nolan and Howard 2010; Tacon 1991) and mortuary practices (Cannon 1989; Pearson 1982; Shanks and Tilley 1982).
It should be noted that the contributions to multi-level social signaling have provided particularly relevant research to the topic of this thesis. While much research on costly signaling has focused on the individual, multi-level social signaling, as it is termed by Paul Roscoe (2009), looks instead at both individuals and groups, where "individuals signal their capacities within social groups through ritualized competitions that put on display the qualities—stamina, courage, strength, mental agility—needed for successful competition at a group level" (Wandsnider 2011). As Roscoe puts it, in such a system, signaling benefits all parties involved because it secures the benefits of collective action, the promise of which "is that people can realize goals that they could not—or could not as efficiently—realize alone" (2009:70). Because of this, "the group composed of solidarists will outcompete the group composed of selfish individuals," due to the fact that the individuals in the former group "are willing to bend their interests to a larger communal effort" (Wandsnider 2011:5). Their incentive to participate "is the assurance of receiving in return rewards proportionate to the contributions they have made" (Roscoe 2009:72). Wandsnider's examination of group costly signals emitted by "the city" (2011:9-10) is especially applicable in the following chapters, as this thesis aims to examine the role of the TMIE as a costly signal emitted by the city of Omaha.

While many of the works cited above highlight the focus of costly signaling theory to date on ethnographic analysis, many also point to the potential the theory holds in archaeological research. In fact, archaeology may be especially suited to such costly signaling applications, given that many forms of conspicuous consumption are rooted in material culture. As Bliege Bird and Smith concluded, "signaling theory offers a deep
understanding of why material goods and the time and resource costs they represent are such good media for communication" (2005:238). Many archaeologists agree with this assessment, noting that costly signaling can provide "a theoretical account of the causal dynamics" that may help explain conspicuous displays such as monumental architecture, fancy portable artifacts, and evidence of feasting, and offers the opportunity "to build and evaluate the models of historical dynamics that gave us Chacoan great houses, Chesapeake mansions, and Mayan stelae" (Neiman, comment to Bliege Bird and Smith 2005:242-243).

The ability for signaling theory to help explain such conspicuous displays in the archaeological record has been explored in recent research. In his article on conspicuous consumption in classic Maya monuments (1997), Neiman demonstrates, and later argues, that "signaling models are explicit enough to deliver detailed predictions about the design and distribution of variation relative to historically specific social and environmental contexts … they provide the best accounts we have of signaling in the historical trajectories of human and nonhuman species" (2005:243). This ability to predict the design and distribution of variation is also touched on by Elizabeth Galle, in her dissertation on eighteenth-century slave consumption (2006). Here, through expectations offered by signaling theory about the "factors that drove slaves to acquire particular types of material culture," Galle argues that "slaves sought material goods as a way to communicate abilities, achievements, and personal attributes … European goods functioned as a form of symbolic communication that facilitated strategic competitive behavior" (2006:15).
Signaling theory's potential for predictive modeling, especially when used to "link a variety of traditional data sets…to generate a series of testable propositions" has also been a focus of Kelly McGuire and William Hildebrandt (2005:709). In their article entitled "Re-thinking Great Basin Foragers: Prestige Hunting and Costly Signaling during the Archaic Period" (2005), McGuire and Hildebrandt apply costly signaling theory to data on archaeofaunal abundancies and diversity as a means of assessing why prestige hunting became a favored subsistence strategy among Middle Archaic hunter gatherers. Based on their findings that social signals can be seen "in the artifacts, tool-kits, settlements, and work organization produced by prehistoric hunter-gatherer societies" (696), McGuire and Hildebrandt advocate continued research on the theory, concluding that "archaeologists would do well to consider the emerging evolutionary, economic, and social implications of costly signaling theory," especially in the assessments of foraging strategies (2005:709).

The application of costly signaling theory to archaeology is not without its critics, however. Brian Codding and Terry Jones (2007; Jones et al. 2008) have been particularly vocal in their reservations of recent attempts at incorporating the theory into archaeological practice, especially regarding the efforts of Kelly McGuire and William Hildebrandt (2002; 2005; Hildebrandt et al 2010). While they note the potential for costly signaling to help explain seemingly wasteful resource expenditures in ethnographic research, and commend the recent attempts at introducing it into the discipline, Codding and Jones question the theory's fundamental applicability to the interpretation of
archaeological data, finding the efforts of McGuire and Hildebrandt to be misguided and lacking any substantial value overall.

A major criticism Codding and Jones aim at McGuire and Hildebrandt's work, and archaeological applications of CST in general, is that they feel its role and visibility in the archaeological record has been largely overstated. Based in large part on Robert Trivers's work on parental investment and sexual selection (1972), Codding and Jones note that only a relatively small proportion of any given population (only those of the highest quality) would participate in high-cost signaling strategies, while lower-quality individuals would adopt alternative strategies. In addition, at least in terms of gaining reproductive success, even those that were of high enough quality to participate in signaling would only do so for a short portion of their lives, as eventually alternative strategies would prove more productive (provisioning for children already born vs. trying for more) (Codding and Jones 2007:353).

Beyond this overstating of its effects on the record, Codding and Jones argue that even if costly signaling theory is applicable, they believe McGuire and Hildebrandt lack the sufficient evidence needed to demonstrate their argument. They believe that the evidence that would be required, such as unambiguous links between a costly signal and increased fitness, or archaeological data that indicates alternatives to signaling were passed up in favor of the costly strategy, is not readily available in the archaeological record. In general, "archaeological studies, however, do not have this sort of resolution… [they] cannot compare the actions of one set of individuals to another … archaeological studies cannot discriminate between signalers and non-signalers, or between "show-off"
and provisioning behavior" (2007:352). As such, while they maintain that efforts like those from McGuire and Hildebrandt in "attempting to interject a new variable into the ecological models of western North American prehistory" are commendable (2010:697), Codding and Jones conclude that "costly signaling has explanatory value, but only within certain limits-the definition of which remains an issue of research and debate" (2007:355).

It is this last point, highlighting the need for additional research and debate in order to establish the theory's potential, or limits, as the case may be, upon which both advocates and critics of the theory alike can agree. As Bliege Bird and Smith note, the application of signaling theory to anthropological phenomena, and especially to archaeological research, is at a very early stage, and as such "judgment of its value must await rigorous empirical evaluation" (2005:237). The only means of accomplishing this is through additional research and commentary. In response, the following section examines one such application of costly signaling as a contribution to the ongoing body of research.

Anthropology and Archaeology at World's Fairs and other Mega-Events

Although fairs have been a tradition seen cross-culturally throughout time, world’s fairs, as discussed in this thesis, did not originate until 1851. It was in this year that the first world’s fair, known as the Crystal Palace Exhibition, was held in London’s Hyde Park. Since then, world’s fairs have been hosted in major cities around the world as a means of displaying changing technologies, cultures, ideas, and landscapes, with the movement still continuing today (World’s Fair Inc. 2012). Although their popularity has waned as globalization has increased, especially with the introduction of the internet, it
may be argued that few expositions have impacted the modern cultural landscape to such an extent as world’s fairs. As a historian of world’s fairs, Robert Rydell, put it:

“World’s fairs have been sources of much pleasure, inspiring the creation of Coney Island and other amusements parks and subsequent theme parks like Disneyland. Fairs have introduced generations of Americans to pathbreaking scientific and technological innovations like telephones, X rays, infant incubators, television, moving walkways, asphalt, and plastics. The architecture and parklike settings of world’s fairs, along with their sometimes visionary schemes for public and private transportation, have influenced the ways our cities and small towns look and the way we behave in them. The importance of world’s fairs is undeniable” (Rydell et al. 2000:1).

Given its more recent introduction to the field of anthropology in general, costly signaling has not often been suggested as a function of world's fairs in past literature. In the few works that address the subject, the anthropology of world's fairs have been much more focused on concepts of colonialism and imperialism, as a reiteration of the dominant American racial hierarchy (Rydell 1978; Benedict 1983), for their consumerist ideals, as catalysts for technology (Hinsley 1991; Rydell et al. 2000), or for their transformative nature as events (Graff 2011). However, their traits shared with other costly displays like those noted by Veblen, Mauss and Bourdieu have not gone unnoticed. In his book, The Anthropology of World's Fairs, Burton Benedict argues that "a world's
fair is an almost perfect example of what Marcel Mauss called a total prestation. It is a collective representation that symbolizes an entire community in a massive display of prestige vis-à-vis other communities" (1983:7). Although the framework for a costly signaling theory as applied to anthropology had not been fully developed at the time of his writing, through a comparison to the potlatch, Benedict is able to indicate the potential for world's fairs to be interpreted as costly displays, if only through his observations of noted similarities between the two.

While he is careful to note his realization of the problems associated with direct comparison of world's fairs and potlatches, particularly in recognizing the differences between the societies in which each were held, Benedict stills find merit in it, as they both can "serve to rearrange" and "validate" status hierarchies (1983:8). While some might think of such hierarchies as being on an individual level, for both potlatches and world's fairs, success of a signal required the collective action of groups. As Benedict put it, "the entities carrying out the exchange at both potlatches and world's fairs are moral persons - families, clans and tribes in the case of the potlatch; companies, states and nations in the case of a world's fair. Such entities may be represented by chiefs, but it is groups, not individuals, that potlatch" (1983:10).

For world's fairs, at least here in the United States, the group level signaling came in the form of "a city that was displaying itself to rival cities" (Benedict 1983:13). This was done so as to "assert new claims to power and prestige" in a period when "class structure was undergoing major changes in the West as a result of industrialization and the expansion of the middle class" (1983:12). The signal in large part involved a public
display of goods, seeing as "goods are communicators; they carry social meanings; they are parts of a cultural information system" (1983:11). While these goods accomplished the goal of impressing rivals and the public through displays of sheer quantity, gigantism, and/or their ritual or prestigious nature, both potlatches and world's fairs were more than purely economic engagements, as they also incorporated the "exchange of entertainments, courtesies and rituals" (1983:10). However, Benedict concludes that it was beyond these displays of goods and public formalities, through the destruction of resources, that the signal was ultimately made. Here, he finds a correlation between the quantities of goods that are destroyed as part of a potlatch, and the demolition of the monumental structures and landscapes of the world's fairs at their close, with their destruction being the pinnacle of wasteful consumption (1983:11).

While Benedict's examination of world's fairs as following the ideas put forth by Mauss is among the most direct considerations of world's fairs as costly signals, it is not the only one. Albeit not anthropological in scope, a number of economists have published papers on the motives behind hosting such "mega-events," acknowledging that the large expenditures of time and money associated with such (i.e., the Olympics, World Cup) "are not nearly compensated by either the revenues earned during the event or the legacy of large stadia or obscure facilities" that remain after (Rose and Speigel 2011:655) (see Gursoy and Kendall 2006; Hiller 1998; Jones 2001; Matheson 2006; Owen 2005; Preuss 2007; Preuss and Alfs 2011; Roche 1992, 1994; Rose and Spiegel 2011). While estimations of considerable profits resulting from the hosting of such mega-events are often given in reports commissioned with the purpose of seeking local support and
backing, hindsight tells a different story. An examination of media articles regarding several recent Olympic Games highlights that the unproductive reality of hosting the Olympic Games often involves a negative economic effect on host cities, caused largely by overspending for infrastructure that has no purpose outside the events, or that would have been budgeted for anyway, without the additional costs of the games (Lim 2012; Sanburn 2012).

With the negative effects of hosting mega-events known, why would any city or country choose to do so, let alone compete for the opportunity to become host? Using a foundation of signaling theory, researchers addressing this question have determined that despite the costs associated with mega-events, there is also a considerable economic benefit, found not from direct net profit, but in the form of capital such as that related to increased exports and trade relations (Preuss 2007; Rose and Spiegel 2011). Termed the Olympic Effect by Rose and Spiegel (2011), but applicable to other mega-events including the World Cup and world's fairs, the benefits of hosting mega-events are largely centered around the ability to communicate, to advertise to a large audience. As Preuss finds, the Olympics and other mega-events direct the attention of a worldwide audience to the host cities, providing "the opportunity to send important signals to the world" (2007:41). "The media-hype during the Games will spread the messages about sufficient infrastructure, better air, and good living conditions throughout to the world, in essence a kind of location marketing" (Preuss 2007:43).

The attention drawn to a host via a mega-event provides a degree of positive visibility not found elsewhere, "an opportunity for the host city and country to show the
world their ability to undertake and organize successfully such an important event" (Rose and Spiegel 2011:661). According to research done by Rose and Spiegel, the signaled abilities and resources are taken into account by other cities and countries when assessing potential trade partners and alliances (2011). Since only "those countries that expect to be in good fiscal condition in the future can signal their prospects in ways that cannot be profitably mimicked by countries that expect to face fiscal difficulties," the successful hosting of a mega-event is an honest signal of host quality, and has been determined to be positively correlated with permanent higher trade flows (Rose and Spiegel 2011:656). This holds true even for non-athletic mega-events, like world's fairs, with Rose and Spiegel finding that "in all specifications, the trade effect of hosting a world's fair or expo is positive and statistically significant" (2011:662). In the end, economists like Preuss and Rose and Spiegel conclude that while other motivations for mega-events have been offered and likely exist, their work does make a correlation between mega-events and Bourdieus and Veblens strategic conspicuous expenditures “designed to accumulate symbolic capital” apparent (Preuss 2007:45).

While a connection between costly signaling theory and world’s fairs, among other mega-events, has been established, not all agree with its application. Rebecca Graff, in her dissertation on the archaeology of the Chicago World’s Fair of 1893, is critical of a costly signaling approach to world’s fair archaeology and anthropology, believing that it "runs the risk of reifying a monolithic Fair audience that is at odds with the diversity of planners, employees, and tourists to world's fairs who might understand and consume the symbolic universe of world's fairs in fittingly diverse manners” (2011:14). She instead
utilizes an “eventful” approach as called for by Robin Beck et al. (2007) and Douglas Bolender (2010), examining the “interplay between event and long-term socio-cultural structures” based primarily in research on temporal and spatial scales of event (Graff 2011: abstract). She focuses especially on the fair’s ephemerality, not only for its implications archaeologically (2011:21), but also as a means of reinforcing the fair’s purpose and enduring impact on those who experienced it (Graff 2011).

Despite her reservations regarding the use of a costly signaling approach, Graff’s observations do not directly refute its potential, and sometimes, even appear to highlight it. She finds that “fairs, then, are utopian visions made temporarily real. They are opportunities for financial gain; chances for particular empires, nations, and cities to vie for world supremacy…sites for supremely beautiful yet temporary cities to spring up, capture the world’s imagination, and then, presumably, disappear” (2011:86, emphasis added). Even her focus on the fair’s ephemerality could be interpreted as support for a costly signaling theory, as its temporality adds to its cost, and reinforces its purpose as an honest signal. The justification of mega-events centered on the created infrastructure does not hold here. Whereas the hosts of the Olympics and other mega-events get to keep their infrastructure improvements, which help to support growth and garner attraction (Preuss 2007:42), most if not all of the infrastructure at world’s fairs, at least what can be found above ground, is dismantled by the event’s close, providing no return on the initial investment beyond what is achieved at the fair or exposition itself.

Although Graff’s dissertation does not contribute to the examination of costly signaling at world’s fairs directly, her work is nevertheless a landmark in the
anthropological research of world’s fairs, being the first archaeological study of its kind. Through her research, Graff was able to examine the archaeological signature of intentionally ephemeral structures and landscapes, features not often a focus of archaeological research, but which offer much greater resolution than long-term deposits. Her positive findings of remnants dating to the 1893 fair provide a foundation on which to base future research at other world’s fair sites, a foundation previously nonexistent given the widespread belief that post-fair demolition and salvage efforts, coupled with the temporary construction materials used, would have left nothing behind. Such a foundation may provide the needed justification for pursuing research at other 'eventful' archaeology sites, including those of world's fairs, through the realization that such short-term event sites can in fact "result in robust and long-term material transformations" (Graff 2011:200).

Conclusion

Through a review of the literature to date, this chapter has shown that costly signaling theory appears to have considerable potential in helping to explain the purpose behind seemingly disadvantageous and conspicuous behaviors found in anthropological contexts. As such, it seems to be a promising avenue for interpreting the motives behind world’s fairs in the nineteenth and twentieth century, events noted especially for their ostentatious displays and wasteful consumption, and the high costs that go along with them. The next three chapters will explore this potential through an examination of how the TMIE meets expectations of signaling theory as seen in the historical, geophysical, and demographic records. As Neiman notes, it is the agreement between these
expectations with the evidence from multiple sources that allows us to gauge the potential
the theory holds in understanding this particular signal, and "to evaluate our ideas about
Chapter 3: Signal Context, Quality, and Effectiveness

Unlike examples of costly signaling in the ethnographic record or in economic analysis, costly signaling at the Trans-Mississippi and International Exposition is no longer observable first-hand, and requires recorded information to yield data from which research may be based. While there are many types of such records available for study, including official reports, daily logs and registers, newspaper articles, photographs, souvenirs, and the material record that may still remain at the site, no single one of these records contains all of the information needed to explore the TMIE through CST by itself. As such, multiple sources of information need to be consulted; a task historical archaeology is well suited for. As Geoffrey Jones put it when discussing the combination of geophysical survey with other archaeological and historic methods of investigation, "multiple sources of data can contribute synergistically to a much more effective interpretation" and the effectiveness of research "should therefore be considered in terms of its role in an interdisciplinary program" (Jones 2008:25).

This chapter and the two that follow explore the TMIE as a costly signal through data collected from historical, geophysical, and demographic resources, respectively. Each chapter presents the methods and materials involved in the collection of data, the observations that would be expected to be seen if the TMIE adheres to a costly signal as defined by Bliege Bird and Smith (2005), and any known issues with the materials and methods used that may impact the data and interpretations made from it. This is then followed by a presentation of the data and an initial assessment of how it does or does not meet expectations. For the historical resources and data presented below, information
pertaining to the context of the signal, its physical nature and cost, and its subsequent
success will be examined.

Materials and Methods

Despite the Trans-Mississippi and International Exposition's short duration, there
is a large base of resources available in the historical record that detail it to some degree,
largely due to its large-scale impact and international focus. However, while there are a
large number of resources available, only a small number provide much detail and an in-
depth look at the different facets of planning and hosting the 1898 Exposition, as well as
any consideration into the impact it had as a whole. Many of the other sources simply
relay the same information provided by the larger resources, including the more
prominent, local newspapers and the official documents detailing the Exposition that
were published both during the fair, and after. As such, while a number of materials
concerning the Exposition are referenced throughout this thesis, only a handful make up
the bulk of data presented below.

In order to avoid inaccuracy, a focus was placed on documents and resources that
were written as the fair was taking place, or immediately the fair had ended, as many of
the plans and preliminary information made prior to the fair was found to have changed
considerably by the time the plans came to fruition. For information about the fair as it
was ongoing, one of the most complete sources of information comes from the local
newspapers, particularly the Omaha Bee and the Omaha World Herald. Both of these are
referenced frequently in this thesis because they provide the most extensive and multi-
faceted coverage of the Exposition, from winning the bid for the Exposition to its
demolition. For different perspectives, newspapers based elsewhere in the state, as well as in the nation as a whole, are also consulted, but to a lesser degree, as many of the articles found in these newspapers seem to have borrowed their information from the two primary Omaha newsstands and their writers directly. Other sources of information as the fair was ongoing are limited. Efforts to locate such accounts, including personal narratives, are currently underway, but such work is only in the beginning stages (Bartlett 2012).

For more complete details on the Exposition as a whole, the greatest source of information comes from two accounts written after the fair, with John Wakefield's Secretary Report completed in 1903 and James Haynes' official History of the Trans-Mississippi and International Exposition of 1898 completed in 1910. The first of these, Wakefield's report, details every aspect of the fair, from its origins to its closing day, with letters from individual committee chairs, itemized expenditures, descriptions of attendance and ticket sales, special days, awards, individual exhibits, and etcetera. In its 650+ pages, Wakefield's report offers one of the best and most detailed accounts of the TMIE, accomplishing the assigned task of compiling "a statement of the affairs of the Exposition, including a recital of the Inception, organization, operation, management and results of the Exposition" (Wakefield 1903:Introductory). Similarly, James Haynes' 1910 history of the TMIE also provides a detailed account of the Exposition in all its stages, providing considerable context for the Exposition in regards to its planners and host city, as well as to concurrent historical events, other world's fairs, and public perception of the TMIE itself. Whereas Wakefield's report provides an account of the "salient facts" of the
Exposition, Haynes' history tells more of an anecdotal story of the fair, presenting more personal recollections and interpreting the facts presented in Wakefield's report as a means of relaying a more 'reminiscent' recollection of events, particularly in the planners' eyes (Haynes 1910:7-8).

As mentioned at the end of chapter two, these different resources were analyzed for information that could be used in assessing the TMIE's function as a costly signal using the CST framework as laid out by Bliege Bird and Smith (2005). Information found in the historical record yielded data relevant to assessing nearly all aspects of the TMIE's costly signaling, including identifying its context and establishing the motivations behind it, its cost beyond pecuniary measures, and its overall effectiveness and success.

Expectations

Following Bliege Bird and Smith's framework (2005), for the TMIE to be considered a successful costly signal several expectations should be met. First, there should be a perceivable benefit to both Omaha and the signal receivers that functioned as motivation for both parties to participate in and adhere to the signal. The realization of this benefit for Omaha will be the measure of success for the signal. Second, there should be a reason why hosting an Exposition was chosen as the medium through which to signal, as opposed to other less costly alternatives. Finally, the cost should be high enough that it insures the accuracy of the signal being transmitted and prevents deception that would benefit Omaha and not the receivers. This cost should in some way be related to a difference between Omaha and its peers that allows Omaha to pursue successful signaling via the Exposition while preventing other cities from doing the same.
Liabilities

While the historical record provides an effective avenue of research into the TMIE as a costly signal, it does have its limitations. Because of the limited number of independent resources available, and due to the nature of records keeping and historical documentation in general, an inherent bias is possible, if not likely, in any and all historical documents. As such, while a document may state a fact or make a claim that by all accounts seems valid, without a system of checks and balances, the accuracy of any given statement cannot be insured. This is particularly relevant with the Exposition, seeing as the sources for the majority of historical documents utilized in this thesis had a vested interest in the outcome and success of the Exposition, whether for personal gain or for the general welfare of the community at large. Despite this bias of the historical record, however, the use of historical documents for this research is both necessary and beneficial, given that they are our most complete source of information on the TMIE and the context surrounding it, and because of the high degree of detail and resolution the documents contain, not available with the other sources.

Data

Omaha's decision to host a world's fair began a few years prior to the Trans-Mississippi and International Exposition itself, spurred at least in part by the success experienced by Chicago at the World's Columbian Exposition of 1893 (Rydell et al. 2000:45-46). More than 27 million people came to Chicago for the Exposition, which highlighted all of the positive attributes the city had to offer, and officially put it on the map as one of the greatest cities in the United States, rivalsing only New York City for the
status of best (Larson 2003). Besides the stimulus seen for the duration of the Exposition, the positive attention drawn to the city helped propel Chicago into the twentieth century as people began to see Chicago as a place to live and do business, rather than the town of disrepute it was formerly known as (Findling 1994:41; Joiner 2007).

It was this latter benefit of the Columbian Exposition, the ability to signal its 'rebirth' via the fair, that perhaps proved most beneficial to Chicago, and which inspired so many cities to follow suit in bidding to host other world's fairs and international expositions (Rydell et al. 2000:8). Chicago's rebirth was not only centered on its former days of vice and filth (Abbott 2007). Instead, the Columbian Exposition also gave the city a chance to overcome the blow dealt by the Great Chicago Fire of 1871, and to demonstrate its success in the face of the 1893 financial panic that hit the nation the same year the fair did. Chicago's World's Fair marked a great, new beginning for the city, a fresh start that other towns like Omaha sought for themselves (Haynes 1910:11).

While no great fires wreaked havoc on Omaha, it had a number of obstacles of its own to overcome. Like Chicago, Omaha (and the rest of the nation) was hit hard by the financial panic of 1893. In the years leading up to the panic, Omaha was a growing and prosperous city, finally overcoming its early reputation defined by the Kansas City press as a "cesspool of iniquity … a rogue's rookery," a 'dirty, wicked town' where alcohol and crime ran rampant (Bristow 2000:133-134). With its past behind it, the city was making a national name for itself through its relations to the railroads and its role as a regional headquarters for a number of Eastern companies, with some predicting "it would be the next Chicago, a true 'Wonder City of the West'" (Larsen and Cottrell 1997:80). This was
before the panic hit, though, before the "fall," when "Omaha's commercial economy collapsed like a house of cards" (Larsen and Cottrell 1997:80).

Brought on nationally by the over-expansion of urban centers and the railroads, the 1893 depression left Omaha's economy "paralyzed … stores, manufacturing, and processing plants closed; thousands lost their jobs and eventually left the area. All new construction ceased and many homes stood empty" (Reeves 2005: Omaha, Douglas County). Having lost nearly 27% of its population in the 1890s, the progress Omaha had been making was wiped away, left with little to show for its efforts the years prior, except for a shell of its once promising self (Honebrink 2008).

The effects of the Panic of 1893 were further exacerbated by a drought that had been plaguing the Plains since 1890 and continued up through 1897. Stretching across the entire plains region, this natural disaster proved to be a "grievous setback during the years immediately preceding the inception of this great Exposition" (Haynes 1910:31). The massive crop failures and grasshopper invasion of 1894 and 1895 proved particularly detrimental, encouraging "people to bend every effort toward self support" so that any "thought and effort toward advancement and development were for that time quiet and still if not dead" (Wakefield 1903:Review). Even with the focus solely on survival, "countless thousands of people had no choice except to give up the struggle to hew out a living on the arid plains of western Nebraska" (Larsen and Cottrell 1997:83).

Despite these obstacles, or perhaps because of them, Omaha, represented by a group of local government and business leaders, sought to become host to a world's fair that would highlight the resources and progress of the United States, emphasizing "the
products, industries and civilization of the States west of the Mississippi River" (Haynes 1910:12). It seems it was the collective goal to "recover from these misfortunes which led the people of Omaha to resolve to hold an Exposition" and succeed in its undertaking (Wakefield 1903:Hitchcock Medal Speech). However, finding support in the endeavor proved complicated at best.

Inspired by the success seen in Chicago, Omaha was not the only city vying for a chance at hosting the next great American world's fair. Several other cities, including Saint Paul, Minneapolis, Denver, and Kansas City, were all in the running as the Trans-Mississippi Congress met November 25-28, 1895 in Omaha, brought to the city at the behest of the Nebraska delegation. In the end, it was this same delegation, headed by Robert W. Richardson, Judge L.H. Bradley and William Jennings Bryan, that proved successful in urging the Congress to choose Omaha as the host of the TMIE as well. While it was Omaha's central and accessible location to the rest of the nation, as well as its progress to date, that secured its victory, the efforts made by its delegation, and William Jennings Bryan in particular, in hosting the Congress played no small role in convincing the representatives of other states to unanimously support the resolution (Wakefield 1903:Origin). Even with its confirmation as host, however, Omaha's arduous road to the opening day of their Exposition was just beginning.

From the beginning, foreign nations were reluctant to contribute support, either financially or in the way of providing an exhibit, due to "the limited knowledge of the West and its resources" making convincing them of "the high character of the Exposition" difficult (Haynes 1910:189). Many simply doubted Omaha's ability to hold a
world's fair (Rydell 1984:108). On a national level, too, the Exposition committee had issues with gaining the recognition and financial backing needed for the event's success, beginning with Congress. It was only through the "ceaseless efforts of the men of Omaha," especially David H. Mercer, William Jennings Bryan, and Gurdon Wattles, that the Congressional bill and appropriations passed at all, after realizing they would "have to fight to secure its passage" (Haynes 1910:306-307).

Even local support was hard to garner for the TMIE. This was in large part due to the opposition parties, particularly the Populists, who expressed doubts about the actual benefits the state of Nebraska, its citizens, and most especially its farmers would see by hosting such a cost-prohibitive event. Besides arguing that it was "purely an Omaha affair" and "a scheme gotten up by and for the benefit of Omaha bankers" and not the state or region as a whole, opposition leader Charles Wooster also believed that "an Exposition would be a damage rather than a benefit to the State, because it would exhaust the funds needed for other purposes and because in attending it the people would spend money that they would later need for necessities" (Haynes 1910:158-159). Besides the direct opposition, even those who were not expressly opposed to the Exposition had reservations about its potential for success. Railroads, utility companies, banks, newspapers, breweries, stockyards, and insurance companies were among the entities who "shared a common anxiety about the aftershocks of the 1893 depression," believing that "Omaha could not carry out such a gigantic enterprise under such discouraging conditions" (Casper E. Yost, in Haynes 1910:315).
Despite the many setbacks encountered in the months and years leading up to the fair, and the doubts held by "officials of all the roads centering in Omaha [who] looked askance at the project," organizers still found the support needed among many of their fellow citizens (Haynes 1910:296). Two years prior to the Exposition, a citizens' meeting highlighted the enthusiasm held by the city as "people were determined to lend aid in every possible way. There had never been a more positive expression of the Omaha spirit" (Haynes 1910:309). This enthusiasm did not seem to wane with the passing of time. The money subscriptions used for the financing of the fair came from all ends of the economic spectrum, with the money being "given from the purses of the poor as well as from the coffers of the rich" (Haynes 1910:296). One resident explained the general motivation: "After so many years of financial depression, it was a joy to the heart and souls of us all to hear the pleasing sound of hundreds of hammers and saws…The new white city seemed magic, rising Phoenix-like from clay" (Larsen and Cottrell 1997:88). The support and enthusiasm appeared to be contagious, as those who initially had their doubts "later jumped into the harness and pulled faithfully to the end" (Haynes 1910:300).

As support grew, so too did the exposition. With the increased enthusiasm from the local population came greater interest in the sponsoring of buildings and exhibits by businesses, states, and countries, with forty states and ten foreign countries represented in the general exhibits alone (Haynes 1910:197). It was becoming clear that despite their similarities in architecture, the TMIE was not just a poor imitation of the Columbian Exposition, but its own entity entirely. All of Omaha was coming together to make it a
success, with even the children being mobilized to help as they could to "clean the streets of the city in anticipation of thousands of visitors - and prospective residents" (Rydell 1984:123).

Unfortunately for Omaha and the Exposition organizers, there was one last obstacle to overcome. With the organizers' goals in their reach, Omaha and the state of Nebraska "felt the inspiration of impending success" closing in by the beginning of 1898 (Haynes 1910:301). However, in February of the Exposition year, the USS Maine was sunk in Cuba's Havana harbor, and two months later, the United States was at war with Spain. This unexpected event led to the backing out of exhibitors, a reallocation of resources, and the diversion of media attention to the war efforts, and away from the Exposition when it needed it most (Wakefield 1903:Review). The outbreak of the Spanish-American War threatened the plans of Exposition organizers, as "clouds, low and ominous, hung heavily over the Exposition" (Haynes 1910:301).

The news of war raised doubts about Omaha’s efforts. As the Washington Post remarked, "the people out at Omaha are quite enterprising, but they will be sure to ascertain that this thing of running an exposition in opposition to a war is no good job" (Sunday World Herald Magazine 1948). While the idea of abandoning or postponing the Exposition crossed the minds of many, it was not entertained for long as "the consensus of opinion was that Omaha could not afford to avail itself of either alternative," as doing so would impact its reputation negatively, discrediting its capabilities for years to come (Haynes 1910:302). Instead, once again, Omaha took the obstacle in stride, seeking to make the Exposition as successful as possible given the circumstances.
In many respects, Omaha exceeded expectations, forging a path "ahead of any of its predecessors" (Honolulu Evening Bulletin 1899). As an article in the Honolulu Evening Bulletin described it:

"There were attractions of every imaginable character and of varying worth or merit. You could ride a camel along the Streets of Cairo, go 225 feet about ground in the Giant See-saw, descend to a representation of the depths of hades in "Darkness and Dawn: or Heaven and Hell," where you first had lunch with a coffin for a table. You could ride on the Scenic Railway, Shoot the Chutes, see any kind of cyclorama, see a boy "Buried Alive," see Gay Paree or a Beauty Show or Living Pictures, or Hagenback's Animal Show for shudders and thrills, or the Old Plantation for fun or any one of over half a hundred more, including the Cuban, Filipino, Hawaiian, Samoan, Puerto Rican, German, Swiss, Chinese and Japanese villages" (Honolulu Evening Bulletin 1899).

And those were only the activities one had to pay to see. Any day of the week, visitors could see the sights and landscaping, or the "Indian dances, feasts, sham battles and rough riding with genuine Western cowboys … parades … fireworks, concerts … horse races and bicycle races" without cost beyond admittance fees (Honolulu Evening Bulletin 1899). All bases were covered as fair organizers sought to provide something for everyone to experience.

By many accounts, the TMIE was a success, at least in the eyes of those who built it. Over 2.7 million people visited the fair, 200,000 more than originally estimated, taking
in the sights of Buffalo Bill Cody's Wild West show, the largest gathering of Native Americans in historic times at the Indian Congress, the Streets of all Nations, and the Grand Court exhibits, including the unmatched electric lighting of the Exposition, with more than 20,000 bulbs used to create such a spectacular nighttime landscape that "as a matter of history needs no written record to preserve it in memory" (Wakefield 1903: Building and Grounds Department, Machinery and Electricity). Noted as the only Exposition to open its gates on time, be free of debt, and deliver a return to its stockholders, the TMIE was considered by most to be a certain success in terms of commercial enterprise, with invaluable immediate effects. However, as many of those involved in Omaha and its economy found, "the lasting effects have been of much more value" (Haynes 1910:321).

A compilation of the thoughts of Omaha businessmen on the matters of the TMIE's impact to the city and the region gives evidence to this realization of the Exposition's long-term benefits. Many mention the increased vitality and cohesion the city and its businesses saw, and its proving to the "country that Omaha was built on such a safe foundation that, notwithstanding the depression of years, it was still strong enough to formulate and conduct a great project to a brilliant consummation" (Luther Drake, in Haynes 1910:318). As Wattles stated in his closing address, the "Exposition has been like a rain in a drouth. It has put new life and energy in all our business interests, in the clearings of our banks ... to the values of our real estate, to the fabrics of our factories" (Wakefield 1903:Summary). "It was just the thing that we needed to advertise the resources of the great State of Nebraska and Central West at the most opportune time that
it could have possibly been held. It crystallized and made possible the Omaha of today and the still greater Omaha of the future" (G.H. Payne, in Haynes 1910:321). In short, "the Exposition was the making of Omaha" (Major R.S. Wilcox, in Haynes 1910:320).

Interpretation

In consideration of the expectations laid out earlier in this chapter, several observations may be made about the historical data towards an assessment of the Exposition as a costly signal. First, perceivable benefits for Omaha can be identified in part by the benefits Chicago realized through its 1893 World's Fair, namely its rebirth following the great fire, and overcoming its poor reputation, especially in the face of the 1893 Depression. Like Chicago, Omaha too stood to gain from a 'rebirth', enabling it to overcome its own negative reputation and to prove itself despite widespread doubts and obstacles, including the 1890s drought, depression, and Spanish-American war. In this way, the Exposition would serve as an advertisement of sorts, highlighting Omaha's strengths and capabilities in the face of adversity, presumably to attract potential future residents, businessmen and economic partners.

In exchange for their participation in this advertisement, the signal receivers in turn received reliable information about the city of Omaha, demonstrated via the success of the Exposition, upon which they could gauge its resource potential and stability. This information, with its accuracy insured by the signal cost, could in turn be used by the receivers to guide their future decisions on where to establish themselves or their businesses and business relations as they headed into the twenty-first century. In addition, recipients also secured the benefits of collective action in the advertising of the region's
strengths as a whole, bringing more attention to their own resources and strengths than they could have individually accomplished otherwise (Roscoe 2009:72). If the words of Omaha businessmen following the fair are an accurate indication, these benefits for both the receivers and Omaha were realized, making the Exposition signal a success overall.

Information found in the above historical data can also help to explain the motivations behind Omaha's bid to host the Exposition when there were less costly mediums through which it could advertise its resources, strengths, and stability in an attempt to achieve the same benefits. First, because of the financial depression, the drought, the Spanish-American war, and other events that took place in the 1890s, getting the word of one's strengths out on a national or international level was not easy; these events took the attention of the media away for much of the decade (Haynes 1910:301). The cheaper alternatives were also just as easy for competitors to use, with no clear gauge for accuracy or meaning. Finally, with the media in mind, printed advertisements and the like were not necessarily enough to overcome any of the negative articles also published previously (Bristow 2000:133-134), nor was it enough to overcome the bad reviews coming from the population moving back east with discouraging experiences to relay. Because talk alone was cheap and ineffective, Omaha instead had to find a way to prove its abilities and demonstrate its worth in a manner that could be deemed accurate, distinguishing Omaha from its peers. Based on other world's fairs of the times, hosting an Exposition was found to be a suitable option.

Based on these observations, it is the high cost of hosting the Exposition that insured the honesty of Omaha's signal, encouraging the signal observers to take notice,
and distinguishing Omaha from other cities. For this to hold true, the historical data must demonstrate that the cost of the TMIE was sufficiently high enough and quality dependent so as to prevent other cities of 'lesser quality' and lacking the same attributes as Omaha from being able to create or maintain the signal, at least not without prohibitive consequences. As presented above, the data available on the cost of the signal appears to support this, not only in what was spent, but the potential cost of failure as well, as "had they abandoned the project to its fate, humiliating failure would have ensued" (Haynes 1910:303).

In terms of the realized cost of the signal, it was more than just the actual cost of $1.5 million dollars estimated as being spent prior to opening day (The Nebraska Advertiser 1898). The opportunity cost of appropriating this money to an Exposition in the late 1890s needs to be recognized, as in light of the depression, drought, and war, it was noted that such an event would "exhaust funds needed for other purposes," such as subsidies and emergency aid for farmers or paying off state debts (Haynes 1910:158-159). In addition, the initial pull of support and unity from local businessmen and Exposition committee members in organizing the fair, as well as the collective action of its citizens in financing the Exposition and getting their city ready for opening day, must also to be taken into account. This is especially so when considering the doubt encountered on local, national, and international levels over the course of planning for the Exposition. The time and energy these parties dedicated to a successful Exposition cannot be measured, particularly in the face of opposition, but it is likely that without these efforts, Omaha would have missed out on the opportunity entirely. As James Haynes
stated in the TMIE history, "Any chronicles of the Trans-Mississippi and International Exposition, if it be faithful to the subject, must necessarily reflect the loyalty, capacity and strength of the people of Omaha … The success of every American Exposition had depended upon the energy and capacity of the men of the city wherein it was located" (1910:293).

Conclusion

For the TMIE, a combination of its large size, good media coverage, and the interest of its organizers and the public to preserving its memory have contributed to the many historic resources available for research today. While some details have been lost over time, or were never originally recorded in the pages of history, the documentary record is the most complete resource of information concerning the TMIE, including for use in exploring the Exposition as a costly signal. As presented above, observations made from the historical data on the TMIE meet expectations that follow Bliege Bird and Smith's costly signaling framework. However, while historic accounts on the TMIE are beneficial in understanding the facts of the Exposition and in gauging its perceived impact, the bias they may contain leaves much to be desired in the way of objectivity in assessing some aspects of the Exposition including its cost and success.

Fortunately, subsequent land use in portions of the TMIE site, particularly in keeping a portion of the Grand Court as a public park, may have led to conditions well suited to the unintentional preservation of its material record, offering an additional resource for research through archaeology and geophysics. This material record may prove particularly beneficial in exploring additional aspects of the Exposition's physical
nature and cost. The following chapter examines this material record of the Exposition site as found through geophysical survey, focusing especially on the role its ephemerality may have played in its cost and its function as a costly signal as a whole.
Chapter 4: The Material Record, Ephemerality, and Cost

For many mega-events like the Olympics or the World Cup, the high cost of hosting is most commonly justified under the belief that profits from the event or the infrastructure left after its end provide adequate restitution. While economists are usually skeptical of such arguments, finding that the cost is in fact "not nearly compensated by either the revenues earned during the event or the legacy of large stadia or obscure facilities," the continued use and attraction of the remaining infrastructure does certainly help to alleviate the initial investments overtime (Rose and Speigel 2011:653). For world's fairs and international expositions, however, which are built with the intent of being demolished following their closing day, such recompense is not realized, at least not through the continued use of the built structures. As for the continued use of other facilities, their use following a fair or exposition is often not well recorded, and widely unknown.

Such is the case for the Trans-Mississippi and International Exposition. A year or two after the Exposition, new headlines and urban development had largely resulted in the Exposition being all but a memory for those who experienced it, either directly by attendance or indirectly through news and acquaintance accounts. In addition, some details have either been lost over time or went unmentioned in the written accounts, whether due to unimportance in the author's eyes or because the information was unavailable. Because of this, details related to the underground infrastructure of the Exposition, including location and materials used, as well as the duration of use is largely unknown. The records that do exist vary in their accounts, with some describing the
demolition as including the saving of everything except the staff with trenches opened to
access underground resources (*Morning World-Herald* 1899b:2), while others make note
of a plan to tear down the “White City” while “leaving the neighborhood with an
infrastructure of roads, sewers, electricity, a park and streetcar service” (Durham
Museum 2012).

If, like its buildings, the infrastructure built for TMIE use was razed following the
Exposition season, then the cost of hosting the Exposition becomes even higher, as
continued use of the facilities is in part what helps offset the initial expense. In this sense,
the Exposition's ephemerality could be seen as a contributing element of its cost, as
Burton Benedict has argued (1983:10-11). This chapter explores this possibility through
an examination of what extent, if any, the built infrastructure from the Exposition was left
in place underground for future use. Through geophysical investigations utilizing
magnetic and resistance surveys, observations made from the data collected on a portion
of what was the TMIE's Grand Court will be assessed relative to what would be expected
if the Exposition's ephemerality did in fact play a role in its cost.

Materials and Methods

The collection of geophysical data presented below took place over the course of
two days (August 30th-31st, 2012) via a magnetic and resistance survey of the southwest
quarter of Kountze Park in Omaha. This portion of the public park is the location of
where the Fine Arts building is estimated as having been located during the TMIE. The
geophysical grid consisted of eight 20 meters by 20 meters grid units (five units for the
resistance survey) oriented to magnetic north. The ground cover was largely mowed
grass, with some bare soil on the baseball diamond to the east, and a sidewalk running through the northwest corner of the grid. Several metal obstacles, including park benches and a fence near the baseball diamond, were noted and mapped, as seen in Figure 4.1. In addition, electrical wires ran overhead around or near much of the survey area.

![Figure 4.1. Geophysical Survey Grid with Metal Obstacles shown in Red.](image)

While a variety of instruments and techniques are available for geophysical surveys, including susceptibility, ground penetrating radar, magnetometry, gradiometry, and resistance, only the latter two were used for the survey in Kountze Park. This is in part due simply to the unavailability of equipment during a busy field season. However, both of these methods have previously proven useful on historic archaeological sites, with the resistance proving particularly fitting for urban areas because of its insensitivity to magnetic fields (Chavez et al. 2005; Hargrave et al. 2002; Silliman et al. 2000).
For the magnetic survey, an FM-256 single fluxgate gradiometer system was used, and for resistance, an RM-15 resistance meter was used, both made by Geoscan Research based out of the United Kingdom (for more information see Geoscan Research 2012). Data on the FM-256 was collected at a sample density of eight samples per meter along 0.5-meter traverses in a zigzag pattern. The sample density for the RM-15 was two samples per meter along one-meter traverses. All data was downloaded and processed using Geoplot 3.0 software.

It should be noted that although traditional archaeological methods could also be used for detecting and documenting the TMIE's material records, a geophysical survey was chosen for several reasons. Given that the survey location was a public park, consideration for ongoing park use and park facilities was warranted. Traditional test units, or even shovel tests, would have disrupted park use by limiting activity in areas near the excavations, and had park planners worried about the park's appearance and any underground utilities. In addition, traditional excavation methods would have taken more time to conduct than a geophysical survey, thereby disrupting park activity for a longer period, and are more limited in scope in terms of area covered. Such methods would have only provided a small picture of what remains underground, and given the potential inaccuracies associated with the available historic maps, the fieldwork may have missed all features entirely, and yielded negative results when positive results were possible. In addition, tradition archaeological methods are destructive by nature, whereas geophysics allows a larger area to be covered without disturbing the material record itself, promoting
preservation of archaeological sites. For these reasons, geophysics seemed to be the best fit for this project.

Expectations

If the Exposition's ephemerality played a role in its cost, then it would be expected that a high degree of transience, evidence of its impermanence, would be observable in the material record. This transience would likely manifest itself through a lack of remaining infrastructure from the Exposition, indicating a higher degree of waste, and thereby cost. In the geophysical data, such ephemerality would be expected to appear as an overall absence of features, with no evidence of sewage, water, or electrical lines remaining from the fair and considerable disturbance providing evidence of post-fair excavations to remove these types of resources. Alternative observations, such as retention of infrastructure for post-fair neighborhood use, may indicate that it was not the ephemerality but the investment during the difficult economy that made up the bulk of the cost, preventing other cities from attempting to send similar signals.

Liabilities

Given the nature of geophysical data collection and interpretation, several issues involved with its use in general and at this site in particular should be recognized. First, the environment in which the survey took place poses obstacles that may affect the readings of both instruments used. For the gradiometer, any overhead power lines, underground pipes, nearby motor vehicle traffic, and surface level metal objects may affect the area's magnetics, and introduce noise into the data, thus obscuring weaker
anomalies. For the resistance meter, insufficient moisture caused by drought conditions may impact the ability to detect differences in features and the soils around them. Typically, buried features with varying moisture content conduct electrical currents differently than the surrounding matrix, providing distinct readings, and allowing the features to be detected during resistance surveys (Somers 2006). If conditions have been dry for a prolonged period of time, too little difference in the moisture content of the features and soils exist to produce visible results.

The use of many different types of geophysical instruments can help to mitigate the impact these obstacles may have on the data by providing alternative means of detecting anomalies. However, as mentioned above, the unavailability of additional instruments limited this survey to the two at hand. A larger survey area may also help to mitigate these issues, but time, land use, and property limits constrained this particular survey. Use of such methods in the future may be warranted.

Finally, besides issues with the data collection, the interpretation of the data is also limited. While well founded interpretations of geophysical data may be made based on similar anomalies found at other sites or previous knowledge of what features a site may contain, there can be no absolute certainty until the anomalies are ground-truthed via traditional excavation techniques. As such, while the interpretations made below are based on what is known about the site and supported with information gathered from historical sources, there may be several possible explanations for each observation, and nothing can be certain until the site is tested. For instance, while a lack of features in the data may be interpreted as evidence for removal of infrastructure immediately after the
Exposition, more recent disturbances could have also produced similar results. Only historical records can provide any clarification as to which is most likely.

Data

Site Use History

Prior to its selection as the future site of the White City of the West, the land on which the Trans-Mississippi and International Exposition was built had been largely dedicated to agricultural pursuits, with residue corn stalks and stubble still seen on the ground when construction began in April of 1897 (Wakefield 1903: Landscaping). Located twelve minutes north of Omaha's business center, if traveling by train, the

Figure 4.2. North tract (purple), Bluffs tract (blue), and Kountze tract (green) (Map courtesy of Omaha Public Library 1998).
grounds of the Exposition consisted of 186 acres, divided into three areas, known as the North, Bluff and Kountze tracts (Figure 4.2), on which the Indian Congress, the East Midway, and the Grand Court were located, respectively (Haynes 1910:29-31). The latter tract, bounded by present-day 24th Street to the west, Pratt Street to the north, Sherman Avenue to the east, and Pinkney Street on the south, was donated to the city of Omaha for Exposition use by Herman Kountze, with the provision of it being maintained as a public park following the fair. It is here that the fieldwork for this thesis is focused.

The location and landscape of the Exposition site had to be altered prior to opening day on June 1st, 1898. While some grading was required for leveling and landscaping on the North and Bluff tracts, the Kountze tract required extensive excavations and earth moving to level the roughly 18 foot difference between its western and eastern extents, and to make way for the lagoon and mirror pool (Wakefield 1903: Landscaping). Installation of infrastructure including sewerage, water systems, electricity, brick and gravel pavement, and rail transportation was required across the site, with adequate facilities for the Exposition's buildings stretching across 108 city blocks, the 4000+ exhibits they held, and the 2.7 million visitors the Exposition hosted (Wakefield 1903:General Statement of Expense). In addition, for both the aesthetic purpose of complementing the landscape and architecture, and to serve a utilitarian purpose of providing an area of respite and shade for the fairgoers on what was previously barren land save for a handful of trees on the Bluff tract, more than 100,000 plants and flowers, 13,500 trees, and 21 acres of sod and grass varieties were planted on the Exposition grounds, entirely altering the landscape for not only the five-month
duration of the TMIE, but for the foreseeable future as well (Wakefield 1903: Landscaping).

Following the TMIE’s closing on November 1st, 1898, it was initially planned that the structures and exhibits would be sold, removed or demolished as deemed appropriate, and the site returned to its original form, available for development. However, money was raised by a group of businessmen in Omaha to buy what they could of the TMIE grounds for use as a second exposition, called the Greater American Exposition of 1899. The GAE, although having a strong start beginning June 1st, ended up by most accounts to be a failure, lacking the city- and region-wide support that favored the TMIE. By the end of closing day on November 1st, 1899 the Exposition had become a memory, with the "Exodus from [the] White City" beginning the next day as the Chicago Wrecking Company began its demolition work (Morning World-Herald 1899a:8). Never meant to be permanent, by April of 1900 the last vestiges of the TMIE had gone, save for a remnant pond left in what became Kountze Park, "to remind the City of the site's former glory" (City of Omaha Planning Department 1982:8).

Since 1900, the area has become largely residential, with early twentieth century bungalows and Classical revival style homes marking the now dilapidated neighborhood (City of Omaha Planning Department 2012). Only Kountze Park, which lies between 19th and 21st Streets, at the intersection of Pinkney Street and Florence Avenue, has remained largely the same since the close of the Exposition, having retained its function as a public park since the GAE's end, as its donor, Herman Kountze, had willed. "Time and a growing city have obliterated the landmarks of Omaha's famous exposition,"
however, as the pond that remained to serve as a reminder of the fair was filled in 1948 (Sunday World Herald Magazine 1948). While a shadow of the lagoon remains as a visible depression in the park today, most follow the belief that all remnants of the fair are now gone, owing to temporary materials used in the construction and the salvage efforts conducted at the TMIE and GAE's close. Despite finding staff construction fragments from one or more of the TMIE's buildings during sewerage excavations in 1980 (Kelly 1980), this belief regarding the site's ephemerality has precluded any archaeological research to be done on the site, and the Exposition, as a whole. Hopefully the work done in this thesis will encourage additional work to be done on the site in the future.

Gradiometer Data

As stated above, the magnetic survey, which covered 3200 m² of the Trans-Mississippi and International Exposition site, was conducted using an FM-256 single fluxgate system, collected at a sample density of eight samples per meter along 0.5-meter zigzag traverses. Once the survey was completed, the data was downloaded from the instrument and imported into Geoplot 3.0 software, made by Geoscan Research. Data processing included the application of a zero-mean traverse using default settings, interpolation of the data twice in the Y direction in Expand mode and once in the X direction in Shrink-Linear mode to move the data from 8 x 1 readings to 4 x 4 readings, and finishing with a low pass filter using default settings in order to remove high frequency, small scale spatial detail that may block more discrete and weaker values (see Geoscan Research 2004 for more detail on processing techniques and justifications).
Figure 4.3. Gradiometer Data, Post-Processing.

The resulting image of the magnetic data (Figure 4.3) contains several strong dipole anomalies, as well as several fainter linear anomalies. The dipole anomalies have very strong magnetic signatures, and represent ferrous materials, most of which were noted on the surface at the time of survey (Figure 4.4). As for the linear anomalies, the curved feature that begins near the middle of the western extent of the survey area and extends northeast to the center of the northern extent of the survey area is likely associated with the activity involved in constructing the modern sidewalk that runs through the site today (orange in Figure 4.5). The other linear anomalies that are traced in
Figure 4.4. Gradiometer Data with Ferrous Metal Obstacles shown in red.

Figure 4.5. Gradiometer Data with Linear Features Outlined.
green in Figure 4.5, and which meet at approximate 90° angles, are consistent with a single structural footprint. Based on there being no record in the historical documents of any structures being built in Kountze Park prior to the construction of the TMIE in 1897, or after the demolition of the GAE in 1899-1900, this anomaly likely dates to the Exposition years. Furthermore, when the anomaly's geographic location is compared to georeferenced historic maps (Figure 4.6) and building placement in photographs (Figure 4.7), the footprints are identified as being those of the Fine Arts Building. Comparisons of the length of the east wall as found in the data (43 meters) with dimensions provided in the historical record (130 feet, or ~43 meters) further support this interpretation (Haynes 1910:127).

Figure 4.6. Georeferenced Trans-Mississippi and International Exposition map overlaid on aerial image of Kountze park. Fine Arts Building is building ‘E’. (Map Courtesy of Omaha Public Library 1998)
Resistance Data

For the resistance survey, an RM-15 resistance meter was used to cover five 20m x 20m grids for a total of 2000 m² with a density of two samples per meter along one-meter zigzag traverses. After being downloaded, the data was imported into Geoplot 3.0 software for processing and interpolated twice in the Y direction, once using the expand method SinX/X and once using linear, and once in the X direction using the SinX/X expand method. A high pass filter was then applied to remove low frequency, large scale spatial detail, in order to remove the “slowly changing ‘background’ response” commonly found in resistance surveys (Geoscan Research 2004:6-2).

The product of this processing (Figure 4.8) unfortunately offers little in the way of identifying new anomalies or in clarifying the nature of the magnetic anomalies noted above. These poor results may be attributed to insufficient environmental survey conditions for the resistance, including a general lack of moisture, as mentioned in the

Figure 4.7. Fine Arts Building (a) can be seen in the left background in the bird’s eye view of the Exposition Grand Court facing north (b) (Images courtesy of Omaha Public Library-F.A. Rinehart Gallery 1998).
liabilities section. The resulting uniformity in the resistance data makes clearly distinguishing any features from the surrounding matrix to be difficult at best, and prevents any useful interpretations from being made.

![Resistance Data, Post-Processing](image)

**Figure 4.8. Resistance Data, Post-Processing**

Interpretation

Considering the high degree of transience expected in the data relative to what can be observed, several interpretations may be made. The existence of a structural footprint presumably belonging to the Fine Arts building suggests that perhaps the demolition of the site did not extend underground as some sources suggest, or at least not to such a great extent that everything had been disturbed. If it had, such an intact footprint of an Exposition building would not be expected. Given this finding, the potential for the retention of infrastructure for re-use after the fair is plausible, despite it not being found in the geophysical data examined here. Such infrastructure could be concentrated in other areas of the site, such as along the street where sewage excavations took place in 1980, or
just off the survey grids, either to the north or the southeast (Kelly 1980). A larger area needs to be surveyed prior to any definite determinations.

Figure 4.9. Plans of the Liberal Arts Building with toilet rooms on both the east and west sides of the building (Image courtesy of Douglas County Historical Society).

The lack of infrastructure seen in the data may have alternative implications, however. Based on what is known about several other buildings on the TMIE's Grand Court, toilet rooms were located in at least two corners of the buildings, with one on the west end and one on the right (Figure 4.9). While evidence of this may not be expected to be seen within the building footprint itself, evidence of the sewer lines and water mains providing service to the toilet rooms may be expected, but is not seen in the data. Although it is possible that evidence for these lie to the north of the survey area, it may also be that these areas were excavated following the Exposition's close so that the
materials may be removed and sold for money. While this would not necessarily confirm that the entire infrastructure was pulled up, as they may have only extracted the pipes and lines that would serve no purpose following the Exposition's close, it does suggest that such removal did take place.

Based on these observations, it should be noted that aspects of both interpretations may be being observed here. Accounts that describe the demolition as the saving of everything except the staff material with trenches opened to access underground resources may help to explain why the building's structural footprints would remain but not the water and sewage lines that would have served them (*Morning World-Herald* 1899b:2). At the same time, it is possible that not all underground resources were recovered, but only those that were not going to serve a purpose following the close of the fair. This would explain how the demolition left "the neighborhood with an infrastructure of roads, sewers, electricity, a park and streetcar service" while still accounting for the opening of trenches to remove other underground components (Durham Museum 2012). The accuracy of these interpretations cannot be known, however, at least not without additional surveys and ground truthing of the data. The only thing that is for certain is that intact deposits of the Exposition remain at the site today, contrary to what has been assumed in the past (Kelly 1980).

Conclusion

Although the geophysical data presented above does not provide any absolute certainty in regards to the degree of transience seen with the Exposition's underground facilities, it still holds true that the demolition of its above ground structures introduced a
higher cost compared to that seen with other mega-events, where the infrastructure is all
built to be retained. If Omaha could afford such a costly signal and do so successfully, it
would insure the signal's honesty and help prove Omaha's potential and worth. The
degree to which it proved successful determined whether this was achieved.

As seen in Chapter 3, the historical records indicate that the Exposition was quite
successful, at least as perceived by its organizers and the local population. However,
while historic accounts on the TMIE are beneficial in understanding the facts of the
Exposition and in gauging its perceived impact, the bias they may contain leaves much to
be desired in the way of objectivity in assessing the Exposition as a signal's success. As
such, while the narratives of Omaha's businessmen tout it as a definite success by all
accounts, particularly as a "wonderful amount of free advertising, which is of no small
importance to a city," there is no real measure or means offered to support this, and the
actual degree of its success cannot be ascertained from the narratives alone (Morning
World Herald 1898:1). To address this, the next chapter will present the U.S. Census
demographic data that is available for assessing any population and/or economic changes
that may have been affected by the TMIE. This data will be examined for evidence of
"the continuous growth and prosperity of Omaha during all the years since the
Exposition" that so many spoke of following its close, but of which no specifics were
Chapter 5: Realized Benefits and Success

Following the close of the TMIE, subsequent world's fairs, news headlines, and urban progress took the minds of the media and the public off of Omaha's Exposition and onto more current events. As a result, few records explore the impact the Exposition had on Omaha as time went by. While historic accounts presented in Haynes' history of the TMIE tout it as a definite success, accruing growth and development benefits "not only for Omaha and the State of Nebraska, but the entire West" (Haynes 1910:320) and giving Omaha prestige and credit in "its race for commercial supremacy" (Haynes 1910:315), no specifics or data are given as evidence of these claims. In order to determine the accuracy of such statements, this chapter aims to assess the success of the TMIE through an examination of changes to the area's population and economy following the Exposition, as measured by the U.S. Decennial Census. The changes seen in this demographic data from prior to the Exposition to after will be used as a measure of evaluating the overall effectiveness and function of the TMIE as a costly signal.

Materials and Methods

The largest source for demographic data, the U.S. Census, provided the bulk of the information examined for changes in Omaha's, and Nebraska's population and economy from prior to the organization of the TMIE to after its demolition. Two decennial censuses before and two decennial censuses after were analyzed for data, with the decade between the 1880 and 1890 censuses providing a basis of Omaha's growth and progress for comparison, the decade between 1890 and 1900 as the focus of study, and
the decade between 1900 and 1910 as a measure of ongoing change and impact. Data for Omaha was compared to the "other great western cities" of the time, Kansas City, St. Paul, and Minneapolis (Savage 1894:213), which were also three of the four cities vying for an exposition as Omaha sought to secure the TMIE at the Trans-Mississippi Congress of 1895 (Wakefield 1903:Origin). Data for the state of Nebraska was compared to its neighboring states, which would have experienced similar effects of the environmental and economic catastrophes of the 1890s, as well as similar growth as the nation moved west.

While "Gross Domestic Product (GDP) is the most important variable in analyses of economic growth," such data is unavailable historically at the city level (Henderson et al. 2012:1). In addition, data on the Consumer Price Index is only available post-1913 (Bureau of Labor Statistics 2012). With the primary measures of economic growth unavailable for analysis, population growth is the focus of the data presented below. While other measures are also available, population growth data has been chosen given that it has "provided a reasonable estimate for high-level analyses of the first component of economic growth" over time (Crestmont Research 2012: Economic Growth and Economic Cycles).

Expectations

Based on Bliege Bird and Smith's framework for costly signaling, and the expectations laid out in Chapter 3, the measure of success for Omaha's signal is the realization of the perceived benefits of hosting the TMIE. This includes Omaha overcoming its previous reputation and proving itself in spite of the obstacles
encountered, providing for "continuous growth and prosperity" for the city following the Exposition's close (Haynes 1910:321). As such, if the Exposition as a signal was a success, population increases and improvements to the economy for the long-term would be expected to be observed in the demographic data, providing evidence of the new residents and businesses attracted to the city by the Exposition.

Liabilities

Given the 1898 date of the Exposition, the 1890 and 1900 U.S. Censuses are referenced most often in the following chapters. However, it should be noted that data from the 1890 Census is very limited, as a fire in 1921 destroyed most of the records (Blake 1996). Only a few fragments survived, including general population census schedules, along with mention of the 1890 data in newspapers, almanacs, gazetteers and other publications. Because of its secondary nature, this data found in the media sources and other records may have unintended errors introduced through transcription mistakes. As such, the limits of the 1890 data found below in regards to accuracy and completeness should be recognized prior to analysis.

Besides the limits of the 1890 Census data due to its destruction in the 1921 fire, it should also be acknowledged that while demographic data may in general be more accurate, or at least less subjective than many of the historical accounts, the 1890 Census data for the Omaha area may also be biased. The 1900 and 1910 censuses showed a drastic reduction in population for Omaha compared with 1890 census figures. It was widely believed that the census returns for 1890 were padded to at least some degree in
order to present a more prosperous image of Nebraska as a whole (NSHS 1998). This issue will be examined more closely in the data section.

Finally, there are additional issues involved with using census data in assessing the success of the Exposition as a signal due to its scale of measure. The resolution of the decennial census is not ideal for assessing changes caused by a 6-month event put on at the end of a decade. Any changes in demography, for better or worse, are a result of the culmination of many events. This is particularly true for the 1890s, which followed a period of unprecedented growth on the Great Plains, and soon after saw financial panic, drought, and war. As such, to attribute any changes solely to the success of a costly signal by a single city is simply not possible, as it ignores so many other factors at play. However, when combined with the personal narratives found in the historical resources, a stronger case may be presented, whether in favor of a positive impact or otherwise that the TMIE may have resulted in.

Data

Between 1880 and 1890, the city of Omaha, and the state of Nebraska saw unprecedented growth, based on the decennial census data collected for these years. While the growth in the previous two decades had been strong, especially relative to the rest of the United States, between 1880 and 1890 the population of Omaha jumped a substantial 360%, from 30,518 to 140,452 citizens, with the state's population gaining over 610,000 people, or 135% (Gibson 1998). By comparison, the three other 'great western cities' of the time, Kansas City, St. Paul, and Minneapolis, grew by 137%, 221%,
and 251%, respectively (Table 5.1). At the time, for Omaha "the present growth of the city is all that could be desired" (Savage 1894:213).

| Table 5.1. Population of the ‘Great Western Cities’ by Decade (Gibson 1998) |
|---|---|---|---|
| 1880 | 1890 | 1900 | 1910 |
| Omaha, NE | 30,518 | 140,452 | 102,555 | 124,096 |
| Kansas City, MO | 55,785 | 132,716 | 163,752 | 248,381 |
| St. Paul, MN | 41,473 | 133,156 | 163,065 | 214,744 |
| Minneapolis, MN | 46,887 | 164,738 | 202,718 | 301,408 |

Much more was desired by the following census in 1900. The considerable increase seen between 1880 and 1890 made the population figures compiled in 1900, with a drop of 27% to 102,555, all the more disappointing. Omaha was one of only two cities of the 50 largest urban places in 1890 to lose population by 1900. The other city to drop in population was Albany, New York, but with only a loss of 800 people, or -0.8% (Gibson 1998). With the considerable loss from Omaha, as well as several of the other larger towns in the state, Nebraska was fortunate to see a net increase overall (Table 5.2). However, at only 0.7%, the state fared poorly compared to its neighbors, with all but one seeing growth of over 15% (Kansas's population increased 2.96%) (US Census Bureau 1900a, 1910).

Many Omahans, feeling as if Omaha had in fact grown in size by 1900, believed the decrease in population to be in error. Citing other numbers, and figuring proportional estimates of child to population (each child represents four or five people, with 30,765
children in school), or directory ratios (54,392 names in the directory, with each representing three to four persons), local sources believed the population to be instead somewhere near the 145,000-150,000 mark (NSHS 1998). However, seeing as the numbers were the official count, and "there is no way of getting behind the returns," alternative explanations were sought (Omaha Daily News, In NSHS 1998).

Among the most cited explanations for the large change between 1880-1890 and 1890-1900 is that the numbers found in the 1890 census were exaggerated, "produced when local boosters inflated the population count," likely so Omaha could be noted as a metropolitan city, a status that required a population of 100,000 (Larsen and Cottrell 1997:122). This padding of the 1890 census seems to be the most likely, and most widely accepted explanation, particularly when subsequent censuses are taken into account, as these fall in line with growth expectations if the 1890 count was inflated (Beauregard 2009:62-63). If it is estimated that the population of Omaha grew 200% between 1880 and 1890, as is in line with its peers for the period, a subsequent increase of 12% from 1890 to 1900 (from 91,554 to 102,555) is much more in line with what may be expected.

<table>
<thead>
<tr>
<th>Table 5.2. Population of the Plains States by Decade (US Census of Population and Housing 1910)</th>
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<tbody>
<tr>
<td>State</td>
</tr>
<tr>
<td>Nebraska</td>
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<td>South Dakota</td>
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<td>Iowa</td>
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<td>Missouri</td>
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<tr>
<td>Kansas</td>
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<tr>
<td>Colorado</td>
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</tbody>
</table>
A brief glance at the economic data available from census counts between 1890 and 1900 seems to support the possibility that the population figures in 1890 were padded. Despite the apparent 27% drop in its population during the last decade of the nineteenth century, Omaha saw a 24.1% increase in its number of businesses, and an 88.2% increase in its total capital in manufacturing alone, which is line with, or better than the Minneapolis, St. Paul and Kansas City, as seen in Table 5.3 (US Census Bureau 1900b:510). This increase in Omaha’s capital contributed nearly half of the 91.6% increase seen by the state as a whole, which was up $34,412,619 since 1890 (US Census Bureau 1900b:507). While this data cannot confirm the accuracy of the population data, as production numbers can grow relative to changes in technology, and not necessarily due to population changes, it does further call into question the plausibility of such a large population loss coinciding with fairly considerable economic growth, when other growing cities noted similar economic gains.

<table>
<thead>
<tr>
<th></th>
<th>Number of Establishments</th>
<th>Capital</th>
</tr>
</thead>
<tbody>
<tr>
<td>Omaha, NE</td>
<td>1890</td>
<td>675</td>
</tr>
<tr>
<td></td>
<td>1900</td>
<td>838</td>
</tr>
<tr>
<td>Minneapolis, MN</td>
<td>1890</td>
<td>2728</td>
</tr>
<tr>
<td></td>
<td>1900</td>
<td>2368</td>
</tr>
<tr>
<td>St. Paul, MN</td>
<td>1890</td>
<td>1442</td>
</tr>
<tr>
<td></td>
<td>1900</td>
<td>1591</td>
</tr>
<tr>
<td>Kansas City, MO</td>
<td>1890</td>
<td>1478</td>
</tr>
<tr>
<td></td>
<td>1900</td>
<td>1797</td>
</tr>
</tbody>
</table>

Table 5.3. Census Statistics of Manufactures for the ‘Great Western Cities’ (US Census Bureau 1900b)
Interpretation

If the measure of the TMIE's success is the realization of the city's rebirth with expectations of subsequent increases in population and business, then initial observations of the demographic data seem to indicate that by all accounts the Exposition was a complete failure. While it is acknowledged above that many factors contributed to the demographics of Omaha and Nebraska in the 1890s, initial examination of the data suggests that the Exposition was not beneficial to the city as presumed, and perhaps even detrimental. However, as supported in the historical record, further examination of the data indicates otherwise.

Based on contemporary accounts, population data for cities of similar status and states in similar situations, and economic data from the period, it seems likely that the population data for the 1890s was padded, making it unlikely that Omaha experienced such a large loss between 1890 and 1900. Of course, there is no absolute certainty with interpreting population changes through time, especially at a ten-year resolution. It is possible that Omaha did really experience a drastic population loss in the 1890s. This possibility is supported by the fact that Omaha was not the only town in Nebraska to note such a considerable loss, with towns like Beatrice, Hastings, and Lincoln recording 43%, 47%, and 27% losses, respectively, during the period, as seen in Table 5.4 (Nebraska Databook 2010). Regardless, this data is insufficient for defining the Exposition as unsuccessful or otherwise, as it is impossible to measure the extent to which the Exposition did help the city to survive. Unfortunately, because of the poor resolution of
census data for examining short-term events and their long-term impact, nothing of the Exposition's impact on Omaha's can be certain in the demographic data alone.

<table>
<thead>
<tr>
<th>Table 5.4. Major Nebraska Towns Recording Population Loss between 1890-1900 (Nebraska Databook 2010)</th>
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<tbody>
<tr>
<td>Town</td>
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</tr>
<tr>
<td>Omaha</td>
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<td>Beatrice</td>
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<td>Hastings</td>
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<td>Kearney</td>
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<tr>
<td>Lincoln</td>
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<tr>
<td>Nebraska City</td>
</tr>
<tr>
<td>Plattsmouth</td>
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</tbody>
</table>

**Conclusion**

Although initial observations of the demographic population data seem to contradict historical accounts, when acknowledgement of potential numbers padding and the economic data are considered, the success of the Exposition seems less doubtful, at least on a local level. However, in order to provide a more complete and accurate assessment of its success, the data from the historical and geophysical sources need to be taken into account as well. Through an examination of the data presented above and in the previous two chapters, the next chapter aims to complete such an assessment, in order to provide a comprehensive evaluation of this success of the TMIE as a whole, and to explore the motivations behind Omaha's signaling at the Exposition, the degree to which the benefits were realized, and how they were insured. In doing so, an overall assessment may be made in how the individual components of the Exposition combine together to
collectively meet the expectations of signaling theory, thereby supporting the fair's function as a costly signal sent by Omaha to the world.
Chapter 6: Discussion

In order for the Trans-Mississippi and International Exposition to have successfully functioned as a costly signal, all of the conditions of a costly signal must be met. While the previous three chapters have considered how data collected from the different documentary and material resources individually correspond with the separate expectations of signaling theory, they do not consider how the Exposition data corresponds as a whole. This chapter aims to establish how the individual data sets combine to confirm the TMIE's function as a costly signal, through a discussion of the different components of a costly signal, and how the Exposition meets the expectations of such.

This chapter is organized according to the expectations of signaling theory as based on the four conditions of a costly signal set forth by Bliege Bird and Smith and seen in Table 2.1 (2005:225). Section one examines how the action of hosting the TMIE signals an underlying, unobservable attribute of Omaha, identifying what the attribute is, how it was signaled, and why it was otherwise unobservable. The motivations behind sending this signal are explored in section two, where the perceived benefits of the observed signal for Omaha, the signaler, and its recipients are considered. How the signal remained credible and encouraged observer deference is then the topic of section three, where the high costs of hosting the Exposition are examined for how they insure the signal's honesty. Finally, section four measures the success of the signal, based on the realization of the perceived benefits of the signal, namely population and economic
growth. In the end a determination of how the Exposition functioned as a costly signal and to what degree it proved successful will be made.

I. The Signal

To assess how the TMIE corresponds with the first condition of the signaling framework laid out by Bliege Bird and Smith (2005) as detailed above, the underlying, unobservable attribute that varied between Omaha and its peers needs to be identified, as well as how it was signaled via the Exposition. Of the available data, the historical data presented in chapter three offers the best source of information from which to determine this.

At first glance, the TMIE appears to be a signal of not only its own wealth and resources, but those of the entire region. Many of the pre-Exposition and opening day speeches and publications cite the purpose of Omaha hosting the Exposition as offering a "central gateway" where the "products, industries and civilization" and "the wonderful capabilities of these great wealth-producing States" may be displayed (Haynes 1910:12). However, to signal an attribute shared across the region goes against the first condition of costly signaling which reads "Members of a social group vary in some underlying attribute…" (Bliege Bird and Smith 2005:224, emphasis added). The attribute Omaha is signaling needs to vary from its peers in quality or quantity, and signaling the wealth of the entire region does not meet this expectation. As such, the wealth and resources of the entire region cannot be the attribute signaled via the TMIE.

Since Omaha was the sole host of the Exposition, and as such bore the majority of its costs, perhaps the purpose of the fair was instead signaling its own wealth and
resources, and its ability to devote a considerable amount of time and money to what most would regard as a conspicuous and wasteful short-term event. In this sense, the displaying of wealth of its entire region could be seen as evidence supporting its own reserves and capabilities. However, this is unlikely given that opposition to the TMIE highlighted the fact that the funds being appropriated to hosting it were needed elsewhere (Haynes 1910:158-159). If the city and the state had sufficient enough wealth that the cost of the Exposition was reasonable, then the appropriation would not have been such an issue; they presumably would have had sufficient funds to also attend to emergency relief and paying off its debts. Instead, "from the inception of the project down to the end of the third month of the Exposition season, the paramount problem was that of finance" (Haynes 1910:294). If the prevailing hard times made it difficult to even get the Exposition to opening day, it is doubtful that Omaha's entire aim was to signal its wealth reserves, as to do so honestly while distinguishing itself from its peers and without posing a detriment to itself would have been difficult at best.

Despite the hard economic and environmental times, however, the city did see opening day, with the achievement largely credited to the "forethought, energy and indomitable courage of Omaha's best citizens" (Haynes 1910:308). From the beginning, Omaha's leaders lobbyed for the opportunity to host the Exposition, securing their bid at the Trans-Mississippi Congress that they had also vied to host (Wakefield 1903:Origin). The same delegation of leaders and influential citizens also fought to secure congressional recognition and raise subscriptions for funding the Exposition, despite initial doubts of Omaha's ability to succeed in the endeavor and opposition to its attempt
(Haynes 1910:299, 305). It was not just Omaha's leaders who strove to make the Exposition a reality, however, as people from all spectrums pulled together, "determined to lend aid in every possible way" (Haynes 1910:309). "The money was largely subscribed by residents or corporations directly interested in Omaha. It was given from the purses of the poor as well as from the coffers of the rich" (Haynes 1910:296). Even the smallest of Omaha's citizens, its children, contributed to the effort, having been mobilized by the Omaha Bee "to clean the streets of the city in anticipation of thousands of visitors" (Rydell 1984:123).

It was this collective action, and the "loyalty, capacity and strength of the people of Omaha" that appears to be the underlying attribute Omaha was signaling via its hosting the TMIE, rather than its wealth and resources (Haynes 1910:293). As Haynes notes, "the success of every American Exposition had depended upon the energy and capacity of the men of the city wherein it was located. Some of the expositions failed largely because of the shortcomings of the cities projecting them" (1910:293). This is the quality in which Omaha varied from other cities like it. Without such a strong and united coalition of citizens and leaders, it seems like Omaha would never have secured the bid to host the Exposition, let alone see it to completion. Recent research on the role of modern urban power structures in securing publicly financed stadiums confirms this, finding that cities with strong and unified growth coalitions and business leadership are able to successfully gather the support and financing necessary for such endeavors, whereas those with weak and fractured coalitions are not (Delaney and Eckstein 2007).
As expected based on Bliege Bird and Smith's first condition of costly signaling, this attribute being signaled is otherwise unobservable to outsiders. The degree of cohesion within a community and their potential for collective action is not a trait easily identified or commonly discussed about a city. Even it were, the political, environmental, and economic events of the 1890s would have overshadowed it in the media, making it difficult for Omaha to signal its strengths by any other means. Instead, by hosting the TMIE, a worldwide audience directed its attention to the city and to its ability to successfully obtain the bid, finance, and organize the Exposition, and see it to completion on November 1st, 1898, despite the obstacles encountered. The motivation for signaling this attribute of its collective unity and strengths to such a large audience may best be determined through an examination of the benefits it was meant to provide.

II. Benefits

As discussed above and in chapter three, the purpose of the TMIE was for Omaha to signal its strengths, presumably to garner interest and attract prospective residents and business interests to the city, thereby at least in part overcoming the losses brought on by the depression and drought seen earlier in the decade. As with the Olympic Games and the ongoing global competition among mega cities to attract economic activity (Preuss 2007:42), so, too, were U.S. cities in a competition to attract population and economic growth to their areas at the close of the nineteenth century. With the acknowledgement that the immediate profit of such a project is negligible, long-term growth in areas such as exports (Rose and Speigel 2011), as well as in population (Rydell 1984:123) was likely the aim.
With Omaha's benefits from the exposition having been established, the perceived benefits for its signal's observers need to be determined as well in order for it to correspond with expectations that the signal provides benefits to both signaler and observers (Bliege Bird and Smith 2005:225). As set forth in the second condition of a costly signal, observers stood to gain from accurate information about the variation in attribute quality (Bliege Bird and Smith 2005:224); in this case about Omaha's collective action potential. In addition, while it was not necessarily the underlying attribute being signaled, observers also stood to gain knowledge of "products, manufactures and industries of the States and territories west of the Mississippi River," as it was the purpose of the Exposition in general (Haynes 1910:347). Knowledge of this information benefited the recipients in that they could make a determination on what Omaha may have to offer them relative to other cities in terms of its stability in the face of adversity and its available resources without having to "put their faith in words" but by examining "the evidence of deeds" (Bliege Bird and Smith 2005:223). From this, they could make a well-informed decision on where to establish themselves or from which to guide future relationships with the city. In order for this information to provide such a benefit, however, its accuracy needed to be insured. The means through which the attribute quality remained credible will be discussed in the next section.

Prior to discussing the costs of the signal though, it should be noted that some researchers do not consider group-, or in this case, city-level signals to prospective residents and businesses to be costly. This is due to the overlapping and non-conflicting interests of the senders and receivers, which follows that the "signaling should cost no
more than what is required to get the message across" (Boone 1998:7). In this case, the interests would be mutual in that Omaha was hoping to boost population and economic growth, and the receivers were looking for information on where to establish themselves, their families, and their businesses. Because the aim is in "capturing a larger market share" rather than "in convincing buyers of underlying quality," the costs that are involved are considered a form of investment rather than an honesty insuring display. However, because of its prior adverse reputation and due to what were likely unfavorable reviews from those who fled back east from Nebraska during the hard times, Omaha did have a need to convince signal receivers of its favorable qualities. In addition, this signaling still maintains the third condition of costly signaling as set forth by Bliege Bird and Smith (2005) in that both parties "have conflicting interests in the sense that successful deceit would benefit signalers at the expense of the recipients" (p. 224). As such, Omaha's signal to prospective residents and businesses will still be considered costly for the purposes of this discussion, although a focus will be placed on Omaha's signaling to other cities, rather than individuals and businesses, to account for the differences in opinion.

III. Cost of Honesty

For the mutual gain of Omaha's signal to be realized, the honesty of the information received by the observers needed to be insured. This is accomplished through the cost of the signal and its quality dependence making it difficult and detrimental, if not impossible to fake. As such, only those of sufficiently high enough quality would be able to create and maintain the signal successfully.
Examination of the high costs of hosting the TMIE illustrates how Omaha insured the accuracy of its signal. From the beginning, a large amount of time and effort was required in simply securing Omaha’s bid to be host, let alone in the promotion and organization of the Exposition. It is no doubt that without the ceaseless efforts of its citizens, particularly the Nebraska Delegation at the Trans-Mississippi Congress and the Exposition managers and planning committees, seeing the Exposition to closing day would have been difficult, if not impossible. Gordon Wattles, president of the Exposition, acknowledges this in his recognition that the community "owes a debt that can never be paid" to those who "gave nearly all of their time and attention to the promotion of the project … without compensation" (Haynes 1910:301).

Besides the cost of time and energy needed to see the Exposition to successful completion, the pecuniary expenses of hosting the Exposition also contributed to its overall high cost. Every aspect of the Exposition had to be built new, as it was to be located in an undeveloped section of Omaha with no prior infrastructure or improvements. While funding was available from external sources, Omaha had to raise its own subscriptions totaling $500,000 before any of these sources would take them seriously. As Haynes points out in his history, while even in 1910 "the raising of half a million dollars for an object equally laudable would present a task comparatively easy…in those days the promoters met with many obstacles, at times seemingly insuperable" (1910:295). In addition, as discussed in the initial interpretations of the historical data presented in chapter three, the realized cost of the signal was more than the $1.5 million dollars estimated as having been spent prior to opening day (The Nebraska
Advertiser 1898:4). The opportunity costs associated with the appropriation of this money to a temporary event in the 1890s also need to be recognized, as it would be spending funds that were needed for basic needs elsewhere in the state.

Contributing to even higher costs of the Exposition was its temporality. Unlike other mega-events such as the Olympics, where expenditures at least result in permanent facilities for future use (Rose and Speigel 2011:653), world's fairs like the TMIE were built with the intent of being demolished after their closing day. It is through this destruction and wasteful consumption that Burton Benedict argues the costly signal was ultimately made (1983:11). Although the geophysical data presented in chapter four cannot confirm the destruction of the Exposition's underground facilities during its demolition, the historical sources confirm that no aboveground infrastructure remained (Morning World-Herald 1899c:2). Without the benefit of permanent infrastructure, and with no perceived immediate benefit to the local economy in terms of revenue brought in by the Exposition, its cost greatly outweighs its expected returns. While the return made on salvaging the construction materials used at the site may recoup some of the costs, it is doubtful that it countered any considerable portion of the expenses in terms of labor costs alone.

Both of these costs, the time and energy invested and the financial expenses of the TMIE combined to contribute to the high cost of the Exposition, which insured the signal's honesty. However, it needs to be recognized that both of these costs were met only because of the "ceaseless efforts of the men of Omaha" (Haynes 1910:307). Without the "forethought, energy, and indomitable courage of Omaha's best citizens," the city
would likely not have won the bid, or congressional approval, or have obtained the necessary funds and subscriptions necessary. Without their ability to work together and support the Exposition in every way possible, Omaha would not have been able to pull together the resources and funds needed to see its enterprise to completion with any degree of success.

While this capacity for pro-social collective action is not necessarily a costly output in an economic sense, the strength, unity and perseverance of Omaha's citizens does attest to the quality of the city as a whole, as they are not attributes that can "be acquired in haste or by proxy," but instead require a long investment of time and "therefore appear as the surest indications of the quality" of the city (Bourdieu 1984:281). Omaha's signal was honest because without these qualities they would have failed in their attempt, unable to create the signal (winning the bid) or maintain it (organizing the Exposition and seeing it to completion). The cost of the signal was such that only cities with a strong coalition of citizens would have been able to overcome the economic, political and environmental obstacles encountered, and succeed in gathering the necessary resources and funds to send such a widespread signal. It allowed Omaha to honestly present its stability and strength as a community, encouraging observer interest and deference to the signal and attracting them to establish residence, business, or trade relationships in the area. The degree to which the city proved successful in this signal will be discussed in the next section, measured through the benefits realized.
IV. Measures of Success

As identified above in section two, the benefit Omaha was poised to gain by signaling via the TMIE was the attraction of population and economic growth to the city and the state as a whole. The degree to which these benefits were realized can help determine the success of Omaha's signal overall. Demographic data and historical accounts offer mediums through which to measure this success, as an objective unit of change and as a subjective measure the perceived benefits at a local level, respectively.

Given that by most accounts, the Trans-Mississippi and International Exposition was a success in terms of attendance, investor return, and opening on time, and it was sufficiently costly to insure the honesty of Omaha's signaling, it would be expected that Omaha would see the boost in population and economy they aimed for. The demographic data does not correspond to this expectation, however, instead showing a 27% drop in the population from 1890 to 1900 (Gibson 1998). While data padding in 1890 has been cited as skewing the records, even longer-term changes in population do not correspond to what would be expected relative to the growth of its peers, with Omaha only gaining approximately 22,000 residents between 1900 and 1910, and St. Paul, Kansas City and Minneapolis gaining 51,000, 85,000, and 99,000, respectively. However, the available economic data indicate otherwise, showing growth in Omaha during the period of such large population loss. This discrepancy between the economic and demographic data may confirm the inaccuracy of the population data for 1890. Due to the possible issues from this data exaggeration, and the poor resolution of the census data relative to such a short-
term event, it is difficult and problematic to make a reasonable assessment of the Omaha's success based on the demographic population data alone.

Accounting for the issues associated with the demographic data, the historical accounts detailing the perceived impact of the Exposition may provide the best means of gauging the Exposition's success, at least on a local level. These accounts, recorded a decade following the Exposition's close from the businessmen of Omaha, detail overwhelmingly positive outcomes of the TMIE for Omaha. In particular they touch on common themes of increased commercial growth and development, investments in the city, further unification of its businessmen and citizens, and the continued attraction of visitors worldwide (Haynes 1910:315-321). Media records reflect the same sentiments, noting that "Omaha's exposition has done wonders for the place…a trade and travel stimulant" (*Honolulu Evening Bulletin* 1899:10). While these accounts appear to contradict the demographic data, this is not necessarily the case, as it is possible that while the success of the Exposition did increase population and economic growth, the net growth during the decade was negative, brought on the catastrophic effect of drought and depression. Had it not been for the city's costly signal, Omaha's demography may show an even more disappointing loss by 1900. Regardless, full acceptance of these accounts should be cautioned, given the inherent biases associated with historic records, particularly from accounts of those with a vested interest in an event. If these accounts are any indication of the realized benefits of the Exposition, though, Omaha's signal was a considerable success, at least as perceived on a local level.
Conclusion

The data presented in the previous chapters and in the discussion above indicates that the TMIE meets the expectations of costly signaling theory as set forth by Bliege Bird and Smith (2005). However, due to limitations of the demographic and historical data, a measure of the degree of its success and cannot made for certain. In order for future assessments of the TMIE's impact to be made possible, additional data, resources, and research are required. The next chapter addresses these areas where additional focus is needed in order to further costly signaling research on the TMIE, specifically and world's fairs in general. It then considers how such research has contributed to historical and ephemeral site research, and costly signaling theory as a whole.
Chapter 7: Conclusion

In the 1890s, the Great Plains were hit hard by natural, economic, and political disaster. The 1893 financial panic and subsequent depression, and the crop failures of 1894 and 1895 had severely drained state funds and resources, "halting all progress, staying all plans for continued development" (Wakefield 1903:Review). This reality was epitomized in Nebraska, where "the State treasury was empty, taxes too high and property depreciating in value" (Haynes 1910:159). Many believed that any resources that remained should be used for paying off state debts or towards supporting the state's farmers and relieving the burdens of its citizens. The state and the city of Omaha elected to do otherwise, however, choosing to instead allocate the available funds towards hosting a world's fair in Omaha in 1898. This alternative of putting Omaha and Nebraska's resources into the Trans-Mississippi and International Exposition at a time when citizens of the entire nation were being forced "to bend every effort toward self support" did not win immediate favor. Doing so at a time when the idea of profit was all but likely and success could be in no way guaranteed seemed to be nothing short of wasteful and economically irrational.

Despite its contradiction to evolutionary thought in that it is a wasteful action "when natural selection is assumed to create greater efficiency" (Bliege Bird et al. 2001:10) this thesis has aimed to understand the motivations and reasoning behind Omaha's decision to host the TMIE in spite of the obstacles faced and the high costs involved with no reasonable expectation of observable monetary gain. Examining the Exposition as a medium of communicating and signaling underlying qualities, a costly
signaling framework has been used to determine how the TMIE was intended to benefit both Omaha and its signal's recipients and how its signal remained credible despite conflicting interests of those involved in sending and receiving the signal.

Through an assessment of how the different aspects of the Trans-Mississippi and International Exposition correspond with the expectations of signaling theory as seen in the historical, geophysical, and demographic data, this thesis has determined that by hosting the TMIE, Omaha sought to signal its ability for collective action, and the strength and unity of citizens in order to attract prospective residents, future businesses, and trade alliances to the city based on its stability in the face of adversity. In return, recipients were able to benefit through the gain of accurate information about the city upon which it could base decisions on future relations, supported by Omaha's proven ability and not its word alone. The honesty of this information, guaranteed by the high cost of the Exposition, helped to insure the realized benefit of both Omaha and its recipients, with it proving more advantageous to follow the signal rather than to defect. While the measure of the signal's impact and success is difficult to determine due to the quality of some of the data, based on the information above meeting the expectations laid out for a costly signal by Bliege Bird and Smith (2005), the TMIE's apparent function as a costly signal can be supported.

Limitations and Future Directions

Although the historical, geophysical, and demographic data indicate that the TMIE follows the conditions of a costly signal, this data does not contribute to an accurate gauge on the success of Omaha’s signaling efforts. This is largely due to the bias
and error that has been noted in the data and the discrepancies that arise when comparing measures of impact across the data sets. As such, each of the three sources of data examined here would benefit from continued and more in-depth research. The historical data, which offers our most complete record of the TMIE, continues to lack accounts of those who experienced the fair, but were not among its official organizers. With the perspectives of Omaha's residents and Exposition visitors, both local and otherwise, lacking in the record, the perceptions of the Exposition's impact remains biased through a lens of vested interest. While efforts are being made to gather this sort of data, they are only just beginning (Bartlett 2012). As such, until more personal perspectives are found, offering contributions "to our overall sense of the fair...as opposed to an official experience," the record as it stands today necessitates continued review of the sources we have available, of which the ones examined in this thesis only comprise a small percentage (Bartlett 2012).

The geophysical data presented in this thesis is the first fieldwork of its kind on the TMIE site, and among the first for world's fair and international exposition sites as a whole. While it exhibits promise in researching the material record of such sites, and other ephemeral urban events in general, there is still much work to be done in fine-tuning its application, processing, and interpretation techniques. In the interest of this thesis alone, additional survey area is warranted, as is the incorporation of additional geophysical instruments, in order to establish a more-detailed and encompassing data set from which to interpret the Exposition's function as a costly signal. While not ideal for initial research on such sites, traditional archeological excavations and methods may also
prove valuable in establishing additional avenues of research, and in providing clarification of how the material record meets expectation via ground-truthing of the geophysical data.

The demographic data presented in Chapter 5 posed perhaps the greatest issues in its use in interpreting the TMIE, due in large part to its partial destruction by fire and questionable accuracy. While little can be done to rectify any errors found in census data itself, alternative resources offering demographic data should be sought, particularly if they present greater resolution than the decennial data examined here. One such resource that should be examined are city directories that provide a much finer resolution, often annually, of a city’s population than the decennial census records do. This is important because the demographic data offers the best means of assessing the actual realized success of the TMIE and other costly signals like it, rather than its success as perceived by those invested in or directly affected by its outcome.

Besides these considerations for future research based on the limitations of the data, additional research topics should also be addressed in order to examine the Exposition's role as a costly signal in a more comprehensive manner. Exploring other factors and events that may have impacted Omaha's success at signaling through the TMIE may help to provide a more accurate measure of the benefits realized by the city. One such external factor to be considered was the hosting of the Greater American Exposition of 1899 on the site of the TMIE, and its subsequent failure. If the benefits Omaha realized at the TMIE were at least in part a result of its success, how did the failure of a similar endeavor a year later impact its original signal? In addition, the GAE
also offers an avenue through which to measure how a lack of public and local support can impact a mega-event costly signal and how it is reflected in the success of an exposition, or the lack there of.

A more in-depth look at other world's fairs and expositions, and how they impacted their host cities may also prove useful by providing additional data to aid in gauging the success of the TMIE relative to others, offering a basis through which success as a function of cost may be examined. This is particularly true of the Chicago World’s Fair, where Rebecca Graff has established that the underground infrastructure remains intact (2011). The research done and the material found in Chicago’s Hyde Park could provide insight into what is seen in Omaha and other exposition sites, which may help in strengthening the interpretations offered. Assessing these expositions for how they correspond with expectations of costly signaling theory may also provide a greater foundation from which to base research into mega-events functioning as costly signals as a whole.

Significance and Conclusion

Despite the limitations of the data and methods used in this thesis, the research presented here has contributed more than simply its goal of establishing the Trans-Mississippi and International Exposition’s role as a costly signal. Based on the geophysical data, this thesis has offered evidence that intact deposits of the TMIE site continue to exist, making it open for further research, including, but not limited to, traditional archaeological testing. This finding, coupled with Rebecca Graff’s data from Chicago’s 1893 Columbian Exposition (2011), encourages research at not only additional
world’s fair sites but at other ephemeral and/or urban sites as well, where the material record is all too often written off as destroyed or disturbed beyond research merit. This thesis also notes the potential of geophysical survey at such sites to gauge the integrity of what remains underground through faster and cheaper means that traditional techniques.

Through the combined examination of historical, geophysical and demographic data sources, this thesis has also highlighted the benefit and potential of incorporating multiple sources of data as a means of providing a more complete understanding of any particular research topic. The confluence of differing data sources can strengthen arguments by helping to resolve issues of perspective bias or data error. Although it may also cause conflict when interpretations differ as presented by each individual source, as is the case in assessing the success of the TMIE, acknowledgement of the data shortcomings still provides a benefit in the identification of areas of needed improvement and additional data. Overall, this ability to compare information and interpretations found in the different data sources, and the incorporation of the perceived experience of first-hand perspective highlights the strength of historical archaeology relative to that of prehistory, simply by making interpretations ‘knowable’ rather than “infinitely arguable” (Orser 1996).

Finally, the application of costly signaling theory to the Trans-Mississippi and International Exposition in this thesis has contributed one more case study to the theory’s growing body of research. This meets the call for additional research by both supporters and opposition to archeological applications of costly signaling theory alike. While this thesis does not necessarily contribute to a resolution of the potential of costly signaling
significance debate, it does provide support for the use of signaling theory as a theoretical framework which may be applied in historical archaeology and used to help interpret and understand seemingly irrational and unexplainable behaviors and actions such as those seen in the hosting of the Trans-Mississippi and International Exposition and other similar mega-events throughout time.
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