

**Windows into the Wild:
Natural History Exhibition and Museum Education in Chicago, 1890-1940**

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DISSERTATION

Submitted as partial fulfillment of the requirements for the degree of Doctor of
Philosophy in History in the Graduate College of the University of Illinois at Chicago,
2017

Chicago, Illinois

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This dissertation is dedicated to my parents, Corrine and Jim, without whom it would never have been accomplished.

ACKNOWLEDGEMENTS

First and foremost, I want to thank my committee. This dissertation would never have come to fruition without the support and guidance of my advisor, Perry Duis. Robert Johnston and Jeff Sklansky provided timely and thoughtful feedback on each chapter and encouraged me to pursue some lines of inquiry that added depth to the project. I owe a debt of gratitude to Deborah Perry for inspiring me to study the history of museums and for the use of her museum and visitors studies library. I am honored that Neil Harris, whose work on museums I greatly admire agreed to read and comment on this project.

I am grateful to my fellow graduate students and the faculty of the Department of History for providing a vibrant learning environment and a network of support and encouragement. It was a long and tough road to get here. A very special thanks to Chris Boyer and Kevin Schultz, for singling me out first as an adjunct instructor and then as the Department's graduate assistant. I learned so much from these experiences. Many thanks to Jonathan Daly for supporting me as a scholar and teacher and letting me participate in the development of an online course. Linda Van Puyenbroek and Mary Parks demystified the workings of UIC and were always ready to lend a helping hand. I would be remiss I neglected to thank my professors at Roosevelt University, especially Margaret Rung and Sandra Frink, without whom, I would not have felt confident to enter a doctoral program. I would also like to thank Erin McCarthy and Steven Corey at Columbia College Chicago for their support and encouragement.

I am similarly grateful to the amazing people who preserve and catalog the words and images in libraries and museum archives. A special thank you to Amber King and Dawn Roberts who welcomed me as a researcher and ersatz volunteer at the Peggy Notebaert Nature Museum of the Chicago Academy of Sciences. I likewise felt at home in the library and archives of the Field Museum. This dissertation would have been impossible to write if not for the assistance of Armand Easi, Christine Giannoni, Nina Cummings (who also thinks Carl Akeley is a "bad ass") navigating the wealth of the museum's papers and images. Michael "Spike" Trombley and Melissa Anderson helped me find my way around and entrusted me with my own magic pass to get in and out. I also would like to thank the staff at the Denver Museum of Nature and Science, Illinois State Archives, University of Illinois Archives, and University of Iowa Archives for helping me access their collections. My sincerest thanks to William Furry and the King V. Hostick Scholarship award committee that made this research possible.

My colleagues, friends, and family deserve special thanks for their support, encouragement, and sustenance throughout graduate school and my work on this project. In the graduate program Jenny Boring, Julie Fountain, Peter Strickland and Jeff Nichols inspired me to do my best especially during tough times. I learned much from two amazing writers Karen Porter and Jerry Brennan. And to my wife, Mariam, who read drafts, visited museums, helped me organize papers, and put up with me generally. I would never have gotten this far without the love and support of my family, especially my parents, to whom I am eternally grateful.

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TABLE OF CONTENTS

INTRODUCTION: THE NEW MUSEUM IDEA IN CHICAGO	1
I. OPENED FOR THE PUBLIC: THE DEVELOPMENT OF NATURAL HISTORY	
MUSEUMS IN CHICAGO	19
1.1 Overview of Early American Museums	19
1.2 The First Public Museums	24
1.3 A Gentleman Naturalists Club: The Chicago Academy of Sciences	30
1.4 East versus West	36
1.5 Natural Science at the World's Columbian Exposition	37
1.6 The Field Columbian Museum: 1894-1906	39
1.7 Rebirth of the Chicago Academy of Sciences	47
1.8 The Field Museum of Natural History	56
1.9 Who Went to Museums and Why? A Study of Museum Audiences	68
1.10 Museums for the Masses	77
1.11 From Museum Edutainment to Creative Meaning	90
II. CURATORS, CURIOSITIES, AND COMMODITIES: THE	
PROFESSIONALIZATION OF MUSEUM WORK AND THE NATURAL	
SCIENCE MARKETPLACE	94
2.1 From Avocation to Profession	96
2.2 Dear Mr. Field	107
2.3 Institutional Exchange	118
2.4 Science for Sale	122
2.5 Corporate Connections	144
2.6 Merchandising the Museum	147
III. DIORAMAS OF DESIRE: MUSEUM EXHIBITION AND THE EVOLUTION OF	
DISPLAY, 1890-1940	155
3.1 Defining Display	158
3.2 From Curiosities to Collections: A Brief History of Natural History Museum Exhibition	
before 1893	167
3.3 Take the A- Frame: Exhibit Cases	172
3.4 Lighting	174
3.5 Labels for Laypeople	176
3.6 Visitors and Meaning-Making.....	177
3.7 Windows to the Wild	184
3.8 Chicago Environs	191
3.9 A Dynamic Decade: 1925-1935	204
3.10 Science and Art in the Field Museum	210
3.11 A Half-Century of Progress	216

TABLE OF CONTENTS (continued)

IV. BRINGING THE WORLD TO THE CHILD: PROGRESSIVE ERA MUSEUM	
EXTENSION PROGRAMS	222
4.1 Nature Study Defined	223
4.2 Chicago Academy of Sciences	234
4.3 A Children's Library	239
4.4 Field Museum	247
4.5 Norman Waits Harris Signs a Check	252
4.6 The Chicago Way: Showcasing Harris Extension at World's Fairs	261
4.7 Museums on Their Own	267
4.8 Reel Nature	270
4.9 Museums on the Air	276
4.10 New Deal Initiatives	277
4.11 Fast Forward: Toward a Participatory Museum	281
 CONCLUSION: MUSEUMS YESTERDAY AND TOMORROW	 285
 THE HISTORIOGRAPHY OF MUSEUMS	 299
A Note on Sources and Method	318
 CITED LITERATURE	 320
 VITA	 343

Summary

This dissertation tells the story of the Chicago Academy of Sciences and the Field Museum of Natural History during critical formative years in the late nineteenth century through the Great Depression. I argue that Chicago's natural history museums were democratic and accessible institutions because the museum leaders took the mission of public education about nature and science seriously and encouraged people of all walks of life to visit. During the Progressive Era, an emerging group of professional museum workers developed the New Museum Idea that departed from earlier traditions of museum display and created sophisticated, visually appealing exhibits. This new focus on visual display charged museum men and women to increase scientific literacy and foster a respect for nature in a time when the field of ecology and concerns about a vanishing wilderness both emerged in the midst of industrialization and exploitation of natural resources. To teach the public about nature, museums developed sophisticated forms of visual display that transformed museums from "dead zoos" to dynamic places. Exhibits had to be of the finest quality aesthetically and scientifically. In addition to exhibits, the museums developed educational programming that adapted to new technologies and amusements such as movies and radio. Museum collections reached beyond the institution's walls and into park field houses and schools. The Field Museum pioneered a unique school loan program that brought nature study to classrooms and adult education venues throughout the city. By the start of World War II, Chicago's museums were at the forefront of public education and local conservation activities. Chicago was a center for information about nature and science and the two museums engaged with audiences in the hinterland of Illinois and beyond.

Introduction: The New Museum Idea in Chicago

Some people love their jobs. In 1918, Sergeant H.L. Stoddard, serving with the American Expeditionary Force in France, sat down and wrote letters home. This was not in itself unusual, as many soldiers sought to stay in touch with loved ones. But Stoddard did not limit letter writing to his family. More than once he wrote to his boss, Stephen Chapman Simms, a curator at the Field Museum of Natural History. Stoddard was a taxidermist responsible for mounting mammals and birds into small exhibit cases that were circulated among the Chicago's public schools. The Field Museum, like so many employers, had to let men go off to war but his job was left vacant while he was in the service. Stoddard intended to come back to the museum. Stoddard wrote to Simms to share his ideas about specimens to collect and exhibits to prepare when he returned. He was eager to "hear how the [public school] Extension is progressing" and about "any other activities in the museum." Before departing for Europe, Stoddard was at a training camp in New York and when granted leave, he took the opportunity to visit museums in New York City. He considered the Brooklyn Children's Museum "one of the most attractive and interesting places" and also made note of habitat groups at the American Museum of Natural History, but he was sure the Field could do even better.¹ He also noted the woods and wildlife he encountered in New York and later in France and drew connections to his work for the museum. "I found a small bat that I would have liked to preserve... Of course a good part of the wildlife of this country is new to me, which makes my trip doubly interesting."² Stoddard, like many of the men and women who

¹ Letters, H.L. Stoddard to S.C. Simms, September 11, 1918 and September 22, 1918, N.W Harris Public School Extension Papers, Field Museum Archives. (Harris Extension, FMA)

² Letters, H.L. Stoddard to S.C. Simms, January 3, 1918 and November 8, 1918 (Harris Extension, FMA).

worked in natural history museums did so because they had a true passion for nature and believed in the power of exhibition to teach others about science and nature. By the time Stoddard was in the Army, a generation of professionals—museum men in the parlance of the time—transformed museums from cold and aloof bland storehouses of specimens to institutions of public education.

This dissertation reveals how Chicago's natural history museums played an important, and previously underappreciated (by subsequent scholars) role as centers for public science education and a source of entertainment. They were born out of the progressive impulse at the turn of the twentieth century and created the idea of the modern museum. Through increasingly sophisticated display techniques, educational programs within the museum and school loan programs, Chicago's museums contributed to the popularization of science and made museums important sites for the work of reform. At the turn of the twentieth century, the men and women who worked in the museums were swept up in the democratic impulses of the Progressive Era and joined the host of reformers in libraries, public schools, agricultural and technical colleges, and other institutions that sought to make scientific information accessible, open, and free to everyone. While not everyone within museums agreed exactly on the why (or even for whom) of public education, they generally agreed that visual displays were the best means of reaching the public. Indeed, as historians Karen Rader and Victoria Cain noted, museum workers belief in “public education through display would undergird professional and public ideas about the institutional role of natural history and science museums for the next hundred years.”³ In the pages that follow, we see how this mission

³ Karen Rader and Victoria E.M. Cain, Karen Rader and Victoria E.M. Cain, *Life on Display: Revolutionizing U.S. Museums of Science and Natural History in the Twentieth Century* (Chicago: The University of Chicago Press, 2004), 10.

continued after the decline of progressivism in the 1920s and exhibition design and how educational programming reached a high water mark of sophistication during the 1920s and 1930s. Through the story of the Chicago Academy of Sciences and the Field Museum of Natural History from their development in the 1890s to the start of World War II, we can better understand the role museums played in reform, informal education, and amusement in Chicago. As we shall see the experience of Chicago's museums was as much unique to each institution as it was common to natural history museums in other American cities.

Why focus on Chicago? This project is unique in that it considers two natural history museums, one large and one small in the same city. It was fitting Chicago had two natural history museums because its development and growth was tied to nature.⁴ Chicago businessmen traded the products of nature—wood, furs, hides, minerals and meat. Industrial workers transformed natural materials into clothing, foodstuffs, and thousands of manufactured goods. Yet, as people profited from or labored with nature's bounty, they also separated from it. In the Chicago area; prairie, woods, and water gave way to houses, factories, streets, and harbors. Out of this grew the often contradictory notions that nature was meant for humans to use for profit but also the idea that it was beneficial for the human spirit. Because of this duality, the same civic leaders, businessmen, and politicians were able to exploit nature in some areas while also protect it within city, state, and national parks. The creation of local sanctuaries such as the Cook County Forest Preserve and large national parks like Yellowstone were a result of this impulse to save remnants of past nature but also to create recreational spaces.

⁴ See William Cronon, *Nature's Metropolis: Chicago and the Great West* (New York: Norton, 1991); Joel Greenberg, ed., *Of Prairie, Woods, and Water: Two Centuries of Chicago Nature Writing* (Chicago: The University of Chicago Press, 2008).

Landscape architect Jens Jensen argued for the preservation of local natural spaces, namely, the Indiana Dunes and became known as the “Apostle of the Dunes.”⁵ As we shall see, natural history museums were another manifestation of a desire among people (including but not limited to scientists, educators, philanthropists, civic leaders, reformers) to create a space to preserve nature (behind glass) and educate the public about the natural world. In Chicago, the museums were at once venues for progressive reform, vanity statements of wealthy patrons, manifestations of urban rivalry, sources of civic pride and boosterism, tourist attractions, education institutions, places of amusement, and centers of scientific study.

This study explores the similarities and differences between the two institutions and considers the purpose and functions of museums. Why were there two museums of natural history? There was room for two because the museums were different in size, scope, organization, and philosophy. The Field Museum sought to be wide in scope—encyclopedic—to show the world and all its inhabitants while, the Chicago Academy of Sciences was local in scope, displaying nature of the Chicago region. If the Field Museum was concerned with quantity of exhibits, the Academy specialized in quality. Indeed, the Chicago Academy of Sciences was—for a time—on the leading edge of exhibit design and programming. Because Chicago was a center for all sorts of goods and information, both institutions became influential not only within the museum and scientific world, but with ordinary people far beyond Chicago. This is largely an untold story and there are few institutional histories of either the Chicago Academy of Sciences or the Field Museum. This is new historical ground to cover and reveals much about not only the changing nature of display and science education, but also the relationship

⁵ Joel Greenberg, *A Natural History of the Chicago Region* (Chicago: The University of Chicago Press, 2002), 263.

between museums and the community and how the two institutions were both cooperative and competitive. By examining two institutions, one large and one small, I reaffirm some conclusions and assumptions about museums but challenge others. The institutional approach combined with the dedicated study of museum audiences, exhibit design, and educational programs from the Progressive Era through the Great Depression sets my work apart from others and is where I believe, I make the greatest contribution to the museum scholarship. These institutions are part of the rich tapestry of Chicago's history and deserve to have their stories told.

By telling the story of Chicago's natural history museums, this project answers important questions about the ways and means of natural history museums that resonate today. Who visited museums and why? What did Chicago's natural history museums expect of visitors? What did visitors expect of the museum? What was the relationship between the museum's experts and the general public? These questions illuminate the larger function and purpose of museums and show where expectations and experience clash. The answers to these questions also reveal for whom the museums were intended and what the various uses of the museum were and show that Chicago's museums were much more democratic than scholars have assumed. Indeed, in some ways Chicago's museums were more accessible to ordinary people in 1916 than in 2016.⁶

⁶ Museums have become more exclusive in recent decades—not by a change in mission but effectually—that is the patterns of visitation and the costs involved have changed dramatically. The present-day Academy of Sciences in the form of the family-focused Peggy Notebaert Nature Museum is no longer free but is a comparatively inexpensive museum to visit. In 2016 the admission charge is \$9.00 for adults and \$6.00 for children. The larger museums are considerably more expensive and the number of free admission days in 2016 numbers fifteen at the Field Museum, and every Thursday evening (from 5:00pm to 8:00pm) at the Art Institute (both for Illinois Residents Only). Admission prices are well ahead of wages at these institutions. In 2016, the Illinois minimum wage is \$8.25 per hour for an adult worker. For example, the cost of basic admission to the Field Museum is \$22.00 and \$25.00 to the Art Institute—more than double the wage for one hour of work, rendering a visit for low income workers much more difficult than it had been previously. Some of the admission fee increase is due to rising labor and operating costs as well as the waxing and waning of public and private funding. Nevertheless the cost has the potential to turn away potential visitors. Museums succeeded in making knowledge available for the layperson in the twentieth century, but have also failed in the twenty-first, to continue to make it accessible.

Museums mattered a century ago and continue to matter today. In the twenty-first century, around the world, museums attract crowds of locals and tourists. In 2002, the *New York Times* suggested that we were enjoying a “Golden Age of Museums” and cited numerous renovations and additions to existing institutions as well as the opening of new museums.⁷ In reality, this is a second “golden age” as the first took place in the late nineteenth century. There are at least 17,500 museums in the United States alone. As historian Steven Conn writes, “It is not exaggerating to say that there have never been as many museums doing as many things and attracting as many people as is the case right now.”⁸ Clearly, museums are an important facet of the American landscape with millions of visitors going to thousands of museums that compete with myriad forms of entertainment and education for visitors’ money and attention. Natural history museums are among the most popular, especially with families with children, who are enthralled with dinosaurs and mummies. Natural science specimens (and so-called “oddities,” zoological specimens or antique medical equipment for example) have become popular with interior designers. These days, objects of natural history are “cool” and seem to fit a trend of making older technologies, manufacturing, or agricultural processes, chic. Examining the history of natural science museums and how they obtained and displayed specimens is a timely topic in this regard.⁹

⁷ Special Section, *New York Times*, April 24, 2002 <http://www.nytimes.com/2002/04/24/arts/in-the-capital-smithsonian-s-veteran-man-in-the-middle-stands-his-ground.html>. Accessed September 1, 2015; J. Trescott, “Exhibiting a New Enthusiasm across US, Museum Construction, Attendance, Are on the Rise,” *The Washington Post*, June 21, 1998.

⁸ Steven Conn, *Do Museums Still Need Objects?* (Philadelphia: The University of Pennsylvania Press, 2010), 2.

⁹ This phenomenon is manifest in the popularity of such things as beards among young men (hipsters), “Edison-style” light bulbs, the hype over locally grown or sourced foodstuffs, “old fashioned barber shops,” and the hand made consumables and commodities (everything from art to sausages) sold at trendy shops, coffeehouses, restaurants, and bars. IFC’s comedy television series *Portlandia* satirizes these trends in a sketch, “Dream of the 1890s.” What once was a way of life for people is now chic for those who can afford it. The sketch can be viewed here on YouTube. https://www.youtube.com/watch?v=0_HGqPGp9iY. Accessed October 1, 2016.

More important is the fact that museum curators, educators, progressive reformers and scientists were as concerned about people's lack of knowledge about science or nature a century ago as they are now. Today, educators are concerned about scientific literacy (specialists in many disciplines are concerned about people's literacy in their fields, including history) and high school and college students are increasingly encouraged to enter STEM (Science, Technology, Engineering, Mathematics) programs, often with an eye toward careers utilizing this training. Humanities education often takes second place in schools that prioritize STEM. While this is not the place to make an argument about or editorialize contemporary education it is important to see the possibility for museums here. Throughout, I show how natural history museum exhibition—their primary mode of conveying lessons about nature and science—was a blend of art and science. In today's world, museums matter as much for their humanistic and artistic elements as much for the scientific ones. Exhibits are as much subjective as objective. Museums matter—and mattered a century ago—because they can allow visitors to grapple with both facts and interpretation of nature.¹⁰ That is why it is important to tell a previously untold story about the educational work of Chicago's natural history museums during a critical period of development.

My assertion is that museums in the early twentieth century were central to a growing visual culture that replaced a written one—primarily in magazines and newspapers—for communicating with the public about science and nature. Indeed it was, and perhaps still is, the primary source of knowledge for the public about nature and science. Furthermore, I argue that museums were very open, accessible, and democratic institutions in that they appealed to a broad audience both theory and in practice. In this

¹⁰ See James Cuno, *Museums Matter: In Praise of the Encyclopedic Museum* (Chicago: The University of Chicago Press, 2011).

dissertation, I demonstrate how and why natural history museums did—and continue to—draw in crowds to see exhibits of nature such as habitat dioramas and fossils.

Several terms used in this dissertation need to be defined. What is a museum? Is it a hallowed place of learning? An entertainment venue? A warehouse for old knowledge, or a foundry of new knowledge? In the early twentieth century, as much as today, museums were all of these things. The word “museum” has Greek roots, meaning home of the muses, the gods and goddesses of creative or scholarly pursuits. This definition encouraged the Beaux Arts architecture of many museum buildings—they had to be fitting homes for muses and impress people on both sides of the gate. By the late nineteenth century, museums were also understood as places that should “inspire the visitor to instruct others.”¹¹ How to inspire or instruct visitors was a point of debate among museum workers. Then, as now, historians Karen Rader and Victoria Cain noted that there was a debate as to whether “museums should be closed ceremonial shrines to scientific knowledge and authority or should they be open spaces for public confrontation, experiment and debate?”¹² Should they be, as Brooklyn Museum director Duncan Cameron famously put it, “temples or forums?”¹³ In the 1890s, leaders of the nation’s public museums found a balance between these extremes in the form of what they called “the New Museum Idea.” This concept charged natural history museums to serve the public through the simultaneous production and dissemination of scientific knowledge.

¹¹ Horace Newton Winchell, “Museums and Their Purposes,” *Science* 18, no. 442 (1891): 44. See also, George Brown Goode, “Museum History and Museums of History,” in Joint commission of the scientific societies of Washington Washington D.C. et al., *A memorial of George Brown Goode, Together with a Selection of His Papers on Museums and on the History of Science in America*, Annual report of the Board of regents of the Smithsonian institution, 1897. Report of the U.S. National museum, Pt. II (Washington, DC: Government Printing Office, 1901), 65.

¹² Rader and Cain, *Life on Display, Life on Display*, 3.

¹³ Duncan F. Cameron, “The Museum: A Temple or a Forum?” *Curator* Vol. 14, No.1 (1971): 11-24.

Since the nineteenth century, various types of museums developed for different collections including, but not limited to: fine arts, astronomy, natural science, technology, transportation, and history.¹⁴ Museums of natural science owe their origins in part to Renaissance era cabinets of curiosities—collections of specimens and artifacts collected by nobleman, merchants, or scholars and appreciated more for aesthetic qualities than for scientific inquiry or public education.¹⁵ During the eighteenth century, such collections were organized and displayed systematically in European universities and academies of science or medicine for study by elites. By the late nineteenth century in Europe and America—museums—large and small opened for public audiences and were devoted to natural science. It was here that ordinary people encountered exhibits of rocks, fossils, botanical and zoological specimens.

Natural history museums played, and continue to play, a key role in taking inventory of the diversity of life in the natural world. The materials gathered, first by explorers, and later by naturalists and scientists, added to this knowledge base and placed the specimens on public display. Over time, as we shall see, the collections and displays become much more sophisticated. Indeed, these were meant to be serious places. The capacity of museums to facilitate and inspire learning underlay the mission of Chicago's philanthropists as they endowed museums. In addition to the World's Columbian Exposition, Chicago's museum builders had examples to follow and improve upon in order to operate open and accessible museums. The history of early American museums

¹⁴ In addition to museums were the formation of related organizations such as world's fairs, historic sites, aquariums, botanical gardens, and zoological parks.

¹⁵ See Paula Findlen, *Possessing Nature: Museums, Collecting, and Scientific Culture in Early Modern Italy* (Berkeley, California: University of California Press, 1994); Harriet Ritvo, *The Platypus and the Mermaid and Other Figments of the Classifying Imagination* (Cambridge: Harvard University Press, 1997); Carla Yanni, *Nature's Museums: Victorian Science and the Architecture of Display* (Baltimore: The Johns Hopkins University Press, 1999).

is discussed in the first chapter, but it is important to briefly consider the antecedents of Chicago's institutions here. Inspiration came from the Smithsonian Institution (1846), the American Museum of Natural History (1869) and the Metropolitan Museum of Art (1870).¹⁶ The progenitor of all of these museums was Charles Wilson Peale's Museum (1786-1827) that made a serious effort to educate and inspire a lay audience in Philadelphia. According to historian David Brigham, Peale's Museum "set a standard for the extent to which cultural institutions were accessible to people of different social rank, gender, and race," because he proposed that his museum was "democratically open." Yet his audience was in fact limited largely to wealthy or middling white men.¹⁷ If anyone from the laboring class or poor visited Peale's galleries, they did so as the guest of a member (an act of goodwill) or as part of a school group. By contrast, after the Columbian Exposition in 1893, museums actively operated in a more democratic way as "popular educational institutions, open to those who had not had the benefit of extended education, so that they might teach themselves."¹⁸ Much had changed in sixty-six years.

The opposite of the academic respectability of Peale's Museum or the rarified atmosphere of the Smithsonian Institution was the spectacle and cheap thrill of the dime museum. Not unlike sideshows and circuses, dime museums were an urban staple since the 1830s that exemplified the concept of a museum as place for entertainment with

¹⁶ See Adolph Bernhard Meyer, *Studies of the Museums and Kindred Institutions of New York City, Albany, Buffalo, and Chicago, with Notes on Some European Institutions* (Washington, DC: Government Printing Office, 1905); George Brown Goode, *The Genesis of the National Museum*. (Washington, DC: Smithsonian Institution, 1892); Thomas Hoving, *Making the Mummies Dance: Inside the Metropolitan Museum of Art* (New York: Simon & Schuster, 1993); Henry Fairfield Osborn, *The American Museum of Natural History: Its Origin, Its History, the Growth of Its Departments to December 31, 1909*. Second ed. (New York: The Irving Press, 1911); Douglas J. Preston, *Dinosaurs in the Attic: An Excursion into the American Museum of Natural History* (New York: St. Martin's Press, 1986); Marjorie Schwarzer, *Riches, Rivals, and Radicals: 100 Years of Museums in America* (Washington, DC: American Association of Museums, 2006); Smithsonian Institution and George. Brown Goode, *The Smithsonian Institution, 1846-1896, Three Centuries of Science in America* (New York: Arno Press, 1980); Francis Henry Taylor, *Babel's Tower; the Dilemma of the Modern Museum* (New York: Columbia university press, 1945).

¹⁷ David R. Brigham, *Public Culture in the Early Republic: Peale's Museum and Its Audience* (Washington, DC: Smithsonian Institution Press, 1995), 1.

¹⁸ Elean Hooper-Greenhill, *Museum and Gallery Education* (Leicester: Leicester University Press, 1991), 9.

curiosities, oddities, freaks, and waxworks. People went to the dime museum for titillation and amusement and were unconcerned with the veracity or authenticity of displays.¹⁹ Visitors were passive spectators inside the museum, rather than active learners. That is because the performers (such as Tom Thumb) put on a show and “lecturers” demonstrated or explained the curiosities to the visitor. A businessman, not a scholar, ran these “museums” with little concern about object lessons, classification, or pedagogy. As a result, the visitor simply left the dime museum amused. They may have gained a respite from the daily grind, but no greater understanding of science, art, history, or culture. While he did not invent the concept of the dime museum, P.T. and his American Museum (1841) represented the pinnacle of showmanship, humbug, and ability to cater to his working class audience with cheap, bizarre and exotic amusements. Barnum regularly rotated displays, advertised heavily, brought in collections and performers “on loan” and also “loaned out” from his museum. Museums later appropriated some of these techniques to attract visitors while maintaining their focus upon instruction and research. Even as cultural institutions popularized science, art, and culture, they stood in contrast to the dime museum because these museums required visitors to take a more active role by reading labels, studying guidebooks, making connections, asking questions, and standing in awe at the spectacular array of objects and specimens on display. The act of collecting, cataloguing, interpreting, and displaying, what scholars term “material culture,” is another part of the essence of the modern

¹⁹ In 1842, Barnum claimed to have the remains of a “Feejee mermaid” and a story to go along with it, to attract people into his museum. It was really the work of a taxidermist who fused the head of a monkey onto the abdomen and tail of a fish. For more about Barnum, see Neil Harris, *Humbug: the Art of P. T. Barnum* (Boston: Little, Brown and Company, 1973). For more on dime museums generally, see Andrea Stulman Dennett, *Weird and Wonderful: The Dime Museum in America* (New York: New York University Press, 1997). Dime museums in Chicago are discussed in Perry Duis, *Challenging Chicago: Coping with Everyday Life, 1837-1920* (Urbana: University of Illinois Press, 1998).

museum. Considering these activities, Fredric Lucas, the director of the American Museum of Natural History defined a museum as:

A collection of natural objects, or those made or used by man, placed where they may be seen, preserved, and studied. Neither the objects themselves, nor the place where they are shown, constitute a museum; this results from the combination of objects, place, and purpose, display being an essential feature.... And the manner in which they are arranged and labeled, to illustrate some fact in nature or in the history of mankind.²⁰

For directors, curators and philanthropists, the term “museum” at the turn of the twentieth century was understood in three ways: for the instruction of the visitor, for entertainment, and as places for research.²¹ The Chicago Academy of Sciences and the Field Museum embodied all of these by exposing the visitor to the latest scientific knowledge in aesthetically appealing and easily understandable ways that demonstrated a logical means of looking at the world through the collections on display.²²

George Brown Goode, Assistant Secretary of the Smithsonian Institution, addressing the 1888 meeting of the American Historical Association, argued that museums needed to continually design new exhibitions and revise older ones not only to reflect the newest research on the topic at hand, but also to meet the needs of visitors. He believed museums were in effect popular universities for the community (both locals and tourists as well). He wrote, “An efficient educational museum may be described as a

²⁰ Frederic Lucas, *General Guide to the Exhibition Halls of the American Museum of Natural History* (New York: American Museum of Natural History, 1920), 125. Scholars in American Studies and history examine physical objects in an attempt to understand culture. See Katharine Martinez and Kenneth L. Ames, *The Material Culture of Gender, the Gender of Material Culture*, First ed. (Winterthur, Delaware: Henry Francis du Pont Winterthur Museum, 1997); Ian M. G. Quimby, *Material Culture and the Study of American Life*. 1st ed. (New York: Published for the Henry Francis du Pont Winterthur Museum, Winterthur, Delaware [by] Norton, 1978); Thomas J. Schlereth, *Cultural History and Material Culture : Everyday Life, Landscapes, Museums*, American Material Culture and Folklife. (Ann Arbor, Michigan: UMI Research Press, 1990).

²¹ Winchell, “Museums and their Purposes, 43.” This resonates with contemporary ideas. The basic functions of any museum are collection, preservation, display, education, and research. See also: Barry Lord, “The Purpose of Museum Exhibitions,” in Barry Lord and Gail Dexter Lord, eds., *The Manual of Museum Exhibitions* (Walnut Creek, California: AltaMira Press, 2001), 13.

²² Field Columbian Museum, *An Historical and Descriptive Account of the Field Columbian Museum* (Chicago: Field Columbian Museum, 1894); _____, *Guide to the Field Columbian Museum with Diagrams and Descriptions*. 2nd ed. (Chicago: Field Columbian Museum, 1894); Walter B. Hendrickson and William J. Beecher, “In the Service of Science: The History of the Chicago Academy of Sciences,” *Bulletin of the Chicago Academy of Sciences* Vol.11 No. 4 (September 1972); Steven Conn, *Museums and American Intellectual Life, 1876-1926* (Chicago: The University of Chicago Press, 1998).

collection of instructive labels, each illustrated by a well-selected specimen.”²³ Goode was a leading figure in the museum world and did much to change the way in which museums categorized and displayed collections.²⁴ In his polemic, *The Principles of Museum Administration* (1895), Goode considered the relationship of the museum to the community as one of mutual benefit. Generally, museum builders understood “community” broadly in both geographic and demographic terms. In Chicago, the Chicago Academy of Science—and initially the Field Museum—were built primarily to serve the Chicago area and were not thought to be national institutions. As we shall see in the first chapter, these museums conceived of their community as a local one consisting of anyone who was inclined to visit the museum. This local community supported the museum by visitation and donation and in return the museum, as Goode wrote, “supplies a need which is felt by every intelligent community and which can not be supplied by any other agency.” Additionally, George B. Goode believed that “the museum is more closely in touch with the masses than the university” because it makes knowledge accessible through object lessons and free admission.²⁵ For the American city, Goode felt that museums were a necessary feature for uplifting and maintaining

²³ George Brown Goode, “The Museums of the Future” in Joint commission of the scientific societies of Washington D.C. et al., *A Memorial of George Brown Goode, Together with a Selection of His Papers on Museums and on the History of Science in America*, 261., and “Museum-History and Museums of History,” 72.

²⁴ Goode helped make the museums of the Smithsonian Institution more open and accessible. The Smithsonian was a closed-door place for the first decades of its existence because its directors believed visitors would interfere with scholarly and scientific research. By the 1880s and 1890s, it was becoming more of a “museum” and less of a research institution. See Edward P. Alexander, *Museum Masters : Their Museums and Their Influence* (Nashville: American Association for State and Local History 1983).

²⁵ George Brown Goode, “The Principles of Museum Administration” in *A Memorial of George Brown Goode, Together with a Selection of His Papers on Museums and on the History of Science in America*, 199. It is important to note that when Goode was writing in the 1880s and 1890s generally only elites or middle class people attended colleges or universities and a high school education was the highest level achieved by working class people and such a level of education, in terms of career opportunities was the equivalent of a bachelor’s degree today. In the mind of Goode and other reformers, museums could in effect, be a university for the people. See also: Sally Gregory Kohlstedt, “History in a Natural History Museum: George Brown Goode and the Smithsonian Institution.” in *The Public Historian* 10, no. 2 (1988): 7-26. It is interesting to note that in the 1860s the Chicago Academy of Sciences was associated with the Smithsonian Institution and sent specimens collected in the West and Academy reports to Washington.

culture, but also a mark of development toward the ideal state. This resonated deeply in Chicago where many business leaders believed easterners still considered it a rugged “western” town even after hosting the Exposition.²⁶ Chicago’s natural history museums were a symbol of “polish” and urbanity and that Chicago transcended its frontier image and was an important center of commerce, culture, and information.

What is natural history? The focus of this field of study has changed with time. In the eighteenth and nineteenth centuries it encompassed what we recognize today as all of the “life sciences;” biology, botany, zoology, for instance, but also taxonomy—the classification of living things.²⁷ Natural science was largely a science of observation with the naked eye (and aided perhaps by a microscope or telescope) and the classification of living things based upon observable physical differences. At the dawn of the twentieth century, natural history was reshuffled into something different as science generally adopted experimental approaches over observational ones. Natural history remained associated with observation and classification and thus appropriate to the museum environment. In many ways natural history (naturalists were the practitioners) was a

²⁶ As an example of this sentiment, see: Frederic Ward Putnam, “Address to Commerical Club of Chicago,” (Chicago: Field Museum Archives, 1891). Several scholars have described this perception of Chicago, for example: Robert Knutson, “The White City: The World’s Columbian Exposition of 1893” (Ph.D. diss., Columbia University, 1956)., Donald L. Miller, *City of the Century : The Epic of Chicago and the Making of America* (New York: Simon & Schuster, 1996); James Burkhart Gilbert, *Perfect Cities : Chicago’s Utopias of 1893* (Chicago: The University of Chicago Press, 1991); Helen Lefkowitz Horowitz, *Culture & the City: Cultural Philanthropy in Chicago from the 1880s to 1917* (Chicago: University of Chicago Press, 1976); Kathleen D. McCarthy, *Noblesse Oblige : Charity & Cultural Philanthropy in Chicago, 1849-1929* (Chicago: The University of Chicago Press, 1982).

²⁷ The term “natural philosophy” was also used, particularly in the eighteenth century. Natural philosophy means the study of the natural world to determine God’s designs. For studies of the field’s history see Louis Agassiz, *Essay on Classification*. 2004 ed. (New York: Dover, 1859); R.G. Collingwood, *The Idea of Nature* (New York: Galaxy Books, 1960); Peter Dear, *The Intelligibility of Nature: How Science Makes Sense of the World* (Chicago: The University of Chicago Press, 2006); Richard Fortey, *Dry Storeroom No. 1: The Secret Life of the Natural History Museum* (New York: Vintage Books, 2008); Steven Jay Gould, *Dinosaur in a Haystack : Reflections in Natural History* (New York: Harmony Books, 1995); Gregory Nobles, “John James Audubon, the American ‘Hunter-Naturalist.’ A New Species of Scientist for the New Nation,” *Common Place* 12, no. 2.5 (2012); Ralph O’Connor, *The Earth on Show: Fossils and the Poetics of Popular Science, 1802-1856* (Chicago: The University of Chicago Press, 2007); Bernard V. Lightman, *Victorian Popularizers of Science: Designing Nature for New Audiences* (Chicago: The University of Chicago Press, 2007); Peter Raby, *Alfred Russel Wallace: A Life* (London: Chatto and Windus, 2001); Monte Reel, *Between Man and Beast: An Unlikely Explorer, The Evolution Debates, and the African Adventure That Took the World by Storm* (New York: Doubleday, 2013); Richard Rhodes, *John James Audubon: The Making of an American* (New York: Alfred A. Knopf, 2004) Harriet Ritvo, *The Platypus and the Mermaid*; Rebecca Stott, *Darwin’s Ghosts: The Secret History of Evolution* (New York: Spiegel and Grau, 2012); Kevin Thomson, *The Legacy of the Mastodon: The Golden Age of Fossils in North America* (New Haven: Yale University Press, 2008); Donald Worster, *A Passion for Nature: The Life of John Muir* (New York: Oxford University Press, 2008); Andrea Wulf, *The Invention of Nature: Alexander von Humboldt’s New World* (New York: Vintage Books, 2015).

holistic enterprise. It was concerned with describing whole organisms, environments, and phenomena. Experiment-based science (conducted by professors and students enrolled in newly established graduate programs), with a very narrow and specific focus (biologists often specialize on a particular organism), became the mainstay of universities. The second chapter examines the professionalization of natural sciences and museum work and the dialog between museum experts and the public.

Exhibition—display—in this project refers to telling stories through objects and images in a manner that is at once both objective and subjective.²⁸ The third chapter explores the concept of display as it developed, almost in tandem, in department stores and museums. Veteran store window designer Jim Buckley defined display as “a language of symbols, signs and allegories, dismissing the word for the object as far as it is useful to do, prompted by the general activity of **indication** [emphasis in original]. This is the fattest noun behind the display scene.”²⁹ In other words, artifacts and pictures tap into the viewer’s acquired knowledge, their desires, dreams, and curiosity. In a “less is more” fashion, display encourages the viewer to enter the store or continue to the next gallery. In this regard museum exhibits and department store windows have a critical element in common: they have to convey messages very quickly and maintain the viewer’s attention. It is no coincidence that museum displays and store windows became more sophisticated at roughly the same time. In fact, some of the same people were involved in building displays for stores and museums.

²⁸ Generally in museums today “exhibit” refers to a specific installation or display and “exhibition” is a set of individual exhibits that work together to tell a story.

²⁹ Jim Buckley, *The Drama of Display: Visual Merchandising and Its Techniques* (New York: Pellegrini and Cudahy, 1953), 18.

I am borrowing a useful term coined by historian Steven Conn, “object-based epistemology,” to describe the approach museums took toward displaying specimens in the late nineteenth century. Simply put, curators believed that objects could tell stories to the untrained eye. In this view, objects were “not precisely transparent, but neither hopelessly opaque. The meanings held within objects would yield themselves up to anyone who studied and observed the objects carefully enough.”³⁰

Finally, this dissertation grapples with the often-problematic term, the “public.” While I am careful to recognize that there is no simple homogenous group that neatly fit into such a label, Chicago’s museums sought to attract people from all walks of life. This group loosely constitutes a potential museum-going public, consisting of people without any sort of specialized knowledge about science or nature. They are, in effect, laypeople. When appropriate, I will divide this generalized group into different “publics:” middle class, working class, immigrants, and tourists. Adults with specialized knowledge, elite or bourgeois amateur naturalists (there are fewer over time) will be distinguished from ordinary visitors. Children will be treated separately, mostly in the context of school extension programs and class visits. We will see how exhibits were increasingly designed to communicate messages to broader base of people. As the story unfolds, I show how Chicago’s natural history museums were creating a new public of museumgoers, one drawn into the doors of the museum and one also interested in nature and science. I explain how this public made the museum experience their own and did not necessarily appreciate or understand the object lessons as envisioned by curators. I come to view the notion of the museum-going public in a similar vein as Roy Rosenzweig and Elizabeth Blackmar in their roughly contemporaneous study of New

³⁰ Conn, *Museums and American Intellectual Life*, 4.

York's Central Park. They distinguish a "cultural public" of users from a "political public" of voters, park administrators, and others who seek to regulate the park's physical space as well as people's interactions with it. Very early on in the park's existence, the genteel founders who constituted the original political public found their creation changed by people who made a place for themselves in the park and transformed it to suit their needs and uses.³¹

What unfolds in the following four chapters is a micro history of natural science exhibition and education in Chicago from the end of the nineteenth century until the Second World War. The first chapter presents an overview of early American museums and sets the stage for the development of the institutions in Chicago. The general institutional history of the Chicago Academy of Sciences and Field Museum unfolds from the 1890s through the 1940s. In a twist of *Field of Dreams*, I ask if you build a museum, who will come? This chapter examines who the audience was, both intended and actual, during this period.

Chapter Two places Chicago's natural history museums in the context of the Progressive Era and the process of professionalization. The first generation of people who worked in Chicago's museums were amateur naturalists. By the 1920s, museum staff tended to be university-trained—either in a scientific discipline—or in new museum studies programs. In this dynamic period of expertise supplanting experience in so many areas of society, what was the relationship of museum staff as experts and a lay audience? Here we consider Chicago's museums as a center for scientific information that reached beyond the Chicago area. This chapter also discusses, in the context of

³¹ Roy Rosenzweig and Elizabeth Blackmar, *The Park and the People: A History of Central Park* (Ithaca, New York: Cornell University Press, 1992).

expertise, how specimens were at once valued and used as objects of scientific study, teaching tools, and as commodities.

The third chapter examines the evolution of natural history museum exhibition. This chapter builds on the themes of expertise and professionalism in the previous chapter and the discussion of museum visitors in the first, to show how displays needed to change to keep up with the times. Natural history museum exhibits became increasingly sophisticated—at first by a conscious effort in the 1890s to distinguish themselves from dime museums or sideshows—and later by competition from movies and the dynamic exhibits of the 1930s world’s fairs and new institutions such as the Museum of Science and Industry. This chapter scrutinizes how visitors reacted to natural history exhibits and what the museums intended the lessons of the exhibits to be.

The last chapter is a study of museum education for children and adults.³² The nature study movement and school loan programs were new ways of teaching children—urban children especially—about nature in the early twentieth century. The story of how Chicago’s museums pioneered work with children in the schools, parks, and trails is told here. This was done before there was a discipline of museum education and the Field Museum pioneered a citywide, systematic school extension program (that continues to operate). In the 1920s and 1930s, museum education took a more formal place in the museum world and a dedicated staff created programs for children and adults within the museum. In a similar vein as the third chapter I consider the lessons intended by museum staff and other materials in the programs as well.

³² Museum education in its broadest sense means many things today from specific public programs to all forms of learning that happens in the museum. Today, the term “public program” is usually applied to programs for children and adults and “museum education” refers to school programs. Informal learning is the present all-encompassing term for education that happens in museum. In this dissertation, museum education refers, as it did a century ago to mean dedicated programs or activities for adults and/or children.

I. Opened for the Public: The Development of Natural History Museums in Chicago

Two men moved cautiously among crumbled bricks, torched beams, and twisted metal. Naturalist Eliphalet W. Blatchford and William Stimpson, Director of the Chicago Academy of Sciences, were speechless at the sight of the ruins of their institution, engulfed in the conflagration of the Great Chicago Fire of 1871. Despite all of the devastation they hoped to find the Academy's most precious items safe inside a cast iron vault. One can only imagine their sadness when they discover the safe melted in the inferno. Lost in the fire that destroyed much of downtown Chicago were the journals and valued specimens of an intrepid explorer along with the entire collection and library of the Chicago Academy of Sciences.¹ It says much for the can do attitude of Chicagoans that these men resolved to rebuild their institution at the first possible opportunity. They had to wait twenty years for this resolution to be fully realized, but when it did, it marked the start of Chicago as an important center for innovative museum display and nature study programs. In 1871, however, all the men could do was mourn the loss and hope for the future.

1.1 Overview of Early American Museums

Chicagoans and the study of nature have always been closely linked. Farmers on the prairie were naturalists' advance guard. They reported in letters, newspapers, and almanacs the animal and plant life of the frontier. They also experimented with techniques to work the fertile, but tough prairie and shared their efforts with interested parties. Such patterns of observation and information exchange were nothing new. Since colonial times, Americans—farmers and planters in particular—were interested in nature.

¹ Hendrickson and Beecher, "In the Service of Science," 18.

By 1800, several decades before Americans headed for the prairie, most of the major eastern cities had a scientific association of one kind or another.

The first museum in North America was established before the Revolutionary War in Charleston, South Carolina. In 1773, the Charleston Library Society collected specimens of local plants, animals, and minerals. The society sought to assemble a material history of South Carolina. Over time the society also obtained a telescope, a camera obscura, and elaborate maps and globes (in addition to natural history materials). Nearly a century later in 1850, the College of Charleston acquired the collection. As Marjorie Schwarzer summarized these early efforts, “During the next 100 years most public exhibits, often no more than a case of arrowheads or medical instruments, took place largely in the basements of libraries and colleges. Most early nineteenth century American museums did not call themselves museums at all. They operated as antiquarian societies, open only to their members or admitted by secret vote. These were private collections or esoteric amusements rather than public places of education.”² The general public was not involved.

The most prominent and the oldest of America’s institutions was the American Philosophical Society (1743), which counted Benjamin Franklin among its founding members. While not exclusively a scientific organization, the Society gave public lectures and talks and published pamphlets of the scientific work of its members, but it did not operate a museum. That is until Society member and artist Charles Wilson Peale set up a small display of paintings and “natural curiosities,” first in his home (1786), and later in Independence Hall (1802), did Philadelphia have a permanent museum. Peale’s

² Marjorie Schwarzer, *Riches, Rivals, and Radicals*, 8. In 1950 these collections became part of the newly incorporated Charleston Museum and therefore the historical primacy is unbroken. See also: Alexander *Museums in Motion: An Introduction to the History and Functions of Museums*. 1996 ed. (Walnut Creek, California: AltaMira Press, 1996); Susan Scott Parrish, *American Curiosity: Cultures of Natural History in the Colonial British Atlantic World* (Chapel Hill: The University of North Carolina Press, 2006).

exhibits proved popular and with support from the Society his museum collections grew. Although he was primarily a painter (he painted portraits of most of the prominent people in the early republic) he was an astute naturalist as well. Peale's collection is regarded as the first museum in America open for the public. Years before Audubon, Peale painted birds, mammals, and plants with scientific accuracy and aesthetic appeal. Peale's collection is regarded as the first museum in America open for the public. Years before Audubon, Peale painted birds, mammals, and plants with scientific accuracy and aesthetic appeal. Peale arranged his specimens using the Linnaean classification system, making his museum among the very first to do so. He was also a pioneer in taxidermy (required for his paintings) and most of the animals in his museum were mounted in realistic positions. Perhaps his most ambitious exhibit was a reconstructed mastodon skeleton. Peale rushed to purchase it from the farmer who uncovered it and oversaw the excavation of the animal before installation in the museum. He immortalized the project in a painting, *The Exhumation of the Mammoth* (1806-1808) and exhibited the canvas alongside the skeleton.

Peale's museum is the progenitor of American art and natural history museums for its sophistication and the fact that the displays were geared toward a popular audience. He encouraged visitors of all kinds—learned and lay, rich and poor, to come to his museum. As historian David Brigham demonstrated, Peale believed nature, science, and art was uplifting to all people and his museum sought to show people the complexity and beauty of the natural world. Peale's museum was an institution supported by the Philadelphia elite through subscriptions (memberships) and donations. Subsequently the well-to-do were the most frequent visitors to his museum in part because they wanted to

see what their contributions rendered but also because they had the leisure time to go, especially during the afternoons. Nevertheless, Peale welcomed visitors from across the social spectrum and made an effort to attract Philadelphia's working people. He hoped his museum would "serve the needs of the unwise as well as the learned." The museum was open in the evenings and lectures scheduled to accommodate workers and were promoted as "handsomely lighted on Tuesday and Saturday evenings. "³ In the late eighteenth century such democratic thinking had its limits and while the one-time admission fee was the least expensive way to visit the museum many of the "lower sort" in the parlance to the time, were the least frequent visitors. Some were unwilling or unable to pay for admission while others did not feel welcome. While a number did come to the museum, the names and the experiences of laboring class visitors were not recorded for posterity.

Peale's Philadelphia Museum remained successful until his death. His sons, Rembrandt and Titian attempted to establish a similar museum in Baltimore, but it never caught on there. In the 1840s the Peale brothers sold the Philadelphia collections to the newly established Harvard's Museum of Comparative Zoology (a university museum) and Baltimore's collection to Scudder's American Museum, a dime museum, which was subsequently sold to an enterprising showman, P.T. Barnum.⁴ Well-known for his hoaxes, or "humbugs," Barnum sought to bring his business acumen to a higher calling. His business successes reduced his need for humbug to spur profits and the sensation caused by singer Jenny Lind, the "Swedish Nightingale"—in the 1850s, proved for Barnum that high culture could generate profits too. His American Museum continued to

³ Brigham, *Public Culture in the Early Republic*, 5.

⁴ For more about Barnum, see Neil Harris, *Humbug: the Art of P. T. Barnum*.

offer spectacular entertainments that drew in crowds but he was also sensitive to new trends in science and popular education. Barnum claimed that he did not defraud the public by his humbugs; rather he gave them twice their money's worth. People were lured into his museum by the sensational (one can argue that museums do so today too with blockbuster traveling exhibitions) but once inside they could not fail to be interested in—if not learn from—the scientific collections. In the midst of the Civil War, Barnum sponsored expeditions to bring back unknown or unusual animals. As Joel Orosz noted, “These costly forays made the museum’s collection, by the end of the decade, a fascinating trove for the layman and a valuable resource for the professional. The expeditions were mounted not merely to provide popular attractions, for Barnum could easily have found more spectacular offerings at a lower price. They had a more important purpose: the promotion of education and science.”⁵

Historian Joel Orosz argued that despite his reputation as a showman, Barnum understood the potential of his museum to be educational as well as entertaining. On the eve of the Civil War, Barnum began reorganizing the collections. He hired naturalists to improve the labeling and layout of the specimens and was always on the lookout for new exhibits. As the natural history collection grew, Barnum became more and more explicit about its value to the people, especially children. An 1866 brochure echoed Charles Wilson Peale’s ideas in its evocation of the value of natural history:

There is no study that is more important to the youth of a rising generation, or to adult age, than that of Natural History. It teaches man his superiority over brute creation, and creates in his bosom a knowledge of the wisdom and goodness and omnipresence of a supreme and All-Wise Creator...hence it became necessary that man should study the history of animated nature, make himself master of a science on which his own happiness

⁵ Joel J. Orosz, *Curators and Culture: The Museum Movement in America, 1740-1870* (Tuscaloosa: University of Alabama Press, 1990), 224.

depended, and when developed, could not fail to advance the great causes of civilization and learning.⁶

Like Peale, Barnum's ideas stressed both the educational and the spiritual aspects of natural history. If the American Museum was used as a school, "the people could learn much that would be useful in their lives, while simultaneously having a direct religious experience. The American Museum could function on three levels: as a place of entertainment, as a school, and as a temple."⁷

In the mid-1860s Barnum was developing plans to build a "high quality" museum completely devoted to serious natural science and to be open without charge to the public. Historians dismissed Barnum as a huckster and have not appreciated the fact that his "search for respectability caused him to move toward a notion of service to science and promotion of education. Swept along on the cultural currents, Barnum's museums were evolving into educational institutions until two disastrous fires destroyed them in the late 1860s."⁸ Barnum tried to reestablish the American Museum, but the plans never came to fruition. In the 1870s he became financially involved with circuses and eventually partnered with James A. Bailey and ran a traveling circus that still carries his name.

1.2 The First Public Museums

Unlike Europe, in the United States, governments—be they local or federal—had little interest in creating or maintaining collections of art or natural science. American museums, both large and small, were largely the product of efforts by private individuals

⁶ Quoted in Orsoz, *Curators and Culture*, 224-225.

⁷ Ibid., 225.

⁸ Ibid., 221. A Confederate saboteur started a fire that threatened to destroy the museum during the Civil War.

to establish them.⁹ Jeffrey Abt noted that the formation of museums was a profound example of the associational trends in American life that Alexis de Tocqueville observed in the 1830s.¹⁰ The exception that proved the rule on the federal level is the Smithsonian Institution. In 1835, James Smithson, an English scientist, bequeathed monies to the United States Congress to “found in Washington, under the name of the Smithsonian Institution, an establishment for the increase and diffusion of knowledge.”¹¹ After a dozen years of congressional hemming and hawing, the nascent institution took shape as a research center and repository of historically important papers and artifacts. Natural science specimens soon followed and laid the foundation for a museum display collection. Over the course of the nineteenth century the Smithsonian expanded its collections and displays to include ethnology, archaeology, and art.

After the Civil War, Americans looked to the West and to an industrial future. The changes in American society wrought by the war included: industrialization, urbanization, periodic stock market collapse, business scandals, poverty (both rural and urban), the influx of non-English speaking immigrants, labor struggles, and political corruption. During the Gilded Age, the processes of industrialization, mineral exploitation, and land speculation made the owners and investors in these operations wealthy. There was an enormous gap in wealth and increasing exploitation of workers and of the poor by the rich. Some of these individuals spent their fortunes collecting rare books and manuscripts, works of art, and natural science specimens. Those who

⁹ For more on philanthropy in the antebellum era, see Peter Dobkin Hall, *“Inventing the Nonprofit Sector” and Other Essays on Philanthropy, Voluntarism, and Nonprofit Organizations* (Baltimore: The Johns Hopkins University Press, 2001).

¹⁰ Alexis deTocqueville wrote in *Democracy in America*, “Americans of all ages, all conditions, and all dispositions constantly form associations.” Quoted in Jeffrey Abt, “The Origins of the Public Museum,” in Sharon MacDonald ed., *A Companion to Museum Studies, Companions on Cultural Studies* (Malden, Massachusetts: Blackwell, 2006), 130.

¹¹ P.H. Oesher, *The Smithsonian Institution* (Boulder: Westview Press, 1983), 15.

possessed the wealth to acquire these collections also possessed civic influence and connections to civic and political leaders with whom they collaborated to found cultural institutions. In part to cope with these challenges, in some cities, civic leaders relied upon public schools and philanthropists' museums to help promote what they considered moral values in their communities. As historian Neil Harris, writes, "It is difficult to overemphasize the stress they placed upon their pedagogical functions some 100 years ago, and the benefits they promised for industrial production, scientific curiosity and historical consciousness."¹² Initially located primarily in the older Northern states, philanthropists endowed museums of history, art, and natural science. These institutions had small collections that lacked depth and quality (in the case of art museums, the early collections were mainly copies and casts of European art) and stressed their educative function over breadth of collection or entertainments (in the vein of Barnum). They offered free public lectures on a range of topics—especially expeditions—and geared them toward public school teachers to encourage their usefulness in the curricula. In the late nineteenth century the typical American museum was a collecting institution with exhibits arranged in a linear (or chronological) fashion.¹³

Their founders and benefactors imagined them as a place for the elite and privileged to teach the nation's working men and women what it meant to be cultured, civic minded Americans. Predictably, there was a strong element of class bias in the design, scope, and exhibition of museum collections. Historical collections celebrated leaders (who were generally white, male and protestants), elite aesthetic choices favored the Old Masters and Western European art, and natural science at once praised the

¹² Neil Harris, "A Historical Perspective on Museum Advocacy," *Museum News* 59, No., 3 (November/December 1980): 76.

¹³ These displays were often hierarchical with arrangements that depicted mammals as the "highest" life form, American living things as larger or fiercer than European life forms, or Western art as the pinnacle of human expression.

unhampered wilderness but also celebrated people's mastery of the natural environment. With hindsight, they can be interpreted as paternalistic, somewhat moralizing institutions. Such was the concept of uplift – a belief by some elites and reformers (see chapter two) that exposure to beautiful things such as fine art or nature would inspire immigrants and working class people to better themselves.¹⁴ Broadly speaking, their mission was, at least in part, the improvement of society by having people view an explanation of art or historical artifacts, scientific specimens or technological marvels. Museums' goals were, at the same time, both idealistic and practical—not unlike the way the nation liked to see itself, then and now. As Marjorie Schwarzer concluded, “While educating the populace was always one of the stated goals of the museums founded during the nineteenth century, there was also the less altruistic goal of pride.”¹⁵ There were three levels of pride: individual, local, and national. At the time there was no government money to support such efforts, and these museums were financed almost entirely by their founders. Establishing an institution was at the same time an act of philanthropy but also of vanity. It ensured a legacy for the founder and represented a great increase in social stature.

There was also an American sense of inferiority compared to Europe. Jeffrey Abt argued that the “disproportionate emphasis on creating art museums” was due to their concerns about the “youth and inferiority of American culture.”¹⁶ It seemed American arts and letters were not as sophisticated as those of Europe, and to be competitive on the world stage Americans needed to catch up. They needed exposure to European art. In

¹⁴ For example, the notion of uplift explains not only why Hull House held painting classes and lent tenement dwellers facsimiles of fine art, but also the utopian ideals of George Pullman's company town. Although the methods and the ultimate ends of Jane Addams and George Pullman were starkly different, the notion of beauty as a morale booster or source of refinement were similar.

¹⁵ Schwarzer, *Riches, Rivals and Radicals*, 10. For more about cultural philanthropy see: Horowitz, *Culture & the City*; McCarthy, *Noblesse Oblige*; _____, *American Creed : Philanthropy and the Rise of Civil Society, 1700-1865* (Chicago: The University of Chicago Press, 2003).

¹⁶ Abt, “The Origins of the Public Museum,” 130.

the 1870s and 1880s, the major art museums were founded including: the Museum of Fine Arts in Boston and the Metropolitan Museum of Art in New York City (both founded in 1870); Philadelphia Museum of Art (1876); Art Institute of Chicago (1879), and the Detroit Institute of Arts (1885). Art museum visitors were expected to reap practical and intellectual awards. “Displays of art,” Marjorie Schwarzer wrote, “were supposed to raise the level of Americans’ aesthetic tastes. In the words of novelist Henry James, museums would display ‘not only beauty and art and supreme design, but history, fame and power.’” Often the collections of science and anthropology demonstrated the evolution of life and the belief that western civilization embodied human progress. Nevertheless, Schwarzer argued, “To be fair, many of these new museums were not entirely lecturing in tone, nor were they mere tombs of curiosities and relics. The best of them were at the forefront of a young nation’s efforts to demonstrate its material and intellectual progress.”¹⁷

In Europe, the modern public museum developed out of a hereditary aristocratic society often uncomfortable with commerce and bolstered by an historically rigid class structure and guarded access to artistic works and scientific collections. By contrast, businesses had long been a fact—although often a contested one—of life in America. Success in business meant the creation of a moneyed aristocracy (from the first Southern planters to today’s technology moguls) that represented the upper crust of American society and was not limited by birthright as it traditionally was in Europe. Indeed, this nation of immigrants was always, even from colonial days, driving to get ahead financially. American museums, much more than their European predecessors, have been continuously preoccupied with justifying their usefulness and value to society (especially

¹⁷ Schwarzer, *Riches, Rivals and Radicals*, 10.

when people have to pay an admission fee to enter or when local tax money is used to support the institution and during fundraising campaigns). This in part explains, why, even in the present day, museums work to bridge the gaps between elite and popular cultures. As we will see, during the early twentieth century, American museums became accountable to larger constituencies. This trend continued and in the twenty-first century, a museum, as Marjorie Schwarzer notes, often is “expected to be as cost-effective as a business for serving as an educational resource, a civic institution and community partner—usually all in the same day.”¹⁸ Today’s museums, as much as those a century ago, embrace some apparent contradictions as they attempt to define themselves for many publics. In some ways they are the opposite of the American character. Museums are at once charitable nonprofit organizations amidst a marketplace culture, but also function as places of memory, reflection and learning in a nation that stresses immediacy (not to mention standardized testing), and as champions of tradition in a land of ceaseless innovation. As we shall see, there were different uses of the museum by the public and not always what the founders or curators intended.

In the late nineteenth century, American museums were created as non-governmental, not-for-profit institutions, usually overseen by a board of trustees composed of educational, business, and political leaders. In some cases, states assisted these efforts by enacting legislation to enable non-profit corporations so that they could pool resources to buy land and erect buildings for their museums. While such actions reduced the red tape, there was virtually no input or assistance when it came to acquiring collections or meeting operating expenses. The vast majority of American museums

¹⁸ Ibid., 7.

were (and still are) largely privately governed and funded.¹⁹ This was true of the institutions that were born, or re-born in Chicago during the 1890s.

1.3 A Gentleman's Naturalists Club: The Chicago Academy of Sciences

The Chicago Academy of Sciences is nearly as old as the city of Chicago itself. Founded in 1857, the Academy began as an association of people (mostly men) with a strong interest in nature. Led by naturalist Robert Kennicott, the founding members (paid single contributions of \$1,500) were largely made up of well-to-do folks: doctors, lawyers, and businessmen; but there were also a number of farmers, politicians and later, teachers.²⁰ The Academy was primarily a gentleman's club, where members met to discuss science and nature. An exhibition of natural science specimens was almost an afterthought. The first location was a simple office suite at Clark and Lake, but later, they found a larger space in the Metropolitan Block. After a fire seriously damaged much of the collections, the Academy built a permanent fireproof museum with plenty of space for display of specimens on hand, with plans to add more display of specimens collected by members. In 1868, the Academy moved into this new museum building at 263 Wabash Avenue. Unlike the previous locations, this museum was intended for the general public, not just members of the Academy. Even though it was dubbed "fireproof" it was this museum that succumbed to the intense heat and flames of the Great Chicago Fire of 1871.²¹

¹⁹ Today, Chicago's museums are partially funded by the Chicago Park District through property taxes and they must have free or discount admission days for residents to receive funds.

²⁰ The society was initially founded as the Chicago Academy of Natural Sciences, but this was changed in 1859 to Chicago Academy of Sciences when it was formally incorporated under Illinois law. See Ronald S. Vasile, "The Early Career of Robert Kennicott, Illinois' Pioneering Naturalist," in *Journal of the Illinois State Historical Society*, vol. 87 (1994): 150-70; C.H. Gordon, "The Chicago Academy of Sciences," *Science*, Vol. 21, No. 537 (May 19, 1893): 272.

²¹ Letter, William A. Nason to Frank Baker, October 5, 1897. Frank Baker Correspondence, CAS; Jeannette Lowrey, "Science in Chicago," *The Scientific Monthly*, Vol. 65, No. 6 (Dec., 1947): 445.

At the heart of the Chicago Academy of Science was Robert Kennicott, an explorer, naturalist, and “scientific” farmer. The Kennicott family owned a large acreage outside of the city (in what today is Glenview) known as The Grove, where Robert and his relatives made serious study of local wildlife and experimented with various agricultural techniques. In the mid-nineteenth century, farmers, and prairie farmers in particular, sought the most efficient way to shape the land and grow crops for an expanding market. In this period John Deere developed the improved steel plow to tackle the difficult prairie soils. The research the Kennicotts and others conducted was shared through newspapers, almanacs, and journals such as *Prairie Farmer*.

The Kennicotts were well connected. Robert was chosen to lead an expedition to survey the Alaska Territory. His expedition was ostensibly under the auspices of the federal government, but carried the flag as it were, for the Academy of Sciences and the Smithsonian Institution. Kennicott was to collect two of each specimen: one for the Academy and the other for the Smithsonian. The journals and specimens from this expedition were stored in the vault in Chicago in 1871.

In a way, the Academy never recovered from this loss. The museum’s director, W.S. Stimpson, was despondent by the loss of the museum and died, some said with a broken heart.²² A decade passed before they collected enough new material to exhibit before the public. As Chicago rebuilt after the fire, business and civic leaders wanted to show people that the city was emerging stronger and better than it was before. To reassert regional importance, Chicago’s leaders played host to an exhibition of trade goods and the arts from the Midwest. First exhibited in the business district, it proved

²² Hendrickson and Beecher, “In the Service of Science,” 19.

popular. The organizers felt that an impressive—and more permanent space was needed to maintain interest and rotate fresh exhibits. The result was a glass and iron structure, modeled after London’s Crystal Palace, (home of the 1851 International Exposition) built amidst the lakefront park (later Grant Park), the Illinois Central railway, and Michigan Avenue (presently the site of the Art Institute of Chicago). Completed in 1873, The Inter-State Exposition Building became a vibrant meeting place for ideas, inventors, businessmen, and artists.²³ People from all over the Midwest came to see the displays—including those of the Chicago Academy of Sciences.

Initially, the Academy was pleased with its new home. There was finally a place to exhibit the collection as it was rebuilt after the fire loss. They were able to gauge what caught visitor’s attention and what types of displays were effective. However, the exposition building proved to be less than ideal. It was too crowded with exhibits and people. The natural science displays competed with those of consumer goods and noisy machinery. The roof tended to leak, placing fragile specimens at risk, a problem made more difficult by the lack of funds for sufficiently sturdy cases. The structure relied upon natural light, which was fine for the day, but made it difficult for staff to work after hours. There was no room for a preparation space, let alone offices, so Academy staff and members were physically separated from the display collection much of the time. To complicate matters, while the space in the building was basically donated to them, they did not benefit from the admission charges to the building. In short, they were out of place in what was primarily a trade show.

²³ For more about the Interstate Exposition Building See Emmett Dedmon, *Fabulous Chicago* (New York: Athenaeum, 1981), 164-165; David Lowe, *Lost Chicago* (New York: American Legacy Press, 1985), 107, 126; Paula R. Lupkin, “Places of Assembly” <http://www.encyclopedia.chicagohistory.org/pages/333.html>. Accessed November 1, 2016; Harold M. Mayer and Richard C. Wade, *Chicago: Growth of a Metropolis* (Chicago: The University of Chicago Press, 1969), 122.

Exposition organizers offered to build a sturdy brick addition to the glass building as a suitable permanent home for the Academy. The trustees were interested, but the terms of the offer were not amenable overall. The proposal required the Academy to put forth money they did not have and the plans for the space were deemed too small for future needs. They declined the offer but continued to fret about the future of a museum for the Academy. Later, the trustees also voted down a proposal to transfer the scientific collections to the new University of Chicago. Meanwhile, city authorities finalized plans to raze the Inter-State Exposition building in preparation for building what would become the Art Institute museum.

In 1891, help came in the form of a lumber baron's ego.²⁴ Matthew Lafflin earned his fortune harvesting the woods of the Great Lakes forest and shipping lumber west to prairie areas where construction quality wood was in high demand and short supply. He put some of his time and money into civic affairs, serving on the boards of fledgling cultural and civic institutions. Getting on in age and concerned about how his life and work (and wealth) would be remembered, he approached the governing board of Lincoln Park with his plans for a memorial statue. The park commissioners had grown weary of monuments and memorials. Lincoln Park was the site of one the city's early cemeteries, which had not been completely removed until the 1870s. Located close to the lakeshore on swampy land, the bodies and caskets frequently rose from the ground. Residents of the growing neighborhood bordering the park worried about the cemetery. With civic leaders backing it, they formed a commission charged with relocating the cemetery and creating a lakefront park. Named in honor of the late President, the park

²⁴ Hendrickson and Beecher, "In the Service of Science," 23-25.

was to be a recreational heaven for all Chicagoans and a true public place—not to be marked by the statue of a local lumber baron.²⁵

The Lincoln Park Commissioners took inspiration from relevant events that transpired in New York City. City planners, with funding from local millionaires had done something very similar in Manhattan and cleared a cemetery and old houses and other structures to create what they hoped was the most magnificent public park in America.²⁶ Central Park was to be a haven for healthy relaxation and recreation for Manhattanites amidst the hustle and bustle of a nineteenth century city. Central Park would be home to a European-style zoological park as well as a new natural history museum with aspirations of greatness. Moneys from private philanthropists and public coffers endowed the American Museum of Natural History in 1869. The board of trustees and advisors included the mayor and many alderman but also a who's who of influential family names including: Astor, Morgan, and Roosevelt. This was to be the anchor of a cultural center in New York City that included Central Park, the Zoo and subsequently, the Metropolitan Museum of Art.

By the time Lafflin sought a memorial, New York's cultural center was becoming well established and Lincoln Park's commissioners hoped to emulate it. They approached Lafflin and the Academy of Sciences with a compromise: he would build a classical style building with his name etched in stone, while the Academy had use of the building as a permanent museum (with office and workspaces). In return, the park commissioners, who also had space in the building for offices, would be responsible for

²⁵ See Cronon, *Nature's Metropolis*; Paul Heltne, "Chicago Academy of Sciences," <http://www.encyclopedia.chicagohistory.org/pages/237.html>; Douglas Knox, "Lincoln Park" <http://www.encyclopedia.chicagohistory.org/pages/744.html>. Accessed November 1, 2016.

²⁶ See Rosenzweig and Blackmar, *The Park and the People*.

the maintenance and upkeep of the building.²⁷ This agreement was amenable to all and ostensibly Chicago had for the first time a public museum (Lincoln Park was supported by property taxes) situated in a large public park.

This was clearly a good move for the Academy. It gave them a purpose-built structure that they could not afford on their own and they were located in a good geographic position within the city. The Northside residential areas were growing and many made use of the park. A steady source of visitors lived close by. There were a number of schools on the Northside of the city and the Academy hoped from the early years in Lincoln Park to teach these children about nature. The location was well chosen too. Located in the park on Clark Street at Armitage—two major thoroughfares—it would be easily accessible to other Northsiders by streetcar.

The move was fortuitous in another way as well. In 1890, a coup d'état brought new leadership to the Art Institute of Chicago. The institute operated a small, but rapidly growing museum and school in a Romanesque building on Michigan Avenue, nearly opposite the Inter-State Exposition building. The new leadership of the Art Institute was involved with Chicago's bid to host a world's fair, set to honor four hundred years since the arrival of Columbus. When Chicago was chosen as the host city and a location in Jackson Park settled upon, the Art Institute managed a deal whereby in exchange for permission from the city to build a new museum building, this structure would serve to house events or exhibits connected with the world's fair. Permission was granted for the museum to be built on the site of the Inter-State Exposition Building (who's backers were now involved in the world's fair). Had the Academy remained there, it would have been

²⁷ The building was modest in size: measuring 132 feet long, 61 feet wide, and 68 feet high. The long frontage faced Clark Street and the streetcar lines that provided easy access to visitors. Office and workspace was located on the lower floors and basement levels. Almost from the beginning, the museum staff dreamed of building additional wings to the structure. In 1999, the museum moved to a new location as the Peggy Notebaert Nature Museum and the Lafflin building presently houses Chicago Park District offices.

homeless once again. Thus by the spring of 1893, Lafflin had his memorial building in Lincoln Park, the Academy of Sciences had a permanent home, the Art Institute eagerly awaited its new building, and Chicago was flooded with visitors to the World's Columbian Exposition. The city was eager to show the nation and the world that it was like the Phoenix reborn from the fires of 1871 and 1873.

1.4 East versus West

The museums and cultural institutions would also elevate Chicago to compete with eastern cities. As we have seen, following the pattern of the early republic, by the mid-nineteenth century, most cities had academies of science and of art. As western townships coalesced into cities they eagerly created a variety of associations and academies that were indicators that a city had “made it.” By the early twentieth century, a large public museum became one of the markers (along with a symphony orchestra and opera company) of a cities' status. However until the 1880s, Chicago had none. It was a city on the make, willed into existence by influential movers and shakers. The cultural institutions they supported preserved their legacies and made bold statements of civic pride and demonstrated to easterners—indeed the world—that the city was more than railroads, stockyards, and industrial production. Chicago's institutions would not exist without philanthropists like Charles L. Hutchinson, Edward E. Ayer, Harlow N. Higginbotham, and Marshall Field.²⁸ This fact did not go unnoticed in other cities. Lamenting the relative scarcity of cultural philanthropists in St. Louis, Clark McAdams of the *St. Louis Post-Dispatch* reassured his readers that their city had a thriving art

²⁸ See Peter Dobkin Hall, *Inventing the Nonprofit Sector*; Horowitz, *Culture & the City*; McCarthy, *Noblesse Oblige*; Donald L. Miller, *City of the Century : The Epic of Chicago and the Making of America* (New York: Simon & Schuster, 1996); Dominic Pacyga, *Chicago: A Biography* (Chicago: The University of Chicago Press, 2009).

community and an art museum that was publicly funded. But, if taxes did not support it, the newsman warned that they would not have museums because there were no cultural philanthropists [in St. Louis] to establish and maintain them.²⁹

Beginning with the Art Institute of Chicago (1879), cultural philanthropists went on a spree of endowing new institutions. Book-ended by the Columbian Exposition and the 1933 Century of Progress Exhibition, Chicago's philanthropists founded an orchestra (1891), a second natural history museum (1894), an aquarium (1930), a planetarium (1930), and a science and technology museum (1933). There were antecedents, the Chicago Historical Society (1856) and the aforementioned Chicago Academy of Sciences (1857) but these were not originally conceived with a mass audience in mind. The turning point for Chicagoans and the notion of public museums was a direct result of the remarkable popularity and success (in both financial and educational terms) of the World's Columbian Exposition of 1893.³⁰

1.5 Natural Science at The World's Columbian Exposition

The World's Columbian Exposition of 1893 offered visitors a chance to "see the world" in one place. It was a concise encyclopedia of history, marvels of manufacturing, and a competition among nations. The fair's pavilions simultaneously compared and contrasted the world's cultures and commercial products. In the formal grounds of the fair, the classical, Beaux-Arts structures, coated with a gleaming white wash impressed people as much with their sheer size as much as the contrast with the dirty and grimy city

²⁹ McAdams Clark, "Just a Minute," *St. Louis Post-Dispatch*, August 8 1919.

³⁰ The founding of Chicago's institutions was akin to Andrew Carnegie's funding of libraries in industrial towns for the purpose of uplifting workers through self-education and improvement. Carnegie believed it was the duty of wealthy individuals to give back and espoused this in *The Gospel of Wealth* (1889).

beyond. Nicknamed the “White City” it was considered by observers as one of the wonders of the world. Within this fantasy city, natural history exhibits were found throughout the exposition buildings. Although there was no central space devoted to it, in one way or another all branches of nature were represented. Rocks and fossils, for example, were on display in the mining building as well as in the state pavilions—in both cases presented in the context of raw materials. Taxidermy was nearly ubiquitous and suited to exhibits from furriers and clothiers, to food distributors, to individual states or countries. The Kansas state pavilion had one of the most elaborate exhibits featuring superb taxidermy. The Smithsonian installed in the national pavilion a dozen mammal groups, sixteen bird groups, and even several models of octopus. Whatever the context, mounted animals, plants, and models of plants were nearly everywhere.³¹

If the White City was meant to be serious as well as fun, the Midway was meant to be all amusement. On the Midway, fairgoers could purchase a variety of foods, souvenirs, and trinkets. In an age when few people could travel, it was on the Midway that fairgoers encountered exhibits of cultures and goods from around the world. Initially considered a concession to the formal fair, it proved to be the most popular and its exhibitors generated the most revenue. The Midway was Chicago’s unique contribution to expositions and subsequent fairs copied the concept. It is this facet of fairs that has subsequently drawn serious critiques from scholars.³²

³¹ Karen Wonders, *Habitat Dioramas: Illusions of Wilderness in Museums of Natural History* (PhD. Diss., Uppsala University, 1993), 125.

³² See Norm Bolotin and Christine Laing, *The World's Columbian Exposition : The Chicago World's Fair of 1893* (Urbana, Illinois: University of Illinois Press, 2002), Robert W. Rydell, John E. Findling, and Kimberly D. Pelle, *Fair America : World's Fairs in the United States* (Washington, DC: Smithsonian Institution Press, 2000), Robert W. Rydell, *World of Fairs : The Century of Progress Expositions* (Chicago: The University of Chicago Press, 1993), Robert W. Rydell, "The Books of the Fairs: Materials About World's Fairs, 1834-1916," in *The Smithsonian Institution Libraries Research Guide* (Chicago: American Library Association, 1992), Robert W. Rydell, *All the World's a Fair: Visions of Empire at American International Expositions, 1876-1916* (Chicago: The University of Chicago Press, 1984), David F. Burg, *Chicago's White City of 1893* (Lexington, Kentucky: University Press of Kentucky, 1976).

Contemporary observers praised the commercial and the educative function of world's fairs. They also could experience the foreign, strange and the exotic. Much has been written about the Columbian Exposition and the other major fairs and expositions held in Europe and American from the 1890s through the 1930s. Scholars have studied many aspects of the fairs and have reached many conclusions. While some scholars such as Robert Rydell and Tony Bennett stressed racist and nationalist overtones in the anthropology and ethnographic exhibits on the Midway, Andrea Whitcomb argued: "Contemporary commentary suggests that feelings *other* [emphasis in original] than pride in race or nation were also involved. These were popular pleasures such as physical or sexual excitement, the promise of strange foods and entertainment, of contact with the exotic."³³ While with hindsight, it certainly smacks of an element of racism and all the inherent superiority complexes of colonialism; the White City and the Midway had little to do with explicitly illustrating a cultural or racial hierarchy and was not designed as such by the exposition planners. The Midway, understood as entertainment, was a pleasure zone with popular culture entertainments creating the emotional responses consistent with fun and adventure. Most important was that it made a lasting impression on visitors to the fair and on Chicago's museums.

1.6 The Field Columbian Museum: 1894-1906

The close of the World's Columbian Exposition at the end of 1893 marked a transition point for Chicago. The continuous movement of people, money, and goods through the city allowed the local economy to flourish despite the nationwide depression. But now, hard times were coming to the Midwest metropolis. Labor unrest was making

³³ Andrea Whitcomb, *Re-Imagining the Museum: Beyond the Mausoleum* (London and New York: Routledge, 2003), 19.

noise again and down in Jackson Park, exhibitors sold much of the material they brought to the fair rather than returning home with it. Auctioneers did not stop with exhibit material but sold the raw materials of the fair itself: iron, wood, and stone. What was not sold was destroyed by a series of fires, supposedly set by squatters, and attracted many local spectators to watch the blaze destroy the White City. Within two years of the fair's end, Jackson Park land was refurbished as a public park, save for one building: the Palace of Fine Arts.

The Palace of Fine Arts was the only exposition structure designed with a degree of permanence. Rather than a facade entirely of stucco (a plaster mixture), stone was used for reinforcement and—and most importantly—fire safety. Exhibitors would not risk exposing priceless works of art to the hazards of fire. As the fair entered the final months, Jackson Park residents fretted about what to do with the permanent building. Many people wanted it torn down, others wanted a park field house, and some residents wondered if a museum, perhaps associated with the nearby University of Chicago was most appropriate. Residents did not have to wait long for a decision regarding the building.

The notion of a museum in Jackson Park was circulating among prominent Chicagoans. The same businessmen and civic leaders who organized the world's fair wondered what they could do to keep the economic benefits coming and continue the cultural “uplift” the fair provided. There was precedent for museums, or at least museum collections, to arise out of expositions. The Smithsonian Institution, an organization primarily interested in natural science and history not only exhibited at the 1876 Centennial Exposition but also purchased or were given exhibit material afterward. In

the 1850s, the Crystal Palace Exposition bequeathed exhibits and a building (the Crystal Palace itself) to the newly formed Victoria and Albert Museum (a very progressive institution in terms of welcoming visitors and education programs).³⁴

Key individuals involved with the organization and operation of the Columbian Exposition wondered if this was something Chicago needed to do. Anthropologists Franz Boas and Frederick Ward Putnam wrote editorials in Chicago papers promoting the need for a museum—one that would feature anthropology. George Brown Goode, curator at the Smithsonian, and director of exhibits for the fair, convinced several businessmen of the worthiness of a museum. Harlow Higginbotham, and Edward Ayer, directors of the exposition were excited of the possibility and agreed to assist with endowing an institution. But they needed more capital, and the only Chicagoan that could provide it was Marshall Field.

Ayer persuaded Field of the civic good a new museum could provide and also stroked the tycoon's ego. An institution bearing his name ensured his legacy as a philanthropist, civic leader, and believer in uplift. Somewhat reluctantly, Field agreed to contribute \$1,000,000 to complete the endowment. These businessmen assembled a board of trustees and wrote a charter, approved by the state to create a new museum—a memorial to the fair—with the appropriate name: Field Columbian Museum. In addition to the millionaires' money, the new museum had generous donations of exhibit material

³⁴ See Conn, *Museums and American Intellectual Life*; Schwarzer, *Riches, Rivals, and Radicals*. There was a proposal to build a women's "memorial" museum after the fair that would contain many of the artwork and other displays that were in the Women's Building at the fair. The plan stalled during the depression of 1894. See also: Jeanne Madeline Weimann, *The Fair Women: The Story of the Women's Building, World's Columbian Exposition, Chicago, 1893* (Chicago: Academy, 1981).

ranging from anthropology to transportation as well as a building donated by the exposition corporation—the Palace of Fine Arts.³⁵

When the new museum opened in 1894 it was indeed a “memorial” to the world’s fair and was a miniature representation of the uplifting, educative elements of the White City. It was an odd assemblage. The center rotunda featured replica statuary from the fair alongside historical memorabilia pertinent to the fair’s operation and also to its namesake Christopher Columbus. The wings of the ground floor contained anthropology displays, large taxidermy mounts and a hall of mining and transportation (including then-historic locomotives and rail cars).³⁶ The upper floor displays included botany, geology, and zoology. The first exhibits all had origins in the fair—either sold or donated in lots to the new museum or purchased by the businessmen involved and bequeathed to the institution. It is important to note that the same men—Ayer and Higginbotham for example, were also connected with the Art Institute and donated or displayed their personal collections there. By the turn of the century, the Art Institute was expanding its collections and scope and it brought art from all over the world and from all periods of history to the Chicago’s public. It also sought to be a premier institution for the study, display, and creation of fine art.³⁷

The Field Columbian Museum was building its collections too. While it endeavored to keep the spirit world’s fair alive it also sought to bring the world to Chicago by displaying the plants, animals, and cultures from around the world. Unlike

³⁵ The story of the founding of Edward Ayer appealing to the civic spirit and vanity of Marshall Field has been told many times. For example, see: Conn, *Museum in American Intellectual Life*; Horowitz, *Culture & the City* and Miller, *City of the Century*.

³⁶ Two large halls were devoted to railroad equipment donated by the Pennsylvania Railroad. The collection was given to the museum on the condition that it was exhibited as a whole. “Telegraphic Notes,” *New York Tribune*, December 23, 1893; “History of the Institution,” *Chicago Daily Tribune*, Jun 3, 1894; “Opening of the Museum,” *Chicago Daily Tribune*, Jun 3, 1894.

³⁷ Neil Harris, *Chicago’s Dream, A World’s Treasure: The Art Institute of Chicago, 1893-1993* (Chicago: The Art Institute of Chicago, 1993).

the recently re-opened Chicago Academy of Sciences or the Field Museum would represent as complete as possible the natural history of the world. This was an enormous goal and one that was fraught with challenges from the start. But as Daniel Burnham quipped, the new museum would “make no small plans” if it was to become a great institution. Like the Exposition, but unlike the older Chicago museums, the scope of the Field Museum’s collections endeavored to tell the story of “the great globe itself” of “all which it inherit” and presented it in such a way that “even the most careless observer must profit to some degree.”³⁸

Henry Fairfield Osborn, director of the American Museum of Natural History, concurred with this notion of a museum’s purpose; “The primary object of a great municipal museum is to bring to those who cannot explore or travel, who cannot go very far beyond their immediate environment, the whole world of nature.”³⁹ Within the halls of a single museum, visitors “traveled through the far north, saw Eskimos spearing seals, the tombs of Egypt, the marvelous things of Korea, Tibet, Trinidad, Russia, and medieval Europe, the grandeur that was Greece and the glory that was Rome.”⁴⁰ Thus the mass appeal of World’s Columbian Exposition spurred the development of cultural institutions intended to draw large audiences, which would forgo the consumerism and advertising

³⁸ Field Columbian Museum, *An Historical and Descriptive Account of the Field Columbian Museum* (Chicago: Field Columbian Museum, 1894), 16.

³⁹ Henry Fairfield Osborn and American Museum of Natural History, *The American Museum and Education* (New York: The American Museum Press, 1925), 6.

⁴⁰ “Museum Is Opened,” *Chicago Daily Tribune*, May 4 1921. See also: James O'Donnell Bennett, “Field Museum Brings the Far Places to You,” *Chicago Daily Tribune*, May 11 1928; “The Inquiring Reporter,” *Chicago Daily Tribune*, January 30 1930.

functions of the fair and instead focus on the education function by exposing visitors to “culture” through and the arts and science.⁴¹

To accomplish these lofty goals, the institution hired leading experts in their fields as curators of the museum’s departments. The Columbian Museum opened with eight main Departments: Anthropology, Botany, Geology, Industrial Arts (including transportation, mining, and industry), Ornithology, and Zoology. There was a Columbus Memorial that featured statues and plaques commemorating the voyages of exploration and the Exposition under the central rotunda. There was also a library. W.H. Holms was the museum’s curator of Anthropology, but was quickly succeeded by George A. Dorsey. Dorsey was involved with the Columbian Exposition and was an expert on Native American ethnography. Under his leadership, the initial anthropology collections were expanded to make one of the largest collections of Native American artifacts in the country. By the early 1900s, Dorsey and the museum anthropologists led expeditions beyond the Americas to such faraway places as Tibet.

Dr. Charles F. Millspaugh, became the first (and long-serving) curator of Botany. The botany department was always the smallest department of the museum but still managed to build a large and well-respected collection. Under Millspaugh’s direction, botanists collected specimens from Mexico and South America on much publicized expeditions. Although less dramatic in the reports than the hunting parties on the savannahs of Africa, these botanical investigations contributed more to scientific knowledge than providing the museum with spectacular specimens to mount.⁴² Oliver

⁴¹ Most of the first group of trustees, administrators and curators of the Field Columbian Museum were involved with the Columbian Exposition in some fashion. See Field Columbian Museum, *An Historical and Descriptive Account of the Field Columbian Museum.*, 5-6, Horowitz, *Culture & the City*, 230-234.

⁴² “Chicago Scientific Expedition,” *New York Tribune*, November 19, 1898.

C. Farrington became curator of Geology and would be among the longest-serving curators. Like Dorsey, Farrington had been involved with the Columbian Exposition working on the mining and minerals exhibit. At first, economic geology collections (overseen by H.W. Nichols) that displayed how rocks, minerals, etc. were transformed into commodities and products was made up of materials inherited from the Exposition. By the turn of the century, however, the Geology department joined what historian Paul Brinkman termed the “second great Jurassic dinosaur rush” and assembled a team of paleontologists to scour the American West (and beyond) for fossils to classify and display. Dinosaur reconstructions proved to be (and still are) a major draw for museum visitors, and large or complete specimens were as much a mark of prestige or a marketing device for an institution as they were scientific specimens.⁴³

Dr. Daniel G. Elliot, previously a professor of Zoology at New York’s Columbia University (then called Columbia College) joined the museum as curator of Zoology. Elliot travelled extensively and his publications were highly regarded. He led the museum’s first expeditions to Africa to collect specimens for the museum’s study and exhibit collections.⁴⁴ Meanwhile, Charles B. Cory was curator of Ornithology. Each department also had assistant curators and a small support staff. In addition to the scientific departments and the library, there was a small printing office, a staff photographer, building engineers, and guards (in uniforms copied from the Columbian Exposition). At the top of the hierarchy was the director’s office, which included several clerks and the recorder (registrar). The director, F.J.V. Skiff, had a varied background

⁴³ Paul D. Brinkman, *The Second Jurassic Dinosaur Rush: Museums and Paleontology in America at the Turn of the Twentieth Century* (Chicago: University of Chicago Press, 2010).

⁴⁴ “Professor Elliot Going to Chicago,” *New York Tribune*, November 24, 1894.

and was neither a scientist nor trained in museum methods. Prior to his appointment as director he had worked as a journalist, newspaper editor, and an immigration official. In 1890 he had been selected as one of the national commissioners to the Columbian Exposition and chief of the Department of Mines and Mining, later becoming its deputy director general. His organization and leadership skills made him an attractive candidate to the museum's board of trustees. Skiff was "a man of ambition, enthusiasm, decisions, and energy" and while devoted to making his museum a world-class institution, he also continued to play a role in world's fairs. In 1900 he was director in chief of exhibits for the U.S. commission to the Paris Exposition and served a similar position for the St. Louis fair in 1904.⁴⁵

Regardless of the director's many responsibilities, the Field Columbian museum struggled in the 1890s. The exhibits were "stale" and nothing much was done to keep visitors coming back once they had seen what was inside. Initially, the museum staff was overworked and few resources were available for the kind of fieldwork worthy of a great institution. It was little wonder that some university-trained academics like anthropologist Franz Boas, whose career was on the rise, left Chicago soon after the museum opened. Those who remained did the best they could and weathered the difficulties. By 1900, their patience paid off and the institution's expeditions began to yield new materials for exhibits and opportunities to publish scientific findings. Inside the exhibit halls new displays were unveiled and attendance steadily increased, especially on those days admission to the museum was free (typically Saturdays, Sundays, and holidays).

⁴⁵ "Director of Exhibits at St. Louis," *New York Tribune*, December 6, 1903. Skiff was also curator of the transportation, mining, and industry department.

However, the old Columbian Fine Arts building itself was problematic. Maintenance workers frequently fixed leaks in the roof and cranky water pipes. The heating system was difficult to maintain and many exhibit halls were unheated as were the staff offices after hours. Regular complaints to the director about cold workspaces offered little relief for many employees. The heating capability was largely an issue of coal costs and whether or not the fireman did his duty properly. The chief engineer often had disciplinary issues with firemen hired for third shift.⁴⁶

Even though the building was constructed with some measure of permanence, the outer facade was very weak and by the end of the decade was prone to crumbling. The museum lacked the funds to properly overhaul the structure and so addressed structural problems in a piecemeal fashion. Despite the growing number of collections, display innovations, and scientific work the museum accomplished in Jackson Park, the unstable building was always a serious problem.

1.7 Rebirth of the Chicago Academy of Sciences Museum

Looking back in 1902, William K. Higley, a botanist and the secretary of the Chicago Academy of Sciences, divided the history of the institution into three periods; the first prior to the Chicago Fire of 1871, second, that between the fire and construction of the Lafflin building, and third, the operation of the Academy and its museum in Lincoln Park.⁴⁷ It is this third era of Higley's history that concerns us here.

In 1894, the same year that the Field Columbian Museum opened in Jackson Park, the Academy of Sciences hired a new director, Frank C. Baker, to oversee installation of

⁴⁶ The Field Museum director's papers contain numerous reports and memoranda from the building engineers about leaks and faulty equipment.

⁴⁷ Quoted in Frank C. Baker, "The Chicago Academy of Sciences," *Science*, New Series, Vol. 28, No. 709 (July 31, 1908): 138.

the Academy's exhibits in its new home. Baker was an accomplished limnologist (he specialized in freshwater mollusks) and had previously worked for Ward's Natural Science Establishment, the nation's largest collector and purveyor of specimens (see chapter two), and the Philadelphia Academy of Sciences. Working with naturalist and taxidermist Frank Woodruff, Baker transformed the Academy's museum into a first-rate institution. In addition to publications on freshwater mollusks, Baker worked tirelessly to build the Academy's study and exhibition collections in spite of a small staff and tight budgets. Including the director Baker, there were only four employees: Frank Woodruff (taxidermist), Emil Youngrin, (museum aid), M.G. Bunnell (museum and office assistant), and Mary Hardman (assistant to the secretary and librarian).⁴⁸ Baker and his tiny staff installed what would be the ever-popular Chicago area bird exhibits and created the Chicago Environs Series (see chapter three). They also developed loan collections for use by Chicago schools (primarily lanternslides but also specimens) and frequently gave talks in schools, clubs, and other organizations. Their work fostered the Academy's relationships with other museums, and organizations including the American Association of Museums (organized in 1906 and now the American Alliance of Museums).⁴⁹ Baker was the Academy's George Washington, creating the job of director and a standard of responsibilities that others would follow. It was slow going at first and it took several years to really modernize the installation of exhibits.

⁴⁸ The duties and summary of work completed is outlined in reports (of varying frequency) compiled by the director. For example, "Report of the Operations of the Museum of the Chicago Academy of Sciences for the months of June, July and August." n.d. Administrative Box 3, The Peggy Notebaert Nature Museum of the Chicago Academy of Sciences Archives. (CAS).

⁴⁹ Baker presented a paper at the first meeting of the American Association of Museums in New York. His paper was entitled "Educational Arrangement of Natural History Museums." "Museums to Associate: New Organization of Educators and Scientists formed Here," *New York Tribune*, May 16, 1906.

As director, Baker answered to the Academy's trustees and board of scientific governors. The board's secretaries, such as botanist William K. Higley (1892-94) and (1898-1906), were involved in both museum and scientific work. One of the major scientific projects undertaken by the reinvigorated Academy of Sciences was a geological and natural history survey of Chicago and its vicinity. The process of compiling this data and creating reports meant that staff gathered specimens for study collections and display.⁵⁰ The Academy's inventory developed at a steady pace in the early twentieth century. In 1908, Baker reported that the Academy had 55,000 specimens in 1894. Thirteen years later, there were 226,781 specimens (an increase of 171,781) in the museum, most of which were donated or collected by members in the field. The Academy had few funds to purchase specimens and operated on a budget of \$5,000 per year, which was granted the museum by the Lincoln Park commissioners.⁵¹ This is a remarkable comeback for an institution that was entirely ruined by fire and homelessness. Nevertheless, Baker concluded it was "not so much the number of specimens which have been received nor the amount of detail work which has been accomplished that determines the success or failure of an institution, but rather the impression of which may have been made upon the community inciting to higher ideals of life, and the quality of the contribution to the advancement of science and education which has been made."⁵² Indeed, as we shall see, the Academy was, in the words of secretary Wallace Atwood, "rapidly taking on a distinctly educational policy and the exhibits are being appropriately

⁵⁰ C.H. Gordon, "The Chicago Academy of Sciences," *Science*, Vol. 21, No. 537 (May 19, 1893): 273.

⁵¹ Frank C. Baker, "The Chicago Academy of Sciences," *Science*, 138. The Lincoln Park commissioners provided for the utilities, maintenance and cleaning of the building and grounds as part of the agreement that placed the Academy in the park. The Academy obtained additional income from bequests or donations, but as Baker reported, the only assured income was the \$5,000.

⁵² *Ibid.*, 141.

altered or replaced.”⁵³ The new exhibits were sophisticated, dynamic, and geared toward the layperson and not the serious scientist. One significant departure from the Academy’s previous exhibits and indeed those of other museums was that labels featured English (rather than Latin) names for specimens, as well as maps, charts, or other information geared toward a larger audience.⁵⁴ The new exhibits were part of a larger vision to develop the Academy into a true educational institution for the Northside and were actively providing materials and assistance to teachers and students in local schools. Atwood thought that the “Academy may become an effective instrument of the educational work of the city. There seem to have been so many gaps, so many places where we may fit it, and the regret is that we have not better facilities at the building and a larger force who may pit their personal efforts into the promotion of science work among the young people and teachers of the city.”⁵⁵ From 1911 onward the Academy sought to enlarge the building for more exhibits, a larger auditorium, classrooms, and even a sub-museum for children. Lack of money, stalwart trustees, and an ever cautious Lincoln Park board stymied these various plans and the Academy always had to make-do with what they had available to them.

Unlike the Field Museum, which was a single entity, the Chicago Academy of Sciences museum was actually half of a two-part institution. There was the association of members who paid dues, did scientific work (or simply were interested in this work and supported it), gave presentations and lectures, and published scientific papers. This was a continuation of the work done since the days of Robert Kennicott. The prominent

⁵³ Wallace W. Atwood, “The Chicago Academy of Sciences,” *Science*, New Series, Vol. 33, No. 844 (March 3, 1911): 352.

⁵⁴ “Gem of Lincoln Park” *Chicago Daily Tribune*; Oct 29, 1894.

⁵⁵ Atwood, “The Chicago Academy of Sciences,” 353.

members served as the Academy's trustees and oversaw the whole institution. There was also a Board of Scientific Governors, elected by the Academy members, who directed the program of lectures and production of scientific papers. The position of secretary (filled by the likes of Higley, Atwood, and Baker) provides the link between the governors, trustees, and the director, who oversaw the day-to-day operation of the museum. The use of titles such, as "director" or "curator" were fluid at the Academy because a single person often had several responsibilities. For example, Frank M. Woodruff was at once taxidermist, photographer, ornithologist, and curator. Frank Baker variously served as director, curator, and secretary. It is little wonder that the directors often burned out under the burden of many responsibilities, lack of resources, and frequent confrontations with the trustees.

After nearly twenty-one years, Baker resigned in 1915 and eventually became the curator of the Natural History Museum of the University of Illinois, where he once again, transformed a bland collection of specimens into a modern museum. Woodruff filled in as director until Alfred Marshall Bailey, was hired. Bailey grew up in Iowa and was fascinated with nature from a very young age, saving and mounting the bones and skins of fish he caught and animals he hunted. After college and service in the Army during World War I, he briefly worked for the Louisiana State Museum and the U.S. Biological Survey in Alaska. His work in Alaska caught the attention of Dr. Wilifred Osgood, curator of zoology at the Field Museum, and he was invited to join the museum's expedition to Abyssinia. Upon his return to Chicago in 1927, and with no permanent

place for him at the Field Museum, he accepted the job as director of the Chicago Academy of Sciences museum.⁵⁶

Bailey's interest in ornithology put him in good company with Frank Woodruff and their colleagues in the city because birds were the most visible wildlife in the region. New discoveries even awaited careful research here. In 1916 Herbert Stoddard, a collector and taxidermist at the Field Museum discovered a sub-species of Black Rail. Woodruff sought one for the Academy, but it proved elusive until 1926 when a boy found the carcass of a bird that flew into a building. Woodruff and Bailey were delighted and promptly mounted the bird in the museum.⁵⁷

Bailey built on Baker's successes and brought a new energy to the Academy in the 1920s. Under his leadership the zoological collections were re-cataloged and new ornithological specimens were added from Alaska and the Arctic. The Academy finally had materials comparable to Kennecott's collection after fifty-six years.⁵⁸ Work continued on the Chicago Environs Groups, with a special emphasis on birds. In addition to lectures by Academy scientists and guests, school visits, bird hikes, and other programs, Bailey brought nature films to the Academy. During one program for example, living examples of microscopic animal life were projected upon a screen by means of a microscope attached to a stereopticon. The audience of both children and adults were impressed with the lecture given by Harold Shinn, an instructor at the Carl Schurz High School. Shinn was delighted to give the talk because he firmly believed that "teachers have a real mission in our community. Our work is not done when we have

⁵⁶ Ilva Jones, "Alfred M. Bailey" ca 1954, unpublished manuscript. Denver Museum of Nature and Science Archives (DMNSA).

⁵⁷ "Rare Bird Captured by Chicago Museum," *The Christian Science Monitor*, Aug 18, 1926.

⁵⁸ Alfred M. Bailey, "Report of the Director for the Year 1927." May 14, 1928.,3, Administrative Box 2, CAS.

taught the boys and girls in our classes.” Furthermore, Shinn felt that “those who can should, as far as practicable, extend their services to the general public. [Thomas] Huxley used to go about talking to workmen's guilds, telling them the wonderful stories found in the rocks and chalk cliffs of England. Just so every earnest teacher of today ought to feel it his duty and privilege to share with others whose opportunities have been more limited, his own knowledge of history, natural science, language, foreign lands, or whatever his specialty may be. If it is something that he can present visually, so much the better for all concerned.”⁵⁹ Such programs and lectures fit into the Academy’s educational mission because visual learning was the museum’s specialty whether it was in the form of illustrated talks, movies, or exhibition.

The Chicago Daily News donated funds for the purchase of films to be screened in the Academy but also in connection with school lectures. Scientists and socialite explorers donated other reels, significantly those of sea birds taken by zoologist Donald Dickey in Hawaii. Dickey documented the effects of introduced species, habitat loss, and extirpation of species.⁶⁰ Movies were quickly becoming a staple of American entertainment during the 1920s and Bailey saw another opportunity to connect with their audience—especially school children—for whom static displays, no matter how artistically crafted, might lose their charm. He imagined that movies could one day be incorporated into exhibits too. During the mid-20s, Bailey and Woodruff began making their own motion pictures while on photography or collecting trips. In 1925 for instance, Woodruff filmed birds nesting and foraging in the Indiana Dunes and Bailey shot bird

⁵⁹ “Education Notes,” *The Christian Science Monitor*, Aug 26, 1921. Thomas Huxley was a prominent British geologist and teacher. He endlessly argued and debated with other scholars about natural selection, earning him the moniker “Darwin’s Bulldog” in the 1860s and 1870s.

⁶⁰ “Rare Movies of Birds Given to Museum: Dickey Films Show Species From Hawaii That Are Unknown Now,” *The Christian Science Monitor*, Sep 15, 1928.

footage in Louisiana and Wisconsin. In the 1930s, Bailey filmed wildlife in Louisiana, California, and Yellowstone National Park.⁶¹

In his 1928 report to the trustees Bailey outlined his vision for the Academy. He saw great opportunities for service and needed to capitalize on its proximity to Lincoln Park Zoo. “We should have teachers available who would use not only the Academy,” he wrote, “but all the resources of the Park as a teaching medium.... The site is one of the finest, and with additional space for exhibits, it can rank with the first five in point of attendance.” The thrust of his argument was that there was “no museum devoted exclusively to the North American field, and there are few exhibits of the fauna and flora of our country, for, aside from the spectacular large mammals of North America, other museums [i.e. the Field Museum] have devoted their efforts to the life of other continents.”⁶² Such an extensive exhibition, Bailey claimed, would draw a million visitors a year (as opposed to the estimated 293,000 in 1927). Bailey wanted to take the quality-not-quantity approach that guided Baker’s Chicago-area focus and expand it to the continent. However, the building was already full of exhibits and short of both space and staff and Bailey bemoaned the physical and financial limitations of the institution throughout his tenure.

⁶¹ “Like an Unspoiled Dune County, A Bird Sanctuary Within Chicago: Ignoring City Noises Not Camera Shy,” *The Christian Science Monitor*, Dec 16, 1925; James O’Donnell Bennett, “Chicago to See Wonder Movies of U.S. Wildlife: Nature Dramas Prepared by Science Museum,” *Chicago Daily Tribune*, Aug 18, 1935.

⁶² Alfred M. Bailey, “Report of the Director for the Year 1927.” May 14, 1928, 4 Administrative Box 2, CAS. Guidebooks advertised the Chicago Academy and other museums and generally indicated location and nearest streetcar line, operating hours, major exhibits and a brief summary of the institution’s collections and history. For example, *A Guide to the City of Chicago* (1909) lists: “Academy of Sciences and Museum of Natural History Lincoln Park Street car ride No 1. Admission free. Open daily except Sundays and holidays 9 to 5. This museum contains well arranged and well cared for specimens as follows Mollusca 50,000 paleontological department 22,000 mineralogical 11,000 entomological 35,000 and ornithological 7,000 besides other small collections and a library of 27,000 books and pamphlets dealing mostly with proceedings of scientific societies. Also there are about 8,000 mounted botanical specimens and a skeleton of a mammoth standing 13 feet high This is the only restored specimen of this species on exhibition at the present time. Total number of specimens in the museum about 225,000 (91).”

Throughout the 1930s the Academy's staff worked to complete the Chicago Environs Series and to build the nature film collection. Ironically, the circumstances of the Great Depression actually increased the number of staff members working in the museum. The Works Projects Administration (WPA), famous for its infrastructure projects, vocational training, murals, and arts programming, also placed people to work in museums. These temporary workers painted diorama backgrounds, assisted with taxidermy, photography, and cataloging specimens. The WPA workers include trained printers that enabled the Academy to print leaflets and booklets on such topics as winter birds and how to make birdhouses, how and where to collect insects, spiders, and plants, and identification guides for local wildlife. The library also received two hundred books from the Chicago Public Library, many suitable for children.⁶³

Venerable *Chicago Daily Tribune* columnist James O'Donnell Bennett described the Chicago Academy of Sciences as an institution with a "noble building and a staff of enthusiasts, but at every turn it is cramped for money." Bennett continued, "Nevertheless, under Dr. Gloyd the academy [sic] is renewing its youth—next to the Chicago Medical society it is the oldest scientific body in Chicago —and drawing more closely to the youth of the community. It works hard. Old and important exhibits that have grown dim and dusty are being renewed. New and amazingly vivid habitat groups and panoramas are being installed under the direction of that master of habitat painting, Earl G. Wright."⁶⁴ Wright was well known in museum circles as an able painter and taxidermist took Woodruff's place after his death. Alfred Bailey left the Academy in

⁶³ Howard K. Gloyd, "Report of the Director for 1938 and 1939," 15-16. Administrative, Binders, Nathan Davies III, 1938-1944, CAS. Works Progress Administrations workers were also employed in the Field Museum to assist with cataloguing, typing, filing, cleaning specimens, mounting photographs, and assisting the taxidermists with exhibit installation. WPA workers enabled the museum to complete projects with both study and display collections it would not otherwise have been able to.

⁶⁴ James O'Donnell Bennett, "Chicago Science Academy Lures Youth to Halls: Natural History Taught to All Who Are Interested," *Chicago Daily Tribune*, May 29, 1938.

1936 to become director of the Colorado Museum of Natural History. His successor was herpetologist Howard K. Gloyd. Dr. Gloyd was a field collector of reptiles and amphibians and his interests expanded the herpetology collections and exhibits in the museum. Early in Gloyd's tenure as director he led an ambitious expedition to Arizona and the Southwest to collect specimens for study and display and films for exhibition.⁶⁵ He also worked closely with brothers Thurston and Earl Wright to finish the Chicago Environs Series. Gloyd's major contribution to the Academy was reinstating publications (discontinued in 1913) including the *Bulletin* but also a new series *Natural History Miscellanea*, and a popular magazine, *The Chicago Naturalist*.⁶⁶

1.8 The Field Museum of Natural History

In 1906 the Field Columbian Museum reorganized into a new institution with a clear mission and a new name. While originally conceived as partially a “memorial to the late World's Fair” it became clear by the turn of the century that the magic of the White City had worn off. Visitors lost interest in the Columbian rotunda and seemed confused by the range of unrelated exhibits. The thrill and fun of the Midway was translated into amusement parks that drew thousands of Chicagoans during the summer months.⁶⁷ Dime museums in the Loop continued to lure people with tawdry or exotic displays that cost but a nickel. Such amusements competed with nickelodeons, vaudeville, theaters, cinemas, and professional sports. The next chapter will discuss this in more detail, but suffice it to say here that educational museums—with an emerging

⁶⁵ James O'Donnell Bennett, “Rare Specimens of Desert Life Brought to the City: On View This Afternoon at Academy of Sciences,” *Chicago Daily Tribune*, Nov 14, 1937.

⁶⁶ Hendrickson and Beecher, “In the Service of Science,” 40.

⁶⁷ Amusement parks, such as the White City, capitalized on the popularity of the Columbian Exposition and its Midway. For example see: David Lowe, *Lost Chicago*, 211.

professionalism—sought to distance them from the seedy atmosphere of the dime museum and began to reevaluate their purpose and their audience. American art museums such as the Art Institute, for example, began to pack away reproductions and plaster casts (previously seen as invaluable for teaching artists) and sought originals. Circuses, funhouses, carnivals, and dime museums were inauthentic—full of fakes—museums must be authentic and display the genuine article whether it was a painting, a statue, artifact, or specimen. The Columbian Museum, hoping to draw visitors from all corners of Chicago if not the world, found that they primarily attracted residents from the south side. The Jackson Park location was too far removed from other regions of the city and despite streetcar and rail connections, people were not interested enough in the museum's collections to justify the trip. Museum officials determined that they had few repeat visitors and were far from becoming a true educational institution for Chicagoans.

Some changes were in order. The first expeditions were sending back materials for new exhibits. These needed to be installed as quickly as possible and offer something to draw in visitors. The museum gradually disposed of unwanted or seemingly irrelevant exhibits. Gone was the Columbus memorial and the railroad equipment. Some items were donated to or exchanged for materials from other institutions, while others were sold. Most significant of all was an official change of name to Field Museum of Natural History. This name indicated the institution's focus on natural history collections.⁶⁸ With this name change came a new sense of purpose and energy. A brochure proclaimed the “purpose of Field Museum is to accumulate and study material and information in the natural sciences of Anthropology, Botany, Geology, and Zoology, and to disseminate the

⁶⁸ The institution has in fact had several names. In 1943 it was changed to Chicago Natural History Museum as part of a new shift in the museum's leadership and back again in 1966 to Field Museum of Natural History. The name changed again in the late 1990s to The Field Museum.

resultant knowledge to the people through exhibits and other means of instruction.”⁶⁹ In order to accomplish this mission, the staff was expanded, exhibits overhauled, and public education and outreach programs extended. Expeditions from each division of the museum brought back artifacts and specimens for scientific study and display.

Press coverage was essential for the museum to make the new vision a reality and each story, however small, was in essence advertising the museum. From the turn of the century onward, the papers informed the public of bequests and donations, changes to high-level staff, expeditions to places near and far, and covered the opening of major exhibits. The various directors of both the Field Museum and the Chicago Academy of Sciences were friendly with journalists who were eager for a scoop. Newspapers reported the discoveries of dinosaur and other fossils and announced new exhibits such as those of gorillas and chimpanzees mounted purchased from Germany, which were still relatively new to science.⁷⁰ Despite new exhibits and free lectures series, attendance waxed and waned with the seasons and the number of school children visiting the museum remained dismal. Banker Norman W. Harris’s endowment of a program (discussed in great detail in chapter four) to send natural history exhibits to Chicago’s schools provided a new means to reach a juvenile audience, but that program took time to get in full operation and did not bring visitors to the museum.⁷¹

Since the turn of the century, the Field Museum sought to build a new purpose-built structure in Grant Park along the lakefront in the heart of downtown. Grant Park

⁶⁹ *Field Museum of Natural History*. Pamphlet, n.d., Directors Papers, General Correspondence, Field Museum Archives (DGPC, FMA).

⁷⁰ “New Comers from the Congo for the Field Museum,” *Chicago Daily Tribune*, Aug 28, 1910. For recent work about gorillas, science, exhibition and evolution see: Monte Reel, *Between Man and Beast: An Unlikely Explorer, the Evolution Debates, and the African Adventure that took the Victorian World by Storm*; Jay Kirk, *Kingdom Under Glass: A Tale of Obsession, Adventure, and One Man’s Quest to Preserve the World’s Great Animals* (New York: Henry Holt, 2010).

⁷¹ “Traveling Museum Chicago’s Plan to Interest the Pupils,” *The Christian Science Monitor*, Jun 3, 1914.

was a 202-acre stretch of land along Lake Michigan adjacent to the Loop and central business district.⁷² Museum officials believed the location was advantageous because a central location would make the museum more accessible to visitors from all parts of the city. They would benefit from the park location and from the Art Institute, both of which would draw visitors of the Field and vice-versa.⁷³ When Marshall Field died in 1906, he bequeathed \$6,000,000 (with the stipulation that a location be secured within six years) for the museum to build a lakefront museum, and this gave the trustees and director Skiff the green light to hire architects and start planning for the future. They envisioned a large Beaux Arts structure at the foot of Congress Street with Michigan Avenue frontage only a few blocks from the Art Institute. Architect Daniel Burnham's grand plan to redesign Chicago envisioned a cultural district in Grant Park centered on the Art Institute and Field Museum.⁷⁴ However, almost from the start, the Field Museum's plans faced a nearly insurmountable challenge.

In the 1890s, mail-order mogul Montgomery Ward was incensed that the Art Institute's directors managed to acquire the permits to build a new museum building (on the site of the old Inter-State Exposition Building) during the planning of the Columbian Exposition. Ward could see the park and Lake Michigan from his Michigan Avenue

⁷² The court defined Grant Park as "comprising 202 acres, exclusive of the Illinois Central Railroad which runs through it, and extending from Park Row, on the south, to Randolph Street, on the north, from Michigan Avenue, on the west, to the water, on the east." *A. Montgomery Ward vs Field Museum of Natural History, a Corporation, and South Park Commissioners, a Municipal Corporation; South Park Commissioners vs A. Montgomery Ward, and Field Museum of Natural History*. Abstract of Record, Supreme Court of Illinois, 31659 (June, 1908), 868., Illinois State Archives (Illinois). Grant Park was partially created from landfill dumped into Lake Michigan. A photograph of the proposed site for the museum published in 1903 reveals how waterlogged the area was. "Field Museum to be Located off Foot of Congress Street," *Chicago Daily Tribune*, May 8, 1903., 3. See: Dennis Cremin, *Grant Park: The Evolution of Chicago's Front Yard* (Carbondale, Illinois: Southern Illinois University Press, 2013); Joseph D. Kearney, and Thomas W. Merrill, Private Rights in Public Lands: The Chicago Lakefront, Montgomery Ward, and the Public Dedication Doctrine," *Northwestern University Law Review* Vol. 105, No.4 (2011).

⁷³ In the ensuing trial, Chicago Academy of Sciences director Baker testified "experience has shown that a museum or other attraction that is placed in a park, where people go, is visited to a much larger extent than the same institution right across the street." Parks, Baker surmised, were often the primary attraction and the museum a secondary one. *A. Montgomery Ward vs Field Museum of Natural History*, 880.

⁷⁴ See: Daniel H. Burnham and Edward H. Bennett, *The Plan of Chicago* (Chicago: The Commercial Club, 1909); Carl Smith, *The Plan of Chicago: Daniel Burnham and the Remaking of the American City* (Chicago: The University of Chicago Press, 2007).

office building and worried for the future of the city's front yard. When the park construction began in earnest the lakeshore nearly reached Michigan Avenue.⁷⁵ Since the city's formative years, the acreage (slowly expanding due to the rubble from the Great Fire and later construction projects and improvements to the shoreline) along Lake Michigan downtown was designated as Lake Park in 1844 with a stipulation that the land was to remain a park space for the use of the public, free of charge, and unobstructed by any buildings. To lakefront defenders like Ward, the construction of the Art Institute was subterfuge and they would not be duped again. The central lakefront, Grant Park, was to remain, Ward believed "forever free and clear" of permanent structures, especially an admission-charging museum.⁷⁶ Also at play was a longstanding personal dislike of Marshall Field, and Ward would not stand for a monument to Field to despoil public land and his Michigan Avenue view.

A downtown location was clearly advantageous to the Art Institute and the Field Museum was envious of their successes. In 1910, the *Chicago Tribune* reported that the attendance to the Art Institute on the Fourth of July was four times that of the Field Museum. Director F.J.V. Skiff complained to James Keeley of the *Tribune*, "we believe that no such difference would be possible except for the fact that the Art Institute is centrally located and equally accessible from all parts of the city" and suggested Keeley keep location in mind when editorializing the comparative popularity of the museums.⁷⁷

⁷⁵ "How Chicago Is Building Its Front Yard by Pushing Lake Michigan Farther Back," *The Christian Science Monitor*, Apr 26, 1922. 7.

⁷⁶ "Chicago Wonderhouse Is to Have New Home: Main Elevation of Proposed New Building in Chicago," *The Christian Science Monitor*, May 16, 1913. For the issue of public space along the lakefront, see: Lois Wille, *Forever Open, Clear, and Free: The Struggle for Chicago's Lakefront* (Chicago: The University of Chicago Press, 1991).

⁷⁷ Letter, F.J.V. Skiff to James Keeley, August 13, 1910, DPGC, FMA.

Chicago Academy of Sciences director Frank Baker agreed, testifying in court that a museum in Grant Park was a “necessity,” whether it charged admission or not, and that it would “not be a proper park unless it had the Field Museum there.” The plans submitted by the Field Museum to the Court would occupy three city blocks and Baker believed that to be an appropriate size for the institution. When pressed, Baker admitted that the museum would be most successful if it were free all of the time and that it must not be too large (Baker suggested limiting the museum to a maximum of five percent of the park space) and that most of the park needs to remain as it was for public enjoyment.⁷⁸

After years of legal wrangling the Field Museum lost the case and were denied permission to build a museum building near the Art Institute. In a turn of events that would be repeated nearly a century later during efforts to build Millennium Park (and most recently a proposed Children’s Museum and the Lucas Museum of Narrative Arts), the court decided that a permanent structure could not be built within the confines of Grant Park.⁷⁹ However, the park was bordered by land owned by the Illinois Central Railroad to north and the south (in addition to the right of way through the park, under the footpaths). In 1914 the South Park commissioners offered the Field Museum trustees reclaimed land, donated by the Illinois Central Railroad, to build their new museum on the southern portion of land near the line’s Central Station. The frontage of this land was literally a foot beyond the southern boundary of Grant Park.

⁷⁸ A. Montgomery Ward vs Field Museum of Natural History, 870-871, 877.

⁷⁹ The Petrillo Band shell is technically removable. Millennium Park to the north of Grant Park was also built on former Illinois Central Railroad Property. See: Timothy J. Gilfoyle, *Millennium Park: Creating a Chicago Landmark* (Chicago: The University of Chicago Press, 2006).

Construction of the new museum building began in 1915. The new purpose-built structure mirrored the Beaux Arts style of the Palace of Fine Arts but was much larger and included an auditorium, dedicated work and storage spaces, and was designed for artificial lighting rather than the natural light of the old building. Clad in white Georgia marble and measuring 700 feet long by 350 feet wide, the new building covered eleven acres of space.⁸⁰ As the building neared completion, the Army commandeered the structure as a hospital for wounded veterans of the Great War to convalesce before discharge. The museum staff was solely responsible for packing and crating its materials and the Field's carpenters created special crates and palates to protect specimens and display cases. Over the course of a year, the Field Museum hired trucks and personnel (at a rate of \$0.65 per hour) from Ft. Dearborn Fireproof Storage Company that could drive in and out of the buildings on specially created ramps. Most of the exhibits and cases were brought by rail, in 560 carloads, to the new building. One of the huge elephants destined for display in the central hall (Stanley Field Hall) was too tall to fit under a railroad viaduct and had to be partially un-mounted for the move.⁸¹

Opening day, May 3, 1921 proceeded without ceremony and drew a crowd of 8,000 invited guests in the afternoon. On May 4, the museum opened to the general public and drew a much larger crowd than in 1894.⁸² From this first day on the lakefront, museum attendance reached steady numbers never obtained in Jackson Park. Clearly this

⁸⁰ *Field Museum of Natural History*. Pamphlet, n.d., DPGC, FMA. In 1911, the museum trustees decided on a new building in Jackson Park and construction set to begin when the location changed.

⁸¹ Letter, Director D.C. Davies to General C.E. Black, Chief of Staff, Military and Naval Department, Springfield, Illinois, March 22, 1922, DPGC, FMA; "Field Museum Opening Date Set for May 2," *Chicago Daily Tribune*, Mar 7, 1921. Martin Kennelly, the future mayor, who worked for Marshall Field as a boy, ran Fort Dearborn Moving and Storage Company, the firm that handled the move. When his original bid was denied, he applied again and included a letter of recommendation that Field wrote for him years before. See: Peter Joseph O'Malley, "Mayor Martin H. Kennelly of Chicago: A Political Biography" (Ph.D. Diss., University of Illinois at Chicago Circle, 1980), 8-11.

⁸² "8,000 Attend Opening of New Field Museum," *Chicago Daily Tribune*, May 3, 1921.

location was advantageous, but it was not just the location it was also the newness and the quality of exhibits installed here. The *Chicago Daily Tribune* reported that within the first week the new museum building drew a record crowd of 78,558 people in a single day, compared to the largest single day attendance in Jackson Park of 16,400.⁸³ From 1921 and the boom decade of the 1920s through the lean years of the Great Depression, and the challenges of a second world war, the Field Museum grew and prospered.

During the 1920s the museum bustled with activity and the influence of three directors. Director F.J.V. Skiff died in 1921 and was succeeded by David C. Davies, formerly the museum's recorder. Like Skiff, Davies had been involved with the museum since the beginning and had also served on the board of trustees as secretary. Davies oversaw the museum's move to the new building and its subsequent growth during the boom years of the 1920s. He served as director for seven years until his death after a prolonged illness in 1928.⁸⁴

Steven Chapman Simms, curator of the Harris Public School extension succeeded Davies as director. Steven Simms was a man of great energy and well respected in the museum world. Simms joined the museum in the 1890s as an assistant curator of Ethnology and he was part of the 1909 expedition to the Philippines during which anthropologist William Jones was murdered. Simms ensured the materials and records of the expedition made it back to the museum. He was an advocate of visual education and he was the first curator of the Harris Public School Extension, in a position that allowed him to work closely with all of the museum's departments. Simms's tenure as director

⁸³ "78,588 Visitors at Field Museum Set New Record," *Chicago Daily Tribune*, May 9, 1921.

⁸⁴ "David Charles Davies," *Annual Report of the Director For the Year 1928* Report Series Vol. 7 No. 3, 387, Director's Reports, Field Museum Archives (DRP, FMA).

encompassed both the late 1920s and the Depression years. Through both he was an enthusiastic and able administrator.⁸⁵

During the 1920s, there were highly publicized expeditions to Abyssinia that were co-sponsored by *The Chicago Dailey News*. Trips to South America, Africa, and India made headlines and brought back scientific data, objects and specimens for display, including a Nyala, a type of antelope, as well as rhinoceros, and giraffe. There were also scores of pictures and many reels of motion picture film. The Chilean expedition headed by curator Osgood captured a Pudu (a small and rare deer), and Guanaco, a wild llama, in addition to other specimens of flora and fauna from the rainforest.⁸⁶ Some expeditions were led and sponsored by wealthy sportsmen, including the late President's sons Theodore and Kermit Roosevelt and ensured press coverage. In 1928 the Roosevelt brothers, backed by Chicago businessmen William V. Kelley set out for the Mekong River with a retinue of university scientists, museum staff, writers, photographers and filmmakers. Most of these expeditions featured husband-wife teams. Many society women, such as the wives of Kermit Roosevelt and Marshall Field III, were expert hunters. Newspapers frequently reported their exploits.⁸⁷ The big game famously "bagged" by society hunters were mounted for display in large habitat dioramas (to be discussed in chapter three) or kept by the wealthy as trophies. Newspapers reported the

⁸⁵ "Steven Chapman Simms." Unpublished manuscript. S.C. Simms Memorial File, DPGC, FMA.

⁸⁶ For example of newspaper coverage of these expeditions, see: "Natural History Research Trips: Field Museum Plans to Send out Six this Year, Four to South America," *The Christian Science Monitor*, Feb 14, 1922; Photo Standalone 8 -- No Title, Pacific and Atlantic Photo Underwood & Underwood Photo *Chicago Daily Tribune*, May 9, 1926; "Field Museum Men Sail to Explore Chilean Jungles," *New York Tribune*, Nov 17, 1922; "Hunters Leave for Abyssinia," *Los Angeles Times*, Sep 8, 1926; Jack Baum, "Explorers at Addis Ababa," *Los Angeles Times*, Dec 5, 1926; _____, "Explorers See Jungle Drama," *Los Angeles Times*, Dec 6, 1926; J. Carroll Mansfield, "Following Field Museum Expedition Through Wilds of Abyssinia," *Los Angeles Times*, Feb 7, 1927.

⁸⁷ For example, see: "Roosevelts to Take Trail," *Los Angeles Times*, Oct 23, 1928; "Mrs. Field Here to See Specimens She Bagged for Museum," *Chicago Daily Tribune*, Sep 28, 1926. On the John Borden Arctic Expedition, the wives of John Borden, Charles Barney Godspeed and R.B. Slaughter were the keen marksmen that killed two polar bears among the seven bears and seven walrus that were shot by the party. "Three Society Women to Hunt Arctic Animals," *Chicago Daily Tribune*, Dec 6, 1926; "2 Polar Bears Shot by Women in Borden Party," *Chicago Daily Tribune*, Aug 18, 1927.

adventures and published photographs from the expeditions. Such press coverage was in effect advertising and attracted visitors to the museum.

The Field museum screened the films made on these expeditions along with other nature and science films in the Simpson Theater.⁸⁸ The Harris Public School Extension program brought natural history exhibits into the city's schools and was joined by a new program, the Raymond Public School and Children's Lecture Division within the museum. In addition to lectures there was a staff of guide-lecturers for adult visitors and publications and a "personal service" of correspondence offered a means to reach audiences that could not come to the museum. Because of its new central location, new exhibits, press coverage, and outreach programs, the Field Museum was reaching a larger audience than ever before.

One of the most expensive exhibit installations undertaken during the 1920s involved neither involved taxidermy, fossils, nor artifacts, but art. This was a series of twenty-eight murals of prehistoric animals and landscapes by artist Charles Knight. The giant paintings were to be displayed alongside mounted fossil skeletons of large prehistoric animals. The paleontology exhibits were (and still are) among the most popular in the museum and new discoveries added to the collection. A bequest from Chicago architect Ernest R. Graham provided the funds to commission the paintings (and gave his name to the hall of paleontology exhibits). The first seven paintings were on public display alongside renovated exhibits Ernest Graham Hall in 1928. Knight worked closely with paleontologists, geologists, and zoologists to create the most life-like and

⁸⁸ In 1927 for example films for children featured a presentation about the people of Manchuria in connection with a talk by Barnum Brown of the American Museum and other reels including "Our Dog Friends," "The Silversmith," and "Peter the Raven." These programs were announced in the newspaper. "Field Museum to Show Movies for Children," *Chicago Daily Tribune*, October 7, 1927.

accurate depictions possible. These paintings proved to be influential on scientific and popular perceptions of dinosaurs for decades to come.⁸⁹

The 1930s were paradoxically lean but busy years for the Field Museum. As the Great Depression tightened finances the museum ceased participating in expeditions and collecting or purchasing much new material. Rather, the museum took stock of what they had and endeavored to complete existing projects such as the Knight murals and repair and update existing displays.

The Field Museum was not involved with the Century of Progress Exposition (1933-1934) and in fact, some of the staff were not thrilled that the world's fair was held near the museum. The Exposition, with its animatronic dinosaurs, cutaway models, and gee-whiz exhibits reflected, to some museum staff, a return to dime-museum science. Nevertheless, fairgoers drifted over to the museum and attendance remained high during the fair's two seasons. Among the new exhibits to enthrall visitors was the Hall of the Stone Age of the World—a series of life-size dioramas depicting prehistoric people. Here visitors marveled at recreations of caves complete with facsimiles of cave paintings. The mannequins were the work of sculptor Frederick Blaschke and were “pronounced the finest restorations of prehistoric man ever made.”⁹⁰ If the Century of Progress showed

⁸⁹ “Field Museum Starts Prehistoric Exhibit,” *The Christian Science Monitor*, February 3, 1927; “Prehistoric Life Shown in Pictures at Field Museum,” *Chicago Daily Tribune*, June 9, 1928. For more about dinosaur and other paleontology reconstructions and art see: Jane P. Davidson, *A History of Paleontology Illustration* (Indiana University Press: Bloomington, Indiana, 2008); Allan A. Debus, *Dinosaurs in Fantastic Fiction: A Thematic Survey* (McFarland and Company: Jefferson, North Carolina, 2006); ____, *Prehistoric Monsters: The Real and Imagined Creatures of the Past That We Love to Fear* (McFarland and Company: Jefferson, North Carolina, 2010); Allan A. Debus and Diane E. Debus, *Paleoimagery: The Evolution of Dinosaurs in Art* (McFarland and Company: Jefferson, North Carolina, 2002); Jose Luis Sans, Philip Mason, trans, *Starring T.rex! Dinosaur Mythology and Popular Culture* (Indiana University Press: Bloomington, Indiana, 2002).

⁹⁰ “Stone Age Man Depicted,” *Los Angeles Times*, Jul 31, 1933.

Depression-Era Chicagoans the future, this new exhibit, like the Knight murals, revealed the distant past. Chicagoans were enthralled with both.⁹¹

When Simms died in 1937, Clifford C. Gregg became director. Gregg served as assistant to the director and was well acquainted with the administration of the museum. In the late 1930s, despite the Great Depression, the Field Museum drew more than two million visitors who, as the *Christian Science Monitor* reported, “became better acquainted with the world they live in.” In August, John Ladd, a “youth of fourteen years” from New York City was the museum’s twenty millionth visitor to pass through the turnstile and was given a guided tour and a memento of the occasion.⁹² Most visitors were attracted to the museum by the free days on the weekends because people sought escapism where they could. In addition to the visitors to the museum’s exhibit halls, it reached “countless others through the radio and the printed page,” and the traveling exhibits in the schools. The museum remained steadily popular until the outbreak of the World War II.⁹³

In 1941 C.C. Gregg and many other members of the museum’s staff volunteered or were drafted into the armed services. The Field Museum, Academy of Sciences, and most other American museums did their part for the war effort. They offered lecture

⁹¹ Some of the science exhibits at the fair overlapped with the kinds of exhibits at the Field Museum, but in a more dramatic or dynamic fashion. Besides animatronic dinosaurs, exhibits including an exhibit by Ford Motor Company illustrating how each car had its origins in nature. For more about the Century of Progress Exposition see: Cheryl Ganz, *The 1933 Chicago World's Fair: Century of Progress* (Urbana: University of Illinois Press, 2008); Samantha Gleisten, *Chicago's 1933-34 World's Fair: A Century of Progress, Postcard History Series* (Chicago: Arcadia Publishing, 2002); Lenox Riley Lohr, *Fair Management* (Chicago: Cuneo Press, 1952); Robert W. Rydell, *World of Fairs: The Century-of-Progress Expositions* (Chicago: University of Chicago Press, 1993); Robert W. Rydell, John E. Findling, and Kimberly D. Pelle, *Fair America : World's Fairs in the United States* (Washington, DC: Smithsonian Institution Press, 2000); Robert W. Rydell and Laura Burd Schiavo, eds. *Designing Tomorrow: America's World's Fairs of the 1930s* (New Haven: Yale University Press, 2010).

⁹² Ladd was the twenty millionth visitor to the new museum building. C.C. Gregg reported, “in commemoration of this event a certificate of life membership in the Museum was presented to him. He was then escorted to the office of President Stanley Field, who presented him with a miniature of the bronze sculpture by Miss Malvina Hoffman in Chauncey Keep Memorial Hall typifying the Vedda of Ceylon.” *Annual Report of the Director For the Year 1937* Report Series Vol. 11, p. 171, DPR, FMA.

⁹³ “Two Million People Visit Museum in Year,” *The Christian Science Monitor*, Jan 30, 1939.

courses for servicemen on navigation, poisonous and edible wildlife, and disease prevention. For the home front, exhibits of military equipment such as gas masks, ammunition, parachutes, and other materials and helped boost morale as well as revealed the processes by which nylons became parachutes and bacon grease materialized into ammunition. When the war ended and the veterans came home museums faced new challenges in the post-war world, but their essential mission to teach people about nature and encourage respect and understanding of the world around them remained strong, especially in the nuclear age. What began as a concern for a vanishing American wilderness or the treatment of animals was poised to become a more global concern. Americans could destroy cities as much as woods or coral reefs in an instant. The same technology capable of mass destruction also promised limitless (and cheap) energy without smoke and soot. Perhaps green spaces could be preserved and even restored in this new, and increasingly global age. So would the need to develop programs and exhibits to keep visitors coming in the doors, especially as television became a key source of information and entertainment in the 1950s. Since they opened their doors in 1894, the Field Museum and Academy of Sciences were like the *Field of Dreams*. If you build a museum, will the people come? Let's step back and see exactly who these visitors were and why they came to Chicago's natural history museums.

1.9 Who Went to Museums and Why? A Study of Museum Audiences

In 1894 the fledgling Field Columbian Museum envisioned its mission to undertake a "broader knowledge and more penetrating vision" of the world. The first guide to the museum proclaimed; "The Exposition left its uneffaceable [sic] impress on the social, moral and intellectual development of the world. Another effort is inaugurated

to carry forward this purpose, to meet the growing needs of a highly developed people, to gather up truths of the sciences and the triumphs of the industries and preserve them as a perpetual benefit to mankind.”⁹⁴ Curator of anthropology, George A. Dorsey embellished this vision, adding; “The foundation, the corner stone, of a public scientific museum is, or should be, the advancement of science. If it does not do this it fails.” He continued to argue that the museum’s “second function is to place on permanent record, by means of its publications and through its exhibition halls, the evidence of such advancement.” By doing so the Field Museum endeavored to share this work in an intelligent, yet accessible, manner to a lay audience.⁹⁵

Outside observers concurred with Dorsey’s assessment. Considering the legacy a world’s fair might leave for St. Louis, an editorial writer concurred that the:

[Field] museum enriched Chicago by educating her people. An historical museum like the Field forces knowledge upon the people who seeks things through curiosity only, and wholly without intending to acquire information, besides affirming opportunity to the studious that no other means opens to them.⁹⁶

Thus, by 1900, the directors, curators, and philanthropists intended the museum to be emphatically for “the people,” or “the public,” including both educated and uneducated classes.⁹⁷ The idea that the public should have access to museums’ collections gave visitors a sense of ownership. Unlike a private collection that made a personal statement about the owner’s view of the world, the museum wanted the visitor to identify with the collection; as Duncan Cameron argues, “it was being said that this was *your* collection

⁹⁴ Field Columbian Museum, *An Historical and Descriptive Account of the Field Columbian Museum*. 10.

⁹⁵ George A. Dorsey, “Public Support of Scientific Museums,” *Chicago Daily Tribune*, April 28, 1907.

⁹⁶ “The Field Columbian Museum,” *St. Louis Post-Dispatch*, June 25, 1899.

⁹⁷ I use the terms “educated” and “uneducated” classes to roughly equate “middle” and “working” or “lower” classes, because the level of formal education, by “educated” or “middle class” standards was generally concurrent with socio-economic class status.

and therefore it should be meaningful to *you*, the visitor.”⁹⁸ George Goode urged museums to educate visitors as “to impart special information” in an open and accessible way to “aid the occasional inquirer, be he a laboring man, schoolboy, journalist, public speaker, or savant, to obtain, without cost, exact information upon any subject related to the specialties of the institution serving thus, as a ‘bureau of information.’” Beyond the museum he hoped to “stimulate and broaden the mind of those who are not engaged in scholarly research and draw them into the public library and lecture room.”⁹⁹ Chicago’s public museums at the turn of the twentieth century sought to fulfill an Enlightenment ideal that “people have both a need and a right to learn freely and to have free access to knowledge.”¹⁰⁰ As we shall see, the philosophy guiding the design of exhibitions was geared toward making scientific concepts easily understood and separate scientific fact from opinion. Thus, the Field Museum sought to popularize scientific knowledge and play its part in the philanthropists’ mission of uplift by disseminating this knowledge. In order to do so, it had to make the museum collections accessible by encouraging visitors to come into the museum.

According to historian Steven Conn, in the early twentieth century, “science dazzled people because it seemed to provide unarguable results, especially when those results were applied to industry and technology. The dizzying way in which the world was transformed in the late nineteenth and early twentieth centuries—the progress of the age—that virtually everyone took as an article of faith—both reflected and was driven by the triumph of ‘science.’ At the same time, science promised to solve problems and

⁹⁸ Cameron, “The Museum, a Temple or the Forum,” 16.

⁹⁹ Goode, “The Principles of Museum Administration,” 200.

¹⁰⁰ Michael M. Ames, *Cannibal Tours and Glass Boxes : The Anthropology of Museums* (Vancouver: UBC Press, 1992), 16.

answer questions definitively. Science, after all, differed from philosophy and religion precisely because it ended debates rather than stimulated them.”¹⁰¹ It was precisely the facts of science that museums and world’s fairs of the era placed on public display. People were especially drawn to the plethora of consumer goods, medicines, and machines that science (directly or indirectly) produced and made the modern world a dynamic place. For their part, natural history museums displayed the raw materials that made these finished products possible and demonstrated how they were used. This was in addition to showcasing the discoveries of new plants, animals, or cultural artifacts of peoples from far away places. In the age before television or the Internet, these displays gave people a sense of the scope of the world and how we identified and understood the natural world and how people related to it. It could satisfy or inspire curiosity.

These were some of the expectations that many visitors brought with them when they visited natural history and science museums because the displays would ask and answer their questions about nature and science. Exhibits, Steven Conn wrote, “would present the world understood, organized, and managed, and in so doing reinforce the very idea of the power of science.”¹⁰² The fact that museums conveyed these messages by means of objects—something visitors could look personally—undergirded the expectation of veracity on the part of the display. Objects had tremendous power to teach.

In a radio interview, Field Museum Director Clifford C. Gregg suggested that many people came to the Field Museum specifically to learn something. He said,

¹⁰¹ Steven Conn, “Science Museums and the Culture Wars,” in Sharon MacDonald, ed., *A Companion to Museum Studies, Companions on Cultural Studies* (Malden, Massachusetts: Blackwell, 2006), 496.

¹⁰² Ibid.

“Particularly those who come often enough to become acquainted with what the Museum has to offer. Sometimes the subject matter of one of our public lectures will arouse an interest that will become a man’s life hobby. Sometimes the desire to know more about a particular exhibit will send a visitor to the Library to begin a profitable study.” The interviewer asked the director, “Do you cover a wide enough field to interest everyone?” In reply, Gregg stated the museum’s approach to learning in the museum, “Well, we all have our differences in likes and dislikes and our own special interests. But Field Museum covers an enormously wide field, the world and all its natural life and the history of that life. Then we top it off with a Department of Anthropology, the study of man himself.... Unfortunately many people try to do the entire museum in a few hours. They get a hodge-podge of ideas about various materials and a bad case of museum fatigue. Such a stunt is comparable to an attempt to get a college education in a single day.”¹⁰³

Gregg’s ideal museum visitor, as much as G. Brown Goode’s sixty years before, was a blend of fantasy and reality. Most people who entered the museum spent a few hours there, perhaps lingered on something of particular interest or attempted to see as much as possible during the visit. Museum officials such as Gregg believed “one can’t learn that way. Visitors would enjoy the museum much more and get vastly more reward if they would come frequently, for a few hours at a time, and visit different halls on different occasions.”¹⁰⁴ There were people who visited (and still do visit) museums this way, but most people visited museums casually and infrequently. Tourists (then as well as now) cannot practically be repeat visitors in the same way as locals. Cost—

¹⁰³ Transcript of Radio Program on WJJD, August 13, 1940, 2, DPGC, FMA.

¹⁰⁴ Ibid.

admission—but also transportation was a factor along with available leisure time (or in the case of class visits, scarce school resources). Nevertheless, there are people who “like to learn for the sheer joy of knowing things. They are just wide awake. Keen people who want to understand the world they live in. Every child has an inherent desire for knowledge...”¹⁰⁵ Teddie Koehler was one of these ideal visitors who made a strong connection to an exhibit and furthered their curiosity of the natural world. Of her experience she wrote, “I am one of the three girls who spent a delightful morning in your room looking at butterflies and months. Since I have come home to northern Wisconsin I have found a caterpillar on a willow tree that seems to me to be very unusual.... I would like to know what kind of moth or butterfly it will turn into and if it is worth going through a lot of trouble for, and if there is anything special I should do to keep it alive if you could find out.”¹⁰⁶

As a museum visitor, Teddie Koehler was neither unique nor typical, but one of a range of possible levels of engagement. She used the museum as a place to learn and it inspired an interest in butterflies (for example, it is not uncommon today for children—and adults—to go to the Shedd Aquarium and then want to have pet fish at home). There were many uses of museums that are still common today. Teachers brought their classes or extracurricular groups to the museum and used it as an extension of their classrooms. Parents sometimes brought children to the museum as a day of amusement and a chance, sometimes at the annoyance of others, to run free indoors. Adults went to museums for personal edification, out of scholarly or professional interest, and as a place for quiet

¹⁰⁵ Ibid.

¹⁰⁶ Letter, Teddie Koehler to Field Museum, July 25, 1938, DPGC, FMA.

contemplation. Museums opened their theaters and galleries for meetings of related clubs or organizations. Here experts and amateurs mingled to talk shop and form friendships.

They were—and continue to be tourist destinations. In Chicago as in other cities around the world going to museums was part of experiencing the hallmarks of a city (a part that was generally safe and family friendly and encouraged spending money). Museums also were places to socialize—from the 1920s—they were places for courtship and dating. As semi-public spaces ensured good behavior but also allowed people a dose of privacy in alcoves and quiet galleries. Today, museums continue to be part of the dating scene in addition to adults-only nights, microbrewery festivals and other events to raise money for the museum. Museums rent out their large spaces for private events and offer overnight programs for children. Indeed, there are many uses of the museum in terms of its contents and its physical space that do not square with their ostensible purpose but have become a necessary part of their existence.

For most people, the promise of learning science was not enough to entice visitors. Clearly there had to be popularizing or titillating advertisements or some kind of “gee whiz” to get people in the doors. Throughout the early twentieth century, museums faced increasing competition from other leisure time amusements. As the *New Orleans Times Picayune* reported in 1930 there were “nearly 1,000 museums in the country but the number of persons who visit them is small out of all proportion.” Why was this so? Reporter Frederic Haskin wrote, “This doubtless is due to the abundance of other entertainment in these modern times. With the movies around the corner and the radio at home, with the automobile and a thousand and one other diversions, the people are inclined to pass by the museums as being too dull to justify expenditure of any part of a

short leisure.” The *Times Picayune* neglected to include amusement parks, carnivals, baseball games, and other sports to the list of diversions. Whatever drew people away, the competition was so “keen that few but students and specialists” were visiting museums.¹⁰⁷

C.C. Gregg defined the purpose of the Field Museum—and by extension that of other public natural history museums: “At the museum we gather natural and man-made objects together, preserve them carefully, and put them on display in an order and in groupings that make them useful and easy to appreciate. But most important of all, we label them. Not only do we give the names, but we give brief stories about them, telling where they come from, what they are like. Through these labels you can learn to know the objects, compare them, and understand their meanings. And our visitors can depend on our labels to tell the exact truth as far as we can possibly discover it.”¹⁰⁸

Years later, Chicago Academy of Sciences Director Harold Gloyd came to a similar conclusion, “Most people visit museums with much the same attitude they take to a zoo and are a little disappointed when the museum does not give them as much for their money (even if there is no admission charge) since the exhibits necessarily are more or less static. It seems to me that the public in general does not want education, but entertainment.” Gloyd acknowledged his pessimistic view and admitted that sometimes institutions are at fault for this. However, he was “against museum practices akin to circus ballyhoo.”¹⁰⁹

¹⁰⁷ Frederic J. Haskin, “Taking Romance of Museums to Public Planned” in *New Orleans Times Picayune* March 2, 1930, Harris Extension, FMA.

¹⁰⁸ Transcript of Radio Program on WJJD, August 13, 1940, 3-4, DPGC, FMA.

¹⁰⁹ Letter, Harold K. Gloyd to James A. Fowler, Academy of Natural Sciences, Philadelphia. May 6, 1948, H.K. Gloyd Correspondence, CAS.

Scholars in many humanities fields, including history, have tended to be critical of the so-called elitist tendencies of museums. Historian Joel Orosz's study of nineteenth century American museums dealt with an era when, museums were generally intended for the elite. Critiques that emerged late in the nineteenth century by the likes of George Brown Goode echo the charges scholars made a century later. Some have argued that museums were and continue to be elite preserves, while others interpret museums as more open and democratic (even if funded and curated by elites). Orsoz summed the debate up well when he wrote: "The democratic criticism charges that museums have long been unresponsive to the needs of the general public, instead serving the desires of elitists drawn from the ranks of such groups as highly educated historians and scientists, or those with unusually acute aesthetic sensibilities, such as artists. At best, say the critics, the museums have failed to take steps to attract the people; at worst they have actually discouraged the public from attending."¹¹⁰

Marjorie Schwarzer concluded that despite their emphasis on public education, early museums across the nation sent mixed messages. Museums opened their doors everyday of the week, even Sunday, and often at night, but to whom? Even though they were open without charge, museums asked a lot of the average middle or working-class visitor. The architecture was often grand and imposing and made some people feel unwelcome. Some museums, and Southern institutions in particular, did not admit African American visitors, or opened their doors to "colored" visitors only one day a

¹¹⁰ Orosz, *Curators and Culture*, 239.

week, but limited access to basic amenities, like restrooms. Schwarzer noted that even in Northern museums some museum guards refused to allow black visitors.¹¹¹

Museums of the late nineteenth century “promised to uplift humanity,” Schwarzer writes, but there was “ambivalence about the prodigal details of reaching that goal. Directors frequently complain not only of visitors touching the objects, but whistling, singing, nose blowing, the spitting of tobacco juice on the gallery floors and disruptions by unruly children. Many museum staff held definite attitudes about how visitors should look and behave. As if in church, visitors should be properly attired and reverent. As if in a stranger's house, they should be exceedingly polite and not handle anything that didn't belong to them.”¹¹² What is the most accurate interpretation here? For whom were Chicago's museums actually intended and who were the visitors who entered the doors?

1.10 Museums for the Masses

As we have seen, Chicago's museums established after the World's Columbian Exposition departed from earlier traditions.¹¹³ The museums of the 1890s clearly mark the beginning of the modern museum. The evidence suggests that the new Chicago Academy of Sciences museum and the Field Museum, from their nearly simultaneous

¹¹¹ Schwarzer, *Riches, Rivals, and Radicals*, 10.

¹¹² *Ibid.*, 10-11.

¹¹³ Museums were very exclusive organizations in the late eighteenth through the first half of the nineteenth centuries. These were quiet spaces for young men of means to engage in serious study of natural science. The collections of natural history specimens were collected by explorers and purchased from whaling or fishing vessels by wealthy men in scientific societies or colleges for a private or semi-private collection. Anthropologist Michael Ames discusses the draconian admission policy of the British Museum in the eighteenth and nineteenth centuries in *Cannibal Tours and Glass Boxes* 18-21. See also: Whitfield J. Bell, *A Cabinet of Curiosities: Five Episodes in the Evolution of American Museums* (Charlottesville, Virginia: University Press of Virginia, 1967); Edward P. Alexander, *Museum Masters: Their Museums and Their Influence*; Aileen Fyfe and Bernard V. Lightman, *Science in the Marketplace: Nineteenth-Century Sites and Experiences* (Chicago: The University of Chicago Press, 2007). G. Brown Goode and Sally Gregory Kohlstedt, *The Origins of Natural Science in America: The Essays of George Brown Goode* (Washington, DC: Smithsonian Institution Press, 1991), George Brown Goode, *The Genesis of the National Museum* (Washington, DC: Smithsonian Institution Press, 1892).

inception in 1894, were open and welcomed visitors of all races and classes. By making the collections accessible, the museum was popularizing science and democratizing knowledge. Universities, while still exclusive institutions, were also broadening access. For instance, the University of Chicago reflected popularizing tendencies of the period. President William Rainey Harper believed in greater access to education and a series of programs such as correspondence courses and summer school for teachers made greater access possible. The quarter system too, was partially geared toward making terms manageable for students who worked and also faster completion of programs.¹¹⁴

It is worth pausing to understand how the museum carried out its mission to accumulate and disseminate knowledge by offering education and entertainment to anyone who was interested enough to walk through the door. While museums embraced systematic research and evaluation of visitor experiences later in the twentieth century, institutional concern about what groups of people went to museums and why they went there can be traced to the nineteenth century.¹¹⁵ By the 1930s, the data collected by curators, directors, and other museum workers consisted of the numbers of visitors, observations, and photographs of visitors in the galleries. It is sensible to take the museum's data seriously because order, classification, and quantification were the museum's business; i.e. they counted and organized people as well as objects and collections. In a way, museums were symptomatic of the Gilded Age and what Robert Wiebe termed, "a search for order."¹¹⁶ This information in conjunction with newspaper

¹¹⁴ See: John W. Boyer, *The University of Chicago: A History* (Chicago: The University of Chicago Press, 2015); Richard J. Storr, *Harper's University: The Beginnings: A History of the University of Chicago* (Chicago: The University of Chicago Press, 1966).

¹¹⁵ Tony Bennett, "That Those Who Run May Read," in *The Educational Role of the Museum*, ed. Eilean Hooper-Greenhill (London and New York: Routledge, 1994), 242.

¹¹⁶ Robert Wiebe, *The Search for Order, 1877-1920* (New York: Hill & Wang, 1967). The data about museum visitors is inconsistent during the early period. Some museums gathered better or more detailed information than others.

reports, editorials, and articles provides a window to observe the visitors of the past. Museums were created by benefactors with high hopes for their philanthropic activities to “uplift,” or encourage middle-class ideals among the urban masses through exposure to culture—art and science—which could, as Tony Bennett argues, wean working class people “away from the bad habits of excessive drunkenness, gambling, and debauchery and lead it to adopt more refined and elevated customs and manners” acceptable to the middle class establishment.¹¹⁷ It was also part of the desire by some reformers to Americanize new immigrants.

In theory and practice, the Chicago Academy of Science and the Field Museum popularized science by offering their collections to anyone who was willing to go and see them. This was so nearly from the beginning. The *Chicago Daily Tribune* reported that 3,000 people passed through the turnstiles of the Field Columbian Museum on June 17, 1894. This was not only one of the largest single days of attendance for the new museum but significantly, the majority of them “had the appearance of thrifty workmen” who had “come early and brought their families along and staid [sic] all day.”¹¹⁸ Clearly this was not solely a place for a bourgeois outing.

The Chicago Academy of Sciences did not keep the same rigorous track of visitor numbers that is kept nowadays, but the staff did the best they could to keep some record. Academy officials were called about witnesses during the Field Museum’s legal battle with Montgomery Ward and testified as to the patterns of visitation at the Academy’s

¹¹⁷ Bennett, “That Those Who Run May Read,” 249. Eilean Hooper-Greenhill considers uplift in terms of nineteenth century reformers desire to provide “rational recreation” for the working classes along with a conviction that art museums in particular, had the power to humanize and civilize. See: Eilean Hooper-Greenhill, *Museum and Gallery Education*, 10. See also: Tony Bennett, *The Birth of the Museum: History, Theory, Politics, Culture* (London and New York: Routledge, 1995); McCarthy, *American Creed*; _____, *Noblesse Oblige: Charity & Cultural Philanthropy in Chicago, 1849-1929*; Ivan Karp and Steven Lavine, *Exhibiting Cultures: The Poetics and Politics of Museum Display* (Washington, DC: Smithsonian Institution Press, 1991).

¹¹⁸ “Large Attendance at the Museum,” *Chicago Daily Tribune*, Jun 18, 1894.

museum. In its first fifteen years in Lincoln Park (1893-1908), the Chicago Academy of Sciences averaged 339,352 visitors each year. In a single week in 1908 (six days) the Academy welcomed 4,811 visitors and by director Frank Baker's calculation, this meant an average of 802 visitors per day.¹¹⁹ The Academy was open, free of charge, seven days a week, but Sunday was limited to the afternoon only. By comparison, the Field Museum in Jackson Park charged an admission fee during the week and averaged 22,465 visitors a year (a total of 3,664,452 from 1894-1908).¹²⁰ The Field had turnstiles that counted the number of people entering the museum and thus, recorder David C. Davies was able to reliably and systematically track attendance figures. Even with a large margin of error, the Chicago Academy of Sciences attracted nearly as many visitors with its free admission and accessible location. The best yearly attendance in Jackson Park was 328,321 visitors compared to the first full year of operation south of Grant Park downtown when the museum had 386,299 visitors.¹²¹

Museum attendance generally increased each year especially as tourism blossomed in the 1920s and the need arose for distractions from hardship during the Great Depression. The attendance figures outlined in annual reports, correspondence, and sometimes printed in the newspapers all point to the popularity of the institutions and the diversity of visitors. These were not exclusively the preserves of the well to do or the refined middle class.¹²²

¹¹⁹ Testimony of Frank C. Baker, *A. Montgomery Ward vs Field Museum of Natural History*, 866-867.

¹²⁰ *A. Montgomery Ward vs Field Museum of Natural History* "Defendant's Exhibit 5."

¹²¹ Letter, David Charles Davies to City Editor, *Chicago Herald and Examiner*, January 6, 1921, DPGC, FMA; *Annual Report of the Director for the Year 1922*, Vol.6, 130, DPR, FMA.

¹²² In the words of Frank Baker, "anyone who behaved themselves, from any quarter of the globe." *A. Montgomery Ward vs Field Museum of Natural History*, 866-867.

One can see this openness by examining one common complaint from visitors about their experiences. For instance, Lawrence Millington complained to Charles Hills, secretary of the Chicago Academy of Sciences about the “absolute freedom of action you accord to children and mothers or caretakers who accompany them is at times, if I may be allowed, boisterous and very annoying” and he hoped the Academy would get “control of these visitors and compel them to pay attention to the comforts of others who may be there for study.” He suggested that the Academy place cards at the entrance stating “no boisterous or unseemly conduct will be permitted under the penalty of ejection if persisted in after warning.”¹²³ Millington’s suggestions were ignored.

This democratic openness was not empty rhetoric. The presence of working class visitors in Chicago’s museums was readily observed by the museum staff and outside commentators. In addition to director’s reports, bulletins, and advertisements, newspapers, as historian Kathleen McCarthy notes, “continually commented on the size and composition of the crowd, which included, ‘every class of society.’” In the Art Institute, a journalist reported that “workmen go stumping over the mosaic floor with their hob-nailed boots, and women, with no head covering but a shawl, stare respectfully at rare Old Masters.”¹²⁴ Field Museum director F.J.V. Skiff echoed this idea in his conception of the museum’s role in society. He firmly believed that the museum “should reach all classes” and that a “museum should be dedicated to the people- very ignorant people, very thoughtless people, poorly educated... bad people, good

¹²³ Letter, Lawrence B. Millington to Charles F. Hills. July 31, 1922. C.F. Hills Correspondence, CAS.

¹²⁴ Quoted in McCarthy, *Noblesse Oblige*, 88.

people...educated... and very wise people.”¹²⁵ While the museum was open for all, the exhibits were designed within a framework of a middle class conception of order and place created by curators and scientists. The secrets of nature and humanity’s past (and implications for the future) could be revealed and understood through classification and categorization. However, as we shall see, in the early twentieth century progressives and environmentalists expressed concern about the vanishing wilderness and the first national parks were established.¹²⁶ Curators also wanted to impart a concern for a vanishing wilderness upon the visitor by showing anthropology and natural history specimens from around the world, gathered by American explorers and experts.

Museums needed to be open for visitors in order to enlighten them. They did not operate twenty-four hours a day, but were open when many middle and working class individuals could find time for leisure activities. While for working people a trip to the museum may be a special day, museum going was part of middle-class leisure patterns.¹²⁷ The urban and suburban middle class regularly went to museums, galleries, symphony concerts, and lectures as a leisure activity, as a form of education and to embrace “high culture” generally. A tour through the Field Museum was part of a ritual of spending an afternoon downtown. It was an opportunity to introduce their children to genteel tastes and to mingle with their peers in a public space or spend an afternoon in quiet contemplation. Some of the people spending leisure hours downtown were simply

¹²⁵ F.J.V. Skiff, "A Dissertation by F.J.V. Skiff: Address Delivered at the University by the Director of the Columbian Institution: Its Moral and Educational Force," 1-2, DPGC, FMA.

¹²⁶ See Dayton Dunkin and Ken Burns, *The National Parks: America's Best Idea* (New York: Alfred A. Knopf, 2008).

¹²⁷ For studies involving middle class leisure patterns, particularly downtown amusements such as shopping, matinees, movies, and museums, see: Cindy Sondik Aron, *Working at Play: A History of Vacations in the United States* (New York: Oxford University Press, 1999), *The Great Chicago Theater Disaster*, Memorial ed. (Chicago: C.W. Stanton, 1904), Jim Edwards, *Chicago's Opulent Age: 1870s-1940s in Vintage Postcards*, Postcard History Series (Charleston, South Carolina: Arcadia, 2001), Duis, *Challenging Chicago: Coping with Everyday Life, 1837-1920*, Gilbert, *Perfect Cities: Chicago's Utopias of 1893*, Lloyd Wendt and Herman Kogan, *Give the Lady What She Wants!: The Story of Marshall Field & Company* (Chicago: Rand McNally, 1952); Anthony P. Hatch, *Tinder Box: The Iroquois Theatre Disaster, 1903* (Chicago: Academy Chicago Publishers, 2003).

“visitors,” who simply went to the museum for the day either for free, or paid admission at the door for the day only. Tourists from other cities or countries counted among visitors to Chicago’s museums (as they do today). Even in the midst of war, there was a role for natural history museums. A training camp activities director asked for information about the Field Museum’s open hours, free days, and what to see there.

Other visitors were “members” who gained access to the museum frequently by paying a much larger fee (to help support the museum) and also received publications or invitations to events not open to the general public, such as a preview of a traveling exhibition. The middle class made up the heart of the membership of these institutions, which they valued as a means of support. For example, the Field Museum’s publications contained information regarding the several types of memberships that the museum, in turn, invested. The memberships for the Field Museum were on par with other natural history museums, such as the American Museum, which began at ten dollars per year and a single payment of one hundred dollars for a life membership.¹²⁸

While the museum valued the revenue from memberships, it needed to be open without (or with the smallest) a fee in order to reach the widest possible audience. If the museum always charged an entrance fee, working class visitors would not be able to afford repeat visits, nor would the museum attract as many first-time visitors. It would be a financial hardship for many workers to pay for transportation, admission, and concessions. For all visitors, the burden of going to the museum depended on whether admission was free, on the mode of travel, on membership status, and on age. Additional costs would be incurred for checking canes and umbrellas, purchasing guidebooks,

¹²⁸ *A General Guide to the American Museum of Natural History*, vol. 4, Guide Leaflet (New York: American Museum of Natural History, 1904), 58. Field Columbian Museum, “Annual Report of the Director to the Board of Trustees for the Year 1903-1904,” in *Report Series* (Chicago: Field Columbian Museum, 1904), 322.

souvenirs, or food items. The Field Museum charged five cents per article to check. Post cards were sold for a penny each. Guidebooks were expensive by comparison, twenty-five cents. Concessions and souvenirs could be the most expensive part of a museum visit. For the workers, none of these costs alone would break the bank, but to partake in all of them would be expensive. According to studies of wages, behavior, and amusement patterns conducted by Leila Houghteling (it is generally understood there exists a gap between what one should do and what one does), the admission fee for a museum is one-fourth of a family's monthly budget for "Health, Education, and Recreation" under "Incidentals." Put another way, the admission fee is more than half the average hourly wage for one hour of unskilled work, approximately half the hourly wage for semi-skilled work, and a quarter of the skilled worker's hourly pay. This is accurate across the color line. Therefore, it is easy to see why a working family would go to museums on free days.¹²⁹

Admission by itself was relatively inexpensive, but combined with transportation could make the outing become costly.¹³⁰ For example, when the Field Columbian Museum opened in 1894, the charge for admission, or "entrance fee" was twenty-five cents for adults and ten cents for children under twelve, Monday through Friday (approximately \$6.91 and \$2.76 in 2015 dollars).¹³¹ The museum was open for free on Saturday and Sunday and always free to school groups. The hours of operation were

¹²⁹ Leila Houghteling, *The Income and Standards of Living of Unskilled Laborers in Chicago* (Chicago: The University of Chicago Press, 1927), 145, 12. This information is consistent with data found by the Illinois Department of Labor. For example, see: Department of Labor, "Tenth Annual Report of the Department of Labor July 1, 1926- June 30, 1927 Statistics of Industrial Accidents and Building Statistics," ed. Department of Labor (Springfield, Illinois: Journal Printing Company, 1927), ———, "First Annual Report of the Department of Labor July 1, 1917- June 30, 1918," ed. Department of Labor (Springfield, Illinois: Journal Printing Company, 1918).

¹³⁰ Transportation by elevated or streetcar cost five cents, which may or may not include a transfer. Cabs and Hacks cost more, fifty cents per mile. For routes and fares see: *A Guide to the City of Chicago*, (Chicago: The Association of Commerce, 1909), 37, 42-43, and M.D. Tillotson, *Tillotson's Pocket Map & Street Guide of Chicago*, 1900 ed. (Chicago: M.D. Tillotson, 1900), 124-135, 156.

¹³¹ I calculated these figures using The Inflation Calculator. <http://www.westegg.com/inflation/> Accessed September 1, 2015.

nine-to-four except during the summer months when the museum remained open until six o'clock.¹³² After the move to the lakefront in 1921, the museum was open fewer hours, from ten to four every day, but the admission charge remained twenty-five cents, justified "to cover incidental expenses." The museum added an additional free day, Thursday, in addition to Saturday, and Sunday.¹³³ In order to build the lakefront museum, the Illinois legislature stipulated a provision allowing the museum to assess a fee provided that "the museum shall be open to the public without charge for three days each week and to school children at all times."¹³⁴ The South Park board levied a tax on residents to provide some support for the Field Museum and the Art Institute and because they received public funds, they were obligated to be open free of charge several days of the week.¹³⁵ These changes in operating hours were part of a trend to make the museum more accessible. The Art Institute was also making their collections open to the public longer. During the summer, with additional hours of daylight and schools out of session, museums hoped to bring in more visitors. For example, the Field Museum in 1922 extended its hours until five o'clock during the month of October, and February through April. During the summer, the museum was open daily until 6 o'clock.¹³⁶

¹³² Field Columbian Museum, *Guide to the Field Columbian Museum with Diagrams and Descriptions*, 2nd ed. (Chicago: Field Columbian Museum, 1894), frontispiece. The twenty-five cent fee was considered "within the reach of all" and was consistent with the museum being "for the people." See: "Opening of the Museum," *Chicago Daily Tribune*, Jun 3, 1894.

¹³³ "\$6,750,000 New Field Museum to Open Tomorrow," *Chicago Daily Tribune (1872-1963)*, May 2 1921.

¹³⁴ "The Field Museum," *Chicago Daily Tribune (1872-1963)*, August 6 1903.

¹³⁵ Individual park districts were merged into the single Chicago Park District in 1934. See: Julia Sniderman Bachrach, "Park Districts," *Encyclopedia of Chicago* online: <http://www.encyclopedia.chicagohistory.org/pages/955.html>. Accessed November 1, 2016.

¹³⁶ "Field Museum Extends Hours for Visitors," *Chicago Daily Tribune (1872-1963)*, February 12 1922., 18. For comparison, the Art Institute also charged a twenty-five cent admission fee and was open free Wednesday, Saturday, and Sunday. The Institute also adjusted its hours to induce visitors. For example, in 1901, the museum was open from nine until five during the week and from one o'clock on Sunday. Museum staff noticed lines waiting to enter in inclement weather, so in 1911 the Institute opened at 12:15 on Sundays, and later extended until ten o'clock in the evening. Remaining open late in the evening was exceptional. See: Art Institute of Chicago, "The Art Institute of Chicago Twenty-Second Annual Report," (Chicago: Art Institute of Chicago, 1901); "The Art Institute of Chicago Thirty-Fourth Annual Report," (Chicago: Art Institute of Chicago, 1913); "The Art Institute of Chicago Thirty-Third Annual Report," (Chicago: Art Institute of Chicago, 1912).

The 1920s saw the birth of modern advertising and the Field Museum began to actively reach out to potential visitors—from workers and suburbanites, but also to tourists. For example, the *People's Gas Gazette*, a publication for the company's customers, printed advertisements of upcoming lectures, expeditions, and new exhibitions. Booklet advertisements and handbills were distributed to conventioners meeting in the city such as the International Livestock Exposition. Visitors were reassured “you will not regret time spent in Field Museum” and that “the animal exhibits alone will repay you.” The pamphlet summarized the museum's collections and suggested “among the exhibits of Anthropology, Botany, Geology, and Zoology, all of which are interesting and instructive, the wild animals will probably attract the attention of the visitor to the Stock Show. These groups are among the finest in the world.” The museum also advertised in theater playbills for many of the downtown theaters.¹³⁷

The Field Museum could afford expensive and extensive advertising campaigns. One of the most ambitions was directed toward people driving into the city. The Cusac Advertising Company created more than a dozen large signs, fifteen by eighteen feet, for placement along the principal highways leading into the city. Additional signage was rotated around the metropolitan area throughout the year. The constant change of location was called a floating display and was considered the best type of advertising at the time.¹³⁸

¹³⁷ Advertising copy, DPGC, FMA. We know for sure that one group from Tennessee enjoyed the museum thoroughly. G.L. Herrington and a group of children wrote to the Field Museum to “thank you for the privilege you extended us in allowing this enormous party to go through the museum. We saw a great many things of interest while in Chicago but nothing was more educational than the visit through the museum.” Letter, G.L. Herrington to D.C. Davies, n.d., DPGC, FMA.

¹³⁸ Memorandum, R.R. More to D.C. Davies, February 25, 1924, DPGC, FMA.

On elevated trains a series of posters advertised the museum with images of the American eagle, cobra snakes, the pomegranate plant, and of African jewelry; while additional posters were installed in suburban railroad stations. Special public relations efforts were made for holidays, such as the “Mysterious Mummies” signage that appeared on Chicago Surface Lines streetcars to lure people to the museum on Labor Day weekend in 1928. Other posters featured photographs of dinosaur skeletons and Charles Knight’s prehistoric murals, and popular habitat groups such as the American Buffalo or Mule Deer.¹³⁹

During the 1920s, the Field Museum frequently advertised in ethnic and foreign language newspapers including *Zgoda*, *Jewish Courier*, *Svornost*, *Szabadsag*, *L’Italia*, *And Swedish Trubnen*. Placed by the International Newspaper Advertising Service, these advertisements enticed readers with longer hours and free days. “Special effort,” one advertisement advised, “should be made to see the Hall of Plant life, the Meteorites, American Indians, Groups of Birds and Mammals, Prehistoric Animals, Chinese Costumes and Egyptian Mummies.”¹⁴⁰ One cannot underestimate the importance of the press as a means of advertising and attracting visitors to the museum.

In the summer of 1927, the Field Museum remained open late and offered itself as a refuge from a heat wave. It was the perfect place because the “building looks cool and is cool.”¹⁴¹ The museum hoped that it offered a refreshing atmosphere in general but in particular with the psychological effect of the “exhibits of Eskimos, polar bears in their

¹³⁹ Memoranda, R.R. More to D.C. Davies, March 18, 1924 and September 4, 1924; Letters, H.B. Harts to S.C. Simms, June 11, 1928 and August 13, 1928, DPGC, FMA.

¹⁴⁰ Memorandum, R.R. More to D.C. Davies, July 17, 1924; letter, S.K. Howard, International Newspaper Advertising Service to Douglas W. Gibson, Field Museum, May 2, 1925, DPGC, FMA. The museum advertised in German, Hungarian, Russian, Greek, and Slavish papers as well.

¹⁴¹ “Chicagoans Invited to Inspect Field Museum,” *The Chicago Defender*, July 23, 1927..

native settings, and other collections brought from the arctic regions.” Of course, a visitor could also appreciate the artifacts and specimens of the desert and hot places “in the greatest comfort.”¹⁴² What is telling is that this article appeared in the *Chicago Defender*, the city’s African American newspaper. Blacks and whites alike were both welcomed and encouraged to come to the museum.¹⁴³ While Chicago was certainly not free of racism and discrimination, evidence supports the fact that there was no real color line, either by intention or practice at Chicago’s museums, reaching the widest possible audience.¹⁴⁴ Chicago was not a Jim Crow town, although it was divided along racial, ethnic, and class boundaries. Thus, there were no legal barriers separating people but instead a kind of de facto segregation. African Americans knew where they would or would not be welcomed, or at least, be assisted by a clerk or waiter in a generous manner. Working class people likewise felt unwelcome in some places. More often, they were simply priced out. In other words, economics proved a sufficient divider of people in

¹⁴² Ibid.

¹⁴³ Briefly, some scholars, such as Robert Rydell interpret expositions from a hegemonic perspective that sees fairs (and their museum legacies) as oppressive and racist toward nonwhites while condescending to the working class. The entire operation promoted white middle-class culture for a white middle-class audience and marginalized others. Rydell summarizes the World’s Columbian Exposition in *All the World’s a Fair* (1984) as “a utopian construct built upon racist assumptions” because exposition administrators perceived all non-whites as possessing lesser degrees of civilization compared to an American ideal. On the other hand, the counter-hegemony school challenges the hegemony school by stressing a more inclusive depiction of the Exposition. Christopher Reed’s *All the World is Here: The Black Presence at the White City* (2000) stands in contrast to Rydell’s focus on racism and imperialism. To illustrate the dialog between the hegemony and counter-hegemony perspectives, consider the specific issue of African American’s involvement and presence at the Exposition. Reed and Rydell have contrasting interpretations of *The Reason Why the Colored American is Not in the World’s Columbian Exposition* (1893). See: Rydell, *All the World’s a Fair*; _____, *World of Fairs*; Rydell, et. al., *Fair America*; Ida B. Wells, *The Reason Why the Colored American is Not in the World’s Columbian Exposition* Reprint ed., (Chicago: University of Illinois Press, 1999), and Christopher Robert Reed, *All The World is Here! The Black Presence at White City* (Bloomington: Indiana University Press, 2000). For museums specifically, see: Conn, *Museums and American Intellectual Life, 1876-1926*.

¹⁴⁴ There are many newspaper articles concerning African Americans visiting or contributing money, art, or time to the Art Institute and Field Museum (but not as frequently the Academy of Sciences). See the following articles in The Chicago Defender: “Field Museum Open Free Thanksgiving,” November 24, 1934; “Free Movies at Field Museum for Billikens,” October 5, 1929; “For Teachers,” The Chicago Defender, July 7, 1928; “Rare Drum on Exhibit at Field Museum,” June 27, 1929; “Leaflet at Museum Tells About Jewels,” September 15, 1928; “Brings Back Large Drums from Africa,” April 18, 1928; “Things You Should Know,” February 4, 1928; “Will Display Work of Race at Art Institute,” November 5, 1927; “Chicagoans Invited to Inspect Field Museum,” July 23, 1927; “Field Museum Offers Aid to Parents During Summer Break,” July 2, 1927; “Kojo Is Guest of Field Museum, Sears-Roebuck,” November 1, 1924; “Appreciating Art,” December 1, 1923; “Art Institute Honors Mr. And Mrs. Abbott,” July 22, 1922; “Says African Art Deserves High Ranking,” July 8, 1922; “Find Ruins of Old City Now Extinct,” December 2, 1922; “At the Art Institute,” February 26, 1921; “Exhibition at Art Institute,” June 28, 1919; “Very Encouraging,” November 18, 1916; “Local Artist Will Have Choice Exhibit at Art Institute,” February 13, 1915; “Under Difficulties,” February 3, 1912; “William A. Harpers Paintings Exhibited,” August 6, 1910.

Chicago regardless of color or ethnicity. According to sociologists St. Clair Drake and Horace Cayton, “White people in the city are not ordinarily disturbed by their [African Americans] use of libraries, museums, or the city junior colleges, but there are public situations where an attempt is sometimes made to draw the color-line” such as when blacks go to parks, beaches, or schools in white middle-class neighborhoods.¹⁴⁵

African Americans visited museums and followed attendance patterns similar to that of whites because, despite economic inequalities and divisions, a spirit of openness prevailed and people were interested in the museum. For instance, the location and plans for Soldier’s Field received warm praise from the *Chicago Defender* not only because of its architecture but also the principles of an open city: “When the stadium is a reality it will have none of the features characteristic of those buildings of a smaller type erected in the South. Everyone in Chicago will be allowed its use without facing discrimination and Jim Crow laws. If such a building was erected in Texas, the premier lynch state of the South, members of our Race would not be permitted to walk within a block of it.”¹⁴⁶

While there was an element of boosterism promoting the stadium and cultural institutions, they also reflect a genuine interest in these places among African Americans. The Field Museum welcomed and encouraged African Americans to visit the museum.¹⁴⁷ The *Chicago Defender* reported places open to people of color where they could expect to be treated decently and the museums were repeatedly listed. According to the *Defender*, “if you are a visitor to Chicago” there are some “outstanding features of this city’s life which you must see if you want to say you have seen Chicago” and lists the

¹⁴⁵ St. Clair Drake and Horace R. Cayton, *Black Metropolis: A Study of Negro Life in a Northern City*, 1933 ed. (Chicago: The University of Chicago Press, 1945), 102-103.

¹⁴⁶ “Million-Dollar Stadium for Chicago,” *The Chicago Defender*, June 10 1922.

¹⁴⁷ The museum undoubtedly solicited advertisements and bulletins in the papers. For example, see: “Visit Field Museum,” *The Chicago Defender*, June 4, 1921.

Field Museum and Art Institute along with the Appomattox Club, Chicago Public Library, Eighth Regiment Armory, Binga State Bank, Lincoln Park Zoo, Union Stock Yards, and the YMCA or YWCA [later it added the Shedd Aquarium, Adler Planetarium and Buckingham Fountain].” These places were listed because “they form a bird’s eye view of this city as a commercial center,” and furthermore, “Chicago makes no color distinction at these places. Here you are accepted at your face value.” Significantly, the paper made clear that “There are no special days for the different races. All these place are open and free on Sundays and holidays, while a small fee is charged on certain other days of the week.”¹⁴⁸ Through the *Defender*, the museum was appealing to interested African Americans to come into the exhibit halls and share learning opportunities.

1.11 From Museum Edutainment to Creative Meaning

Natural History Museums continue to serve an important function in the twenty-first century by providing opportunities for, in current parlance, “creative meaning.”¹⁴⁹ Visitors are supposed to learn and be entertained at the same time. Museums continue to draw visitors on vacations, holidays, and school children on field trips. The museums continue to do scientific research, though museums have been far surpassed by universities in the production of new knowledge.¹⁵⁰ While the latest scientific or archaeology discoveries are not being made exclusively by museum staff, and explorers are not taming the wilds of colonial lands, as institutions they continue to capture the public imagination. Andrea Witcomb wrote, “The association of the museum with the

¹⁴⁸ “Where to Visit,” *The Chicago Defender*, July 26, 1930. See also: “Mrs. Ferguson Entertains Visitors,” *The Chicago Defender*, July 26 1913; “Color Caste Passing,” *The Chicago Defender*, December 20 1913.

¹⁴⁹ The term “edutainment” is out of fashion today with some professionals using “post-edutainment” and others “creative meaning.”

¹⁵⁰ Conn, *Museums and American Intellectual Life*, 27.

exotic is still one of the most dominant images of the museum in the popular imagination—dark and musty places, full of strange objects.... It is not the narrative of progress that is remembered, but the exotic, the strange—museums as houses of mystery” fit for Indiana Jones.¹⁵¹

The Field Museum of Natural History and Chicago Academy of Sciences made their exhibit halls accessible to a general audience. Indeed, collections of artifacts and scientific specimens were once the province of learned men and aristocrats. During the era of museum building, these collections became property (if only symbolically) of the people. The purpose of the institutions was to popularize science through typological exhibits curators believed were easy to understand. Curators believed objects, if properly displayed, could teach lessons. Curators collected, interpreted, and displayed specimens and artifacts based upon their understanding of culture and evolutionary progress. The museum placed great faith in science, which was understood to be a relational (as opposed to superstitious) way of knowing, and a systematic approach to problem solving. Thus it was also appropriated as a means to solve social problems—hence “social science” and “scientific management.” While this study only begins to scratch the surface, it is clear that museum history can reveal much about how these different variations of scientific understanding changed over time and, more importantly, how these changes were filtered to the public. Museums were on the forefront of scientific research and education because, unlike universities, they could reach the masses. That is a point of disagreement with other scholars—the Field Museum was inclusive, not exclusive from the beginning, and committed to teaching “object lessons” and opportunities to “uplift” those lacking a formal education with scientific knowledge. Re-

¹⁵¹ Whitcomb, *Re-Imagining the Museum*, 24.

thinking museums as inclusive and democratic institutions by design makes the current inaccessibility more glaring and lends itself to greater discussion about what changed and why. Museums have become more exclusive in recent decades—not by a change in mission but effectually—because the patterns of visitation and costs involved have changed dramatically. The present-day Academy of Sciences in the form of the family-focused Peggy Notebaert Nature Museum is no longer free but is a comparatively inexpensive museum to visit. In 2016 the admission charge is \$9.00 for adults and \$6.00 for children. The larger museums are considerably more expensive and the number of free admission days in 2016 numbers fifteen at the Field Museum, and every Thursday evening (from 5:00pm to 8:00pm) at the Art Institute (both for Illinois Residents Only). Despite the need to cover operating costs, admission prices are well ahead of wages at these institutions. The Illinois minimum wage is \$8.25 per hour for an adult worker. For example, the cost of basic admission to the Field Museum is \$22.00 and \$25.00 to the Art Institute—more than double the wage for one hour of work, rendering a visit for low income workers much more difficult than it had been previously.¹⁵² Museums succeeded in making knowledge available for the layperson in the twentieth century, but have subsequently failed in the twenty-first to continue to make it accessible.

The next chapter describes how the progressive era's concern for order combined with the dizzying complexities of city life, loss of natural spaces, lack of consistent public education, and notions of uplift infused Chicago's museums with a dose of progressivism and a democratic spirit. Chicago was a center for exchange of goods and information of

¹⁵² Visitors who can verify residency in the City of Chicago are admitted to the Field Museum for \$17.00 and \$20 to the Art Institute. On free admission days at both museums, special exhibits are accessed a fee. Children and students are somewhat cheaper, \$15.00 and \$14.00 respectively for the Art Institute, except children under age 14, who are admitted free. The Shedd Aquarium offers general admission at \$8.00 for adults and \$6.00 for children but this actually does not allow a visitor to see many exhibits, especially the popular ones such as Wild Reef and the Abbot Oceanarium. The Adler Planetarium general admission price of \$12 for adults and \$8 for children includes all of the museum exhibits but not the sky shows. The Museum of Science and Industry general admission prices of \$18 for adults and \$11 for children allows access to most exhibit halls but excludes the most popular experiences.

all kinds and became a scientific center for the hinterlands of the West. It also examines the roll of commodities—particularly natural history specimens and information—and how they intersect with progressive reform, education, and museums.

II. Curators, Curiosities, and Commodities: The Professionalization of Museum Work and the Natural Science Marketplace

In the waning days of summer 1930 the circus came to Chippewa Falls, Wisconsin. In the sideshow tents amidst the usual retinue of curiosities, both living and inanimate, was a strange creature. Allegedly discovered eighty years before, the Tompkins Mermaid caught the attention of many circus goers that summer. While we cannot say for sure what people who filed past the display thought of it, we do know for certain that some individuals were skeptical. Upon examination of the specimen, Archie Raasch did not believe it was a real mermaid and confronted the exhibitors. The men running the show said Raasch should write to the Field Museum and that he “would be told about the Tompkins Mermaid and where it was discovered” and its authenticity verified.¹ A week later, Raasch’s request for information crossed the desk of Stephen Simms, Director of the Field Museum. Simms was quick to set the matter straight: “mermaids are mythological creatures and no such animal ever existed. They are generally made by the Chinese from the upper parts of monkeys and the tail end of fish. The Tompkin’s mermaid is a spurious object made to deceive credulous peoples.”²

For nearly a century, such mermaids attracted attention in sideshows, circuses, and dime museums. In the 1820s, one Captain Eades exhibited a stuffed mermaid in a London coffeehouse that generated a buzz despite debunking by prominent scientists.³ In America, the Tompkin’s mermaid traces its origins to a more scandalous and famous mermaid hoax perpetuated by P.T. Barnum. The Fiji (or Fee-Jee) Mermaid was a

¹ Archie Raasch to Field Museum, September 9, 1930 DPGC, FMA.

² Field Museum to Archie Raasch, September 13, 1930 DPGC, FMA.

³ Harriet Ritvo, *The Platypus and the Mermaid and Other Figments of the Classifying Imagination* (Cambridge, MA: Harvard University Press, 1997), 178-179.

sensation in the 1840s at P.T. Barnum's American Museum.⁴ By the time Archie Raasch wrote his letter, such fictions, while fully discredited, still circulated. Nearly a month later, another inquiry arrived from Wisconsin. Mr. Dale Hech of Lowell did his own research but came up short. Unsatisfied, he wrote to the Field Museum (notably, the letters were sent to the Field in Chicago and not the Milwaukee Public Museum). In his reply, Simms offered to identify the animals used to make up the hoax if Hech sent a photograph of it.⁵

Since the late nineteenth century, ordinary people looked to museum staff, curators and directors in particular, as bona fide experts. They wrote numerous letters seeking information and advice and museum staff took the time to consider these requests and answer them. In an age before email, fax machines, and websites, this was undoubtedly a time consuming process for both parties. Given the amount of work (and in the case of the Field Museum bureaucracy—all correspondence went through the director's office) it is surprising in this light that letters for ordinary people were given considerable consideration. But correspondence was also another form of museum education and another way for people to engage with nature and with museums.⁶ This was another way in which the Chicago Academy of Sciences and the Field Museum were truly public institutions interacting with people not just in Chicago or the Midwest, but nationwide. Here is more evidence that counters the notion of museums as primarily elite institutions, by and for the movers and shakers. Reaching an audience by mail and

⁴ See: Neil Harris, *Humbug: the Art of P. T. Barnum*; Andrea Stulman Dennett, *Weird and Wonderful: The Dime Museum in America* (New York: New York University Press, 1997).

⁵ Field Museum to Dale W. Hech, October 20, 1930 DPGC, FMA. Another letter arrived from Pearl M. Dahl and received a similar response to the others. Pearl M. Dahl to Field Museum, n.d., Field Museum to Dahl, September 6, 1930. DPGC, FMA.

⁶ The Field Museum holds Identification Day from time to time and advertises on social media platforms. They also hold behind the scenes events for visitors to view study collections and speak to museum scientists.

teaching them lessons about nature and science was just as valuable as school extensions, class tours, and visitors. This is an important aspect of the history of natural history museums and their key role in science literacy and popular education. Examining the correspondence reveals fundamental evidence to establish how Chicago's natural history museums were critical regional and national centers of information and expertise. As much as Chicago distributed goods and information in other areas, they did so in science as well. This chapter argues that during the Progressive Era, Chicago's natural history museums emerged as professionally run public institutions that were increasingly democratic and were also central hubs for information about natural science. This chapter considers the professionalization of museum work, the interaction of the public and museum through enquiries, and the marketplace for natural science specimens that catered not only to museums, but also to universities and private individuals.

2.1 From Avocation to Profession

As we learned in the previous chapter, throughout most of the nineteenth century museums in the United States developed identities, exhibitions, and practices largely on their own. They did not, of course, exist in a vacuum. Historian Joel Orosz argues that a “small, loosely connected group of men constituted an informal museum movement” during the nineteenth century. Guided by imperatives of American democratic culture these men began to take collections of natural science, art, and history seriously as records of American resources, ingenuity, and a nascent national identity. Thus, Orsoz writes, “the pre-1870 American museum was neither the frivolous sideshow some critics have imagined, nor the enclave for elitists that others have charged. Instead, the

proprietors displayed serious motives and egalitarian aspirations.”⁷ According to Orosz, conflicting demands for popular education and professionalism was a major source of tension after 1835. But by 1870—with a growing Smithsonian Institution, the new American Museum of Natural History and the Metropolitan Museum of Art—as institutions that simultaneously provided popular education and promoted scholarly research, an “American Compromise” established the basic model of subsequent museums.

Chicago’s turn of the century museums—the Art Institute, Field Columbian Museum, and Chicago Academy of Sciences—were all founded on the compromise principal. The two natural history museums espoused a form of progressivism. These museums offered a democratic kind of science because they provided access to knowledge, and anyone had an opportunity to view the specimens and interpret them. With popular education and notions of uplift, museums were akin to settlement houses. Lois Silverman in *The Social Work of Museums* (2010) argues that public museums and settlement houses shared the belief “that the unique environment of the museum and the medium of the exhibition were powerful tools for social service, particularly with families.” In England, she continues, “the notion that the museum provided the working class man with an opportunity for beneficial family leisure as an alternative to drinking was a compelling argument for extending the hours of the South Kensington Museum.”⁸ Similar impulses inspired Hull-House to develop the labor museum. Developed with input from philosopher and education reformer John Dewey, “the labor museum exhibits, an early form of living history with the social work purpose, featured neighborhood

⁷ Joel Orosz, *Curators and Culture*, ix.

⁸ Lois Silverman, *The Social Work of Museums* (New York: Routledge, 2010), 9.

immigrants in various countries actively demonstrating the craft skills, and exercise aimed exclusively at improving self-esteem and relationships within families.” Most important of all, Silverman argued that in addition to serving families, public museums and settlement houses believed that “their environments and exhibitions could help serve local groups in society at large by bringing disparate people together to interact, learn from each other, and perhaps bridge their differences, most of the differences in social class.”⁹ Jane Addams and John Dewey shared “a faith in public education as a particularly useful tool for improving society in the direction of greater social justice and more equitable dispersal of the benefits derived from progress in science and technology.”¹⁰ They also believed that in our democratic republican society, social problems would not solve themselves; they needed to be addressed by direct and sustained social and political action. Addams supported Chicago’s museums and periodically borrowed loan collections for use at Hull-House.¹¹ Dewey’s primary focus as an educator and philosopher was concerned with children and schools, but he, like Addams, recognized the powerful educational value of museums. Dewey incorporated museums and object based learning (experience in Dewey’s terms) in his educational theory, and his students at the Chicago Laboratory School made frequent visits to the nearby Field Columbian Museum.¹²

⁹ Ibid.

¹⁰ George E. Hein, *Progressive Museum Education: John Dewey and Democracy* (Walnut Creek, California: Left Coast Press, 2012), 11.

¹¹ Addams was a member of the Art Institute of Chicago and the Field Museum. She also collaborated with museums on special exhibitions and programs such as the Child Welfare Exhibit in 1911. See also, Louise W. Knight, *Citizen: Jane Addams and the Struggle for Democracy* (Chicago: The University of Chicago Press, 2005).

¹² In Dewey’s book *The School and Society* (1900), Dewey suggested that a school should incorporate the various functions of real life. The hands on spaces such as kitchens, workshops, and gardens would surround a library and a museum. These would provide the link between the mere “doing” of experience and the reflecting on it. The Chicago Laboratory School put some of these ideas into practice. Dewey’s writings on education and philosophy are numerous and beyond the scope of this project. I relied on some fine literature reviews and analysis of Dewey’s writing vis-à-vis education and museums. See: Ted Ansbacher, “John Dewey’s

Addams and Dewey were active during the Progressive Era, one of the contentious areas of American historiography. Historians have debated what and when the Progressive Era was, who could be considered a progressive, and most fundamentally what progressive reform meant in the past and its implications for the present day. In the popular culture of twenty-first century, the adjective “progressive” often indicates that something (or an idea) is newer, better, faster, smarter, easier to use, or modern. The implication is that of progress—things are moving in a positive direction. It is also used to refer to social or political movements that seek to broaden inclusion of people into mainstream society (such as same-sex marriage). This contemporary understanding of the term progressive is derived from the efforts of individuals such as Addams and Dewey who sought a century ago to improve aspects of American society that they found wanting.

Wading through the historiographical thicket, it is my view that progressives were neither a completely disparate group of actors, nor were they operating under a discrete ideology. For the purposes of this dissertation, the progressives are considered with nuanced lumping. Many reformers, but by no means all of them, were white, middle-class, protestant men and women. What united them was a sense that American society was increasingly inequitable and that the social and political structures then in place were inadequate for the rapid pace of change in the early twentieth century.¹³ These are the

Experience and Education: Lessons for Museums,” *Curator* Vol. 41, No. 1 (1998): 36-49; George E. Hein, “John Dewey and Museum Education,” *Curator* Vol.47, No.4 (2004): 413-427, _____. “Museum-School Bridges: A Legacy of Progressive Education” *ATSC Dimensions* January/February, 2004: 6-7.

¹³ There is much scholarship on Progressivism. My understanding is distilled from key works including: Robert Crunden, *Ministers of Reform* (Urbana, Illinois: University of Illinois Press, 1982), Alan Dawley, *Struggles for Justice: Social Responsibility and the Liberal State* (Cambridge, Massachusetts: Belknap, 1991), Richard Hofstadter, *Age of Reform: From Bryan to FDR* (New York: Vintage, 1960), Arthur S. Link & Richard L. McCormick, *Progressivism* (New York: Wiley-Blackwell, 1983), Michael McGerr, *A Fierce Discontent: The Rise and Fall of the Progressive Movement in America* (New York: Oxford University Press, 2005), Daniel T. Rodgers, *Atlantic Crossings: Social Politics in a Progressive Age* (Cambridge, Massachusetts: Belknap Press, 2000), _____. “In Search of Progressivism,” *AHR* (1982), and Robert Wiebe, *The Search for Order, 1877-1920*.

people who sought among other things to end child labor, support decent wages for workers, expose political corruption, enact civil service rules and the secret ballot, create national parks, support mandatory schooling, and pass the Eighteenth Amendment. Some campaigns were linked to older, antebellum reform traditions such as temperance, anti-prostitution, and women's suffrage. Others were new concepts such as pure food and drug legislation or the ill-fated League of Nations. In all of these cases, the people involved had their own reasons for supporting (or not supporting) the reform and their own modes of going about promoting change. Hull-House (and other settlement houses) played a role in many of these attempts to alleviate the worst effects of urban industrial life. Settlement houses were in essence department stores of reform because they worked on a range of social, political, and economic issues. Many of their programs attracted immigrants and working class people who sought improvement either materially (job training, English language classes, etc.) or personally (arts and music programs, for example) and often both. As we have seen, these were the working-class Chicagoans who went to museums a century ago.

The progressive impulses shared by museums and settlement houses serve to highlight the larger Progressive Era tensions between a trust in experts to shape knowledge, policy, indeed society; and Democracy—granting voice to and faith in the judgment of the people. The points of conflict between expertise and democracy were numerous: from the order imposed by urban planning (such as the Burnham Plan), to efforts to limit or eliminate child labor—without taking into account the child's contribution to family finances, or protective legislation that reduced women's work hours at the expense of necessary income. Similar conflicts resulted from mandatory

school laws, medical and mental health treatments, asylums, prisons, and attempts to close Chicago's saloons on Sundays.¹⁴

Museums—be they art, history, or natural science—were influenced by the progressive turn. Museums were collectives of experts under one roof (not unlike university departments). The museum's brand of progressivism was subtle and on the benign end of progressive reform because they did not have an impact upon working peoples' wages or hours, nor did they undertake any educational or outreach programs that were in any way compulsory. What they did do was offer ordinary people, working people, and poor people an opportunity to better themselves through informal education. Museums were, much like world's fairs, a means for people to travel and in a limited way experience the culture or wilderness of other places in the world. The museums were open free, on Sundays, or in the evenings when working people were able to visit the museum. For children, they offered guided tours, lectures, and films in the museum but also sent materials to the city's schools (see chapter four). While Chicago's museums were not responsible for mandatory schooling (effective in 1913), they supported the policy. So if children have to go to school—schools that were adopting new pedagogies—the museum could help students get more out of it.

Chicago's museums espoused a form of cultural democracy by opening their doors to anyone in the city and by presenting complex information in a straightforward manner. Museums defined democracy, not in a political sense, but as access and choice.

¹⁴ Historians have studied progressivism on the local as well as national level. They have viewed the movement through the lens of men and women, workers, and reformers. The literature is lively. For example see: Maureen Flanagan, *America Reformed: Progressives and Progressivisms, 1890s-1920s* (New York: Oxford University Press, 2006), Robert Johnston, *The Radical Middle Class: Populist Democracy and the Question of Capitalism in Progressive Era Portland, Oregon* (Princeton University Press, 2006), Robyn Muncy, *Creating a Female Dominion in American Reform* (Oxford University Press, 1994), Kathryn Kish Sklar, *Florence Kelley and the Nation's Work: The Rise of Women's Political Culture, 1830-1900* (New Haven: Yale University Press, 1997), Michael Willrich, *City of Courts: Socializing Justice in Progressive Era Chicago* (Cambridge University Press, 2003), Roy Rosenzweig, *Eight Hours for What We Will: Workers and Leisure in an Industrial City, 1870-1920* (Cambridge University Press, 1985).

That is to say that people had a choice to visit a museum or not to visit it. Once there they decided what to see and what to think about what they saw in the museum. Of course, museums had some expectations as to what people wanted to see or how they should go about a visit, but people then—just as now—made their own way through the exhibits.¹⁵ For their part, Chicago's museums were accessible to all. Accessible in terms of cost (frequently free of charge), in terms of primary location (close to public transit), in terms of outreach (school loan programs, and park field house installations), and most of all actively encouraging the city's diverse population to come and visit.¹⁶

The coherence and increasing sophistication of museum education and exhibition was a result of the progressive influence on the museum world: professionalization. At the turn of the century, museum men and women began to utilize the key markers of expertise (as pioneered by law and medicine, for example): professional standards, specialized training, journals, networking, and conventions to create a new direction for museums and firmly set their institutions apart from dime museums, sideshows, and other dubious sources of amusement.¹⁷ The American Association of Museums (AAM) was formed in 1906 as a forum for professional exchange and critique. The Association began

¹⁵ Exhibits are discussed in greater detail in the next chapter. It is worth noting here that there were competing notions of how to best arrange exhibits or what the ideal audience was. Art museums were among the more contested spaces when it came to designing exhibits for visitors. For example, John Cotton Dana, founder and first director of the Newark Museum, espoused a democratic philosophy and was eager to make museums more accessible to working people and more child-centered. On the other hand, Benjamin Ives Gilman, director of the Boston Museum of Fine Arts, held contrary views and tended to idealize middle class visitors. He was more interested in adult enrichment than that of children. See: John Cotton Dana, "The Gloom of the Museum (1917)" republished in *Reinventing the Museum: The Evolving Paradigm Shift*, Second Ed., (Latham, Maryland: Altamira Press, 2012) and Benjamin Ives Gilman, "Museum Fatigue." *The Scientific Monthly* 2, no. 1 (1916): 62-74.

¹⁶ The history of leisure and amusements in turn of the century American cities echo this notion of people crafting their own uses of amusements from carnivals and cinemas to public parks and zoos. This was not necessarily without conflict with owners or operators of these establishments. Despite the notions of designers or the rules and regulations in place, people generally shaped their own experiences. For example see: Gunther Barth, *City People: The Rise of Modern City Culture in Nineteenth-Century America* (New York: Oxford University Press, 1982); Duis, *Challenging Chicago*; John F. Kasson, *Amusing the Million: Coney Island at the Turn of the Century* (New York: Hill & Wang, 1978), Kathy Peiss, *Cheap Amusements: Working Women and Leisure in Turn-of-the-Century New York* (Philadelphia: Temple University Press, 1986), Rosenzweig and Blackmar, *The Park and the People*; Woody Register, *The Kid of Coney Island: Fred Thompson and the Rise of American Amusements* (New York: Oxford University Press, 2001).

¹⁷ For a general history of the development of professions, see Burton J. Bledstein, *The Culture of Professionalism: The Middle Class and the Development of Higher Education in America*. 1st ed. (New York: Norton, 1976), Burton Bledstein and Robert D. Johnston, eds., *The Middling Sorts: Explorations in the History of the American Middle Class* (London: Routledge, 2001).

publishing its proceedings and papers in 1907, and by the 1920s circulated exhibits to demonstrate the best practices of museum installation. Through the AAM, museum men and women were able to create the New Museum Idea that placed greater emphasis on educative exhibits and programming within museums than scientific research.¹⁸ The early studies of the arrangement of objects, the density of displays, and visitor behavior led to, as demonstrated in the third chapter, improvements in interpretation and presentation. Visitors responded readily to these overtures: attendance began to rise, and museums were soon on their way to becoming the highly popular institutions they are today.

These developments would not have been possible without qualifying standards for education, training, and practices in the museum. What began as an avocation for gentlemen, became a vocation for a growing middle class. The process of professionalization can be found in museum archives in the form of job applications and writers seeking advice about museums or scientific work. The Academy of Sciences remained a small institution with few jobs to fill. By contrast, the Field Museum grew steadily from 1906 with growth spurts in 1913, when the Harris Public School Extension was established, and during the 1920s. In 1913, W.C. Vandeyrift applied for a position as a “stenographer or assistant” with the Harris Public School Extension. He was typical of many applicants of the period. He was twenty-six years old and from Minnesota. He lived in Chicago for a number of years, and his work experience included “four years in railway offices” but he was interested in geology and zoology. He completed high school and one year of college. He was presently attending the Chicago Academy of Fine Arts and listed a number of references from there. His application indicated that he was of

¹⁸ Rader and Cain, *Life on Display*, 14-15, 18. It is important to note that the process of designing exhibits and the staff involved were different a century ago when curators created exhibits. Today many natural history exhibits are developed by a team specialized staff and consultants responsible for designing and installing exhibits. In addition to curator and preparator, there are positions such as: exhibit developer; label writer, educational specialist, and collections manager that did not exist in the early twentieth century.

German descent, a Methodist, and neither smoke nor drank.¹⁹ Vandyrift was hired. So was Emil Liljeblad, partly because of his prior experience mounting insects, but also because he was an acquaintance of Assistant Curator Gerhard. Positions filled quickly. In 1918, Charlotte Weatherill enquired if there were any vacancies. She had impressive qualifications. A graduate of Oberlin College, Weatherill went on an ecological expedition on the Pacific Coast and wrote a thesis on nesting sea birds that earned her credits toward a Master's Degree. She also gave lectures about birds to schoolchildren. Unfortunately there were no vacancies.²⁰

If she applied a few years later, she would have been a strong candidate for a guide-lecturer. The Field Museum hired staff for a new museum education department in the mid-1920s. There were many interested parties, including a commissioner of education from Delaware, A.R. Spaid and Joseph Harblson from Detroit. He was, perhaps overqualified. He had years of experience giving lanternslide and stereopticon lectures on nature study topics and was acquainted with Frank Chapman from the American Museum of Natural History. Harblson was the opposite and had no qualifications beyond enthusiasm. Those hired for work in the scientific departments, he was informed, "have specialized in a certain branch of the natural sciences at the university and in their work after leaving school. I suggest you write to one of the large universities for information in this connection, should you have in mind a course of study that will lead you to museum work." Franklin Myers had the right mix of experience and qualifications for museum work. He graduated from Illinois University in 1923 with a

¹⁹ Job application of W.C. Vandyrift, Harris Extension, FMA.

²⁰ Letter, S.C. Simms to F.J.V. Skiff, December 11, 1913; Letter, Charlotte Weatherill to S.C. Simms, Harris Extension, FMA.

science major and had experience giving nature talks to school children and teachers.²¹

The Field Museum undertook a number of expeditions during the 1920s and these prompted a number of unsolicited enquires. Harold Woolf thought himself indispensable as well as humorous. Woolf wrote to paleontologist Elmer Riggs:

I suggest that you take me along with you to Argentina. As a member of your expedition in the interest of paleontology. All my years in vaudeville have been spoiled by a gnawing longing to see and caress a maegatherium or a glyptodon. Many times after a carouse I thought I had seen a glyptodon but in the pale light of morn it proved to be a glypallucination. But seriously.... I can be of great service to you. Really I should love to go hunting glyptodons in the interest of paleontology. We could sit around the camp fire at night and sing our favorite song, "Oh, How I Love You, Dear Old Pal-le-on-tol-o-gy." I am an expert hunter. Daily on the Great White Way, I hunt for work and to be quite frank with you... candid, In fact... I think I have more chance to find a glyptodon in Argentina than a job here.²²

Riggs forwarded the letter to the director, whom politely declined Woolf's services. Peter Molinero was likewise rejected: "The men engaged by Field Museum on its expeditionary force are specifically trained in their chosen field of science and have years of experience in their particular work. There is little likelihood that anyone lacking this training and experience could be utilized as a member of any of the Museum's expeditions."²³

In the midst of the Great Depression, Cleo Richardson, a high school guidance counselor asked the Field Museum where to direct a student who wanted to become a taxidermist. She could not find any helpful resources. The museum suggested she contact the Northwestern School of Taxidermy, a correspondence school in Omaha or to the University of Iowa, where Homer R. Dill developed the first university program for training museum professionals. Most people who wanted to start a career in museum

²¹ Letter, A.R. Spaid to Field Museum, August 6, 1925; Letter, Field Museum to Joseph S. Harblson, April 14, 1930; Letter, Franklin Myers to D.C Davies, August, 13, 1925, DPGC, FMA.

²² Letter, Harold Woolf to Elmer S. Riggs April 14, 1922, DPGC, FMA.

²³ Letter, D.C. Davies to Peter Molinero, October 29, 1928, DPGC, FMA.

work or to study taxidermy were referred to Iowa.²⁴

Homer R. Dill came to the university in 1906 as a taxidermist for the zoology department's small museum. He had a background in fine arts, which gave his approach to taxidermy sensitivity to aesthetics as well as naturalism. In 1910 he organized the first curricula in museum taxidermy and exhibit installation. Dill's courses were "designed to take care of a number of different groups of students: first, to train students as expert museum workers; second to teach them how to prepare scientific skins in the field; third, to give science teachers a knowledge of preparing natural objects to be used in teaching."²⁵ By 1913, Dill's courses, in addition to his work with university expeditions, created a new cohort of scientifically minded and trained museum workers that installed their work in the University Museum. C.C. Nutting, chair of the Zoology Department recommended Dill's position in the university be formalized as "Director of the Exhibit of Vertebrates" as his official title remained "taxidermist." The new title better reflected his work but also pointed to the "real scope and dignity" his activities. In addition, Dill needed a full-time assistant, better laboratories, and a pay raise.²⁶ In 1915, he was invited to give a talk (and subsequently published) a lecture for the AAM, "Building an Educational Museum as a Function of the University," in which he reinforced the necessity of blending art and science in the creation of museum exhibits. He also described the work of his students in the museum and the fact that their scientifically

²⁴ Letter, Field Museum to Cleo Richardson, Vocational Guidance Counselor, Technical High School, Grand Rapids, Michigan, June 6, 1935, DPGC, FMA.

²⁵ "Other Great Iowa Naturalists," unpublished manuscript, n.d., Homer R. Dill Papers, University of Iowa Archives (Dill Papers, Iowa).

²⁶ Letter, C.C. Nutting to President John G. Powman, December 15, 1913, Dill Papers, Iowa.

accurate and aesthetically pleasing exhibits were popular with visitors.²⁷ By 1920, Dill's students went on to work in major museums across the country, including Alfred M. Bailey, who joined the Field Museum's Abyssinia Expedition and later became director of the Chicago Academy of Sciences. People like Bailey represented this new type of museum professional and solidified the public's view of natural history museums as repositories of knowledge and as educational institutions.

2.2 Dear Mr. Field...

The increasing specialization of scientific and curatorial training in addition to the educational missions of museums made them definitive centers of knowledge and public outreach. Museum experts were trusted by a broad range of people as a source for scientific information. Significantly, this trust extended far beyond the exhibit halls, or even the city of Chicago. Saved in the archives of the Chicago Academy of Sciences and the Field Museum are numerous letters from people all across the country seeking information and advice from the museum. It is worth examining these enquiries because they show museum experts in action. The correspondence allows scholars a glimpse into the museums' pasts. Little else survives: exhibits were updated or replaced, old exhibit labels were usually thrown away and lectures or talks by museum staff vanished into the ether. The surviving reams of correspondence can be grouped into seven major categories from individuals seeking to identify something (the largest group of letters) to businesses trying to capitalize on museum expertise (the smallest group of letters). The first category of public inquiry echoes the story of the Thompkin's mermaid—museums picking up where dime museums left off by fielding the questions about oddities. Almost

²⁷ Homer R. Dill, "Building an Educational Museum as a Function of the University," *Bulletin of the American Association of Museums* Vol 5. 1919, 78-87., Dill Papers Iowa.

from the beginning, the Chicago Academy of Sciences and the Field Museum often received letters from the public and questions regarding curiosities, monstrosities, and “freaks.” Some writers, like those who attended the Chippewa Falls sideshow sought validation whilst others were interested in the valuation of a specimen. For instance, a Newfoundland correspondent anticipated an opportunity to be credited with what he believed was an unusual find, “Enclosed you will find photos of a Freak Seal or White Coat, young of the Harp Seal of Greenland. This Freak Seal was found among thousands of others in March of this present year. [I]n all the History of Sealing from this country, for the last three hundred years there was never one seen like it before. [T]he one eye in the center of the forehead is about twice the size of the ordinary eye & you will notice there are no nostrils where they would be in an ordinary seal but the nostrils are in the projection or periscope behind the eye...It was dead when found & could only have l[i]ved a very short time. I have the animal mounted in a case if you wish to purchase it for your museum. Please let me know in any case I would like to have your comments on the freak or phenomenon.”²⁸

In reply, “The Curator of Zoology of this Institutions states that freaks such as the young seal to which you refer are caused usually by injury to or abnormal conditions in the developing egg at very early stages in embryonic life. Monstrosities with two heads and many variations are thus produced. Field Museum is not interested in the purchase of such specimens.”²⁹

In fact such defects were more common than people assumed, as M.P. McIntire learned from the Chicago Academy of Sciences. To Frank Baker, he wrote: “We have a

²⁸ Letter, S.P Oakley to Field Museum, September 14, 1928, DPGC, FMA.

²⁹ Letter, Field Museum to S.P. Oakley, September 24, 1928, DPGC, FMA.

most wonderful curiosity- A living snake with two heads. Both heads are perfect and each possesses acute senses. The heads are so connected that a fork is formed with apparently a single, digestive organism. Great numbers of people are coming daily to see the wondrous freak. I wish to ascertain if there has ever been recorded anything of this kind. I am not positive but think it is of the variety of bull snakes. Do snakes require nourishment at all times of the year and what would be the diet? I should judge that it is about two years old. Thanking you in advance for information on the subject.” Baker replied that two-headed snakes were not uncommon and that the Academy has several preserved specimens in the collection. Two months later, McIntire informed Baker that the snake died and they preserved it in alcohol. He asked if the Academy knew where he could purchase another live two-headed snake and if the Academy would be interested in the preserved snake. As with other writers trying to buy, sell, and trade with a museum, Baker informed McIntire, “I regret to say that this institution does not sell specimens of any kind. Specimens received are either collected for permanent preservation or have been presented to us... and cannot be disposed of. Should a specimen turn up which we could send you I will let you know.”³⁰ These letters show how little ordinary people knew about nature or museum collections but also their interest to learn more (and benefit financially).

Where to buy curiosities came up as well and writers were frequently disappointed. When Mr. Herbert Taylor, who was involved with “a sort of museum” in the Kokomo, Indiana Library enquired as to “how I can get one of those shrunken heads that come from Ecuador,” he was informed “that the exportation of shrunken heads to

³⁰ Letter, M.P. McIntire to Frank C. Baker, November 1, 1909; Franck C. Baker to M.P. McIntire November 5, 1909; Letter, Baker to McIntire, January 14, 1910. Frank Baker Correspondence, CAS.

which you refer for commercial purposes” was prohibited by Ecuadorian government and therefore, “they are therefore not kept in stock by dealers. These heads are occasionally offered at \$100.00 and rare.”³¹

People frequently asked natural history museums to appraise or attempted to sell things that were well outside of the scope of the institution. In the teens people still viewed museums as a catchall, a legacy of dime museums and encyclopedic nature world’s fairs, rather than specialized institutions. The Field Museum was offered a variety of objects from sets of jewelry and furniture to musical instruments and historical memorabilia. “I have in my possession,” began one inquiry, “three (3) Land Patents which are on sheepskin in perfect condition. One is dated October 5th, 1816, signed by James Madison... Is the Field Columbian Museum in the market for anything of this character?” Another letter sought the value of a description of the Battle of Tippecanoe written by William Henry Harrison that might “settle some controversy” and “by one who should by on the highest authority, it has struck me that the letter might have value through its historical value.” From Louisville, Kentucky came a request to appraise the value of a newspaper concerning the death and burial of George Washington. To all such requests the response of the museum was polite but firm; the “scope of the museum is strictly confined to objects of natural history.”³² Such papers would of course be the province of a historical society or a research library and in response to many such requests, the museum suggested the Chicago Historical Society would be an appropriate institution to evaluate such materials. The reason people thought historical ephemera would be of interest to the Field Museum stems from its inception as the world’s fair

³¹ Letter, Herbert Taylor to Field Museum, June 10, 1924; Letter, Field Museum to Herbert Taylor, June 13, 1924, DPGC, FMA.

³² Letter, F.F. McArthur to Field Museum, October 9, 1914; Letter, D.K. Crosbywait to Field Museum, May 25, 1915; Letter, Field Museum to S.W. Greaves, January 13, 1914, DPGC, FMA.

memorial and early collections of seeming disparate objects, even though the museum committed itself in name and function exclusively to natural history in 1906.

Nevertheless, the image of a world's fair memorial lingered on. During the early planning of the Century of Progress Exposition (which had no connection with the Field Museum) an unsolicited offer was received from a woman with souvenirs and guidebooks from the Columbian Exposition. She "thought these might be of interest to those undertaking the development" of the coming worlds fair. She continued, "I will send them to you, or to whom you suggest, if you wish them. Having had something to do with the Panama Pacific Exposition I know much is done by way of comparison with other fine things, so will gladly give these to you if you desire them." The Field Museum respectfully declined to accept these materials and politely suggested that the exposition organizers had the comparative information.³³

More frequently than they sent letters regarding the unusual, people wrote for information about a particular plant, animal, or object in order to identify it. This is the second category of enquiry. From suburban Antioch, one woman wrote to the William Higley of the Academy of Sciences, "Some days ago I sent you through my son Jay Tressler a bird that was shot in Grass Lake, and is known here in this region as a Hell-diver, and as the gentleman who shot it is not familiar with its scientific name I would be pleased if you could tell me just what is the correct name as there has been considerable dispute about it."³⁴

If the item was small many people went ahead and sent materials for examination. Pal Yoe noted thousands of "worms" in his yard and sent two for identification. They

³³ Letter, Mrs. Jessie E. Taylor to Field Museum, February 20, 1929; Field Museum to Jessie Taylor, February 25, 1929, DPGC, FMA.

³⁴ Letter, Mrs. Sarah Tressler, to William K. Higley, September 25, 1904, WH Correspondence, CAS.

turned out to be “hair worms of the genus *Mermis*” which come above ground when sexually mature, often during periods of heavy rain in the summer. For J.D. Ragsdale of Missouri, the Field Museum geologists identified a rock as granite rather than meteoric and museum botanists were interested in examining a double walnut specimen. The Academy received a note from far away Lowell, Arizona, “Find enclosed some insects which I have numbered so I will know them. Would like to know names of same.”³⁵

A mysterious bug caused much consternation in Channel Lake:

Dear Sir: In Enclosed Envelope you will find a specimen of an insect or bug of some kind am very much interested to know what it is and what its purpose is. Have showed it to a number of the Elderly people up here and they have never seen anything like it before. I have two young girls growing up and they are very much interested in animals and various insects and would like to be able to tell them. Hoping this will prove of interest to you as it is to use and awaiting your reply with anxiety. Thanking you in advance for the favor and for your early reply.

George D. Radcliffe
Channel Lake, Illinois

P.S. Enclosed find stamp for return postage³⁶

The Radcliffes received their reply a short while later. The insect is a Walking-stick (*Diapheromera femorata*) and it also goes by rather frightening names of Prairie Alligator and Devil’s Horse. However, they have nothing to fear. The insect is not harmful unless if found in great numbers when they may defoliate trees.³⁷

Paul J. Rrebilcock wrote to the Chicago Academy of Sciences: “Gentlemen, Under separate cover I am sending you a caterpillar found under a wild grapevine which I have not seen in your collection. Wish you would write me about it. I am twelve years old and have a collection of butterflies but no caterpillars.”

³⁵ Letter, Paul J. Yoe to Field Museum, June 27, 1940; Letter, Field Museum to Paul J. Yoe, July 3, 1940; Letter, Field Museum to J.D. Ragsdale June 27, 1930; Letter, Field Museum to Ralph Test, November 30, 1923, DPGC FMA; Letter, N.S. Rutledge, to William K. Higley, September 30, 1904, WH Correspondence, CAS.

³⁶ Letter, George D. Radcliffe to Field Museum, August 11, 1932, DPGC, FMA.

³⁷ Letter, Field Museum to George D. Radcliff, August 15, 1932, DPGC, FMA.

In response the Museum wrote:

My Dear Master Paul,

The caterpillar you sent arrived at the academy but it was in a pretty bad condition, having been crushed in he mail. Mr. Baker, however, has been able to identify it as a caterpillar of one of the Swallowtail Butterflies but could not tell which one on account of the specimen being so badly damaged. We are glad to hear that you are interested in Butterflies and hope you will be able to make a good collection of caterpillars also.³⁸

Museums encouraged people to learn about, to appreciate and to engage with nature on their own—outside of the exhibit halls and classrooms. People interested in nature looked to museums for expert guidance and practical advice. The third type of enquiry reflected a desire to know how the natural world works and goes a step beyond identification. For instance, A.T. Volwiler, from Wittenberg College in Ohio turned not to the science instructors there, but to the Field Museum. Volwiler wanted to buy a “light weight folding butterfly net... Can you name two firms selling them?” Meanwhile, Miss M.E. Warner enquired as to the best way to clean a mounted snowy owl.³⁹ These writers sought to further their understanding of natural science by experiencing part of what museum curators and scientists did professionally.

L.J. Reid’s enquiry was typical. Reid sought the advice of museum staff as to “the best method of cleaning off the dirt and outside coating on the Freshwater mussels” in order to start a collection of polished shells from the Fox River. He also wanted to know how to collect and mount butterflies. In reply, Assistant Curator William Gerhard suggested some techniques to clean the shells but referred Reid to publications with detailed methods for preserving insects.⁴⁰ Meanwhile, Wirt Hallam, secretary of the

³⁸ Postcard, Paul J. Rrebilcock, August 18, 1914; Letter, Chicago Academy of Sciences to Paul J. Rrebilcock, August 20, 1914, MAH Correspondence, CAS.

³⁹ Letter, A.T. Volwiler to Field Museum, December 7, 1927; Letter, Field Museum to M.E. Warner October 15, 1926, DPGC, FMA.

⁴⁰ Letter, L.J Reid to Field Museum, September 6, 1914; Memorandum, William J. Gerhard to C.B. Cory September 22, 1914, DPGC, FMA.

Illinois Vigilance Association, an organization dedicated to “the suppression of vice, vile diseases and those conditions which make vice possible,” wanted a “drawing showing the comparative size of the brain or the skull of an eight or ten pound chicken and a medium sized eagle.” In addition to the illustration, Hallam also wondered about “the size of eagles, their weight, stretch of wings” and “would like to know something of the comparative size of our largest chickens.”⁴¹ He wanted these drawings to use in a lecture.

Laypeople trusted museum naturalists’ understanding of animal behavior as well. One writer from far away Montana sought to win a dispute with a friend. The writer believed a diamond back rattlesnake could “imbed its fangs in the wood handle of a pitchfork” while his friend considered this impossible and argued that the fangs could not penetrate wood at all. He concluded, “I would like to settle this argument and know of no source as reliable as the Field Museum.”⁴² Museum zoologists settled the dispute in favor of the skeptical friend. A rattlesnake could not muster the force to drive its fangs into a wooden handle.

The fact that individuals from all over the country sought information from Chicago’s institutions and the Field Museum in particular highlighted the importance of Chicago as an information center. This is further underscored by inquiries from people living in places, such as New York City, with large and influential institutions. For example, S. Earl Taylor from New York wrote to the Field Museum seeking “literature issued on Arizona and New Mexico, dealing especially with the Indian life, prehistoric

⁴¹ Letter, Wirt W. Hallam to Field Museum, January 29, 1917, DPGC, FMA. The museum replied that they did not have comparative illustrations and did not know where these could be obtained.

⁴² Letter, A.L. Zimmerman to Field Museum August 14 1941, DPGC, FMA.

implements, etc.” to study during a trip to the Southwest.⁴³ Taylor chose the Field Museum in Chicago—not the American Museum or the Smithsonian—because Chicago was the information hub of the West, and they must know more about it because they were closer to it. The reputation of the Field Museum as a major institution with a global scope, also comes into play and explains why Western writers too, wrote to the Field, and not an east coast institution.

The fourth type of enquiry was one that reflected the limits of local knowledge—be it a science teacher, physicians, amateur naturalists or other experts, or information not found in books. In the fall of 1928 a sewer construction crew in Prophetstown, Illinois uncovered fossilized bones. Wilbur Mueller of the *Moline Daily Dispatch* caught wind of the discovery and, working with a Prophetstown reporter began following the story. Mueller and geology professor F.M. Fryxell of Augustana College “begged and purchased” the bones and a tooth and quickly identified the remains as part of the front of a mammoth skull. In the meantime the workers continued the project and filled in the ditch. Fryxell returned with a group of students and started digging for more bones but were stopped by city officials. In order to proceed with a paleontology dig, the city demanded an engineer supervise the excavation and that Augustana accept full responsibility for any damage to the sewer. Mueller did not believe the college was in a position to perform a proper excavation with—or without—the risk of sewer damage. Fryxell was unable to enter into agreeable terms with the city council and embarked on geological survey project in Colorado. Mueller heard that the mayor of Prophetstown was planning to take up the matter with the “Marshall-Field Art Museum” and he took it upon himself to contact the Field Museum and see if this was true. The reporter had an

⁴³ Letter, S. Earl Taylor to Field Museum, November 4, 1920, DPGC, FMA.

interest in science but he mostly wanted a story. His paper was ready to cover the excavation and even made an artist's rendering of the mammoth.

It was Mueller's "personal opinion that the city council of Prophetstown would give permission to the Field Museum, or any other institution to dig up the fossils, if a guarantee could be made as to the future of the sewer" along with a sewer engineer present and no expense to the city. Mueller was confident this arrangement could work: "The bones are under a public street. Professor Fryxell says they are very well-preserved. It was his opinion that the workmen chipped off a section of the skull in order to make a corner of their ditch. He [Fryxell] believes the whole skeleton might be there. The bones, as I recall it, are in a bed of sand at the edge of the Rock River, about 12 to 18 feet under the level of the street."⁴⁴

The Field Museum asked Mueller to send the tooth or a photograph of the finds for examination, but he was unable to do so because the specimens were with Professor Fryxell, whom Mueller believed would not relinquish it. "I do not wish to appear to be a meddler in this affair," he wrote unaware of the irony. "I am solely interested in securing a number of good news stories and pictures for this paper and the Associated Press, and I can go no further until the bones are excavated." He figured that "if the Field Museum doesn't dig up those bones, they will lie there in the sand for another 20,000 years." He hoped that the museum and Fryxell "might get together, and he could get some wonderful results" but in any event Mueller wished "to be kept out of this entirely, and any information I have given you is confidential."⁴⁵ Without concrete information about the specimens recovered, the Field Museum did not pursue the matter further and Mueller

⁴⁴ Letter, Wilber B. Mueller to S.C. Simms, July 26, 1929, DPGC, FMA.

⁴⁵ Letter, Wilber B. Mueller to S.C. Simms, August 8, 1929, DPGC, FMA.

ceased meddling. The rest of the bones remained buried beneath Prophetstown.

Despite the instigation by an aggressive newspaperman, this was not the first nor the last prehistoric remains uncovered by construction workers nor was it the only time the Field Museum expressed interest in these finds. In 1934 for example, fossils, including two mastodon skulls, were discovered in suburban Aurora, Illinois. The Field Museum took the initiative and sent the venerable paleontologist Elmer S. Riggs to investigate.

Riggs found a massive excavation project to create a fifteen-acre lake that employed 500 Civil Works Administration (CWA) workers. While he doubted the rest of the mastodon skeletons would be found, an adult mastodon skull in remarkably good condition impressed him. The skull was in the possession of the city commissioners. When asked for advice, Riggs replied that it was best “placed in the Field Museum for safe keeping and for the greatest public benefit.” City officials thanked him and Riggs left empty handed. After the meeting Riggs informed Geology Curator Nichols of the difficulties perusing the matter. Riggs wrote, “It is advised that this Museum write to Mr. Townsend (city commissioner) a letter urging the need of saving this specimen. In doing so, it may be borne in mind that the Museum is dealing with a man who is of the type of a town-hall politician with little evidence of public-spiritedness. Also, that the department is a little puffed up over this find and over the fact of having the largest group of C.W.A. workers (500) assigned to any enterprise in Illinois.”⁴⁶

Nichols agreed with Riggs as to the value of the specimen and thought “it would be a desirable addition to the collection if it could be secured as a donation.” He went on

⁴⁶ Memorandum, Elmer S. Riggs to H.W. Nichols, March 9, 1934, DPGC, FMA.

to advise the director that the museum insists the specimen was “too important to be allowed to disintegrate as it will surely do if it does not receive skilled treatment and that the most certain insurance of its permanent preservation is to place it in Field Museum.”⁴⁷

Commissioner Townsend was unwilling to give up the skull and instead placed it in the Aurora Historical Society under the care of Aurora College. The specimen was cleaned and prepared for display and accompanied by a reproduction of a Knight mural. The museum tried to acquire the skull again, offering an older mount of a Megatherium (also known as the Great Ground sloth) in trade. Field Museum drove a hard bargain: “this specimen, long familiar to the people about Chicago as one of the striking exhibits of the Field museum” was an impressive seventeen feet in length and stands eleven feet high. The museum acquired an original set of bones from Argentina and no longer needed this one. The City of Aurora was uninterested in the trade.⁴⁸

2.3 Institutional Exchange

Other institutions corresponded with Chicago’s natural history museums for relevant advice and expertise. The Nature Study Society of Rockford, Illinois, was beginning a natural history museum in a park district building. The Society installed some exhibit cases but they sought advice about good labels so that “a visit there will be profitable.” In 1912, in the midst of the Field’s legal troubles over a lakefront location, Mr. Wilcomb of the Oakland Public Museum sought copies of photographs and plans for the proposed museum building. He wanted inspiration to plan a new building for

⁴⁷ Memorandum, H.W. Nichols to Director, March 10, 1934, DPGC, FMA.

⁴⁸ Letter, Field Museum to City of Aurora Commissioner C.A. Townsend, February 8, 1935; Letter, Aurora City Clerk to Field Museum, February 13, 1935, DPGC, FMA.

Oakland.⁴⁹

Purdue University's biology department turned to Field Museum experts for guidance installing a university museum. The scientists, while experts in their respective disciplines, did not know how to arrange and install effective exhibits. The department received several thousand dollars to purchase exhibit cases and to hire an assistant to organize and install the exhibits. Howard Enders visited the museum to "discuss the matter of modern cases" and to "suggest some persons who may be fitted to do this work for us."⁵⁰

This collaboration with Purdue is an appropriate moment to briefly consider the roles of universities and museums as American educational and scientific institutions. During the first quarter of the twentieth century the respective roles of university science departments and natural history museums changed. In the late nineteenth century museums were at the forefront of producing new knowledge—museum paleontologists unearthed and described prehistoric creatures; museum anthropologists and archaeologists studied distant cultures; and museum naturalists described and demystified the workings of nature. Significantly, this knowledge was assembled and exhibited for the public. American colleges and universities were largely sleepy places and concerned with teaching existing knowledge. Museums, as Steven Conn pointed out, "assumed intellectual leadership because they fostered original research through the careful and systematic way they dealt with objects."⁵¹ Whether in the field, workroom, or exhibit hall, natural objects were key to scientific study and to teaching. By the mid-1920s the

⁴⁹ Letter, Gertrude N. Thomas to F.J.V. Skiff, March 26, 1918; Letter Wilcomb to Skiff, February 2, 1912, DPGC, FMA.

⁵⁰ Letter, Howard E. Enders, Purdue University to Field Museum October 27, 1926, DPGC, FMA.

⁵¹ Conn, *Museums and American Intellectual Life*, 16.

business of producing new knowledge about the natural world, but also about people (through anthropology and history) and about commerce and business took place primarily in universities and colleges. The change resulted from new ways of “doing” natural science that involved experimentation rather than observation and classification. In any branch of natural history taxonomy of one kind or another was central to the work at hand, whether it was observing behavior, patterns, or the physical characteristics of the specimen under study. Combined with European systems of graduate education and mentorship, an increasing (albeit slowly) student base, and new kinds of questions about the natural world, old methods of science (such as classification and observation) became less relevant. Across the university disciplines, academics professionalized their disciplines in ways that mirrored law or medicine, which also produced new knowledge by experimental methods. The process of creating and understanding this kind of knowledge did not readily translate to public exhibition. Museums, with their educational missions and exhibition work, some scholars argue, largely continued with observation and classification rather than experimentation.

Universities remained a place of limited access, with fewer people being taught as compared to the broad audience of museums. Historian Steven Conn notes “the production of knowledge moved from the museums to universities, the terms of access to that new knowledge changed dramatically.... In this sense the struggle over where knowledge would be produced was linked importantly to the question for whom this new knowledge was intended.”⁵² This shift embodied a shift away from the “object-based

⁵² Ibid., 17. The Field Museum continues to produce new knowledge in some scientific fields, particularly in ecology and paleontology. A century after the museum’s founding it employs many more scientists—with PhDs than it did during the period of this study. Many people today do not realize that the museum has a large scientific staff. For example see Deborah L. Perry and Emily Forland, *The Exploration Zone at The Field Museum: Front-end Evaluation* (Unpublished manuscript, Chicago, Illinois, 1995);

epistemology” that museums enabled in American intellectual life in the nineteenth century and replaced it with one rooted in experimentation. In the academic settings of higher education, this is very much true, but not in a larger sense. Objects—be they natural science specimens or consumer items—continued to play (and indeed still do) a role in both elementary education and informal education. As we will see the school extension, guide lecture, and specimen loan programs continually expanded from the 1920s. While these lessons may not present cutting edge research, the audience for them—schoolchildren—encountered appropriate and accurate scientific knowledge. In the larger society beyond natural science museums, objects—primarily consumer goods—remained important in people’s lives. Through objects one learned about not only other cultures but also about their contemporaries, their neighbors, even themselves. As contemporary devotees of Sherlock Holmes understood, every object told a story (perhaps many stories). And it is precisely this storytelling power that compelled people to write to museums to identify and understand the objects they found.

While the Field Museum and Chicago Academy of Sciences often aided colleges universities, direct involvement with small museums was much more common. Small institutions looked to the larger and more established museums for assistance. For example, the Waterloo, Iowa YMCA received a bequest from Henry W. Grout of 4,000 natural history specimens. This collection consisted primarily of Iowa materials including fossils, minerals, Native American artifacts (pre-Columbian) and various materials from the pioneer days. The Field Museum sent Dr. Paul S. Martin, curator of American Archaeology to Waterloo to assist the fledgling museum organize and install

11. —, “The Exploration Zone at The Field Museum: Front-end evaluation” in *Visitor Behavior* 12 Nos. 1&2 (Spring/Summer 1997),

the exhibits. Such work done by Martin shows how the Chicago museum expertise went beyond information in correspondence to include physical assistance.⁵³

In 1938, N.S. Hasting, the educational director of the Zoological Society of Cincinnati wrote: “I would very much appreciate your opinion as to the proper designation of the True or Himalayan Panda.... The use of the term “Lesser Pandas” seems to me to be entirely misleading, as they are not in any sense similar to the so-called “Greater Panda,” and furthermore, this expression “Lesser Panda” seems to me to belittle the animals and make a sort of side-show out of them... Please let me know what style is used there in your Museum if you have any exhibits of this character, or what terminology is used...” To wit, the reply from Director Gregg explained the various common names for the animal and supported the use of slightly better terms “Little Panda” and “Giant Panda” because “recent investigation indicate they are quite closely related in spite of their pronounced superficial differences. This conclusion is based mainly on study of the skull and teeth.”⁵⁴

2.4 Science for Sale

The fact that many people wrote to natural history museums for information about nature is unsurprising when one considers that Chicago’s institutions were not only regional, but became national centers for scientific knowledge. Because there were few reliable alternative sites of information, a great number of people wrote to the museums seeking valuation of objects. People from all over the country inquired about specimens and artifacts they found (or knew of someone selling something). Writers often desired a

⁵³ News clipping “Henry W. Grout Museum Will be in Y.M.C.A. Room,” n.d., DPGC, FMA.

⁵⁴ Letter, N.S. Hastings to Director, Field Museum, April 24, 1938; Letter, Field Museum to N.S. Hastings, May , 1938, DGPC, FMA.

positive identification of the item in question and then they almost inevitably asked whether or not the museum was “interested in acquiring” it. At the heart of these questions is money. How much is it worth? I desire a satisfactory price. Will you buy it from me? Perhaps I will receive credit for finding it? If you will not purchase it, can you direct me to someone who will? Such enquiries highlight the fact that natural history specimens were as much scientific objects as they were commodities.

From Oregon, Illinois, came an inquiry with a “drawing of a stone ax or hammer. The handle is 20 inches long and is covered with some kind of hide and the hide goes around the stone.... Would like to know if it is of any value.” What the writer thought was a rare artifact turned out to be a fairly common piece of Plains Indian handiwork. Likewise, the museum declined to purchase opalized wood from Mr. C.C. Ramsey.⁵⁵ The Field Museum was unlikely to purchase specimens from people but did accept some objects as donations to the museum (a practice that does continue today with deceased birds). For others, an approximate value was estimated. A meteorite from a documented fall and “indisputable evidence of ownership” from a fall in Washington State was estimated at \$250 to \$300.⁵⁶

Some writers gave the museum the hard sell. J.R. Reed of Baird, Texas, boasted to have “one of the most wonderful collections of any one individual in the United States.” The collection consisted of “petrified flesh and bone” including a bear head and legs, “one buffalo ham, heart and kidney” along with reptile, fish, and shell fossils. Reed, the proprietor of an automotive service station, claimed that “many men of science and

⁵⁵ Letter, W.S. Van Vleet to Field Museum February 2, 1927; Letter, Field Museum to W.S. Van Vleet February 10, 1927; Letter, Field Museum to C.C. Ramsey, January 21, 1930, DPGC, FMA.

⁵⁶ Letter, Field Museum to Edward Ottestad, February 1, 1926, DPGC, FMA.

education have examined this collection and all agree that it is petrified flesh and bone without doubt, and they all say it is the most wonderful collection they ever saw.” The specimens were hand colored and he wanted to sell his collection to an educational institution. The Field Museum was not interested.⁵⁷

The museums had to contend with the egos of the owners of these items. Since the writer collected it, it must be of value, and the museum must therefore be interested in buying it. E.W. Kelly of Seneca, Illinois attempted to sell his collection of butterflies to the museum. In the summer of 1912 after a fruitful season of collecting, he wrote, “Do you buy specimens of large butterflies? What would you pay a piece for large blue & red & large yellow specimens? Will you buy small specimens? If you know where I can sell live specimens of large butterflies please give me their address and will you tell me what you would pay sometimes for live specimens.” The museum replied, “I beg to advise you that the Assistant Curator of Entomology (William Gerhard) states that for the want of definite information, it is assumed that the specimens to which you refer were collected in the vicinity of Seneca. There is, of course, no market for live specimens of butterflies, and you probably have reference to living pupate and chrysalides. Should this be the case, you might dispose of some of the rarer species by writing to the following entomological dealers: The Kny-Scheerer, Co. and The American Entomological Company.” Kelly enquired again a few years later asking similar questions but wondered how the value of specimens was assessed. Once again the Field Museum was interested but pointed out that North American specimens were sought by European collectors and institutions but “at this time [1915], it is almost needless to say, they would not be prone

⁵⁷ Letter, J.R. Reed to Field Museum, September 17, 1924; Letter, Field Museum to J.R. Reed, September 23, 1925, DPGC, FMA.

to purchase specimens of natural history.”⁵⁸

The sixth category of enquiry was writers who offered schemes in attempts to capitalize on an institution’s reputation to further their own ends. Mr. E.R. Rearick, wrote: “The owner of some land in the Ozarks, near Springfield, Missouri, has asked me to get him information regarding the necessary steps to take, or whom to contact, in commercializing a group of Indian mounds on his property. He is confident that he has something good on his Ozark farm, but fears a private excavation, without the proper equipment and trained men, may destroy some interesting or historical data, which, of course, would be poor commercial judgment in a development of this kind. Anything you may care to suggest or advise relative to opening and commercializing these mounds will carry great weight, and receive the most careful consideration.” The Field Museum replied, that they “could not encourage the commercialization of any mounds and cannot be party to such a project. In most cases where commercialization has been adopted financial failure has resulted, which in some instances even resulted in the loss of the property itself. My suggestion, of course, would be that your friend communicate with a leading collector or university, so that trained archaeologists might make a study of the site with resultant enrichment to science and the sum total of human knowledge. The information disclosed by a study of objects in their original surroundings is far more valuable than the objects alone removed from their surroundings.”⁵⁹

Taking a queue from the Egyptian craze of the 1920s, the sales manager of Tanners Products Company sought information regarding the durability of hair. He

⁵⁸ Letters, E.W. Kelly to Field Museum, August 24, 1912; Field Museum to E.W. Kelly, August 6, 1912; Kelly to Field Museum September 28, 1915; Field Museum to Kelly October 2, 1915, DPGC, FMA.

⁵⁹ Letter, E.R. Rearick to Curator, Field Museum, November 20, 1937; Letter, Director, Field Museum to E.R. Rearick, November 24, 1937, DPGC, FMA.

inquired of the museum whether King Tut Ankh Amen's mummy was found with preserved hair and whether or not such preservation was intentional or not. At this point, the mummy had not been examined (by British archaeologists) but the museum offered to show the representative examples of ancient skulls with and without hair.⁶⁰ Another mummy scheme involved Taylor Stone Company that proclaimed they were "the largest producers of natural stone burial vaults." The company wanted to bring a small display of their vault to state and county fairs and wanted to use a well-preserved Egyptian mummy to draw attention to their display. They wrote to the Field Museum explaining their "idea in obtaining the Egyptian Mummy is to impress people with the fact that 'Natural Stone' is the only everlasting material that can be employed in a burial vault, this fact being demonstrated by the exclusive use of stone burial vaults for many centuries by the Egyptians. In light of the information just given, you will appreciate that we should obtain a mummy and coffin that is in good condition..." The Taylor Stone Company hoped the museum would help acquire a mummy from an individual they had difficulties persuading to sell. The museum respectfully declined the arrangement stressing that it was strictly forbidden for the institution to make purchases for other concerns or to trade in antiquities.⁶¹

The final category of enquiry involved commercial interests that sought the advice of museum expertise. Museums were willing to assist when it was practicable to do so and did engage the institution in commercial arrangements. In 1934, Field Museum zoologists took measurements of the heads of big game for publication in "Records of

⁶⁰ Letters, Field Museum to R. Johnson, Sales Manager, Tanners Products Company, February 2, 1927 and February 16, 1927. DPGC, FMA.

⁶¹ Letter, W.H. Vickery, Secretary, The Taylor Stone Company to Field Museum, January 25, 1928; Letter, Field Museum to W.H. Vickery, February 3, 1928, DPGC, FMA.

North American Big Game.” This sportsmen’s reference was intended to compete with “Rowland Ward’s Record of Big Game” compiled by hunter and explorer Rowland Ward. The notion of North America as a land with trophy worthy animals was not to be underplayed by an Englishmen. Jefferson’s battle with Buffon continued, but in a new way. Since taking measurements did no harm to the collections and considering the publication’s editors sent similar queries to other museums, the Field Museum agreed to furnish that data and were also willing to measure mounts sent to the museum (at the senders’ risk and expense).⁶²

In 1940, Western Electric, in an effort to “reduce industrial accidents” constantly sought “new ways to say the same thing.” In a letter to the Field Museum, John Gibson, the publicity director, recalled that “one of our employees points out the Eskimos wear a form of goggle made of bone in which narrow slits have been made to keep out driving snow and glare. It so happens that we are extremely eager to make our people goggle-conscious and we wondered if you would assist us on loaning us a pair of these snow goggles long enough for us to have a pretty girl wear them for a picture.” The Field Museum was glad to assist the promotion of workplace safety and Director Gregg approved of the proposition as long as the photograph was taken at the museum and supervised by museum staff. Care of the artifacts came first.⁶³

In some instances, people and organizations were willing to donate specimens to the museum. The Academy of Sciences Secretary William K. Higley informed Director Baker that he followed up on a request from “The gentleman in the Jones dry goods store,

⁶² Letter, Henry Field to Prentice N. Gray, Editor, “Records of North American Big Game” November 4, 1930, DPGC, FMA.

⁶³ Letter, John B. Gibson, Western Electric Company to C.C. Gregg, August 9, 1940; Letter, C.C. Gregg to John B. Gibson, August 15, 1940, DPGC, FMA.

of whom you purchased your spool case, showed me an elegant live young gar-pike which he had caught. It was alive and he said that he would like to donate it to the Academy. I told him that we would like it, and he said he would put it in a pail and ship it to the Academy. Would it not be a good place to have it mounted for the purpose of showing the appearance of a young fish? I will obtain the gentleman's name and the data regarding the fish.”⁶⁴

Whether donated or purchased, the donors insisted that they receive credit on the exhibit label for their contribution to the museum's collection (and to science). At the outset, there were no established rules for attribution, but the general sense was that it was correct to do so for donated specimens. Purchased items were a different scenario. For example, Henry Ward complained that his company, Ward's Natural Science Establishment, was omitted from an exhibit label. To Edward Ayer he wrote, “I admit freely the propriety of suppressing on the labels the name of the party from whom the specimen has been obtained, if you choose to do so. Museum authorities differ on this point somewhat; and I believe all recognize the desirability of retaining on some classes and omitting on others, but you say ‘there has been no intention of treating you any different anybody else.’ I am bound to object to this; for it does not seem to me to accord with fact. I cannot believe, for instance, that throughout the collection of Meteorites (about 95% of all the ‘falls and finds’ came from me) my name has been suppressed on all of mine and ‘George F. Kuntz Collection’ written on all of his, which have been added in the last few months.”⁶⁵ In the same letter, Ward complained about fossil collections handled in the same manner. While the complaints of Ward were noted, the specimens

⁶⁴ Letter, William K. Higley to Frank Baker, August 16, 1905, WH Correspondence, CAS.

⁶⁵ Letter, Henry A. Ward to Edward Ayer, n.d., DPGC, FMA.

purchased from his company remained without attribution.

Curators understood, probably correctly, that the public would have been disillusioned to learn that the specimens had been purchased from a commercial entity rather than discovered by the museum's staff. In the age of colonialism and safaris, exotic specimens (and anthropological artifacts) were windows into distant lands. There was a sense of adventure about them and part of their interest for visitors was the notion that scientists and explorers ventured out into the wilderness in order to produce the exhibits was part of the appeal. If visitors learned these things were purchased, the exhibits would no longer be souvenirs from the unknown. A little taste of adventure was needed to encourage visitors to come inside.

The interest laypersons and amateur collectors had in selling the specimens they found point to a larger commercial market for natural history. Museums, universities, public schools and interested persons could purchase specimens from a number of dealers. Some of these outfits were local, such as Goder-Heimann Company (623 South Wabash), and others specialized in a particular field such as the American Entomological Company (Brooklyn, New York). Other vendors, such as Kny-Scheerer Corporation (New York City) had a global scope. Ward's Natural Science Establishment in Rochester, New York, was the oldest and largest purveyor of natural science objects. Founded by "Professor" Henry A. Ward in 1862, the Rochester-based company sent collectors to all corners of the world to find the best specimens. Ward's sold everything from mounted mammals and fossils to rocks and gemstones. While other dealers generally marketed individual specimens, Ward conceived of entire museum exhibits. His company prepared labels, cases, and advised on the best methods of preparation and

preservation of natural history collections. Historian Karen Wonders surmised that Ward's "establishment was better stocked than most museums and contained skins, skeletons, minerals, and fossils from all over the world."⁶⁶

Many key people in the museum world started at Ward's. Taxidermist Carl Akeley refined his skills while making mounts for the company. It was there that he became interested in elephants and large mammals. In 1886 Henry Ward sent him to salvage the bones and hide of P.T. Barnum's Jumbo after the elephant was killed in railroad accident. He sought to make good Barnum's pledge that the beloved animal would continue to make money in death. Ward received credit for the project, but the work was largely that of Carl Akeley. Later, he was fired for allegedly sleeping on the job. In reality, he worked long hours doing careful work and experimenting with improved techniques.⁶⁷ He only took naps in the shop during off times. Companies such as Ward's supplied many objects to exhibitors of the era's world's fairs. Natural science purveyors created many of the mounted specimens on view at the Columbian Exposition and Ward was the primary supplier. He also encouraged universities to build or expand their natural history collections and put them to good educational use. He sold collections to Harvard, Yale, Princeton and the University of Virginia.

The Chicago Academy of Sciences had a long history with Ward's. One of the earliest documented examples of this relationship is an 1875 agreement between Henry A. Ward and the Academy, "I have this day transferred to the Academy of Natural Sciences of Chicago my entire series of casts of fossils, (except *Megatherium* which is

⁶⁶ Wonders, *Habitat Dioramas*, 111. See Mary Anne Andrei, *Nature's Mirror: How the Taxidermists of Ward's Natural Science Establishment Transformed Wildlife Display in American Natural History Museums and Fought to Save Endangered Species* (PhD. Diss., University of Minnesota, 2006).

⁶⁷ Carl Akeley's employment by Ward is discussed in Jay Kirk, *Kingdom Under Glass: A Tale of Obsession, Adventure, and One Man's Quest to Preserve the Great Animals* (New York: Henry Holt and Company, 2010).

already their property), and other casts in plaster now present in the Exposition Building in this city, on the following terms...” which valued the collection at \$2,450. In 1875 the Academy paid \$1,400 cash.⁶⁸ From this point the status of the collections and settlement of the remaining cost is unclear. The documents suggest that either the Academy never paid Ward the full amount or they decided not to keep the casts (probably the latter). For the next two years, Ward wrote repeatedly, interrupted by his travels, asking for the money or for the casts to be marked fragile, insured and returned. In any event, Ward and the Academy continued to do business.

Museums, large and small, bought specimens from these companies. Ward’s was chief among these companies because the provenance of the specimen was reliable. Museums bought as many, if not more specimens as they collected. Institutions would approach the vendors with specific requests. Much of the exhibit material—in fact entire exhibits—for the Harris Public School Extension came from Ward’s. Exhibits showing the life histories of butterflies, moths, and other insects were assembled by Ward’s craftsmen for use in Chicago’s schools. Ward’s in turn, relied upon field collectors to capture the insects and collect larvae, pupae, and other materials pertinent to the life cycle. There were delays in obtaining this material and Ward’s often sought specimens upon inquiry from the museum and before financial agreements were made, even if it undercut profit: “We are very anxious to get this order, as we believe we can absolutely satisfy you, and we would like to use this as a wedge for getting some more of the collections you are preparing for the Public School Extension, which is one of the reasons for making the price we have. In fact at this net price our net profit will be slightly under

⁶⁸ Letter of agreement between Henry A. Ward and the Chicago Academy of Sciences, October 15, 1875. General Correspondence, CAS.

10%.”⁶⁹

When the life histories of *Regalis* and *Promethea* moths arrived, S.C. Simms found the work “acceptable” but thought the price Ward charged was too high. The museum negotiated for a slightly reduced price and a refund on freight by sending back the shipping containers. Such arrangements were necessary to keep their customers happy and to secure future orders. Despite issues with the quality of work, the Field Museum continued to purchase exhibits and specimens from Ward’s primarily because the difficult tasks of collecting and preserving was already done. As museums ordered more materials, Ward’s refined its offerings and stressed educational collections such as *PLANTS OF PRACTICAL IMPORTANCE*, which were “especially recommended, as they help to stimulate interest, and give a fundamental knowledge of agriculture and horticulture. They are indispensable in agricultural laboratories. They show all stages of the plants with details, from the seedling to the grown plant and its products. The cases are of uniform size and convenient to hand around in the classroom. They can also be fastened to the wall and are an attractive wall decoration of high educational value.”⁷⁰

A quick look at a price list (ca. 1914) sent to the Field Museum for the Harris Extension points to the extent of Ward’s offerings. Zoological offerings included a range of dry mounted insects, a “group of three bats, one creeping—one flying—one hanging in glass case (\$6.50), a pair of nesting crows (\$14.00), and the life history of a brook trout in liquid (6.00).” Life histories were the most numerous of zoological displays on the price list. Botanical geological displays tied commerce to nature with series depicting “Plants of Practical Importance (\$4.00 each)” and “Collections Showing the Formation of Fertile

⁶⁹ Letter, F.H. Ward to S.C. Simms November 7, 1913, Harris Extension, FMA.

⁷⁰ Price list from Ward’s Natural Science Establishment. N.d. (but circa 1914 based on attached letters), Harris Extension, FMA.

Soil (\$6.50 each).” Technological collections were systematically arranged in “tableaux form” and covered the manufacture of cocoa, paper, rubber, glass, soap and steel (prices ranged from \$6.00 for soap to \$20.00 for “Potato and Its Uses”).⁷¹

In 1915, when the Academy was installing the Chicago Environs Groups, they asked Ward’s to “Kindly send us a complete set of your catalogs, containing lists of mammals, birds, reptiles, batrachians, and fungi. We are making plans for a series of ground groups and would like to know what you can furnish in the way of material for the same.” Frederick Ward was quick to reply that they were ready to help and to provide “further information in regards to your plans for a series of ground groups, so that we may co-operate with you in securing the necessary material.” Then, he entered a sales pitch: “The best offering we have at present is a series of mounted Elk. These were mounted about one year ago during the slack period, and are absolutely first class in all ways. The group consists of a male with good size antlers, a female and a calf. Normally... \$150 to \$200 each... very crowded for space and would like to dispose of these to a museum where they would be appreciated.... Let you have the three for \$300...”⁷²

Frequently, the vendors—and Ward’s was notorious for this—contacted the museums offering to sell specimens. In 1894, Henry Ward embarked on a trip around the world to add more specimens and objects to his company’s catalog. Working with collectors and dealers along the way he anticipated obtaining a wide range of items at very low prices. “These collections,” Ward wrote Edward Ayer, “I obtain particularly from local collectors and dealers either natives or Europeans who have settled in these

⁷¹ Ibid.

⁷² Letter, Chicago Academy of Sciences to Ward’s Natural Science Establishment, June 20, 1915; Letter, Ward’s Natural Science Establishment (F.A. Ward) to H.C. Jones, June 22, 1915, HJ Correspondence, CAS.

regions and have collected rare and interesting specimens. These specimens they sell at a price so greatly below the value of the same material when brought to Europe or America that it will pay anyone who needs, as do I, a large quantity of it, to go personally to the locality. My own quest is particularly for specimens of mineralogy and of invertebrate zoology.” Now to the sales pitch, “I propose to your Museum that I shall make for it collections of skins of birds and mammals which abound in these regions in the most beautiful, rare and interesting forms found on the entire globe. For this purpose I should ask you to advance to me, with such security as will be entirely satisfactory to you...” Ward claimed this was a good deal because he was “of the Impression that we have nearly or quite that amount of material at Rochester which is not in your present collection, and which, considered from the point of view of science, or of attraction to visitors, would be a desirable addition.” The museum accepted the proposition and authorized Ward to spend \$5,000, with a special focus on bird specimens.⁷³

Other offers came from specialized or game-trophy businesses such as Kendrick Pheasantries and J.C. Miles of Denver. Miles offered his taxidermy services and frequently enquired about specimens. His stationary featured photogravure of mounted heads at the top and full-page views of some products on the back. The prominent image is a view of his shop where a lone man in the back of the store is dwarfed by mounted heads, antlers, and rows of fur rugs on the walls and floor.⁷⁴ Sometimes, collectors and vendors overseas approached Chicago’s museums with offers for specimens. Usually these objects came on the market upon the death of a collector or scientist. Depending on the skill and status of the deceased, these objects had a solid provenance. However,

⁷³ Letter, Henry A. Ward to Edward L. Ayer, June 19, 1894; Letter, Henry A. Ward to Edward L. Ayer, June 28, 1894, DPGC, FMA.

⁷⁴ Letter, J.C. Miles to F.W. [sic] Skiff, November 9, 1911, DPGC, FMA.

frequently, the seller did not wish to break up the collection and the price was subsequently too high. Herman Strecker's collection of butterflies, put up for sale after his death, proved too expensive for the Chicago Academy of Sciences, but was purchased (in part) by the Field Museum.⁷⁵

The Academy and Field Museum found Ward's and the other vendors a necessary evil. Vendors sold things the museums could not collect on their own and handled the "messy" part of acquiring items. However, this came at a cost. Curators rarely saw the items under consideration (either in person or a photograph) and so they had to rely upon the salesperson's written description and assurances. Museum staff had no control over the preparation or mounting of the specimens. In some cases, defects could be remedied, but most of the time, they had to contend with what was sent them or return it. Receiving the specimen was dependent upon it being available in first place. Frequently, the museums were displeased with their purchases because the quality of the material was very inconsistent and the profit motive (and margin) was high. Wilfred Osgood, redirecting a research lab to Ward's for animal hair samples quipped, "I suspect that, for a consideration, they would not hesitate to pluck [the hairs from] any of their skins, even if they did expect to sell them afterwards."⁷⁶

From the very beginning, the Field Museum had problems with Ward's. In the 1890s, museums dealt directly with Henry A. Ward who addressed complaints. In response to concerns about unsecured cases and rusty locks from the Exposition, Ward replied: "The cases were, as I told your Committee, not at all first class; and as I told Mr.

⁷⁵ For more about Herman Strecker and butterfly collections, see: William Leach, *Butterfly People: An American Encounter with the Beauty of the World* (New York: Pantheon Books, 2013).

⁷⁶ Memorandum, W.H. Osgood to D.C. Davies, April 17, 1923, DPGC, FMA.

Field also, not at all suitable for permanent cases for the collection, but by screwing them up tight and putting strips over the cracks, as I did in the minerals, they would hold the specimens safely, without, however, leaving them very accessible. The locks were cheap affairs, but as I left them, they worked as well as such quality of locks do work: Which is pretty poorly. If any or all of them should become rusty before spring comes and you get the sky-lights tight and the rooms dry, that will not really be surprising. Those cases as they stood in the Exposition Buildings, cost me \$5,200. I expended probably \$600 (quite gratuitously) in fitting them to their new situations in the Fine Arts building.” New cases would cost the fledgling museum considerably more than the cost of repair to these. In the end, Ward agreed to assist the museum with repairs.⁷⁷

The Chicago Academy of Sciences frequently had difficulties with vendors. They were disappointed in the quality of a Passenger Pigeon purchased from Ward’s because “the head is so full of glue and wire that our taxidermist is afraid he will have some trouble to mount it. Also the feet do not seem to belong to this specimen. Under these circumstances we do not feel that it is worth \$50.00. We are willing, however, to play \$25.00 for it. If this price is not satisfactory, let us know and we will return the bird to you at once.”⁷⁸ Ward’s agreed to the return but insisted that the specimen was indeed a good one.

Where possible, the museums preferred to work with individual collectors. This was critical for the Academy’s Midwestern work. The museum maintained a network of collectors—amateur naturalists with a business bent who knew the landscape and the animals, plants, or rocks in question. There were a dozen or so collectors and

⁷⁷ Letter, Henry A. Ward to Ralph Metcalf, Secretary, Field Columbian Museum, February 10, 1893, DPGC, FMA.

⁷⁸ Letter, Chicago Academy of Sciences to Ward’s Natural Science Establishment, October 12, 1915, HJ Correspondence, CAS.

taxidermists in the Chicago area, including Leon L. Walters and Earl G. Wright, both were initially contacted on a per-specimen basis, but later hired full-time by the Field Museum and Chicago Academy of Sciences respectively.

C. Emerson Brown, a collector-taxidermist, also offered his services to the museums. Brown specialized in fish (a particularly challenging animal to mount) and claimed that his methods of mounting fish preserves form and color “directly from nature.” Other taxidermists made similar claims. In 1903, Brown made one of his first offers to the museum. He wrote, “I am at present engaged in securing and mounting (by my own methods) specimens of fish of Massachusetts Bay and in fact all of New England for the Boston Society of Natural History... If you care fore [sic] anything of the kind should be pleased to hear from you...” Director Baker was interested in Brown’s work and the Academy was in the process of adding aquatic exhibits and fish mounts would be needed. He asked to see samples of Brown’s work. Brown obliged, “I am sending you today by express three samples of mounted fish... If you like the work and care to have more I shall be very glad to make a collection of New England Fishes for you.” He also offered to mount birds, small mammals, and reptiles for the Academy as well. He was going on a collecting trip in Maine, might the Academy be interested?⁷⁹

While Baker was impressed with Brown’s work, the Academy did not pursue obtaining more specimens from him. This was due in part to the small budget of the Academy but also the simple fact that Baker wanted to bring a tighter focus on the Midwest, and fish from New England would not fit this scheme. Baker and Brown kept in contact, however, and Brown was keen to advertise his services. He periodically sent

⁷⁹ Letters, Emerson to Baker September 2, 1903; October 1903; FB Correspondence, CAS.

newspaper clippings and lists of specimens available for purchase. By 1911, Brown's business was evidently successful as he now sent typed letters on his own letterhead (and was now trying to sell shark specimens to the Academy).

In 1913, Baker reached out with a specific request: "Can you furnish us with two young Bald Eagles in the down, or the young at any age before they have left the nest? If you can do so, please let me know your price and about when we could have the birds." Unfortunately, Brown was willing, but unable to help because "...the Bald Eagles ... do not breed around here that I know of and I do not know of a nest anywhere at the present time, I found a fine Red Shouldered Hawks nest the other day with young, these are common and I do not suppose you would have any use for it, Sorry I cannot furnish the Eagles." ⁸⁰

The installation of this kind of bird exhibit (discussed in the next chapter) was a major undertaking that utilized all of the Academy's resources and contacts. The exhibit featured not just birds but also nests and eggs as well. These were frequently a challenge to acquire. The Prairie Chicken group was much sought after and complicated part of the installation. For instance, Baker enquired of Benjamin Gault, "Mr. Woodruff wishes me to find out if you could secure for us a set of Prairie Chicken eggs. We wish to make a group and to get the young we must hatch them in our incubator. We are of course willing to pay a good price for a set of eggs." ⁸¹

At the same time, mammal groups depicting the Chicago region through the seasons were also under development. Snowshoe rabbit specimens were even more

⁸⁰ Letter, Frank C. Baker to Brown May 9, 1913; Letter, Brown to Baker May 16, 1913 [This letter was typed on even nicer letterhead in a large font and included an image of a moose statue "18 in high copyrighted for sale" tagline "We do everything in taxidermy."}] FB Correspondence, CAS.

⁸¹ Letter, Frank C. Baker to B.T. Gault June 13, 1914, FB Correspondence, CAS.

difficult to obtain and the Academy searched high and low. From Frederick Lucas, Director of the prestigious American Museum in New York, “I am really very sorry that we cannot meet your wishes in regard to the skin or mounted specimen of the Wisconsin snowshoe rabbit, but there are ‘not enough trees for the officers.’ In other words, I regret that our own series is so small we cannot spare even the one specimen, greatly as we should like to assist you.” Meanwhile, closer to home, University of Wisconsin in Madison could not spare a specimen. Professor George Wagner referred Baker to H.H.T Jackson, a former student who worked for the Department of Agriculture and who had contacts with collectors in the state.⁸² As it turned out, Jackson did not have a specimen either. He referred Baker to a private collector in Milwaukee and also redirected him to the Public Museum, which presumably had four or five. Both parties might be “induced” to sell them.

Baker spread the web of institutional and commercial ties further onward to obtain the much-needed specimens. In December 1914, he first contacted a taxidermy school in Nebraska and then he wrote to the publisher of an academic journal, *The Oologist*, to place an advertisement in the next issue:

WANTED AT ONCE

A specimen of the Red Fox in fine winter fur. Also skin or mounted specimen of the Varying Hare of Snow Shoe Rabbit in brown summer fur. A pair of Bald Headed Eagles in the down is also desired.⁸³

The Academy’s notice bore fruit. From Savannah, Georgia, J.N. Irving responded, “With reference to your ad in the *Oologist* for January. I can procure a pair of young of the bald eagle in down at any time, advise at once what you would care to offer,

⁸² Letter, F.A. Lucas, Director of the American Museum of Natural History to Frank C. Baker, November 12, 1914, FB Correspondence, CAS.

⁸³ Letter, Frank C. Baker to H.M. Barnes, Publisher of *The Oologist* December 5, 1914 FB Correspondence, CAS.

cash only. As the season is a little late for birds of that age I would suggest that you give the matter quick attention.”⁸⁴ Things were looking up for the Academy. Irving would “send 2 bald eagles in down, skinned for mounting,” with an estimated cost of \$20.00 minimum.

Meanwhile, taxidermist Karl W. Kahmann came through with Snowshoe Rabbit specimens. There were some delays acquiring and preparing the specimens, however. Under pressure to complete the installation, Baker wrote Kahmann, “Miss Jones tells me that you phone[d] that you would not have the Snow Shoe Rabbits ready for several weeks. Now it is quite imperative that we have these in the case by a week from Wednesday, (June 16). There are reasons which I can not explain why this groups should be completed at the time specified, so will you please use your best efforts to get the two specimens mounted. They need not be completely dry because they will have ample opportunity for drying and setting inside of the case.”⁸⁵

With Bald Eagles in hand and Prairie Chickens in progress, Baker now shifted focus to obtaining the rest of the birds for the new exhibit. Another collector, was contacted to do the job and Baker sent a veritable shopping list:

Have you gotten in touch with Mr. Peck regarding the specimens I spoke to you about? It is of vital importance that we get these birds this fall. Are you absolutely sure you can get them for us? The birds we must have are as follows:-
 A large fine White Pelican
 Sand Hill Crane
 Five small Canada or Hutchin’s Geese
 Snow Geese
 White-front Goose
 Blue Goose
 ...and if you cannot assure us you can get these specimens for us, I will have to take a trip north for them.⁸⁶

⁸⁴ Letter, J.N. Irving (on The Southern Cotton Oil Company letterhead), January 21, 1915 to Chicago Academy of Sciences, FB Correspondence, CAS.

⁸⁵ Letter, Frank C. Baker to Karl. W. Kahmann, June 4, 1915, FB Correspondence, CAS.

⁸⁶ Letter, Frank C. Baker to W. B.[sic] Mummery, September 20, 1915, FB Correspondence, CAS.

From 1900 onward, special permits were required by most states to collect living organisms. The museums used their civic and educational prerogative to acquire the necessary paperwork for the collectors they hired. These were commissions limited to a specific specimen or range of specimens and a strict budget. When one J.C. Bartlett sought to collect birds for study, he needed to apply for a permit. Frank Baker advised him, “You realize that we have to be very careful about endorsing collectors because advantage has been taken of these licenses not only for hunting purposes but for commercial purposes as well. We are glad to encourage the study of birds by any citizen but we most emphatically discourage the commercial collecting of birds and even the local collecting by people not particularly interested.” Baker then wrote a letter of recommendation for him.⁸⁷

While the rules varied by locality, the authorities concerned were to protect wildlife from wanton exploitation. Charles Brewer, secretary of the North Dakota Game and Fish Board advised Academy Secretary Atwood that the “Board is willing to issue permits to properly credit persons to make bird collections in this state, provided the collectors will use ordinary discretion—or common sense—and notify spectators who see them at work, that the collections are being made for scientific purposes and especially under permit. Some collectors have not attended to this phase of the matter. The result has been that others—seeing a stranger kill birds—and knowing nothing of his purpose or authority—have done the same thing.”⁸⁸

⁸⁷ Letter, Frank C. Baker to Mr. J.C. Bartlett, March 22, 1913; Letter, Chicago Academy of Sciences (unsigned) to Cook Country Clerk, March 22, 1913, FB Correspondence, CAS.

⁸⁸ Letter, Chas. Brewer, Sec. N.D. Game and Fish Board to Wallace W. Atwood, June 2, 1915, WA Correspondence, CAS.

The need for permits reinforces the notion that the natural world needed protection from depletion and as much management as other areas of life the progressives touched. As we shall see, reformers believed Americans—young urban American in particular—needed to keep in touch with nature, yet, this did not mean they should have *carte blanche* collecting it for themselves. There were limits. Not limits to knowledge or access to knowledge, but private ownership of the source of natural knowledge. As natural objects were preserved in museum cases, the lands from whence they came were encased with boundaries of national and state parks. Wild spaces and wild things were worth saving.

Collectors with proper licenses operated small businesses providing specimens for museums and other interest parties. Assured of the legalities involved, these collectors approached museums to assess their interest in acquiring specimens. H.H. Kopman wrote to the Academy, “Please advise whether there is any biological material you wish to secure from parts of Arkansas and Louisiana and possibly the Mississippi Coast. I am engaged at present in making collections of moths and butterflies and trees and shrubs. If there is other material you are interested in obtaining and you will specify what it is, I will let you know whether I can secure it. Do you buy material only on special orders or do you ever have collectors regularly in the field?” To wit, Director Alfred M. Bailey replied, “Sorry we cannot use anything from the South now, as we are limited to the fauna of the Chicago area for the time being. I have plans for extensive exhibits of North American wildlife in the near future.”⁸⁹

People wrote to the museums to find out where to buy specimens, science

⁸⁹ Letter, H.H. Kopman to Chicago Academy of Sciences, August 8, 1927; Reply, n.d., ND Correspondence, CAS.

equipment, and printed materials for their own needs. Harry Kern asked the Field Museum if there was “a book on the market, or any other publication, either American or foreign, with color plates or colored illustrations” that would make himself “thoroughly acquainted with the different kinds of parrots, especially the plumage and coloration.” He wrote the museum because it “occurred to me that you might be in a position to give me this information, and I can think of nobody else who perhaps can help me in this matter.”⁹⁰

For a large institution like the Field Museum, collecting was a global endeavor. When possible—because of available funds, an expedition, or exchange with another institution, the museum acquired specimens from other continents. Curator of Zoology Wilfred Osgood recommended that the museum work with Gunter Tessman in Peru to acquire specimens of small mammals. The director authorized Osgood to spend \$50.00 on six specimens of bats, rodents, and *Didelphidae* in Tessman’s collection. Osgood was particularly interested in small mammals because when in South America he “found it exceedingly difficult to find intelligent resident collectors who understand the collection and preparation of mammals, and I believe it very desirable to cultivate relations with the few that are there. Collectors of birds and insects are frequently met, but opportunities to purchase mammals are relatively few.” This small purchase would allow Osgood to evaluate Tessman’s work and test the waters for future orders.⁹¹

In 1923, Captain Parker Tenney, a military attaché in Peking, heard rumors that the Field Museum wanted “a mountain sheep with a bone horn measurement of 21 inches or over and that you will pay the person who sends you one a good price.” Tenney

⁹⁰ Letter, Harry N. Kern to Field Museum, February 2, 1920, DPGC, FMA.

⁹¹ Memorandum, W.H Osgood to D.C. Davies, August 20, 1921, DPGC FMA.

wondered if the rumor was true and planned an excursion to Mongolia to hunt a large specimen. In reply, the museum stressed its policy that it does not contract for specimens that have not been collected. Director D.C. Davies added however, “should you secure on your trip good, mountable specimens of the large mammals of Asia, the Institution would be glad to learn what you have for sale with prices of each specimen indicated.” Osgood indicated to Davies that there were a number of Asian species desirable as exhibit material and for the study collection. For the purpose of mounting, the museum would need skull and leg bones as well.⁹²

2.5 Corporate Connections

The Harris Public School Extension of the Field Museum (see chapter four) relied upon corporate cooperation to secure exhibits. This was especially important for assembling the economic display cases. For example, the Washburn-Crosby Company (later a key part of General Mills), distributed exhibits and that these were in great demand from graded schools as well as colleges. Washburn-Crosby provided exhibits, at their own expense, to the Field Museum that demonstrated how grains were grown, harvested, and processed. These were among the first sets of economic cases to circulate in the loan program and served the educational purposes of the Extension but also provided the corporation with some advertising. Even though the label was not prominent, the Washburn-Crosby company name was credited with supplying the material to the case and subtly brought their “Gold Medal Flour” product to the viewer’s

⁹² Letter, Captain Parker G. Tenney to Field Museum, April 17 1923; Memorandum, Wilfred Osgood to D.C. Davies, May 11, 1923; Letter, D.C. Davies to Parker G. Tenney, May 12, 1923, DPGC, FMA.

mind.⁹³

In 1921, the Turpentine and Rosin Producers Association “noted with interest your plans and work on bringing before the school children an opportunity to become better acquainted with many of the commodities produced...” but many people do not know about the methods used in “naval stores industry, producing turpentine and resin from the longleaf yellow pine of the South.” Curator Simms thought an exhibit would be a good one for the Harris Extension. He suggested the association send printed matter as well as sample objects to make the cases.⁹⁴

The 1920s saw a departure from the black and metallic automotive color pallet. Manufacturers embraced colors to differentiate models of cars and also enable a sense of individuality for one’s choice of car. The public’s desire for colored cars and customization was not lost on Valentine and Company, the developers of Valspar. Newspapers reported: “The practical value of an institution like the Field Museum, entirely aside from its educational value, has once again been clearly demonstrated by the service recently rendered by its staff to the automobile industry.”⁹⁵ Geology curator Farrington aided the Valentine study of gemology. The vibrant colors, as attractive to people as jewels was an inspiration for a new color pallet.

In 1929, the Field Museum received an inquiry from The Vortex Manufacturing Company, makers of paper cups, for information regarding the history of drinking vessels. Vortex wanted to create “a somewhat educational display on the different

⁹³ Letters, Benjamin S. Bull, Washburn-Crosby Company to S.C. Simms, February 4, 1913; S.C. Simms to Benjamin S. Bull, February 13, 1913, Harris Extension, FMA.

⁹⁴ Letters, Carl F. Speh, Secretary & Manager, Turpentine and Rosin Producers Association to N.W. Harris Public School Extension, December 10, 1921; S.C. Simms to Speh, December 14, 1921, Harris Extension, FMA.

⁹⁵ “Field Museum, Chicago, Inspires Jewel Colors for Motor Cars,” n.d., Newspaper clipping, DPGC, FMA.

methods of drinking water since the beginning of man, starting out, perhaps, with the idea of a man bending over a stream or creek.... and finishing up with a man drinking from a sanitary paper cup...” They hoped the museum had some displays a representative could come and study. The museum directed the sales manager to the appropriate exhibit halls and also suggested he purchase a leaflet on the Ostrich Shell Cups of Mesopotamia.⁹⁶

Likewise, in 1934 the Field Museum provided materials to the Dodson Service to Retail Coal Merchants for a bulletin about the origins of coal; “We know what it is, where it is, and what it will do, but little has been said of its origin - a marvel of nature.” The bulletin reprinted an image of the carboniferous forest exhibit along with a brief description of the geologic processes that created different types of coal.⁹⁷

Ties between museums and businesses (i.e. organizations seeking to profit by museums or vice versa) did not run terribly deep. In fact a company’s interest in museums often provided unwanted attention. For example, the Van Dorn Iron Works Company ran a circular in 1926 stating that the Field Museum sent an expedition to Africa to collect plants and herbs in order to determine their medical properties. Van Dorn manufactured metal furniture and claimed the Field Museum commissioned a set of herbarium cases specifically to house this African collection. They asked, “Would it not be more or less of a crime if after all of this expense and effort, all these samples of vegetation, after having been care- fully dried and catalogued, were stored in unsatisfactory cases offering little protection from fire, vermin, gnats, microbes and be destroyed entirely?” While the museum did indeed purchase some cases from the

⁹⁶ Letters, M.L. Potter, Sales Department, The Vortex Manufacturing Company, to Field Museum, July 2, 1929; Field Museum to M.L. Potter, July 8, 1929, DPGC, FMA.

⁹⁷ Alan C. Dodson, “Dodson Service to Retail Coal Merchants,” Bulletin No.166, November 17, 1934, DPGC FMA.

company, they did not mount such an expedition and were displeased with Van Dorn for using a fiction to drum up business.⁹⁸

2.6 Merchandising the Museum

The marketplace for specimens and the enquiries museums received from the public highlights the fact that people lived in a world of material things. As Steven Conn observed, late Victorians lived in a “world of stuff” and curators’ concern with the acquisition and exhibition of objects was predicated upon this.⁹⁹ Museums were engaged in consumerism in several ways. On one level, museums provided a service, the acquisition and classification of objects and then offering them for public viewing. Museums provided access to knowledge and served information and visitors consumed the information. By so doing, museums engaged in the material world because they bestowed objects with value. Anthropologist Penelope Harvey argues: “Contemporary understandings of the nature of consumption as cultural practice are complex” because they “focus on how objects acquire value through the particular relationships in which they circulate.”¹⁰⁰ The specimens and objects preserved in the case are dead—functionally and organically. The stuffed lion will not roar and the vessel will not be filled with wine. However, the lion and the vessel each have an intrinsic value because they teach a particular object lesson. Museum objects also often have an increased value in monetary terms by virtue of being chosen over others to be in the museum, but as far as curators are concerned, the true value is educational. In other words, museum

⁹⁸ Letter, Van Dorn Iron Works to Field Museum, October 2, 1926; Letter, Stanley Field to Van Dorn Iron Works, October 6, 1926, DPGC, FMA.

⁹⁹ Conn, *Museums and American Intellectual Life*, 13.

¹⁰⁰ Penelope Harvey, *Hybrids of Modernity: Anthropology, and the Nation State and the Universal Exhibition*. (New York: Routledge, 1996), 135.

specimens have no intrinsic value other than as museum specimens because they are not consumer goods in and of themselves. Consumers recognize this form of value (among others) in the marketplace.¹⁰¹ When consumer goods are advertised as “museum quality,” that implies not only something that is expensive, but also that it is “accurate” and truthful to the original item it is copied from. That object, in turn, has an educational value because of the special lesson it teaches in a museum. The typological organization scheme and the object-based epistemology invited visitors to compare and contrast specimens and objects in the exhibit halls to learn lessons of evolution, ecology, and the diversity of nature.

Increasingly after 1900, consumption in the museum extended beyond objects on display, but also goods produced for sale within the museum. The sale of guidebooks began the custom of marketing items to visitors relating to their experience at the museum that would bloom over time into a cornucopia of souvenir items. In addition to imparting educational information, the guides were also proof that the visitor went to the institution. By the 1910s, museums sold postcards, photographs, and prints to reinforce appreciation of science, and learning, but also to remember the experience. Both museum and visitor engaged in the commodification of science or culture through the process of selling and buying a facsimile of a precious object, natural specimen, or work of art. Museums, Penelope Harvey writes, “sought to promote themselves as brands in order to give rise to sales of objects which signify no more than the fact that the museum was visited and that the values with which the particular institution is associated might now in

¹⁰¹ This can be linked to notions of public taste. See Neil Harris, “Museums, Merchandising, and Popular Taste: The Struggle for Influence” in Neil Harris, ed., *Cultural Excursions: Marketing Appetites and Cultural Tastes in Modern America* (Chicago: The University of Chicago Press, 1990), pp.56-81.

some way adhere to the person who carries its material trace.”¹⁰² The Field Museum began selling postcards in November 1914 for a penny each and sold 60,000 by May of 1915. The most popular pictures were of the sauropod “Colorado” dinosaur and the polar bear group.¹⁰³ Postcards were the most frequently produced and sold museum souvenirs. The photographs included not only views of the museum building but also of exhibits. The Field Museum reproduced Painter Charles Knight’s murals onto cabinet cards and postcards. These were very popular with visitors. Those who could not see the murals in person could appreciate them from anywhere, albeit on a smaller scale. A set of fourteen postcards cost \$0.30 (and an additional \$0.04 for postage if mail ordered) and photographs were a dollar each.¹⁰⁴

In 1924, the Field Museum released a new booklet, “Summer Wild Flowers” which was sold “at cost” in the museum. A newspaper article noted that this was the third of a series about local flowers and how “every flower it describes is illustrated with a photograph and easily remembered descriptions” accompanied them. Poison ivy was included as well and although the author found the image pleasing it was decidedly the “villain in the plot.”¹⁰⁵ One wonders what anthropomorphizing readers did with the flowers in the book.

Charles Knight published *Before the Dawn of History* (1935) a book that featured his murals for the Field Museum. The book was a popular item in the bookstore and sold, according to an internal memorandum, thirty-seven copies in a sixteen-month

¹⁰² Harvey, *Hybrids of Modernity*, 160.

¹⁰³ “Old Dinosaur a Best Seller,” *Chicago Daily Tribune*, March 14 1915.

¹⁰⁴ Letter, Field Museum to Mrs. A.C. Dalton, October 27, 1931, DPGC, FMA.

¹⁰⁵ “Summer Wild Flowers,” n.d., newspaper clipping. Attached to a letter from Mrs. H.B. Warner of Ashland, Wisconsin seeking to buy copies of the booklet, DPGC, FMA.

period. This was above average for comparable books during the depression years. The museum received frequent inquiries about the book and where to obtain it.¹⁰⁶ The Field Museum's bookstore offered visitors a chance to add their experience to the museum in the mind—to preserve the memory of the museum visit—through souvenirs. The specimens in the museum, Rachel Poliquin suggested, were a form of souvenir. They were memories of nature preserved in material form. “A souvenir,” Poliquin writes, “is a token of authenticity from a lived experience that lingers only in memory.” A souvenir's power derived from a form of nostalgia whereby one can never fully recoup an event but rather it was transformed it into a golden memory. In other words, “a souvenir is a potent fragment that erases the distinction between what actually as and what we dream or desire it to have been.”¹⁰⁷

Through purchased souvenirs, visitors could take home part of the experience and continue learning about nature and science. A century ago, museum bookstores were limited to books, guides, museum maps, and postcards. Today, museum gift shops go beyond books and postcards to replicas of specimens and objects, stuffed animals, toys, games, DVDs, posters, and jewelry. Within and without the exhibition hall, museums, collections, and the consumer market dance and spin about with each other. From the point of view of curators, museum collections are akin to sacred objects. If a museum is a temple, then the exhibits inside are the objects of veneration. The thought of these items traded in the commercial world is blasphemous. But yet, it is precisely the location of these items inside the museum that make them valuable (in academic and economic terms) and greatly shape the nature of items deemed worthy of museum display but also

¹⁰⁶ Letter, Clifford C. Gregg to Charles Knight, August 29, 1939, DPGC, FMA.

¹⁰⁷ Rachael Poliquin, *The Breathless Zoo: Taxidermy and The Cultures of Longing* (University Park: The Pennsylvania State University Press, 2012), 7-8

the monetary value of similar objects in the marketplace. It does so in two ways: by defining what is “rare” and what is “museum quality.”

I speak broadly of objects here: this encompasses artworks, natural history specimens, and historical artifacts. Whether shaped by nature or by human hands, what museums chose—and still choose—to place behind glass or on a wall is determined by the uniqueness of the item in question. In a natural history museum this is nuanced by the type specimen. The type specimen is not one of a kind, but stands as a representation of all the others like it. Scientists use the type specimen to determine the difference between species. It is precisely the *typicality* of the specimen that renders it valuable to the museum and useful for public display. A mounted monarch butterfly or specific species of trilobite serves as the definitive example of that organism. In some instances, there may be few type specimens in museums, rendering those that are with a measure of rarity. With fossils, particularly fossil vertebrates, the fossils may indeed be rare.¹⁰⁸ So few living things are fossilized that even commonly found fossils, in the big picture, are rarities. But in the realm of fossils, a complete dinosaur is the rarest specimen (and hence a scientifically and monetarily valuable find). Other objects, such as a hypothetical Starbucks coffee cup display are valuable for reasons based on their context. The cup I’m drinking from now is only worth the cost of manufacture and distribution, but the first cup issued by Starbucks would be of great value because of the contextual significance as the “start of it all.”

So museums determine rarity—and the value of rarity—as much as collectors and dealers do. These influential people create a market value for things with little intrinsic value of their own. They make judgment calls about what is—and what is not—of great

¹⁰⁸ See Richard Fortey, *Dry Storeroom No. 1: The Secret Life of the Natural History Museum* (New York: Vintage Books, 2008).

value and significance. The offshoot of this concept in the market place is the idea of “museum quality” objects for sale in the marketplace.

What makes something “museum quality” and what does that mean? At bottom, this determination is in the eye of the buyer. Regardless of the item for sale, one expects a level of precision, accuracy, craftsmanship, realism, or beauty. This necessarily comes with a high price tag and perhaps a stand, case, or other display that evokes the protective yet aesthetic container used in a museum. A fossil cast for example, should look and perhaps feel as though it were made of rock. Artwork must have the tangibility of human handiwork (not printed or machined) and a reproduction of a weapon say, or document, must appear indistinguishable from the original. One expects there to be little difference between the museum piece and the one for sale (perhaps you can impress friends?). The notion is that these pieces are not mass produced in the way of most consumer goods but handmade to a greater degree. It also means the price for such an item is very high. A museum quality piece is an expensive one.

Reproductions are only one form of museum quality piece, the other determines if such things are worthy of museum display. For instance, there may be scores of trilobites in a fossil collection but only a handful is well preserved or cleared from the matrix with such care and skill that they are deemed museum quality. Some of these in turn, may be displayed in a museum’s collection, but others will be sold as museum quality specimens—that is they are on par with specimens chosen by curators for exhibition. In a similar vein, an artwork may be deemed worthy of display in a museum gallery and as such similar pieces, even if not specifically exhibited by an art museum, are deemed worthy of it. Thus, they are museum quality works. Regardless of the type of object,

museums impart valuation on the types of objects and specimens they display.

The specimens and objects behind glass became endowed with a similar sense of pricelessness, as did works of art in museums. Attempts at vandalism and theft, sometimes successful, were not uncommon occurrences. Though not as infamous as the Mona Lisa theft in 1911, Chicago's museums did have some trouble. On the evening of Saturday, April 17 1909, someone stole bird's eggs from an exhibit case in the Chicago Academy of Sciences. An investigation revealed that the thief either hid inside the museum or entered through a basement window. Eggs shells were found in the hallways and next to a pried-open window in the ladies' toilet, by which he or she exited the building. The Lincoln Park police discovered the tablets on which the eggs were mounted in the park. Frank Baker suspected that the culprit might be a juvenile and notified the public schools to be "on the watch for some boy who may have suddenly acquired an egg collection." A \$25.00 reward was offered for the arrest and conviction of the person, but the thief was never found.¹⁰⁹

Over the forty years beginning in the 1890s, the (new) Chicago Academy of Sciences and the Field Museum developed increasingly sophisticated exhibits from the specimens they collected and bought. At the turn of the century, professionalization and progressivism shaped the growth and development of museums. The university-trained scientists who led expeditions, curated collections, and oversaw the installation of exhibitions replaced the amateur naturalists. The men and women who created the first generation of exhibit materials did so as an avocation. By the 1910s these staff members were graduates of university programs in museum methods or fine arts. Professionals created better exhibits and showed deeper knowledge of science than their predecessors.

¹⁰⁹ Letter, Frank C. Baker to Joseph R. Putnam, May 4, 1909, FB Correspondence, CAS.

These new exhibits were intended as a means of educating a broader public audience about science and nature. What began as rows of glass cases with neatly ordered specimens evolved in the first quarter of the century into sophisticated facsimiles of nature that inspired visitors to wonder about the intricacies of nature's works. How and why these changes occurred is the subject of the next chapter.

III. Dioramas of Desire: Museum Exhibition and the Evolution of Display, 1890-1940

Imagine you are peering into an Egyptian tomb. You see scarabs, vases, statuettes and gilded sarcophagi. You wonder and dream about what it would be like to be a pharaoh, drifting down the Nile drinking wine under a silken canopy. The romance and allure is irresistible. Your daydream is all encompassing. Your cares drift away and you drift until the reverie comes to a screeching halt. A voice tears through the silence as daylight sears through the moonlit Nile. “Can we *go* in now?” A child’s voice asks. Gone from your eyes are the splendors of Egypt, replaced with the face of your child. “Alright,” you reply. In moments you were transported back in time to a distant past, to an exotic place, to a marvelous fantasy. You took this journey with your imagination and the communicative power of exhibition as your guide, but in an instant you were returned to your place and time. And just where are you? Modern Egypt? Hardly it’s too cold. You must be inside the Field Museum, in a hall of antiquities among the statues, dioramas and cases. Wrong again. You are on State Street, outside Marshall Field’s. It’s the mid 1920s, and Ancient Egypt is all the rage.¹

The concept of display makes this imaginative leap inspired by artifacts—material culture—possible and could very well have taken place in a museum rather than a retail setting. In fact, modern museum exhibition and show window display developed simultaneously in the early twentieth century. However, it is telling that this same fantasy is possible in two entirely different spaces with very different purposes—the museum

¹ After the discovery of Tutankhamen’s tomb, Ancient Egyptian décor and fashions became popular and the Field Museum began to redesign its Egyptian exhibits as well as seek new artifacts for its collections. University of Chicago archaeologists were also working in Egypt and other regions uncovering ruins and artifacts of ancient civilizations. It is no coincidence that the fictional Indiana Jones was associated with the University of Chicago. For example see: “Tut, Dead 3,000 Years, to Be Dictator of Fashions for 1923,” *Chicago Daily Tribune*, 1923; McLaughlin Kathleen, “Field Museum Opens Six New Treasure Halls,” *Chicago Daily Tribune*, 1928. The Reebie Moving and Storage Company building on the 2400 block of North Clark Street is another manifestation of the Egyptian craze of the 1920s.

exhibit and the store display. The museum seeks to educate and the store seeks to sell. As different as these goals are, they share some essential similarities. Department stores and museums are both vast, open spaces.² Their contents are divided into departments managed by experts and personnel responsible for the display of objects. Both need to communicate specific messages to the viewer and both impart information that can be considered “useful” within their contexts. Both use physical objects, images, and text to convey messages. Perhaps most important of all, each hits upon viewer’s emotions through the sense of sight and they must do so instantaneously. “Show me,” wrote Tom Gill in *Nature Magazine*, “is something more than a national slogan—it is almost an habitual attitude. We have come to pride ourselves on our incredulity, on our instinctive skepticism regarding the things we have heard about, but have not seen.”³ People respond to visuals (seeing is believing) and that is the commonality between store displays and museum exhibits. The one essential difference between the displays, in the words of designer Chantal Beret, is that “in the museum these [objects] remained unique and inaccessible.”⁴ It is worth briefly considering department store show windows because museums and department stores developed at roughly the same time and both created sophisticated and visually compelling displays.

William Leach in *Land of Desire: Merchants, Power, and the Rise of a New American Culture* (1993), noted the cooperative role of art museums such as New York’s Metropolitan Museum of Art and department stores such as Macy’s. At the turn of the

² See: William, Leach. *Land of Desire: Merchants, Power, and the Rise of a New American Culture* (New York: Pantheon Books, 1993).

³ Tom Gill, “Show Windows of Forestry: The Charles Lathrop Pack Demonstration Forest,” from *Nature Magazine for July*. N.D., p1, DPGC, FMA.

⁴ Chantal Beret, “Shed, Cathedral, or Museum?” in *Shopping: A Century of Art and Consumer Culture* Edited by Christoph Grunenberg and Max Hollein (Berlin: Hatje Cantz Publishers 2002), 70.

century, art museums were as much arbiters of material culture as department stores. Exhibitions of modern art, décor, and furnishings in the museum were tied, Leach argues, to the retailing of similar items in the stores.⁵ The displays in both contexts created consumer desire. Furthermore, department stores were rigidly organized around specific sections for specific types of items: women's outerwear, perfume, men's ties, and floor rugs, for instance. Art museums organized collections by different movements or periods in the arts or by media. Likewise, natural history exhibits reflected the divisions of the museum (principally: zoology, botany, geology, and anthropology). Leach did not discuss natural history museums but there was a similar interplay between natural history museums and department stores. Historian Neil Harris examined the commonalities between museums and department stores. Both museum and store were centralized collections of objects organized in rational ways. "Like museums," Harris writes, "department stores were selective concentrations of merchandise grouped by functional categories rather than by age and nationality."⁶ Department stores, and their show windows in particular, competed with museums with the collection and display of art and artifacts. The wood cases, open spaces, vaulted ceilings and alluring displays echoed the space of the museum. More importantly, Harris argues that department stores, museums (art museums in particular), and world's fairs were all arbiters of public taste in art,

⁵ William Leach, *Land of Desire*. Victoria E.M. Cain in her dissertation, "Nature Under Glass: Popular Science, Professional Illusion and the Transformation of American Natural History Museums, 1870-1940" (Ph.D. diss., Columbia University, 2007) also uses William Leach's reading of department store displays as illusion and of great influence upon museum exhibition. The discussion of museums and department stores is found primarily on pages 164-173. In Chicago, Marshall Field and Company periodically put up store displays inspired by museum exhibitions at the Art Institute of Chicago and the Field Museum. Some of these displays involved Egyptian motifs, wildflowers, and butterflies.

⁶ Harris, "Museums, Merchandising, and Popular Taste," 63.

leisure activities, entertainment, and consumer goods. In the museum, tastes were guided by expert curators, and in stores by merchandizers.⁷

Carla Yanni, in her study of the architecture of natural history museums also notes the similarities between shopping arcades, department stores and museums and in her estimation the design of each “can be explained by the perceived need for cheap natural lighting.”⁸ At the turn of the century all large public or semi-public spaces relied on natural light. This practical need determined how things could be arranged for view, regardless of institution. The most important intersection of department stores and natural history museums was the increasing sophistication of display. Lets take a closer look at how stores and museums used the art of display at the turn-of-the-twentieth century.

3.1 Defining Display

What do I mean by “display?” Display refers to telling stories through objects and images in a manner that is at once both objective and subjective. Artifacts and pictures tapped into the viewer’s acquired knowledge, their desires, dreams, and curiosity. Display encouraged the viewer to enter the store or continue to the next gallery. The modern concept of display emerged in the 1890s with department stores (the development of large plate glass panels made the show window possible) and developed throughout the twentieth century.

Display for commercial and educational purposes mixed in the great exhibitions and world’s fairs of the era. At the World’s Columbian Exposition of 1893 some exhibits

⁷ Ibid., 65.

⁸ Carla Yanni, *Nature's Museums: Victorian Science and the Architecture of Display* (Baltimore, Maryland: Johns Hopkins University Press, 1999), 9.

were entirely educational, such as the Palace of Fine Arts or the anthropology collections. Other exhibits, like those in the transportation building or the Midway concessions such as Libby Glass Company's glass blowing booth were purely commercial. However most exhibits simultaneously conveyed educational information and advertising with objects. These displays featured new goods or promised future technologies.⁹ The exhibitors used the informative aspects—what materials it was made of, how it was made, what it does, and how it works to encourage visitors to purchase the product or embrace the future the goods and technologies promised. It is a short intellectual leap (more of a skip in fact) to see that store window displays carried on this approach of offering information to encourage consumer desire. Unlike the fair, where objects on display were not for sale (they were often prototypes), the object of desire in a show window was readily available and within a few feet of the consumer. The show window itself was more immediate and intimate. It was much smaller than a fair exhibit. Its function was (and remains) to reach passers-by on the street (who may or may not be deliberate or “window” shoppers) and it must convey its message within seconds. If they stop, viewers can get close to it—close enough to be curious—but still out of reach behind the glass —while the contents of the window fills their field of vision. Thus the show window is a diorama of desire, aimed at consumer fantasies.

Natural history museums have their own version of a show window. These are the exhibit cases. Cases are such a vital component of museums that they are nearly their essence. Objects and specimens are sealed in cases by necessity to preserve them from atmospheric damage and safeguard them from theft. Unlike the show window, the

⁹ For more on expositions see: Bolotin and Laing, *The World's Columbian Exposition : The Chicago World's Fair of 1893*; Rydell, et. al, *Fair America : World's Fairs in the United States*; Robert W. Rydell, *World of Fairs*; _____, *All the World's a Fair*; Burg, *Chicago's White City of 1893*.

display inside the case is rarely changed. Show windows reflect the fleeting and temporal. They engage viewers in the moment and trumpet the new. Museums embody permanence and natural history museums in particular, seemingly embody antiquity.¹⁰ The slang, “that ought to be in a museum” captures this notion (the meaning here is that a museum is the only place something outmoded belongs).¹¹ These differences aside, museum cases use lighting, labeling, or mechanical effects to capture visitors’ attention, just as store windows do. Like show windows, cases maintain the physical distance between object and viewer to pique interest and transform the specimen into something special.

Here we have the intersection between museum exhibits and show windows in the early twentieth century. Whether behind glass on State Street or in the Field Museum’s Hall of Mammals, these displays sought to convey messages to educate, entertain, and capture the imagination or inspire action. Two possible actions might have been to participate in the consumer market and to appreciate nature. How did display accomplish this? There are several principles of display that were used both in museum exhibits and in show windows. First, both uses of display rest on the premise that images—be it a photograph, drawing, film, or physical object—convey messages better than words. They do so because they force the viewer to construct sentences in their mind and make the meaning of what they see personal (illiterate and non-English speakers can figure it out too). Second, Americans were impressed with size, so displays utilized the size or

¹⁰ When an object is placed in a museum it is perceived (by public, critics, and curators alike) as “dead”—that is—separated from its original use. For example, a coffee cup in a museum will cease to serve its purpose of holding coffee. It now serves as representations of cups that did and still do contain coffee. Presumably, since the cup is in a museum it is somehow unique from cups not behind glass. In a similar fashion, objects in a store take on a luster of fantasy and expectations. Once brought home and out of the context of the store display, it ceases to be special and becomes ordinary.

¹¹ Museums were (and are) parallel to libraries because both types of institutions are collection points for systematically cataloged things.

scale of something to get people interested. Display also highlighted the quantity or abundance of things. Americans believed in a limitless world. Third, display distills complex ideas into a simple and accessible message.

For example by the 1920s one museumgoers saw:

At one side of the 'Bird Room' in the Museum of Natural History of the University of Iowa stands a modern habitat group representing a Louisiana swamp with its interesting birds and amphibians. Under construction at the other side of the room is an arctic group representing the native life of the Bering Sea. In each of these groups every bird, every branch, every leaf is presented in the attitude of nature. At this side the timid egret broods over nestlings in the branch of a moss-hung tree. On the other the graceful gull swoops down over the expanses of snow and ice. One may stand at the portal and with a turn of the head cast his eye from frozen north to sunny south; may see America's wild life as it is now but no longer will be. What this means in the way of instruction needs no argument to declare.¹²

The messages here are clear: America's diversity of birds and bird habitats, the commonality of birds nesting, and the sense of preserving wild spaces—if not one of conservation of wild spaces—before they are gone forever. All of this happens with the carefully staged display—all imagery and no words or sound. As we have seen, the early twentieth century saw the emergence of ecological study and the establishment of national parks. Closer to home in the Chicago area, naturalists and ordinary folk alike were very aware of the loss of the prairie to agriculture—the same prairie that created Chicago's great economic power. It was in this context that Chicagoans viewed and contemplated such displays.

Store window dressers and museum curators understood that images convey messages quickly and succinctly better than text. Pedestrians strolling down the sidewalk were not expected to stand and read verbose signage. Museum visitors may be very interested in an exhibit but they were more concerned with the materials inside the case rather than the description on a label. In order to convey the message of a display, textual

¹² "The New Taxidermist," *University of Iowa Service Bulletin*, Vol.8., No.22, June 2, 1923, Harris Extension, FMA.

information must be kept to a minimum. A.T. Fischer's store display manual reminded designers: "A common aphorism is 'Pictures teach better than words.' This is true because (1) A picture gets attention quicker and (2) Stimulates the Imagination more completely—i.e., the result to the mind is clearer cut, sharper mental image than if the mind is left to build its own image from words only."¹³ All of the publications for designers stressed this idea. Taking a queue from poster art of the period, George Cowan suggested using the likeness of a "good-looking girl" bordered by a large heart as the centerpiece of a Valentine's Day window. The simple display had a curtain for a background and a cupid figure, standing on pedestal shooting an arrow toward the giant heart. There was no text, only images, but the display clearly communicated the message of adoration.¹⁴

Designers combined objects and photographs to make simple, but effective displays. For example, a picture of someone doing laundry placed next to a washing machine or coffee served from a coffeepot demonstrated how the product was used. Arthur Fraser, window trimmer for Marshall Field and Company insisted that the purpose of window displays was to make people think, and this was best accomplished with a minimalist approach.¹⁵

People in the early twentieth century were impressed with size. Skyscrapers were reaching higher, ocean liners stretching longer, explorers traveled farther, and corporations were becoming larger with owners and managers wealthier and wealthier.

¹³ A.T. Fischer, *Window and Store Display: A Handbook for Advertisers* (Garden City, New York: Doubleday, Page and Company, 1926), 106.

¹⁴ Geo J. Cowan, *Window Backgrounds: A Collection of Drawings and Descriptions of Store Window Backgrounds* (Chicago: The Dry Goods Reporter, 1912), 29.

¹⁵ Wendt and Kogan, *Give the Lady What She Wants!*, 304.

World's fair exhibitors recognized this when they displayed everything from steam engines and artillery pieces (such as the Krupp guns), or sculptures. The size and scale of exposition buildings were trumpeted in the press and engineering statements in the form of the Eiffel Tower or the Ferris wheel became icons. Likewise, large museum specimens attracted great attention. For example, the *Saint Louis Post Dispatch* reported on the mounting of a "Dinosaur that Weighs 19 Tons" at the Field Columbian Museum and assured its readers they would be impressed by the size of the specimen. The Brontosaurus was so massive that experts argued whether it needed two brains to direct its ponderous movements.¹⁶ The dinosaur's photograph was the best-selling postcard for many years. Carl Akeley's "fighting" bull elephants attracted great interest from visitors and they dominated one end of Stanley Field Hall for decades until the installation of *Tyrannosaurus Sue*. The life-like, realistic nature of the taxidermies was as impressive as their size. Upon reflection one visitor remarked, "That old bull looks like he grewed into his hide."¹⁷

However, size alone did not always guarantee a popular or aesthetically pleasing display. The space had to be carefully balanced and enlarged items needed to be interesting as well as attractive. A.T. Fischer advised designers, "Psychology teaches that when certain things—for example a human hand or foot—are unduly enlarged and brought too close to the eye, the effect is not impressive, but repulsive. So look out for these barbaric effects in planning dealer-display material. There must be more than size to recommend it. Bigness without distinctiveness is crude."¹⁸

¹⁶ "Dinosaur That Weighs 19 Tons," *St. Louis Post-Dispatch*, February 25 1903.

¹⁷ Quoted in Mary L. Jobe Akeley, *The Wilderness Lives Again* (New York: Dodd, Mead, and Company, 1940), 141.

¹⁸ Fischer, *Window and Store Display*, 49.

If the objects on display were small, variety and abundance were highlighted. For example, the elegance of handkerchiefs and napkins in a department store window was displayed in a manner closely resembling a museum case of butterflies, insects, or small fossils. It was a form of cloth origami and often featured in *The Show Window*, a trade journal.¹⁹ George Cowan offered plans for an elaborate “holiday handkerchief display” which involved folding handkerchiefs into water lilies and leaves.²⁰ In these displays of abundance material objects were transformed into fantasies of shapes and possibilities rather than a reminder of function. They were not simply handkerchiefs or table napkins but flowers and creatures in varieties to rival those of nature.

Exhibit designers and window trimmers built displays that distilled complicated ideas, concepts and messages into simple forms that were aesthetically pleasing and instructive to the viewer. Consider the complexities of an ecosystem or a mechanical device. A design showing how an appliance is constructed and operates was very effective. The “exploded display” was effective because the “public in general has the idea that electrical appliances are complicated and dangerous. To show a suction sweeper, a fan motor or some similar device ‘exploded’ proves to the public that there is nothing complicated about it. The aim should always be to show the simplicity of the device.”²¹

Likewise, Frederick Kiesler argued that show windows provided the most direct method for storeowners to bring passersby into contact with merchandize. He wrote,

¹⁹ "Plate No. 585—Examples of Folding Handkerchiefs—by Charles W. Morton," *The Show Window* 5, no. 2 (1899), 55.

²⁰ Cowan, *Window Backgrounds*, 147.

²¹ *How to Sell Electrical Labor-Saving Appliances*, ed. Electrical Merchandising (New York: McGraw-Hill Book Company, Inc., 1918), 16.

“We want to be informed about things quickly. Our age has forgotten how to hear and how to listen. We live mainly by the eye. The eye observes, calculates, and advises. It is quicker than the ear, more precise and impartial.”²² In order to catch the eye, illusion and trickery were essential. For example, to sell oscillating fans one dealer designed a display using a fan and a model thermometer. When the fan pointed away from the thermometer, the temperature read one hundred degrees. However, when the fan turned around, the temperature dropped to fifty degrees.²³

Another technique to impress viewers was to make sculptures out of the product being advertised. Visitors to the Columbian Exposition were treated to Liberty Bells made of oranges, houses made of corn, a map of the United States made of pickles, and a chocolate Venus de Milo. After the exposition, department stores began to use this type of display, albeit on a smaller scale. *The Show Window* showcased numerous displays that made sculptures out of products from blankets rolled into logs for a log cabin to cotton reels strung together to make a model of the Brooklyn Bridge. The Economical Drug Company hired a designer to make sculptures out of sponges for the stores’ show windows. Passersby were greeted by a deep-sea diver standing on the bottom of the sea, surrounded by stone walls—the ruins of Atlantis, perhaps, while the background fades from dark to light simulating the depth of the water.²⁴ This display created a sense of adventure with the deep-sea diver, but also subtly instructed the viewer that sponges come from the sea. The potential customer did not live in the sea, of course, but did have

²² Frederick Kiesler, *Contemporary Art Applied to the Store and Its Display* (New York: Brentano's, 1930), 73.

²³ *How to Sell Electrical Labor-Saving Appliances.*, 33.

²⁴ "Plate No. 579—Sponges—Designed for the Economical Drug Company, Chicago," *The Show Window* 5, no. 1 (1899), 46. State fairs still make use of these kinds of displays and one regularly encounters corn palaces and cow statues made of butter.

necessary chores—bathing, cleaning, and scrubbing dishware—that involve water and sponges.

All of this is to say that the installation of exhibits in museums evolved in tandem with department store window displays. The simple, eye-catching, emotional quality of store windows was employed in museums to instruct visitors. The instructional capacity of museums, and natural history museums in particular, increased along with accessibility in the two decades following the Columbian Exposition. The exposition demonstrated the popularity of educational displays and created a demand for the exotic. Here we see a three-way intersection between expositions, museums and department stores at the turn of the twentieth century. Art historian Christoph Grunenberg writes, “The penchant for exotic environments in the world expositions of the second half of the nineteenth century was continued in the department stores with their Oriental salons and Egyptian halls.”²⁵ Displays of new and exotic goods transported consumers to distant places and pasts. The sale of merchandise was achieved by appealing to the imagination of the buyer. Thus, as Grunenberg concludes, “The presentation of art in galleries and museums has simultaneously fed off and inspired commercial displays.”²⁶

The commodification of such objects presented opportunities and problems for museums. The stories of how specimens were acquired by the museums themselves, of how exhibits were designed and built, and what the meanings of such displays were, are all tales worth telling. By examining the changing methods and meanings of museum display, we can understand how museums encouraged popular democracy and enabled

²⁵ Christoph Grunenberg, “Wonderland: Spectacles of Display from the Bon Marche to Prada,” in *Shopping: A Century of Art and Consumer Culture*, 24.

²⁶ *Ibid.*, 32.

visitors to approach nature on their own terms. The first half of this chapter considers exhibits from the early period defined by historian Steven Conn as one with an “object-based epistemology.” The second half documents a shift toward interactive and participatory exhibits during the 1930s-1940s. Over the course of this half-century, Chicago’s natural history museums became not only a source of scientific information and popular education but also spaces for leisure and tourist attractions in their own right. I argue that museum exhibition, rather than a monotonous voice of authority talking at visitors was actually a dynamic palate for people to create their own personal meanings, much as they did when their imaginations were stimulated by show windows or handling the bounty of their shopping excursion.²⁷

3.2 From Curiosities to Collections: A brief history of Natural History Museum Exhibition before 1893

Museum exhibitions are the descendants of the cabinets of curiosities and long galleries of previous eras. Early museums, such as Charles Wilson Peale’s Philadelphia Museum, relied almost solely on what may be termed the “series plan” in presenting their exhibit material. The specimens were mounted separately upon “shiny varnished bases of wood in even rows upon shelves, each individual specimen being to all intents and purposes independent of its neighbors.”²⁸ A specimen’s label was more often concerned with taxonomic functions by using Latin names (rather than common ones) and an

²⁷The different interpretations and meanings museum visitors took away from exhibits mirrored those of consumers looking at show windows and as purchasers and users of goods. There were different meanings and uses for goods, even the same object owned by two different people. The uniting factor was the desire for the product and the choice of purchasing it. Daniel Boorstin described “consumption communities” that emerged in the late nineteenth century because of show windows, department stores, five-and-ten stores, and cornucopia of mass-produced consumer goods. This is another link between museums and department stores. Boorstin wrote, “Now men were less affiliated by what they believed than by what they consumed... And there were created many communities and consumers... These consumption communities were quick; they were nonideological; they were democratic; they were public, and vague, and rapidly shifting.” Daniel Boorstin, *The Americans: The Democratic Experience* (New York: Random House, 1973), 90.

²⁸ “The New Taxidermist,” *University of Iowa Service Bulletin*, Vol. 8., No.,22; June 2, 1923., p 4, Harris Extension, FMA.

attribution to the collector, but very little in the way of contextual information to help a layperson understand what they were looking at. Specimens were usually grouped in the aggregate, birds with birds, for instance, but no attempt was made to show relationships between species or highlight their similarities or differences. In many ways the early displays, much like merchandise assembled on store shelves, was meant to show the scope of the collections and the great variety of life (the notion of plentiful creatures). Such displays fit well in the late Victorian period with the object-based epistemology that Steven Conn described in *Museums and American Intellectual Life*. The power of things to communicate meaning cannot be understated. As historian Bill Brown writes, “As they circulate through our lives, we look *through* objects (to see what they disclose about history, society, nature, or culture—above all, what they disclose about *us*), but we only catch a glimpse of things.” In other words, “Things possess us,” Rachel Poliquin writes, “like an extraordinary work of art. They resonate deeply within us. They cannot be ignored.”²⁹

The didactic power of natural objects is older than the late nineteenth century and in fact can be traced back to Charles Wilson Peale’s Museum a century earlier. As we have seen, Peale’s museum in Philadelphia reflected a unique blend of Enlightenment science, art, and Yankee Protestantism. His taxidermy mounts, mastodon bones, and other artifacts were displayed along with his paintings. Some of the paintings were of plants and animals, and others were autobiographical as in *The Artist in His Museum* (1822) and *The Exhumation of the Mastodon* (1806-8). Peale was committed to educating the American public and his exhibits were sophisticated for the time. The

²⁹ Quoted in Poliquin, *The Breathless Zoo*, 21.

taxidermy mounts, particularly of birds, were convincingly done and the breadth of the collection was particularly impressive. It was, as one visitor observed, a veritable Noah's Ark of North American wildlife. Unlike other collections that were displayed more like cabinets of curiosities, Peale used Linnaean taxonomy to organize the specimens. As historian David Brigham writes, "The Linnaean arrangement of the collections expressed Peale's belief in the essentially rational order of nature" as much as his understanding of natural perspectives in his artwork.³⁰ Peale's logical approach to exhibition of natural specimens combined with his paintings, busts, and statues marks his institution as a foundational one. Unfortunately, the museum did not last long after his death. When P.T. Barnum acquired the old collections in the 1842, he did not exhibit them in his American Museum with the same scientific or artistic rigor. Subsequent museums were less concerned with public exhibition than with scientific study. Hence displays were inaccessible and suited only to those of a scientific bent. These collections were intended for serious study. Like Barnum's American Museum, dime museums catered to the general public and scientific knowledge in these museums was dubious and comprehensible organization nonexistent. Here the impetus was entertainment, not education. Within these attractions urban dwellers could see waxworks, historical artifacts, and monstrosities of every description, natural and otherwise.

As demonstrated earlier, there were few publically accessible natural history museums until late in the nineteenth century. Harvard's Museum of Comparative Anatomy and the early Chicago Academy of Sciences, for example, served primarily an elite audience of gentleman naturalists. At the close of the century Chicago's new public natural history museums, like those in other cities, actively sought to differentiate

³⁰ Brigham, *Public Culture in the Early Republic*, 45.

themselves from dime museums. Beginning in the 1890s, Chicago's institutions charted a middle course by continuing scientific work and developing educational and scientifically accurate exhibits that satisfied amateur scientists, but also strove to make them accessible to laypersons.

A logical and systematic approach to museum display developed in the late nineteenth century as a result of the rise of the department store and spectacular world's fairs, but that did not necessarily improve the aesthetic or educative qualities of the specimens. Smithsonian curator G. Browne Goode believed that "The people's museum should be much more than a house full of specimens in glass cases. It should be a house full of ideas, arranged with the strictest attention to system."³¹ But most zoological specimens remained badly stuffed and stoically posed. As Jay Kirk writes of the 1880s, "wildlife halls were nothing more than glorified curiosity cabinets. Trophy rooms with the heads of slain animals hung on the walls. A few hundred birds' heads pinned, in profile, above a nameplate with their Latin moniker and locality of execution. Glass cases of monkey paws and bat wings. Skins had the mangy pelage of old towels. They were not meant to be entertaining. Aesthetically speaking, little had changed since the dull exhibits of the eighteenth century."³²

By the 1880s, most natural history museums, whatever their openness to the public, adopted zoological classification as their organizing principle. They did so because it was the "most informative and most truthful (because there was, according to best practices, a right and wrong order, as opposed to good and bad taste), and least aesthetically curious system for organizing collections." Curators installed rows and

³¹ Goode, "Museum-History and Museums of History," 72.

³² Kirk, *Kingdom Under Glass*, 54-55.

rows of birds and long stretches of animals laid out one after the other. As Rachel Poliquin noted, the emphasis was on representativeness, not rarity, on broad public education, not elite curiosity. And to actuate this new culture of facts, a new curatorial practice was implanted: sameness.”³³ This systematic arrangement ensured that all cases have the same merit and precludes preferential treatment. Indeed, order conferred a democratic sameness on the animals at the same time museums became more democratic purveyors of scientific knowledge. This democratic impulse was part of the New Museum Idea taking root in Chicago and at the heart of their ideology. Both natural history museums and the Art Institute, from the 1890s were committed to public education. Scholarly research and building study collections and libraries were one part of that commitment and systematic and visually appealing exhibits and public programs were the other.³⁴

In 1901 a collection of butterflies was exhibited in Rowllier’s [sic] Art Rooms in the Fine Arts Building on Michigan Avenue. Originally built for the Studebaker Company with ground floor showrooms, the Fine Arts Building was (and still is) home to art galleries, artists’ and musicians’ studios and publishers, including L. Frank Baum and the aforementioned *The Show Window*. This exhibit was important because the insects were mounted on white plaster tablets that made them much more aesthetically pleasing and ensured better preservation than the old method in use by the Field Columbian museum. Joseph P. Iddings, a professor of geology at the University of Chicago, and an

³³ Poliquin, *The Breathless Zoo*, 125. See also Rader and Cain: *Life on Display*.

³⁴ Historian Neil Harris notes how the Art Institute emphasized “inclusion and accessibility” and through its exhibitions and art school reached all sorts of people. This emphasis on instruction, as much as financial resources meant that the early collections were largely made of reproductions. See Neil Harris, *Chicago’s Dream, A World’s Treasure*.

insect collector, insisted the museum “could easily get some of your patrons or patronesses interested by letting them see the exhibit at Rowllier’s rooms.” By the 1920s, butterfly displays, like most other animal exhibits, tended to show the insect, as one would encounter it in nature. Large species of butterflies were mounted with “one specimen fully spread” to show the upper surface, and another with wings folded together and “the body showing at bottom just as though the insect was at rest on a blossom. People rarely see the underside of butterfly wings outdoors.”³⁵ By examining the changes to museum display, we learn much about scientific understanding, popular education and expectations of museum visitors. The changes in the content and presentation of exhibits and the shift away from purely educational to edutainment mirror other changes in American society: from advertising to leisure activities and tourism to pedagogy for grade schools. To better understand how natural history museum exhibits evolved, let’s first examine the key components of exhibits. These are the cases, lighting, labels, and of course, the specimens within them.

3.3 Take the A- Frame: Exhibit Cases

The exhibit case was an essential part of a display. Cases protected their contents from damage or decay and theft but also elevated specimens for easy viewing. The case itself needed to be attractive but also unobtrusive. The Field Museum’s botany cases for example, were “of natural finished red birch, with just sufficient wood in evidence to safely support the plate glass of the face, and only sufficient depth to allow of one plane of installation.” The insides of the cases were painted flat black because “the only color that should attract the eye is that of the specimens themselves.” Gray would be a better

³⁵ Letter, Joseph P. Iddings to F.J.V. Skiff, February 17, 1901, DPGC, FMA; Letter, A.B. Wolcott to S.C. Simms, October 12, 1926, Harris Extension, FMA.

aesthetic choice but black was better suited to permanence and could be easily patched when reconfiguring displays and it hides the mounts, plaques, labels, supports, and other accessories when painted to match the background. The largest of the botany cases were of the wall type and typically eight feet high and twelve feet long and of enough depth to accommodate the largest specimens. Most cases were about a foot deep.³⁶

Well-designed exhibit cases were practical too. Because lower sections of cases were ill suited to display, the botany cases at the Field Museum were designed with a locker space at the bottom to store duplicate materials and study collections. This design kept relevant materials together in an organized and convenient manner and maximized storage space without compromising the completeness of collections or use exhibit halls.

The “A” shape display case was the standard exhibition form for smaller specimens. But this was not without its drawbacks. When it comes to displaying shells (Conchology) for example, an incline of the shelf surface aided the viewer. According to Field Museum director F.J.V. Skiff, “unless a pyramid stand is used, or no stand at all employed, larger sized bivalves must of necessity be installed at a greater distance from the visitor than if in a flat case.” Because the shelf is at an incline, the objects needed to be glued to the backing with risk to the specimen. In a memo on cases, Skiff confessed to Davies, “I am a little disappointed that a case could not be devised different in some respects, at least, from cases in other Departments used for other purposes, but I understand that this was probably the easiest way to do it.” Unless they could come up with a better solution for displaying shells, the “A” case was to be used.³⁷

³⁶ Charles F. Millspaugh, “Botanical Installation,” paper prepared for the AAM meeting in Buffalo, 1910., p3-4., DPGC, FMA. In the early twentieth century a sealed case was the only means of controlling temperature or humidity of exhibits.

³⁷ Letter, F.J.V. Skiff to D.C. Davies May 5, 1913, DPGC, FMA.

The Chicago Academy of Sciences used similar A-shape and other rectilinear shape cases as the Field Museum. Most museums relied upon custom-built cases constructed on commission from various furniture or architectural firms. The Academy's preferred case for large displays were constructed of oak or mahogany (more expensive) with a dark weathered finish and sealed with plate glass. On the main floor, the showcases were 12 feet long, 7 ½ feet high, and 3 ½ feet wide. Describing the installation in a letter to Eugene Smith State Geologist at the University of Alabama, Frank Baker wrote, "the vertical cases are provided with an adjustable partition made of canvas stretched over a frame. We now use plate glass shelves in all cases, except where the material is very heavy, in which case wood is used. The doors are all hinged and are locked with the Jenks Museum Lock. These are better than the sliding door, which cannot be made tight." Baker enclosed plans for various cases for Smith to copy for his own purposes.³⁸ Regardless of the type of case used visitors had to be able to see the specimens. Cases should be raised from the floor "about 25 inches. This makes it easy for an adult to see the specimens on the floors of the cases and makes it possible for children likewise to see all."³⁹

3.4 Lighting

Cases, lighting designer Carl Glasser advised, "should be lighted from within so that no matter what the daylight conditions are the specimens will be covered with a soft, evenly diffused light which will make it easy to read the labels and a pleasure to study the specimens. Moreover, lighting the cases individually from within makes it impossible for

³⁸ Letter, Frank C. Baker to Eugene Smith, State Geologist, University of Alabama, March, 27, 1908. FB Correspondence, CAS.

³⁹ Memorandum, Paul S. Martin's recommendations to Henry W. Grout Museum, YWCA, Waterloo, Iowa. N.d., DPGC, FMA.

the visitor to stand in his own light and see a grinning reflection of himself.”⁴⁰ Skylights provided the main source of light in museums before the twentieth century. By the 1910s electric lighting of exhibits became much more common and practical. Carl Glasser, a lighting designer contracted by many museums followed artistic principals when lighting exhibits. It was essential that lighting be arranged in such a way so as to draw the attention of passing visitors to the object. The specimens must stand out alive against an unlimited background. The contrast between the lighted object and unlighted background must of course not become theatrical. Another reason why the object must be lighted more brilliantly than the background was the nature of the human eye. Glasser noted that “the pupil of the eye dilates according to the intensity of the light striking it; looking into a bright surface will cause the pupil to contract—any darker object located on or in front of the bright surface can be seen only if the eye is forced to look at it. This consequently will tire the eye and therefore lessen the desire to look at it.”⁴¹ Above all, the most important purpose of lighting design was to show the collection to the visitor without disturbing reflections in the glass.

⁴⁰ Ibid.

⁴¹ Letter, Carl H. Glasser, Vice President, Rudolf Wendel Inc. (artistic lighting) to S.C. Simms., 2-3, DPGC FMA. Glasser explained: “The brightly lighted background of one showcase would be noticed as a transparent fog in the glass of the opposite showcase. The greater the contrast of light intensity between the background (or the fog curtain) and the object, the less this will be disturbing. Consequently the light on the statue must be strong enough to overpower the fog effect. The lighted object in one showcase, showing as reflection in the glass of the opposite one, cannot be eliminated completely, but also this reflection will simply be overpowered by the interesting lighting effect on the statues, it must also not be overlooked that this reflection has the dimensions of the lighted object only, seen at a distance from the eyes of the visitor to the glass of the case he [or she] just looks at and back to the reflecting object. This distance already guarantees a diminution of one quart of the dimension of the reflecting object. Mostly it will be the case that this reflection will fall between two objects which the visitor is looking at, and therefore and because of the equal light intensity on all objects, it will not be noticed.”

3.5 Labels for Laypeople

Labeling was just as an important element in exhibition strategy as case design and lighting. Henry A. Ward of Ward's Natural Science Establishment, found the Field Columbian Museum's installation of minerals lacking in clarity. He wrote, "There is, as you say, 'a case in each case giving a figuring of the each class of stone,' but I observe that these have been put in such a way (with no dividing lines) that it is not evident where the series to which they belong, where it begins or where it ends. But these are only the defining of Groups, with such general terms as apply to them as a great division."⁴²

Ward continued his critique, "Now further and beyond this there is the composition of each individual mineral species, each one of these various species differing from the other. The visitor who wishes to be informed about Tetrahedrite, for instance, can find nothing about it on your label. On mine, as you see, he finds that its composition is copper 8, arsenic 2, sulfur 7; he further finds that it belongs to the Isometric system with tetrahedral form." Ward continued to suggest that a good label would not only refer a visitor to a published source, but also would include a unique specimen number paired with a master catalog. This way, in case of damage or loss the proper specimen could replace it. Without such a system the wrong item could be reinstalled. The museum's label had no such reference number. Ward surmised that, "With your labels the localities would, in such an instance, risk to be entirely mixed. Do you not think there is some merit to this plan, and so worth your curator's having taken the pains to copy these features of my labels?"⁴³ Labels needed to be legible under museum lighting conditions. One curator advised, "The labels should, if possible, be

⁴² Letter, Henry A. Ward to Edward Ayer, n.d., DPGC, FMA.

⁴³ Ibid.

printed in bold type with black ink on buff stock. This printing can easily and cheaply be done by any shops using a linotype or monotype machine.”⁴⁴

What really counted was the textual content of the label. Labels needed to provide identification, context, and basic data. Botany curator Charles Millspaugh recalled how he “once saw a couple of men standing before a fine pair of specimens in a ‘public museum.’ The specimens were labeled in large type ODOCOILUS AMERICANUS BOREALIS [emphasis in original], Michigan, U.S.A.” That was the information given on the label. He observed the men spell out the words and then one said, “I don’t know what-in-hell that means but any damn fool knows that them are deer.” Millspaugh concluded that the “value of the museum shrank decidedly and in their minds” because it was unable to relate to the layperson. The moral of Millspaugh’s story was that “the installer of a collection in a natural history museum for the public should show his knowledge of Nature [sic], and of psychological effects when he places objects before the outsider, for the outsider is the man who really knows things as they are, not as scientific classification says they should be.”⁴⁵ In his estimation, natural history exhibitions needed to be accessible to a range of visitors.

3.6 Visitors and Meaning-Making

Millspaugh observed a central point some scholars missed—visitors had (and still have) great capacity for meaning-making and interpreting exhibits. Scholars from various disciplines—history, art history, cultural studies, sociology, and museum studies—have interpreted the meaning and purpose of museum exhibitions both past and

⁴⁴ Memorandum, Paul S. Martin’s recommendations to Waterloo, Iowa, YMCA Henry W. Grout Museum. N.d., DPGC, FMA.

⁴⁵ Charles F. Millspaugh, “Botanical Installation,” paper prepared for the AAM meeting in Buffalo, 1910, p3., DPGC, FMA. For contemporary labeling practices, see Beverly Serrell, *Exhibit Labels: An Interpretive Approach* (Lanham, Maryland: Rowman & Littlefield, 2015).

present. Philosopher Michel Foucault and his interpretations of classification, order, space, and power proved influential. Foucault called into question the boundaries of disciplines and emphasized the dependent relationship of knowledge and power. For instance in *The Order of Things: An Archaeology of the Human Sciences* (1970), Foucault sought to reveal the “positive unconscious of knowledge” on a level that “eluded the consciousness of the scientist and yet is part of scientific discourse, instead of disputing its validity and seeking to diminish its scientific nature.”⁴⁶ His study of natural history in particular examined systems of classification and the fact that it was long centered upon what was visible to the naked eye. It is his subsequent work on order and space—as places of discipline and order—that has had the most influence upon cultural studies and museum studies, which focuses on contemporary practices, rather than historical ones. Foucault’s ideas caused modern museum scholars to consider the high political stakes of exhibitions and critique museums’ supposed neutrality as well as lambast an institutional master narrative. Carla Yanni argues that while “some museums might present a single master narrative,” that this was (and is) rare, “and even if such a master narrative exists in one moment, it changes over time. There are usually several co-existing theories, rather than one master narrative, and the displays and architecture (if studied in precise historical detail) turn out to be surprisingly resistant to Foucauldian analysis.” To prove her point, Yanni calls attention to the monkeys “carved in the main arch of the entrance to the Natural History Museum in London: to some visitors they symbolize the relationship between humankind and ancient apes, but these playful

⁴⁶ Michel Foucault, *The Order of Things: An Archaeology of the Human Sciences* (New York: Vintage Books, 1970, 1994 ed), xi.

climbing animals certainly did not carry that meaning for Richard Owen, the museum's chief patron and one of evolution's most outspoken opponents."⁴⁷

Foucauldian scholars consider museums akin to prisons because both institutions involve observing and regulating behavior. Everything from the arrangement of exhibits to the architecture of the buildings was an instrument of power and social control. The prison has the panopticon, for guards to monitor the prisoners and for inmates to know every move was observed.⁴⁸ From the balcony, museum visitors and curators alike could observe each other. Tony Bennett writes that: "Relations of space and vision are organized not merely to allow a clear inspection of the object exhibited but also to allow for the visitors to be the objects of each other's inspection."⁴⁹ Compelling as this interpretation is, there was less going on than meets the eye. As Carla Yanni argues, "the display of objects was not equivalent to the display of human beings. Some museums (the ones with open halls and balconies) may have lent themselves to 'seeing and being seen' on a Sunday afternoon, but most museums would be a last choice for a bourgeois promenade—following the opera, the park, the shopping arcade, and even the street."⁵⁰ As we have seen, by 1900 the directors, curators, and philanthropists intended for museums to be emphatically for "the people," or "the public," including both educated and uneducated classes.⁵¹ The idea that the public should have access to museums' collections gave visitors a sense of ownership. Unlike a private collection that made a

⁴⁷ Yanni, *Nature's Museums*, 8.

⁴⁸ Foucault does not actually discuss museums. The often-cited work is Michel Foucault, *Discipline and Punish: The Birth of the Prison*. Translated by Alan Sheridan (New York: Vintage Books, 1977, 1995ed).

⁴⁹ Bennett, *The Birth of the Museum*, 19.

⁵⁰ Yanni, *Nature's Museums*, 9. I consciously observed museum visitors in Stanley Field Hall (the main floor open space) on many occasions. Most people in the café next to me were engrossed in their mobile devices. No persons were lingering on the balconies above. These observations held true on busy and quiet days alike. Simply put, nobody was looking at anyone else, except for me!

⁵¹ I use the terms "educated" and "uneducated" classes to roughly equate "middle" and "working" or "lower" classes, because the level of formal education, by "educated" or "middle class" standards was generally concurrent with socio-economic class status.

personal statement about the owner's view of the world, the museum wanted the visitor to identify with the collection; as Duncan Cameron argues, "it was being said that this was *your* collection and therefore it should be meaningful to *you*, the visitor."⁵² Visitor behavior was just as varied sometimes to the delight and sometimes to the chagrin of museum staff and fellow visitors.⁵³

Critics of Foucauldian interpretation such as historians Carla Yanni and Steven Conn found that museum visitors—as much as prisoners, patients in hospitals, or lunatics in asylums, were not empty vessels waiting to be filled with ideology. Historians—whether of Foucauldian persuasion or not—put a lot of pressure on orderliness as a sign of social control. Certainly curators needed some kind of system to arrange exhibits as much as librarians and booksellers need a way to find books or a person arranges their clothes, plates, or tools. Yanni asks, "Do we as historians honestly think curators ought to have arranged their collections in a disorderly fashion? Or, given that there are different kinds of order, a fashion which they believed to be disorderly?"⁵⁴ Steven Conn agreed. In *Museums and American intellectual life*, Conn demonstrates how much more historical data was needed to before attempting to make claims about museums and power. He argues "the crude equation of knowledge equals power" was "at once critically insightful and historically shallow."⁵⁵

As Field Museum botany curator Charles Millspaugh correctly noted, Latin nomenclature, vital to taxonomy, was less useful to museum visitors and not in accord

⁵² Cameron, "The Museum, a Temple or the Forum," 16. See also Neil Harris, "A Historical perspective on Museum Advocacy" in Neil Harris, *Cultural Excursions: Marketing Appetites and Popular Tastes in Modern America* (Chicago: The University of Chicago Press, 1990), 82-95.

⁵³ As described elsewhere in this dissertation, there were complaints from visitors regarding people's behavior.

⁵⁴ Yanni, *Nature's Museums*, 9.

⁵⁵ Conn, *Museums and American Intellectual Life*, 11.

with their vernacular identifications. Taxonomic classification was the work of the scientists in the language of the expert. Organizing specimens by taxonomy made perfect sense to the scientists and curators. Labeling organisms with scientific names alone, however, was of little value to the general public. Of greater use to visitors were the common name and information regarding the habitat, behavior, and characteristics of that particular species of deer. The Field Museum's labeling aimed to keep the visitor's needs in mind because, "it is essentially a museum for the public, not, as is the case with most European museums, a display of study material to which the public is grudgingly allowed admission." The museum's collections were "displayed, and labeled, with the sole object of interesting and educating the public which it invites and welcomes to its halls. In thus popularizing its installations it does not in the least sacrifice the scientific value or aim of the museum" and attempts to satisfy the naturalist, the student, and casual visitor alike.⁵⁶

Nothing embodies this mission better than the installation of habitat dioramas. Dioramas were like three-dimensional paintings and were made in all manner of sizes for all museum departments, such as a miniature Pueblo village, an underwater pond scene, to large animals gathered around a watering hole. The majority of dioramas were of zoological subjects and the large snapshots of the wilderness—the habitat diorama—were the largest and most life-like. Developed in the early part of the century, as we shall see by the 1920s, these installations were an effective blend of art and science. Karen Wonders, in *Habitat Dioramas: Illusions of Wilderness in Museums of Natural History* (1993) defines habitat dioramas as "natural history scenarios which typically contained mounted zoological specimens arranged in a foreground that replicates their native surroundings in the wild." These scenes expressed "man's effort to classify, define and

⁵⁶ Millspaugh, "Botanical Installation," 2.

generally comprehend the natural world by means of an ecological model.”⁵⁷ The habitat diorama was an improvement upon an older form of display loosely termed habitat group (in some instances the terms habitat group and diorama were used interchangeably). The habitat group was simply a grouping of animals that lived in the same environment. The term was coined by Frank Chapman of the America Museum of Natural History to describe ornithological exhibits he created at the turn of the century. The habitat diorama, on the other hand, sought to accurately recreate a scene from nature. Wonders argues that the dioramas were “a form of ecological theatre in which art has a specialized scientific function.”⁵⁸ The whole scene simulates the way people perceived nature in the field and this required the realism of both fine and taxidermist arts. She notes how habitat dioramas “have always been a magical visual experience that opens new vistas to far-off lands and strange new worlds.”⁵⁹

As we have seen, the purpose of the store window displays was to build up a consumer’s desire to buy a product. The habitat dioramas created an analogous sense of desire by invoking curiosity, wonder—and according to museologist Rachel Poliquin--longing. “The aim of the habitat diorama” Poliquin writes, “was to create an immaculate vision of nature uncontaminated by human presence in order to instill in urban dwellers a deep respect for nature, or what might be described more accurately as a deep longing for a wilderness at the edge of existence” while gazing at the museum’s display. Thus,

⁵⁷ Wonders, *Habitat Dioramas*, 9. In the early twentieth century, University of Chicago botanist Henry Chandler Cowles was a leading figure in the field of ecology. See Greenberg, *A Natural History of the Chicago Region*.

⁵⁸ Ibid., 192.

⁵⁹ Ibid., 222.

dioramas tantalized viewers “with the possibility of communion with nature, the possibility of experiencing nature’s truth.”⁶⁰

Habitat dioramas invited the viewer’s imagination to journey into a wilderness that was fast disappearing. European and American settlement patterns were threatening wildlife in the Americas, Asia, and Africa. Wolves and bison for instance, were hunted to near extinction in North America alone. Aristocrat big game hunters went on extravagant safaris and (Teddy Roosevelt for instance) shot hundreds of elephants, lions, and tigers as trophies. Settlers did the same to protect farmland and grazing animals. As museums sent expeditions into the wilderness it became apparent to scientists and explorers that nature was not limitless and could be used up. They sought to share this realization with the general public—a public that was increasingly used to absorbing information visually. Significantly, the habitat diorama in itself was an act of preservation, but not conservation. People would forget what the animals, plants, and uninhabited landscape looked like if the snapshot was not taken and forever preserved behind glass. The dioramas created a fantasy of an undisturbed and unchanging wilderness. Dioramas were, in effect, three-dimensional photographs designed to elicit emotion before thought. It also enabled museum visitors, the majority of whom will never see the American West let alone Africa, a chance to take a journey to unknown places and thrill at unknown sites. The visitor desired adventure and excitement and the diorama provided it. Yet this was safe excitement. Dioramas presented “nature contained and tamed, in isolation from the world at large, as if in a time capsule,”

⁶⁰ Poliquin, *The Breathless Zoo*, 104.

Poliquin writes.⁶¹ The diorama conveyed the message that nothing in nature existed in isolation and sought to highlight habitat loss and vanishing species. Museum professionals believed that if visitors walked away with an understanding of nature and the relationships between living things, people would support conservation efforts.⁶²

The diorama's effectiveness conveying the conservation message depended upon an emotional response on the part of the viewer. As Paul Bartsch, a curator at the Smithsonian observed, "our whole matter of conservation depends upon understanding and sympathy, and that it is much more easily obtained through education than legislation." Bartsch was specifically commenting upon the Harris loan cases intended for children, and their particular role: "if we can secure sympathy of the young folks in this enterprise, the battle will be won with the next generation. Your loan groups are windows a view through which should create the desire to pass through the door into the larger field."⁶³

3.7 Windows to the Wild

The origins of dioramas can be traced to the panoramas and cycloramas of the nineteenth century. Panoramas were exhibitions of giant paintings—often in excess of four hundred feet long—unrolled across a stage and accompanied by narration and music. Panoramas came to Chicago on the railroads in the 1850s and were popular amusements for a decade or so. The subjects of panoramas varied, but they were usually of historical

⁶¹ Ibid. See also Jay Kirk, *Kingdom Under Glass*.

⁶² There were many conversations about museum exhibits and conservation. For example, Paul Bartsch of the Smithsonian Institution wrote to S.C. Simms: "Our whole matter of conservation depends upon understanding and sympathy, and that is much more easily obtained through education than legislation. If we can secure the sympathy of the young folks in the enterprise, the battle will be won with the next generation. Not only that, but think of what it means in real enjoyment to have that contact with the great out of doors which is granted to a few of us. Your groups are windows, a view through which should create the desire to pass through the door into the larger field." Letter, Paul Bartsch to S.C. Simms, November 27, 1922, Harris Extension, FMA.

⁶³ S.C. Simms, "Annual Report for 1922," 3., Harris Extension, FMA.

or religious scenes. Some panoramas, such as *Panoramas of the Upper and Lower Mississippi*, provided visitors with a vicarious means of travel. In the 1880s, this ersatz experience became more sophisticated in the form of the cyclorama. Visitors were immersed in a monstrous tableaux that was a more interactive experience. Rather than watch the scene unfold from a seat, visitors walked around a circular structure and were surrounded by the giant mural. Civil War battle scenes were popular cyclorama subjects as were passion plays and scenes from antiquity. The careful attention to details in the painting and the lighting added a sense of realism that suspended disbelief. These larger than life, almost real creations undoubtedly inspired the people who created the first dioramas.⁶⁴

The invention of the habitat diorama was really a product of simultaneous innovations by William Hornaday (Smithsonian), Carl Akeley (Field Museum and American Museum), and Frank Woodruff (Chicago Academy of Sciences). Each of these men was an innovator who developed life-like taxidermy and compelling exhibits. Hornaday and Akeley started working for Ward's Establishment and literally stuffed animal skins with straw. Both men understood that the old straw-rag-and-bone method of stuffing had to go. To mount a mammal for instance, four leg wires were bent to the proper shape and were attached to a vertical centerboard made of wood. Two additional rods supported the animal's skull and another the tail. This manikin (the term was spelled differently than mannequin) was then wrapped tightly with excelsior (thin strands of shaved wood) and fastened with twine until it resembled the contours of the animal's body. The taxidermists studied photographs (and in some cases living animals) to get the

⁶⁴ Duis, *Challenging Chicago*, 206-208. Jay Kirk suggested cycloramas were a major influence on Carl Akeley. See Kirk, *Kingdom Under Glass*, 51.

proportions, contours, and muscle movements correct. Akeley frequently made casts of feet and faces of animals in the field before skinning them. The key to life-like taxidermy was in adhering the skin to the manikin in a way that mimicked the musculature underneath. The muscles were built up, little by little with clay as if it were a sculpture. Once completed, the skin was carefully molded onto the manikin and tucked into every crease and fold in the clay. Hornaday was the self-proclaimed inventor of this method. Akeley improved upon it by creating lighter and more durable manikins suitable for large mammals such as antelope and elephants.⁶⁵ The result of this “new taxidermy” was neither quite an animal, but not quite a thing. It was a representation of an animal that at once was starkly dead but hinted at the force of life it once had. The effectiveness of these stuffed animals rested upon much of the same operational aesthetic that older exhibitions used to suspend disbelief and encourage the visitors’ eyes to linger.⁶⁶

Taxidermy made nature visible first hand. As Rachel Poliquin writes, “That is the strange, unsettling power of taxidermy: it offers—or forces—intimacies between you and an animal-thing that is no longer quite an animal but could not be mistaken for anything other than an animal. And how could such encounters not be provocatively intimate? Preservation allows you to get closer to an animal than you ever could in life or even on the television.”⁶⁷ Taxidermy allowed museum visitors to get much closer than most animals would allow—even animals in a zoo.

⁶⁵ For detailed descriptions of the process of taxidermy during this period, see: Carl E. Akeley, *In Brightest Africa* (Garden City: Doubleday, Page and Company, 1924); William T. Hornaday, *Our Vanishing Wildlife: Its Extermination and Preservation* (New York: Charles Scribner's Sons, 1913); John Rowley, *Taxidermy and Museum Exhibition* (New York: D. Appleton and Company, 1925).

⁶⁶ It is interesting to note that Audubon often distorted the bird specimens to paint them. For older displays such as those in dime museums see Neil Harris, *Humbug: The Art of P.T. Barnum* and later in the public museum, see Rader and Cain, *Life on Display*.

⁶⁷ Poliquin, *The Breathless Zoo*, 39.

Habitat dioramas would not have been possible without realistic and convincing taxidermy. Akeley and Hornaday were the first taxidermists to capture the character and movements of animals. As Rachel Poliquin points out, such lifelike representations of the animals were key to the storytelling functions of taxidermy. “Bad taxidermy,” she wrote, “lacking any sense of musculature of physical intensity, is rarely able to cast a spell of ‘living nature.’ Bad taxidermy makes the craft of preservation too blatantly visible to inspire an emotive spectacle.”⁶⁸ Anatomical correctness was important for taxidermy designed to *affect* its audience. The more skill a taxidermist possessed the more effective they were imposing an artistic vision on the animal but also to craft a mood, to a feeling, an aura, and a spectacle.

It is precisely this affective potential that sparked commentary from scholars such as Donna Haraway. She saw natural history museums as the ideological and material product of the sporting life.⁶⁹ Examining the American Museum of Natural History’s African Hall’s (opened to the public in 1936) display of large mammals, Haraway argues that these exhibits revealed the racist, imperialistic, and masculinist motivations of the museum’s curators and the decidedly white, male supremacist message of the display. To commune with the natural scene was to be seduced by this agenda. The strength of Haraway’s interpretation rests on the visual power of habitat dioramas. The animals in this hall were unusually large and predominately male specimens. According to Haraway, the story told in the hall was one of a life and death clash between the white sportsman hunter and the savage beast in which the white hunter emerges victorious. As

⁶⁸ Ibid., 82.

⁶⁹ Donna Haraway, “Teddy Bear Patriarchy” in *Primate Visions: Gender, Race, and Nature in the World of Modern Science* (London: Routledge 1989), 26-58.

Poliquin writes, “it is the achievement of a vision of transcendence that sustains Haraway’s analysis of the diorama’s ability to facilitate a fantasy of communion, salvation, and truth.” However, she points out that Haraway and other scholars rarely ask why stuffed and posed animal skins were expected—and able to—communicate such messages.⁷⁰

While some wealthy white men went on safari and hunted “savage” beasts (notably Teddy Roosevelt) the historical record does not support Haraway’s claims about the habitat dioramas. There are two significant facts that detract from Haraway’s thesis. First, while the hunting and stuffing of large mammals constituted one historical root of habitat dioramas, a second equally significant one was the shooting of birds combined with bird taxidermy. Birds—as nominally small and non-threatening (especially hummingbirds that most collectors sought) were, as Wonders points out, animals with a tendency for flight rather than fight. Therefore there was no confrontation, and “no meeting of equals to confirm manhood.”⁷¹ Unlike Haraway’s essay, Wonders’ dissertation is based on archival sources and reveals that dioramas were restricted to major urban museums in the United States and Sweden. “Their occurrence,” she writes, “is curiously restricted and does not correlate with the predominance or even just the presence of values of white race, male gender, or imperialist conquests. The state-supported natural history museums in Britain, France and the Netherlands do not contain monumental halls of habitat dioramas, yet in all these countries big game hunting in

⁷⁰ Poliquin, *The Breathless Zoo*, 105. Sportsman hunters also had a role in conservation programs and the development of both museum exhibits and improved taxidermy methods. They enjoyed time in the wilderness and feared the loss of wild spaces as places of recreation and also depletion of species to hunt. Numerous firms, such as Jonas Brothers mounted “trophies” for hunters. Hunters frequently chose to mount animals that broke records for size or weight or as reminders of a hunting trip. For more on Jonas Brothers and sportsman’s trophies, see Steven Asma, *Stuffed Animals and Pickled Heads: The Culture and Evolution of Natural History Museums* (New York: Oxford University Press, 2001).

⁷¹ Wonders, *Habitat Dioramas*, 224.

colonial possessions was a popular and widely practiced sport.”⁷² Her overall argument is that habitat dioramas emerged in the US and Sweden because the museum curators, scientists, and reformers in these nations were concerned with vanishing wilderness and extinction. Many people were well aware of the declining populations of once common animals—especially birds. In the early twentieth century for example, the passenger pigeon was wiped out.

The purpose of habitat dioramas—whether of birds or mammals—was to depict a slice of life in complete ecological detail. The dioramas installed in the Field Museum and the Chicago Academy of Sciences were primarily lessons in ecology. The naturalists, taxidermist-hunters, the preparators, curators, directors, and museum patrons were men and women active in wildlife preservation movements at the turn of the century. Karen Wonders says that: “It is a simple fact that several of the classic, early habitat dioramas were a conservationist response to the vanishing wildlife and wilderness.” If these exhibits—be they of an exotic African gorilla—or a Calumet River muskrat—were propaganda tools, they were so according to Wonders “not so much to preserve a threatened masculinity, not to breed racial purity, but to protect threatened habitats and to rescue from extinction its vanishing wildlife.”⁷³

Habitat loss was a growing concern nationally and numerous state and national parks were established in the early twentieth century. In the Chicago area several conservation groups and scientists were undertaking preservation efforts. Henry Chandler Cowles, a scientific governor of the Chicago Academy of Sciences and a Botanist at the University of Chicago, was at the forefront of the burgeoning field of ecology. Cowles

⁷² Ibid.

⁷³ Wonders, *Habitat Dioramas*, 224-225.

studied how plants interact with their environment. The Indiana Dunes, with its shifting sandscapes, became his research site. He also became involved with the Prairie Club (founded in 1911) with a mission to preserve sites for outdoor recreation and foster a love of nature, and the Conservation Council of Chicago. Cowles and landscape architect Jens Jensen began a decade long campaign to protect the Indiana Dunes from further development in 1914.⁷⁴

Large and small, familiar or exotic, dioramas were not only virtual windows into the natural world but educational tools that used visuals to convey a range of information in a single view and put people more in touch with nature. For students, such visuals whether seen in an exhibit hall or in the classroom “counteracted much of the pernicious results which have come about from the pure histologic studies [the examination of the microscopic anatomy of cells and tissues] pursued under the term of Biology, which not only waste the time of the unprepared youth, but kill all incentive toward a closer understanding of Nature, and if there is one thing to be gained at all from Biology, it is the companionship which we form with the plants and animals that surround us in our everyday existence that makes out every walk a pleasurable one, and that can only be done when we have come to recognize the organism as a living being. A knowledge of cellular structures will never give you the thrills which our old fashioned Botany and Zoology bestowed upon the older generation.”⁷⁵ This statement, coming from a scientist reveals much about the persuasiveness of the format but also of the tensions between experimental, university science and observation-based natural history and also museum experts and ordinary people.

⁷⁴ Greenberg, *A Natural History of the Chicago Region*, 263.

⁷⁵ Letter, Paul Bartsch to S.C. Simms, September 27, 1920, Harris Extension, FMA.

By the 1920s it was understood that the “backbone of the modern museum is the habitat group. This is the basic factor in the construction of the so-called educational museum. In groups, the animals—and in saying ‘animals’ one means birds as well—are represented in the natural attitudes and in natural surroundings. An attempt is made to bring out their relationships with one another and with their environment.” This was an effective means of display because it leaves a lasting impression, unlike the older series method. With the habitat diorama, “knowledge of the animals’ habits and their places in nature are conveyed to the observer, a feature that was quite impossible under the old plan.”⁷⁶

Dioramas, then, represented a culmination of trends: the recognized value of grouping zoological specimens, the nature study movement (discussed in chapter four), ecology as a field of study, conservation movements, and a new exhibition philosophy that recognized that “nothing in nature is of isolated origin, but that species are the product of complex interrelationships. To understand an organism, one must represent its habitat, habits, stages of its development, etc.”⁷⁷ Most significantly, the habitat diorama played an important role in education and made factual information about nature much more accessible to the general public.

3.8 Chicago Environs

The Chicago Academy of Sciences was a pioneer in this area of exhibit design. In fact, the second decade of the twentieth century was a busy and exciting time for the Academy. In 1910, T.C. Chamberlain, the President of the Board of Trustees outlined a

⁷⁶ “The New Taxidermist,” *University of Iowa Service Bulletin*, Vol. 8., No.,22; June 2, 1923., p 4, Harris Extension, FMA.

⁷⁷ Wonders, *Habitat Dioramas*, 126.

new direction for the institution: “The museum is in transition from the mode of installation heretofore approved by museum experts to a new mode of installation regarded as superior scientifically and educationally. In the nature of the case, it must be undergoing this process for some time to come. A serious mistake has been made in not planning to do this more deliberately, i.e. to do it by small units from time to time as fast as these could be made fairly complete in the new form. These small units could replace the old ones when ready without more than local disturbance of the museum at any one time. The reinstallation is, however, an impressive educational lesson, and to show why it is done and how it is done and what it means furthers the purpose of the Academy as an educational institution.” Chamberlain continued to suggest “that we frankly make this reinstallation in process an exhibit in itself” and “that the museum staff devise, print, and post placards calling attention to the change in progress, its purpose, the incompleteness of the new suites, and the reasons therefore, and that the staff frankly explain to the public so far as time and propriety permit.”⁷⁸

The reinstallation process involved the creation of the Chicago Environs series and was a cutting edge implementation of the habitat diorama. In a memorandum for the curator, director Frank Baker wrote: “The diorama is from beginning to end an exercise in deception. We try to make a painted or photographic background merge with an artificially contrived foreground of animal figures and vegetation. If at the end it fails to look entirely real, it is because our method of deception was incorrect or inadequate.”⁷⁹

The Academy’s exhibition philosophy became one of quality rather than quantity. These locally focused exhibits were intended to make people pause and think about local

⁷⁸ T.C. Chamberlain, President of the Chicago Academy of Sciences, “Report on the State of the Staff-Work of the Chicago Academy of Science With Recommendations By the President of the Academy,” n.d., Administrative Papers, CAS.

⁷⁹ Letter, Frank Baker to Frank Woodruff, n.d. FW Correspondence, CAS.

wildlife and wild spaces. The Academy's exhibits recreated spaces lost in Chicago—not seen since the days of DuSable, Kinzie, and the first Chicagoans. The local wilderness was not only tamed, but in some places obliterated. What wilderness there was close to the city remained in the form of the Indiana Dunes or the Cook County Forest Preserve. Some wildlife, such as squirrels or raccoons, adapted to city life (today there is the odd coyote too) but most vanished. Thus through its exhibits, the Academy brought visitors back in time and farther out into the prairie, dunes, and woods—places many working people could not go to. In this way, local exhibits were as much about the past as well as the present of nature. One could find stories through their exhibits of the need for preservation and lamentation of the wilderness as American pioneering spirit in the West, of which Chicago was long the gateway. Whatever the impression left by the exhibits, Woodruff and the team produced exhibits of realism and much visual appeal.

The Academy was quick to compare their design practices with other institutions and believed their methods superior. “Some modern museums,” Baker wrote, “realizing that the human eye uses shadow to interpret reality, use spotlights but most museums have preferred to use the most diffuse light sources possible to avoid the tell-tale shadows on the painted background which at once destroy the effectiveness of the illusion. Field Museum has always used such diffuse lighting but on one outstanding and little appreciated diorama, that of the axis deer, shadows were painted on the floor of the foreground that agreed with the strong shadows of the background. The result was a startling psychological approach to reality that even survives the camera test. Even a photograph of this group looks real!”⁸⁰

⁸⁰ Ibid.

The sophistication of zoological displays was the result of the refined taxidermy skills of Hornaday, Akeley, and Woodruff. The taxidermist became more than a hunter, preserver, and collector, but a scientist as well. It was “essential that complete and accurate data accompany each skin” and with the “diminishing numbers of animals to-day, it is imperative that materials be properly cared for. It is little short of criminal to allow an untrained collector to operate in the field.”⁸¹ Curators and scientists, in addition to game and wildlife officials believed that without a measure of training, amateur collectors might not only improperly preserve or transport specimens, but also threaten wildlife populations by killing too many animals and plants. Hunting licenses, open seasons, collecting permits, and other restrictions were in place by officials to protect wildlife from overzealous hunters or collectors. Such measures echo progressive era tensions between experts and ordinary folk; in reality they limited the experts as much as anyone. Museums needed permission from game wardens to collect or hunt too.

Such precise practices of collecting, preserving and preparing both study specimens and exhibition materials was critical to realistic and educational displays. Mounted specimens “of the past generation furnish mute testimony of the unsuitability of the old methods of making ‘stuffed animals.’” In the past, specimens lacked proportion and animated poses and so it was “only natural that those methods should fall into the discard with the advent of the taxidermist who can combine something of the sculptor’s skill in modeling and sufficient knowledge of anatomical structure to enable him to create a natural, permanent result.”⁸² The modern method called for clay manikins with skins carefully stretched over the frame. The musculature, stance, and expression were

⁸¹ “The New Taxidermist,” *University of Iowa Service Bulletin*, Vol. 8., No.,22; June 2, 1923., p 3., Harris Extension, FMA.

⁸² *Ibid.*, 3-4.

recreated from photographs and notes taken in the field. It was a true blend of art and science.

The aforementioned Field Museum's axis deer diorama impressed experts and visitors alike because it effectively fooled the observer's eye. Baker wrote, "It fooled the eye as psychologists do, studying the visual patterns by which we interpret the world we see." Like the older cycloramas, lighting was key to creating a realistic display. Baker and Woodruff experimented with the best techniques for realistic lighting that did not cast shadows on the backgrounds. An exhibition of the Indiana Dunes was lighted so as to cast shadows toward the observer and emulated the rising sun. The result was a "slice of life" scene created by a unique solution to lighting challenges.⁸³

In 1912, the Academy began installing twelve new exhibits of the Chicago Environs Series. With this exhibition the Academy focused its exhibit collection on Midwestern materials. On a practical level, this strategy made the best use of their resources and the limited space. It also created a unity of the displays, unlike the wide scope of the Field Museum, and it emphasized the quality of exhibits over quantity. These new displays would ultimately take more than twenty years to complete and continually refined the arts of taxidermy and illusion. It was critical that "in the remaking or in the new work for these exhibits no pains must be spared to make them just as full and rich as habitat groups as possible. Every effort must be made to give distance and true perspective to the scene. Large bold objects should be placed in the foreground where ever practical."⁸⁴

⁸³ Letter, Frank Baker to Frank Woodruff, n.d., FW Correspondence, CAS.

⁸⁴ "Museum Instructions," January 16, 1915. Unfiled papers, CAS.

At the north end of the main hall was “Woodland Courtship,” the first of the new groups, a scene featuring two bucks rutting. The habitat consisted of birch and oak trees, birds, and insects. A doe and fawn in the background completed the scene. A series of four groups installed in the entrance hall provided an overview of vertebrates. A muskrat “house” cut in sections to show nest and young and accompanied by marsh plants such as cattails and other animals including turtles and frogs represented mammals. A separate reptile display showcased snakes and lizards of the Indiana Dunes and a “Black Crowned Night Heron Rookery” (based on one observed in Worth, Illinois) was the entrance bird exhibit. A fish exhibit with Black Bass and sunfish surrounded by vegetation arranged in “ecological sequence of plant forms” rounded out the vertebrate series. These groups were an impressive ten feet square and eight feet high. The fish group was particularly of interest to visitors before Chicago had an aquarium.⁸⁵

On the balcony level a series of insect exhibits were installed. The first was a group showing the life of aquatic insects. Aquatic scenes were difficult to observe directly in nature and so were particularly popular displays. This case, three by four by two, contained a variety of pond plants in a pool of water supposed to be three feet in depth. The animal life consisted of “diving beetles, black swimmers, water boatmen, dragon flies, whirligig beetles, water striders, water bugs, and pond snails. Several insects and dragon flies and the water beetles will show both young and adult to illustrate the life histories of these insects.”⁸⁶

“How Insects Spend the Winter” and “How Insects Hide” showed visitors specific behaviors in local settings. “Insects of the Early Spring” depicted a scene of an “open

⁸⁵ Letter, Frank C. Baker to W.W. Atwood, February 17, 1912, WA Correspondence, CAS.

⁸⁶ Ibid.

field with a fringe of woods in the background; the field with species of early spring flowers such as red trillium.” The animal life consisted of “some of the early Swallowtail butterflies, a Painted-lady or two, some Sulpher butterflies” along with “beetles, grasshoppers, and dragonflies.”⁸⁷ A woodland scene of dense, tangled vegetation with moss covered logs and toadstools provided the habitat for wood nymphs, butterflies, beetles and other forest insects. An old log in the foreground drew attention to centipedes, snails, and a pair of salamanders. All of these groups required careful fieldwork to collect specimens and photographs of the scene to aid in its recreation.

The completion of the elaborate and life-like displays required a close collaboration between taxidermists and visual artists trained in various disciplines, especially oil painting and sometimes sculpture. For a marsh scene, for example, the taxidermist creates the foreground (main specimens and accessories) and the artists match the foreground with a painting of a marshy landscape in the rear. The addition of depth and atmosphere required art and taxidermy of the highest order. If any part was not done well, the whole exhibit failed miserably. The amount of labor required was tremendous. In one week of July 1915, three assistants worked long days creating plant accessories for the Environs groups. For example, one worker worked nine hours per day “putting stems on 14 leaves, scraped and edged same” and another made thirty-eight *Heatica* petals and trimmed fourteen leaves during the same hours.⁸⁸

The components when placed together created scene in which the visitor felt as though they were in the woods, on the dunes (or in other installations the heat of the tropical forest, the breath of snow covered prairie, or the desolation of the desert or other

⁸⁷ Ibid.

⁸⁸ “Report For Week Ending July 10, 1915,” Atwood, Unfiled, CAS.

sensation) that evoked the feel of the environment. Where a visitor stood in relation to the display mattered: “When one stands a short distance away and intently gazes into it for a little while, the impression is that of being right on the ground, rather than that of contemplating a scene which may not occupy more space than the requisite number of feet to contain it in width, height, and depth, which does not average above 6 by 10.”⁸⁹

The new exhibits made the best use of limited space in the museum and the rapid pace of installation was remarkable. Even though the first series of new habitat groups (fifty-one in total) was on public view in 1915, improvements were still carried out and more artificial foliage worked into the scene. “From time to time,” Baker wrote, “as better or additional specimens of the animals can be secured, they will be added, or they may replace those now in the cases.”⁹⁰ This is an important point—even though the exhibits were completed, they were not static and unchanging. Improvements, updates, and repairs were carried out. The notion of permanence in museums was (and is) relative.

Twenty of the new dioramas featured birds. One contemporary article reported that it was “the most unique natural history display in the world.” The birds were depicted in their nests and feeding. But “the most remarkable thing” about these groups was the fact that the backgrounds were actually a photograph of the same scene in the vicinity of Chicago, “taken where the material was collected, enlarged and colored.”⁹¹ Frank Woodruff developed the method and equipment for making the prints. These

⁸⁹ Dr. R.W. Shufeldt, “Combining Art and Museum Exhibits,” *The Pan American Union*, 688, n.d., Publications Box, CAS.

⁹⁰ Manuscript, “Chicago Speech,” January 11, 1916, Administrative, CAS.

⁹¹ “Making Birds At Home In A Museum,” in *The Pan American Union* June 1916, No.11, 325. Publications, CAS. “This Man Makes Photos as Big as Side of a House, newspaper clipping, n.d., FW Correspondence, CAS. The largest image Woodruff created was an astonishing 10 feet height and 96 feet long!

photographic backgrounds were impressive innovations on many fronts. On a technical level, they were enormous enlargements of highly detailed images taken with medium (4x5) and large format (8x10) cameras on glass plate negatives. Each negative was projected onto a large sheet of light sensitive paper and then swabbed with chemicals. Once printed, the black and white photograph was hand tinted by a small team of artists. The whole process could take two weeks to complete a single background. On an artistic level, Woodruff was careful to compose the photograph scene in indirect light to match the artificial lighting conditions used in the museum.

In assembling the groups, the Academy sought to make them interesting for visitors with little scientific knowledge and whose attention must be caught. One group, for instance, depicted mallard ducks at sunrise. Rather than stiff and stoic mounts, the ducks were poised in flight and appeared as though they were actually rising from one of the neighboring waters.⁹² These bird dioramas cost the Academy \$25,000 (approximately \$536,000 in today's money) and more than two years to complete. Academy staff felt that the expense was worth every penny and proved popular with visitors. The Academy hoped that "children will feel greater love for the birds when they see them patiently brooding upon a nest hidden among the grasses and flowers, when they see the mother quail teaching her little ones to "freeze" beneath an oak leaf, when they see how cleverly they weave their nests, binding them tightly to the tree branches."⁹³

These vignettes of bird life were a refreshing way to teach adults and children alike about birds. This was in stark contrast to older teaching methods that involved dissection or rote memorization. Finding parallels with human behaviors helped people

⁹² "Making Birds At Home In A Museum," 326.

⁹³ Ibid., 326-327.

learn (with some risk of sentimentalizing) about nature. Such sophisticated displays in particular were believed to be effectively teaching urban children (i.e. working class children) who were unable to go into the woods and thus found these groups sparked the imagination. Visiting the museum and looking at the Academy's groups was an experience nearly as memorable as a trip to the natural spaces where the birds live.⁹⁴

In reality, few children, city or country, were able to catch such an intimate glimpse of the birds or other animals displayed in the museum's habitat dioramas. What they saw was often fleeting or from a distance. Here, they were up close. Even today, few people have seen an American eagle nesting or a snowy owl. The Academy's exhibits enabled people to see these animals and were a virtual trip through the woods.⁹⁵ Even though these animals were posed to act as if alive, they were also very much dead. Nevertheless, they were much more animated than the stiff unnaturalness of the old methods of mounting and the life-like naturalness of these mounts was reflected by increasing interest in bird study by teachers and students.

Other displays of birds were under development as well. These were unique displays because the birds were mounted overhead, as if in flight. One group, arranged above the Chicago Environs series, featured large birds such as raptors, geese, and ducks. Behind the suspended birds was a false domed sky that brought out the color patterns of the wings and sides of the birds.⁹⁶ The viewer looked up to study the birds, as one would do in living nature. Many birds in nature, particularly those not found in Midwestern

⁹⁴ Ibid., 328.

⁹⁵ For city dwellers, pigeons and sparrows were the most commonly seen birds. In the parks and neighborhoods away from downtown or industrial areas, native birds frequently spotted included common species such as cardinals, robins, and redwing blackbirds. Gulls, geese and other waterfowl were found along the waterfront. All of these birds and more are seen today.

⁹⁶ Letter, Frank C. Baker to Wallace W. Atwood, November 22, 1915, FB Correspondence, CAS.

gardens, are seen in flight. Thus the viewer often sees the underside, and so the Academy's exhibit aided people with bird identification.

The entirety of the bird exhibition extended 150 feet and required visitors to stand at a distance and look up for the best viewing experience. Most of the exhibit held the observer at a little distance from the glass. Frank Baker noted that visitors tended to come up directly to the glass when exhibits were on the floor and required bending to view. They not only obstructed the view for others, but also obscured the artistic effect the curators intended. This new overhead exhibit, when seen from the floor, was ten feet away from the eyes of the observer. The distance was near enough to study them as if they were living creatures. Visitors who wanted to analyze specimens more closely, to study their anatomy, or to count their feathers and their toes, must have them in their hands. Pressing of the face against the glass would not allow them to carry on detailed studies.⁹⁷

Bird displays in other museums frequently used single mounts, perched on a branch, in taxonomic cases or in less rich habitat dioramas in trees or on the ground. No other museums mounted such a realistic display. These displays of the Chicago and Calumet region were especially valuable because "they lend themselves to the reproduction of the environs of rapidly growing cities in locations where these environs are particularly varied and interesting." Dr. Schufledt, reviewing the exhibition for *The Pan American Union* believed that "had such groups been prepared years ago of Manhattan Island above Fiftieth Street, forming a part of some exhibit in a present-day museum capable of doing it justice, what an attraction it would now offer the museum

⁹⁷ Manuscript, "Chicago Speech" January 11, 1916, Administrative, CAS.

goers of this generation” because these natural areas were now gone.⁹⁸ Presumably, the American Museum of Natural History long overlooked a chance to do something similar. Chicago’s Academy was preserving the scene before it could be lost forever. At the same time the Academy planned an Indiana Dunes diorama, Henry Cowles and the Prairie Club were in the field and statehouse working to preserve it.

In addition to the extensive avian displays, new mammal groups were developed, despite difficulty obtaining specimens of snowshoe rabbit and winter weasel. A flying squirrel was mounted in a hanging case but it was shortly dismantled to make room for more local specimens.⁹⁹ The Academy also designed new geological displays. A large cross section of earth from Stony Island to Starved Rock revealed the topography of Northern Illinois and highlighted features such as coalfields and five Artesian wells.¹⁰⁰

Meanwhile, the Academy, at the behest of Wallace Atwood (Secretary from 1909-1918), installed a revolutionary new astronomy exhibit that was unlike anything else in the museum. The Atwood Celestial Sphere was a rotating globe of galvanized iron fifteen feet in diameter with an interior platform that could accommodate fifteen viewers. Inside the sphere, visitors saw a realistic impression of the starry sky over Chicago and the stars and common constellations seen in the Northern Hemisphere were labeled for visitors. Atwood’s design placed the planets on independent tracks to represent their respective orbits and all of the celestial bodies were lighted from behind. It rotated on an equatorial rail once every eight minutes. The globe was made by Academy President LaVerne Noyes's Aeromotor Company and presented by Mr. Noyes

⁹⁸ Shufeldt, “Combining Art and Museum Exhibits,” 691.

⁹⁹ Letter to Wallace W. Atwood, February 28, 1914, Atwood Correspondence, CAS.

¹⁰⁰ Ibid.

to the Academy. The sphere was placed in the Academy's dome above the balconies. Opened in 1912, the Atwood Celestial Sphere was Chicago's first planetarium and first immersive, interactive museum exhibit.¹⁰¹

Throughout the 1920s, both the Field Museum and the Chicago Academy of Sciences benefitted from the general prosperity of the decade. The Field Museum's move to Grant Park enabled new exhibitions to be developed and installed with permanent wings in mind. The exhibits of marine and aquatic life, for instance, were completely remade during the 1920s owing in large part to advances in fish taxidermy such as those pioneered by Leon L. Pray. The ground floor of the museum was dedicated to displays of fishes and marine mammals with a complete hall for the systematic study of fishes. Creating this collection was a long process because curators had to decide which representative species to include and then acquire fresh specimens.¹⁰² The Academy's development of curved, colored photographic backgrounds was duplicated in Harris Public School Extension cases constructed in the 1920s. The new backgrounds enhanced the realism of the displays.

The Academy continued building and refining the Chicago Environs series that depicted wild spaces as they likely were a century before when Chicago was still the frontier. Progress was slow due to the small staff and expense of these intricate exhibits. One exhibit, for example, was estimated to cost \$1,500 (approximately \$18,300 in 2016) with special attention paid to "providing better ventilation, disinfecting" and "increase of visual range" that required modification of nearby cases and including new plate glass. To raise money for the project, the Academy's board approved the sale of unused

¹⁰¹ Hendrickson and Beecher, "In the Service of Science," 34.

¹⁰² Letter, Stanley Field to Ferdinand Hansen, Romanoff Caviar Company, April 25, 1928, DPGC, FMA.

specimens from dismantled exhibits. A moose (\$500), Musk Ox group (\$500), and four flamingo groups (\$100) raised funds for group number three. The glass from each of these dismantled displays sold for \$1,100 to a buyer required “to remove it at his own risk.”¹⁰³

3.9 A Dynamic Decade: 1925-1935

Alfred M. Bailey was hired as the Academy’s director when Frank Baker left to become director of the Illinois State Museum in Springfield. Bailey was an explorer, ornithologist, and most recently, a key member of the Field Museum’s Abyssinia expedition. On this expedition they ventured into rugged, mountainous terrain that according to Bailey, had “a wonderful climate during the dry season” and was “ideal for the naturalist.” The expedition collected many plant and animal specimens, including several Ibex for exhibition in the Field Museum.¹⁰⁴ After the adventurous treks in Africa, the Chicago Academy of Sciences was a sharp contrast. Bailey confessed, “I suppose I will find office work a little confining, but I hope to build a real North American museum which will give me a chance to get back to many old friends. The Field Museum is the greatest institution in the country, and the men there are the finest. I would have been away from my family too much, however, and I believe I’ll be better satisfied here [at the Chicago Academy of Sciences].”¹⁰⁵

Bailey accepted the directorship with some reservations because he really wanted to return to Colorado with his family. The Academy offered the opportunity to settle,

¹⁰³ Minutes, Chicago Academy of Sciences, Board of Trustees, May 5, 1920, Administrative, CAS.

¹⁰⁴ Alfred M. Bailey, “Through Ethiopia on a Mule”, lecture, n.d. AB Papers, CAS. The Field Museum was co-sponsored by the *Chicago Daily News*, which photographed the expedition.

¹⁰⁵ Letter, Alfred M. Bailey to H.S. Swarth, Curator, California Academy of Sciences, August 22, 1927, AB Correspondence, CAS.

even if it was not, as he put it, in the “Golden West.” To his friend H.C. James he wrote of moving to Chicago, “it was a bitter pill for us to move, but one has to do things disagreeable at times.”¹⁰⁶ Despite its small size, Bailey saw the Academy’s potential and he was certain he was qualified for the job. His fieldwork, mentorship in Iowa with pioneering museologist Homer Dill, work with the Colorado Museum of Natural History, and a chance to visit the major museums of Europe gave him practical experience with museum methods. With 300,000 visitors annually and a series of lecture courses, the Academy’s future was bright. In his first report as Director, going over old records and publications, he “realized what an important place the Chicago Academy of Sciences has held in the scientific world.”¹⁰⁷

During his first year as director, Bailey oversaw the re-cataloguing and overhauling of the bird and mammal collections. For the first time, the Academy had a truly accurate check on the study specimens. Bailey hoped to build an extensive study collection of North American specimens and make it available to the public. In addition to this cataloging, Bailey set out to right a wrong, so to speak. The Academy was a pioneer in Alaskan ornithology in the days of Robert Kennicott and his *Telegraph* Expedition. All of those specimens were destroyed in the Great Fire. While doing fieldwork in Alaska, Bailey trained several men to be collectors. Now as director, he secured funding from the Board of Trustees to purchase Alaskan specimens and restore the collection.¹⁰⁸ Meanwhile, Woodruff finished Environs Group III, which featured a

¹⁰⁶ Letter, Alfred M. Bailey to H.C. James. April 16, 1928. It is clear that Bailey’s heart was in Colorado. He wrote, “Let me say right now that the Colorado Museum ranks high in world museums, and I am mighty glad to have had some small part in the work. You have a wonderful bunch of boys working out there.”

¹⁰⁷ “Report of the Director for the Year 1927,” Administrative, CAS.

¹⁰⁸ *Ibid.*, 3.

panorama of the Chicago area from Palos Park northward and included snowshoe rabbits, otters, and martin. In addition to this exhibit, Bailey and Woodruff were developing a comprehensive exhibition to show “all the birds known to have occurred in this region, and all the different plumage phases will be included wherever possible.” Bailey secured some valuable specimens including an extinct passenger pigeon.¹⁰⁹

Bailey and the Academy’s Secretary, Wallace Worthley, sought to build a new museum devoted exclusively to North America. While the Academy museum focused on the Chicago region, the proposed one would span the continent. As Bailey saw it, “There is no museum limited to the study of natural history of North America, so it will be possible for the Academy to have exhibition halls on par with any in the country, and at the same time, have the finest series of exhibits of the wild life of this continent.”¹¹⁰

Such a plan was possible because the Academy had open ground adjoining the east side of the building. The Secretary, with much hyperbole, believed “that a museum situated in the first park in the second largest city in North America can boast of a wonderful opportunity for service” to the public, especially children. A children’s museum (a kind of sub-museum if you will) was an integral part of the plan as was a dedicated space for scientists and naturalists, both professional and amateur who could holding regular meetings. The future for the Academy was “Functioning as an educational and research institution in its museum exhibits, publications, lectures, and guide service to visiting cases, it is felt that we are peculiarly situated to render more

¹⁰⁹ Ibid.

¹¹⁰ “Report of the Secretary for the Year 1928,” p.1, Administrative, CAS.

efficient and valuable service than would be true of any other local natural history museum in the country.”¹¹¹

Throughout the 1920s, Alfred Bailey, dreamed of building a new museum building to house the growing collections and expand educational programs. “I believe we have an opportunity to build a museum different from any in the country,” he wrote. Bailey believed that “the majority of the North American exhibits in other institutions are not what they should be.”¹¹² Indeed, as we have seen the Academy’s new exhibits were masterpieces of art and science. The decision to focus on the Chicago region was clear and visitors responded enthusiastically. But Bailey wanted to do more. Most other natural history museum’s collections were wide in scope. Their North American collections were limited to the birds and mammals that were part of their original acquisitions. According to Bailey, “The technique of group construction was not on par with that of today, so the majority of exhibits are mediocre, and the halls totally unfit for exhibition. We have the advantage of starting at the beginning, for we have no large mammals, and consequently we have nothing to discard.”¹¹³

Bailey imagined redesigning the museum so that “the main floor devoted entirely to groups depicting the wonderful mammals” of North America with birds, forestry, paleontology, and entomology on the floor above. In addition to the exhibits, the Academy needed a new auditorium; a wing devoted to children’s exhibits, and more space for laboratories and workrooms.¹¹⁴ Bailey was determined that the new exhibits

¹¹¹ Ibid., 2-3.

¹¹² Letter, Alfred M. Bailey to L.C. Walker, May 13, 1930, AB Correspondence, CAS.

¹¹³ Ibid.

¹¹⁴ Ibid.

would be “better than those in other museums. I do not mean that our individual groups would be superior to any other groups, but I do mean that the assembled groups, spaced as we have arranged them, with broad halls to accommodate the crowds which visit Lincoln Park, would make a North American hall better than any museum.” To do so, he figured the Academy needed an “additional space of forty feet on each end of the lot reserved for use, in order that we may give floor space to the visitors. The main hall of North American mammals in the Field Museum, for instance, is but fifteen feet wide. This is inadequate for proper showing, and we plan the main hall to be fifty feet across.” Bailey noted that the sea mammal hall on the Field’s ground floor was a better installation because there was plenty of room for visitors to walk about (indeed in that space today, there is a gift shop in the middle and two cafeteria spaces).¹¹⁵

To create this open floor space, the new exhibit cases had to be built into the walls of the building and structural supports concealed behind the cases. This design allowed for broad halls with unobtrusive artificial light and no columns to interrupt visitor’s view of the exhibits. Bailey hoped that visitors would “have the effect of looking out of an open window” rather than walking around a room looking into display cases. Bailey wanted to appeal to the educational and ecological arguments for a new museum. “The animal life of North America is fast disappearing,” he wrote, “and it is almost impossible to get many of the rarer forms.” The Academy had to act quickly to study the wild spaces, acquire specimens, and preserve the scene.¹¹⁶

The Lincoln Park Commissioners had final say over what the Academy could do in terms of expansion or new construction. To this end Bailey argued that by making a

¹¹⁵ Ibid.

¹¹⁶ Ibid. See Hendrickson and Beecher, “In the Service of Science.”

formal request to expand they were “really only asking that we may give facilities to the visitors of the Park, that they may derive more enjoyment of it.” The Academy did not want to be left behind. Bailey pointed out that, “Grant Park now has four museums, and the new zoological park is being erected in Brookfield. It seems to me that this is the logical time to do something for the people who visit Lincoln Park. I am confident that such a museum as we have planned would be visited by a million people annually.”¹¹⁷

Despite Bailey’s optimism and detailed plans, the Lincoln Park Commissioners and the Academy’s trustees were in no position to finance such an undertaking. In the midst of this Bailey accepted a long-hoped for job as director of the Colorado Museum of Natural History in 1936. The Great Depression curtailed many plans for new exhibits, expeditions, and other activities. Meanwhile, the Academy continued maintaining old exhibits as well as developing new ones during the depression with the help of WPA workers. There were limits to what could be done however, as funding remained an issue. On the second floor for instance, Howard K. Gloyd, Bailey’s successor, suggested moving table cases from the balcony and fitting them with new legs rather than installing newer, more modern ones. Sketches were drawn for a “series of panels and windows for medium sized ecological groups” to be installed on the third floor when monies came. Meanwhile, work continued on a comprehensive exhibit of Chicago-area amphibians and reptiles.¹¹⁸

In September 1938, the final section of the Chicago Environs Series opened to the public. Earl G. Wright, who succeeded Woodruff as taxidermist (and curator), completed

¹¹⁷ Letter, Alfred M. Bailey to L.C. Walker, May 13, 1930, AB Correspondence, CAS. The Art Institute of Chicago was officially within the boundaries of Grant Park. The other three institutions—Field Museum, John G. Shedd Aquarium, and Adler Planetarium, both recently opened, were technically outside of Grant Park.

¹¹⁸ Letter, Howard K. Gloyd to F.R. Dickinson, July 21, 1937, Gloyd Correspondence, CAS.

five separate displays of larger game birds, including “the grandest of all game birds, the wild turkey.” According to the Howard K. Gloyd, the turkeys were “shown in their last Chicagoland outpost, the back-dune country, where they were last seen in the late eighties.”¹¹⁹ In addition to the completion of the Chicago Environs, the exhibits in the lobby were renovated as well. Old exhibit cases were replaced with new tabletop and wall cases, better signage, new paint, and a refurbished marble floor. This was done to modernize the lobby and bring “temporary exhibits of seasonal interest” including “winter birds of the Chicago region” and “feeding shelters and water dishes for attracting birds in winter.” For summer, a display of warblers and insect collecting gear were featured. In connection with the convention of American Society of Ichthyologists and Herpetologists in 1939, the lobby display included special color photographs by Walter H. Chute of the Shedd Aquarium along with paintings and bookplates of fish and reptiles.¹²⁰

3.10 Science and Art in the Field Museum

In the late 1920s, the Field Museum overhauled many exhibits after the institution settled into the new building. The botany department had important study and display collections, but the public installations were the least up to date. President Stanley Field reached out to Charles Lothrop Pack, of the New York State College of Forestry. Pack teamed with writer Tom Gill on expeditions and wrote an article about tropical exploration in *Nature Magazine* that suggested ways conservation and forestry efforts could be extended to tropical forests. Field hoped to secure some specimens from Pack

¹¹⁹ “Exhibits,” Report of the Director for 1938-1939, 6., Administrative, CAS.

¹²⁰ Ibid., 7.

to install in Charles F. Millspaugh Hall (named in honor of the long-serving botany curator) and “employ this hall to the fullest possible extent to display the most important woods and forest resources of Tropical America.”¹²¹

The outline for the new exhibits called for “many foreign woods of importance, now on the market, to be secured largely from the trade, eg. [sic] *Lignum vitae*, Boxwoods, Cocobolo, Rosewoods, Satinwood, Ebony, Letterwood, Mahoganies and Cedars, Balsa and other very light woods.” The rationale for new botany exhibition was “the increase of the present knowledge of foreign woods must be based on new material properly collected. It is therefore proposed that a program of systematic and adequate collecting of wood samples together with usual botanical material be undertaken in selected localities in tropical America” in addition to printing leaflets on woods and the publication of scientific studies.¹²²

The Field Museum’s renovations called for new approaches to lighting the exhibit cases and the halls as well. The Jackson Park building depended heavily upon natural lighting but the Grant Park building, designed well into the light bulb era, made greater use of artificial lighting. However, when the doors opened in 1921, natural light was still a major means of illumination. Natural lighting had the advantage of diffused light and balancing colors, but the disadvantages were numerous. Natural light fluctuated with the seasons and weather conditions, did not uniformly light all of the exhibits in a hall, and restricted open hours to the daytime. Artificial light ensured continuous lighting on demand and made evening hours possible. Complete installation of electric lighting took time. In 1926, Director Davies reported that all of the halls are provided with indirect

¹²¹ Letter, Stanley Field to Charles Lothrop Pack, n.d., DPGC, FMA.

¹²² Manuscript, “An outline of plan for the treatment of foreign woods,” n.d., DPGC, FMA.

electric lights and that all habitat groups are “illuminated exclusively with artificial light.”¹²³ These lights were safer for the conservation of specimens and artifacts and special care was taken in exhibit halls with windows to prevent colors of displays from fading. As the museum continued to develop and enhance exhibits during the 1920s, and inside facing exhibit halls filled with cases, greater use of artificial light was required. The second floor Hall of Historical Geology was a case in point. Reviewing plans of the Curtis Lighting Company, Director Davies explained that he “did not like at all in the plan is the fact that you propose to leave clear glass on top of the exhibition cases. While I realize that looking at the case from the front, the lamps will not be visible, on the other hand when one stands in the middle of the room and looks at the ends of the cases there will be an ugly row of glowing lamps.” Thinking of the big picture, Davies went on to say “If Field Museum is to consider case lighting for its Exhibition Halls, this is one thing that will have to be solved, and so long as we are using this one Hall to demonstrate what can be done in the way of proper lighting, now is the time to solve the question.”¹²⁴

By the 1920s development of the African Hall continued with a focus on mammals. Attention to detail—both scientific and aesthetic was critical to the museum staff. Director Davies reported to Stanley Field, “Both the Poli and the Ibex specimens are now arranged in their cases in the positions they will permanently have. Even without any accessories other than the backgrounds these groups are bound to create favorable comment. As a result of the reinstallations of cases in Hall 15 an empty case in that hall is available for the Okapi, which is expected will soon be ready for exhibition. This is a most decided and pleasing change resulting from the reinstallation of the cases

¹²³ Letter, D.C. Davies to Dr. George Frederick Kuns, December 22, 1926, DPGC, FMA.

¹²⁴ Letter, D.C. Davies to J.L. Stair, Esq., Chief Engineer, Curtis Lighting Company, October, 7 1927, DPGC, FMA.

in this hall.”¹²⁵ Empty spaces were eyesores, and minimally installed displays ensured a measure of visual continuity. He felt that it was critical that specimens were presented in a manner that was both compelling but also instructive. Along these lines, some advice to the Waterloo, Iowa YMCA Henry W. Grout Museum: “One must never forget that no matter how excellent certain specimens are in and of themselves, they will be deadly dull and be classed as junk by the laymen unless the exhibit is light, attractive, easy to look at, interestingly and simply labeled, and uncrowded.”¹²⁶

Charles Knight’s commission to paint murals of prehistoric life for the Field Museum was one of the period’s most expensive installations. Knight was a painter and illustrator and well known for his depictions of prehistoric animal life. He completed a mural series of dinosaurs and ancient mammals for the American Museum of Natural History. The Field Museum was long interested in a mural project of its own, but it was impossible to fund it with the cash at hand. Knight made a series of proposals to Director D.C. Davies and Geology Curator Oliver C. Farrington but each was rejected because of lack of funding. Knight’s subsequent proposals progressively scaled down the size and scope of the paintings but to no avail. The breakthrough came in 1926 with a bequest from Ernest Graham. The philanthropist endowed a major reinstallation of the paleontology exhibits with murals an integral part of the new displays.

Within Ernest Graham Hall, the museum’s fossil reconstructions and Knight’s paintings became one of the most popular exhibits in the museum. To complete the series Knight consulted with leading experts in paleontology, paleobiology, zoology, and geology. Knight’s goal was to make these paintings as accurate and life-like as possible.

¹²⁵ Letter, D.C. Davies to Stanley Field, March 7, 1928, DPGC, FMA.

¹²⁶ Memorandum, Paul S. Martin’s recommendations to Waterloo, Iowa, YMCA Henry W. Grout Museum. N.d., DPGC, FMA.

His recreations were grounded in the latest information and were the culmination of scientific knowledge and artistic skill.¹²⁷ However, he considered the final word on the images to be his and this created much tension between Knight and Farrington (thus a tension between art and science). The Curator had no shortage of criticisms and suggested revisions. Knight revised some murals without question but frequently he protested and resisted changes to his artwork. Much of this was seemingly due to misunderstandings with the scientists but there is no doubt the ego of the scientists—and sense of superiority over artists—permeated much of the conflict with Knight.

In a way, the new exhibition harkened back to Charles Wilson Peale's museum and his pairing of specimens and paintings or Audubon's bird prints. Knight's murals represented one of the key ways art and science combine in complex natural history displays—particularly those representing extinct animals and prehistoric peoples. The same kind of imagination was at work in the painter's mind as in the paleontologist assembling old bones. No one knew for sure what these creatures looked like, and artist and scientist alike made inferences from living forms. Knight's paintings were impressive, in part, from his imaginative skill. He saw, perhaps more clearly than scientists, how muscle and flesh filled out the skeletons into a tangible creature. The fact that many of his reconstructions are considered accurate in the twenty-first century is a testament to Knight's vision. Even those rendered inaccurate by new discoveries still take a prominent place on the museum walls.

Visitors enjoyed the murals and the new paleontology exhibit became one of the most popular in the museum. By the early 1930s, the impact of Charles Knight's twenty-

¹²⁷ Charles Knight published several books of his drawings and paintings including: *Before the Dawn of History* (New York: McGraw Hill, 1935); *Animals of the World for Young People* (New York: Tudor, 1936); *Life Through the Ages* (New York: Alfred A. Knopf, 1946). For a recent biography of Knight and his work see Richard Milner, *Charles R. Knight: The Artist Who Saw Through Time* (New York: Henry N. Abrams, 2012).

eight mural paintings depicting geological history completed for the Field Museum supplanted that of his earlier work. His paintings were reproduced seemingly everywhere- books, postcards, and articles. Knight's paintings combined with Field's large collection of reconstructions, Chicago emerged as *the* place for experiencing dinosaurs during the early 1930s.¹²⁸

From the 1930s, the Field Museum used Knight's paintings as souvenir post cards and published them in museum publications. The images became iconic, especially the scene of T-Rex battling triceratops. They were not only copied by other artists but directly influenced the animatronic dinosaurs displayed at the Century of Progress Exposition and New York World's Fair, movies such as *Fantasia*, and numerous dinosaur toys and figurines.

The scientific community responded well to the paintings but was quick to identify errors. W.A. Parks, for instance, of the Royal Ontario Museum of Paleontology offered a critique of four paintings and noted that the skin on the back of the *Parasaurolophus* heads were incorrectly rendered in one painting and that *Ankylosaurus* "in the middle foreground is reliably too small and I think the *Corythosaurus* in the water is rather large." J.W. Gidley, from the Smithsonian was unimpressed by Knight's depiction of *Zeuglodon* and suggested corrections to the tale and the shading of the animal's back.¹²⁹

¹²⁸ For more about Charles Knight and dinosaurs, see Allan Debus, *Prehistoric Monsters: The Real and Imagined Creatures of the Past That We Love to Fear* (Jefferson, North Carolina: McFarland and Company, 2009), 152. Animatronic dinosaurs and other prehistoric creatures exhibited at Chicago's Century of Progress Exposition (1933-1934) enthralled visitors.

¹²⁹ Letter, W.A. Parks, Royal Ontario Museum of Paleontology to S.C. Simms, May 14, 1929; Letter, J.W. Gidley to S.C. Simms, February 25, 1929, DPGC, FMA.

3.11 A Half-Century of Progress

The Depression curbed the enthusiastic programs Chicago's museums undertook during the 1920s. The Art Institute, arguably the city's most visited museum, was strapped for cash. Its directors yearned to acquire pieces then on the market. The Field Museum canceled expeditions and the Academy's plan for a new building was permanently shelved. Yet, with the help of CWA and WPA workers, improvements to existing exhibits and new installations were completed. Other museums beyond Chicago utilized the New Deal workers as well. They also turned to travelling exhibits and loans as a way to keep the exhibits fresh. Exhibit loan and exchanges point to the larger community museums belonged to. The American Association of Museums (AAM) was the professional basis for this community that included institutions of all sizes and specialties. Loans would help refresh exhibits with minimal cost and draw visitors inside.

However, the Field Museum generally did not exhibit loan collections nor did they loan exhibit materials (apart from the Harris cases) to other institutions. In 1934, the museum did exhibit, at the behest of the AAM, the travelling "International Photographic Exhibit of Taxidermic Art" which showcased the scientific as well as artistic skills involved in contemporary taxidermy. Osgood thought the two-week exhibit was "stimulating for the staff and interesting to the public."¹³⁰ The Field turned down a series of science materials from the Carnegie Institution. When the Museum of Science and Industry inquired about borrowing exhibit materials they were informed: "It has long been the policy [of the museum]," H.F. Ditzel wrote, "not to loan its exhibition material

¹³⁰ Memorandum, Wilfred Osgood to S.C. Simms, January 15, 1934, DPGC, FMA.

either to other institutions or to individuals, and I might add that for many years that it has been the practice of this institution not to accept the loan of exhibition material.” The museum’s policy stemmed from a desire to keep the exhibition collections intact.¹³¹

The most revolutionary changes to museum display occurred during the late 1930s and it was not in natural history museums, but in the world’s fairs of the period and the new Museum of Science and Industry. This was the development of truly interactive exhibits. The fairs of the 1930s featured animatronics, light and sound shows, films, and tactile exhibits. Philanthropist Julius Rosenwald founded the Museum of Science and Industry (MSI). Rosenwald was inspired by the animated and interactive exhibits in the Deutsches Museum and wondered why American museums were not like this.

Rosenwald’s endowment purchased the former home of the Field Museum in Jackson Park and an initial set of industrial and scientific exhibits (including some items from the Field Columbian Museum). When it opened in 1933—nearly simultaneously with the Century of Progress Exposition, one of the fundamental philosophies of MSI was for visitors to physically engage with the exhibits. The best way to experience a museum was to “learn by touch and demonstration, sight, and lecture” rather than simply gaze upon objects in cases that cannot and must not be touched.¹³² This was, in other words, an ersatz experience of flying a plane, steering a boat, or descending into a coal mine.

The museum began to grow into its own after the fair. In 1938, Philip Fox, the director of MSI suggested that the Field Museum would benefit from installing

¹³¹ Letter, H.F. Ditzel to J.W. Block, Registrar, Museum of Science and Industry, May 27, 1937, DPGC, FMA.

¹³² Kinsley Philip, "Science Museum to Include Ten Houses of Magic," *Chicago Daily Tribune*, June 1, 1935. "Science Theme Carried out through 1933 World's Fair," *The Science News-Letter* 23, no. 634 (1933). Two books detail the history of the museum and the acquisition of the major exhibits: Herman Kogan, *A Continuing Marvel: The Story of the Museum of Science and Industry* (Garden City, NY: Doubleday, 1973) and Jay Pridmore, *Inventive Genius: The History of the Museum of Science and Industry Chicago* (Chicago: Museum of Science and Industry, Chicago, 1996).

interactive exhibits along the lines of theirs. He wrote to Director C.C. Gregg, “I have in mind to call your attention to two exhibits which have been installed here for some weeks. One is for the identification of minerals and the second for grains. The exhibit consists of a series of panels in which specimens are exhibited with certain descriptive material, and below, a second panel in which the names are placed. They are not arranged in any sort of correspondence as to order. The operator presses a button opposite a specimen, and at the same time presses a second button opposite what he believes to be the identifying name. If correct, the panel is illuminated.” Fox went on to say that he believed Gregg “would be interested in examining these exhibits for they would certainly be directly applicable in your museum for, let us say, minerals or leaves, or trees, or beetles, or birds, etc. As installed here they are in constant use, holding great interest for the public.”¹³³

The Museum of Science and Industry was the first museum of its kind in the United States. This was a museum with few “hands off” and “don’t touch” signs and many exhibits invited visitors to push buttons, turn knobs, and pull levers in order to illustrate a concept. From the very start, it was known as the “push button museum.” In some ways, this was a continuation of the dynamic exhibits and layouts from the exposition that allowed visitors to chart their own paths through the space and to interact with the displays. At the museum visitors could fly a replica dirigible, steer an ocean liner, and drive a locomotive. If a visitor did not directly manipulate part of an exhibit, a member of the museum staff guided visitors through an exhibit or conducted demonstrations. One the most memorable demonstrations featured a diver cutting metal

¹³³ Letter, Philip Fox to C.C. Gregg, September 6, 1938, DPGC, FMA.

with an oxy-electric torch inside of a large tank as part of an exhibit about underwater salvage.¹³⁴

The most immersive of all the guided, participatory, exhibits was the “Coal Mine,” which took visitors through a simulated mine on actual mining equipment. The “Coal Mine” used elaborate effects—light, sound, and even smell—to make the experience life-like. Visitors approached the exhibit in the main hall and encountered the elevator complex that carried them down into the mine. Reporter Phillip Kinsley shared his experience with readers: “Towering sixty feet from the floor of the south wing is a real tippie such as one sees at the mouths of the mines in southern Illinois... Just beyond stands the fan house where the visitors can see the operation of blowing the 30,000 cubic feet of air per minutes required for the mine far below the surface.”¹³⁵

Once atop the elevator platform, one boarded a cage car large enough to carry thirty persons on a simulated journey down a five hundred foot shaft. As the elevator descended the air became cold and a coal scent pumped into the air. Then the visitors were taken on a half hour trip by car through the vast workings of the mine. In the dark tunnels, seemingly upheld by pillars of coal were lighted only by the lamps of the museum guides, dressed as miners.¹³⁶ The mine tunnels were recreated faithfully, complete with fossils and other geological features. As Jay Pridmore writes in his history of the museum, “The ‘Coal Mine’ was as realistic as sleight of hand could make it. The miner’s elevator ran down a shaft with canvas walls that simultaneously slid upward on rollers. It made the short trip to the basement seem like a long one, hundreds of feet

¹³⁴ Pridmore, *Inventive Genius*, 52-53.

¹³⁵ Philip Kinsley, “Visitors to Fair to See Part of Science Museum,” *Chicago Daily Tribune*, April 26, 1933.

¹³⁶ *Ibid.*

below the surface. The miner's train, with a similar "stage curtain," seemed to travel for a mile or more through dark veins of black coal."¹³⁷ The guides were instructed not to correct visitors who genuinely believed they traveled deep underground. Illusion, sight, smell, believable interpreters and participation were quickly becoming the vogue for education and entertainment. Clearly, cluttered cases and musty spaces were outdated. People wanted an interactive experience where they could learn and be entertained at once and the "Coal Mine" exhibit was worth the twenty-five cent cost of admission to the ride (entrance to the museum itself was free).¹³⁸ Today, this kind of stagecraft is perfected in Disney theme parks and visitors expect to be suspending their disbelief for the duration of the experience.¹³⁹

The "Coal Mine" remains an extremely popular museum exhibit and evocative of new kinds of display that were interactive and spoke more directly to the audience. The Museum of Science and Industry for example, inherited more than science exhibits from the Century of Progress Exposition; the exposition bequeathed its spirit. Its motto echoed that of the exposition, "Science discerns the laws of nature. Industry applies them to the needs of man."¹⁴⁰ It was not "a museum where one whispers through musty corridors to view endless glass cases of exhibits," claimed *Scientific Monthly*. "Here the accent is on visitor participation. He may check his packages free. He may smoke. He may talk as

¹³⁷ Pridmore, *Inventive Genius*, 56.

¹³⁸ See: Jeannette Lowrey, "Museum of Science and Industry," *The Scientific Monthly* 65, no. 6 (1947); "Now City Has a Woman You Can See Thru," *Chicago Daily Tribune*, November 24 1940. I overheard fellow visitors to the coalmine repeat the phrase, "is it real or is it Disney?" Disney has replaced fairs and museums in the lexicon to mean "illusion" and "fake" while allowing people to suspend disbelief for a time too.

¹³⁹ For more about Disney theme parks see Stephen M. Fjellman, *Vinyl Leaves: Walt Disney World and America* (Boulder, Colorado: Westview Press, 1992).

¹⁴⁰ The Century of Progress Exposition donated a number of exhibits to the Museum of Science and Industry. The official motto of the Century of Progress Exposition was "Science finds, industry applies, man conforms." For more about the origins of this motto, see Kogan, *A Continuing Marvel*.

loudly as he pleases. And above all, he finds, as he strolls along, that he may become a part of the show.”¹⁴¹ The Museum inspired other, hands-on, interactive museums to be built later in the century. For example, the Boston Museum of Science began to shift its focus from natural history to science and technology in the 1960s. Portland Oregon built the Oregon Museum of Science and Industry in 1953, and San Francisco’s Exploratorium, opened in 1969, was the first science museum specifically designed to engage children. In the later half of the twentieth century, the Field Museum and other natural history museums incorporated some of the hands-on display techniques of science and industry museums. They installed touchable facsimiles; push button question and answer systems, and added sounds to exhibits. Anything one could touch or physically engage with was placed lower down to invite children to investigate. However, such devices do not compare with the scope or complexity of those experiences in these newer museums like MSI, which became heavily family-centered. In the next chapter we will see how Chicago’s natural history museums sought to engage children and family groups within the halls of museums and significantly in the classrooms and parks of the city.

¹⁴¹ Lowrey, "Museum of Science and Industry," 461.

IV. Bringing the World to the Child: Progressive Era Museum Extension Programs

“Teaching is one of the great purposes of Field Museum,” said Clifford C. Gregg to his television viewers in 1940. “All Chicagoans are familiar to some extent with the great exhibition collections of our institution in which we present to the public a carefully arranged and carefully labeled collection of specimens within the scope of our institution,” he continued. “The effectiveness of this method of instruction is clearly indicated by an annual attendance which last year surpassed one million, four hundred thousand persons, and which over the past twenty years has averaged more than a million and quarter visitors per year.”¹ Gregg went on to say that there were, at present four additional ways in which the museum carries out its educational mission: scientific publications, popular lectures, radio broadcasts, and in 1940, television. He neglected to mention three decades of work reaching one of the museum’s largest audiences—school children. It was an unintended oversight, or perhaps, he was focused on the future. The remainder of his words was dedicated to the future possibilities of television broadcasts into classrooms. He believed it “highly proper that Field Museum, which is not only a teaching institution, but a research organization as well, should be among the pioneers in the discovery of new and better methods of accomplishing its purpose.”² In this future, images and sound supersede physical objects as teaching tools. But in March 1940, that was a distant future. The Field Museum’s loan collections were in the classrooms, rather than its images.

¹ Telecast by Clifford C. Gregg over Zenith, W9XZY, March 29, 1940, DPGC, FMA.

² Ibid.

As we have seen, natural history museums from the late nineteenth century have slowly evolved to meet different scientific and social needs. Questions about the museum's role in the city and its educational mission abounded and were frequently reevaluated. Here we will consider the educative functions. A panel held in the 1930s contemplated a long list of questions including, "Does the adult museum have an obligation of the child public in the absence of children's museums? How can museums get schools to use them? How can teachers know what is a museum and how to use it? How can museums serve all age levels of childhood and adult life, and give each what it wants? How can the museum take its wealth into the school? How can museums and schools help each other in special interests of children? How can the museum enrich social areas which are particularly barren culturally and unable to reach the museum—city slums, remote small towns, rural sections?"³ The developing practices of museum education and in Chicago heightened scientific literacy, encouraged respect for nature, and tried to deepen popular democracy and enable Chicagoans to cope with the rapidly changing and shrinking world in the twentieth century.⁴

4.1 Nature Study Defined

The focus here is on nature and what at the turn of the century was known as "nature study." Museum scientists, curators, and public school educators believed these

³ "Museum Panel Questions," n.d. Museum-School Relations Committee Papers, FMA. (Museum-School, FMA).

⁴ Sally Gregory Kohlstedt, *Teaching Children Science: Hands-On Nature Study in North America, 1890-1930* (Chicago: The University of Chicago Press, 2010), 2. Like her book, this chapter examines the teachers and students who undertook nature study. I build upon her work by showing how museum curators and scientists provided materials and trained educators in the fields of natural science. The words and deeds of these individuals are essential to tell their story and shed light on the formative stages of museum education. This fine book highlights the impact of nature study on education and Kohlstedt demonstrates how nature study evolves, so to speak, into part of the modern science curricula. However, the book is focused almost exclusively on nature study in schools, teacher training programs, and social clubs (in the Northeast, primarily). Museums do not figure in her analysis—not even as the purveyors of science materials. I aim to build from her work and show the importance of museums to nature study. As museums do not figure prominently in her book, this chapter seeks to show how museums were essential to nature study and science education.

lessons about nature were vital for urban children to become not only good democratic citizens but also instill them with a sense of the way the world worked. Nature study—broadly defined—was part of the progressive response to industrial civilization. Nature study advocates believed that introducing children to living nature—or nature exhibited in the museum—was important in the modern world and for those growing up in the twentieth century. They held this belief because natural spaces were fast disappearing and some resources, such as the pine forests that built the Midwest were depleted. Nature study encouraged practical understanding of people’s use of nature to shape the modern world but also was infused with lessons on conservation and resource management. Furthermore, science—alongside engineering—was creating the modern world. Unlocking and understanding the secrets of nature or chemistry meant building a better future. Children in Chicago and other cities were largely removed from nature—the place educators believed the formative years were best spent investigating. Chicago was built from nature and learning about nature was, in a way, learning about the region’s history.⁵ Teachers sought to bring students out of the classroom and into the parks, gardens, and natural history museums, and zoos to encounter what natural spaces and things they could.

Nature study was not exclusive to urban educators. Rural advocates had a range of expectations from those who believed it would teach children sympathy for nature, and others hoped that nature study would prepare children to become better farmers. There is no precise definition of nature study as its specifics varied by location, institution, and resources. Historian Sally Gregory Kohlstedt likened the variations in nature study to differences among religious denominations: groups with differing interpretations, yet

⁵ See Cronon, *Nature’s Metropolis*.

sharing some core ideas. The unifying thread of nature study was that it “built on the naturalist tradition with its emphasis on material objects and visual as well as textual representation, while turning away from a focus on the organization of nature, or taxonomy, in order to understand animal and plant life in environmental context.”⁶ In the words of Louis Agassiz, students would learn from “nature’s own book” by observation and appreciation, but not by controlled experiment. At the core of nature study was the use of local natural objects and features for study. These materials were easier to come by, to be sure, but they also enabled students to connect to nature better by taking a new look at the familiar. In short, it was more relatable and relevant.

Nature study’s advocates came from a wide range of people, mostly educators, which were critical of the persistent rote-based method of teaching children and the lack of connectivity between the classroom and the outdoors. Nature study was widely accepted by teachers who taught with natural objects from their local environments.⁷ Reformers wanted to start with the grammar schools and establish new curricula and teaching methods. As Kholstedt demonstrates, progressive reformers and educators “sought to transform, standardize, and establish strong public support for educational programs that had demonstrable results.”⁸ In Chicago, as in other major cities, to achieve these results they found eager collaborators in museums who desired to disseminate scientific ideas. This chapter is an account of teaching science to children and adults inside and beyond the exhibition hall.

⁶ Kholstedt, *Teaching Children Science*, 3. The intersection of museums, conservation, ecology, and progressivism is discussed in more detail elsewhere in the project. It is appropriate to note here that nature study education was geared toward children; adults were increasingly involved in amateur science and preservation efforts. Henry Cowles, a professor of botany at the University of Chicago and pioneering ecologist was leading adult excursions to the Indiana Dunes and worked with the Prairie Club to create nature reserves in the region. See Greenberg, *A Natural History of the Chicago Region*.

⁷ Ibid., 1.

⁸ Ibid.

According to nature study advocates, urban children lacked essential knowledge and experiences gained by contact with the natural world. If the urban industrial world represented at once material and scientific progress (everything from electricity to wireless telegraphy) it also meant corruption, greed, and wealth disparity, exploitation of workers, resource depletion and pollution. Nature stood in contrast as a pure place unsullied by humans. Through nature study, reformers and educators hoped to strike a balance in the next generation—these people could understand and protect nature but also incorporate it into their lives in the modern world. In order to do so, reformers believed children needed to learn much more about nature. The deficiencies of an urban child's development included: little knowledge of ecology, a lack of understanding the sources and processes of turning raw materials into manufactured products, any real connection with agriculture (i.e. where your food comes from), and lastly the freedom of movement and exploration to be found in open spaces. Furthermore, reformers found these deficiencies were present in rural children as well, although to varying degrees. Peter Schmitt in his study of Arcadian ideas in America stated correctly that nature study programs were not intended to make farmers of city children but he overlooked the shortcomings of rural education. Sally Gregory Kholstedt demonstrates how education reform reached out from the city to the hinterlands and how nature study programs for rural children sought to deepen understanding of the natural processes around them in a form of scientific agricultural training combined with aesthetic and creative inquiry.

According to historian Kevin Armitage, extracurricular and social clubs, such as the Campfire Girls and Woodcraft Indians were a means to ease the tensions and

incongruities of modern life.⁹ In content, rural and urban nature shared an emphasis on appreciation and respect for living creatures. In practice, rural and urban nature study programs shared an emphasis on observation and hands-on learning. Nature study in rural areas offered greater opportunity for fieldwork and teachers were trained to use the world around them. Urban nature study, on the other hand, largely took place in the classroom, parks, and museum. Today, it is perhaps taken for granted that school groups can take field trips to museums and school districts provide science materials for classroom use. One hundred years ago, few schools could bring students into the field, to museums, or had any systematic collection of science materials. Recognizing these challenges, museums took the lead in providing science materials to classrooms in Chicago.

A brief look at the histories of education and nature study reveals that prior to the Progressive Era, the intersection of the museum and the school was well supported by pedagogical trends spreading throughout the educational community and had advocates in the museum world. Teachers in Illinois formed a professional organization in the 1850s that held annual meetings. These meetings, as with gatherings of other burgeoning professions were a means of sharing best practices to discuss the newest methods. From the 1860s educators seeking to reform narrow and rigid curriculums spread Herbartianism, a German educational model based on Pestalozzian methods of engaging children through object-based sensory perception exercises. Herbartian pedagogues expanded the teachings of Pestalozzi, aiming to create a "circle of thought" through the observation of objects and the generation of connected ideas. Pestalozzi's teaching philosophy manifested in the cases of museum exhibits of the late nineteenth century that

⁹ Ibid., 3-4. See Peter J. Schmitt, *Back to Nature; the Arcadian Myth in Urban America*, The Urban life in America series (New York,: Oxford University Press, 1969) and Kevin C. Armitage, ""The Child is Born a Naturalist": Nature Study, Woodcraft Indians, and the Theory of Recapitulation," *The Journal of the Gilded Age and Progressive Era* 6, no. 1 (2007), 43-70.

focused on the objects themselves. This focus on objects as teaching tools squared well with the needs of teachers.¹⁰ Nature study, built on the Pestalozzi and the naturalist tradition turned away from a focus on the organization of nature, or taxonomy, in order to understand animal and plant life in environmental context. This focus on the context of animal life changed not only how children learned about nature in schools but how museums exhibited it as well.¹¹

By 1892, the Chicago Board of Education Superintendent was preaching doctrines of Herbartianism, commenting, “Every avenue of sense perception is open to receive a knowledge of attributes and qualities, and to determine the uses of each surrounding object.”¹² Educational psychologist G. Stanley Hall agreed with such sentiments. In his study, “The Content of Children’s Minds on Entering School,” Hall revealed exactly how little city children knew about nature. Ninety percent of his subjects had “no understanding of an elm tree or a field of wheat or the origin of cotton or leather. Sixty percent had no concept of a beehive, a crow, a bluebird, an ant, a squirrel” and so on. According to Schmidt, city children “imagined a world in which spools of thread grew on bushes, meat was dug from the ground, and cows were the size of mice.”¹³ People were no longer in tune with the rhythms of farms and woods. Hall considered this weak grasp of information about nature part of the effect of mind

¹⁰ See Conn, *Museums and American Intellectual Life*.

¹¹ Kholstedt, *Teaching Children Science*, 3.

¹² Chicago Board of Education, *Thirty-Eight Annual Report of the Board of Education for the Year Ending June 30, 1892* (Chicago: Blakely & Rogers, 1893), 37. See Jessica J. Wood, “An Emergent Museum-School Partnership: The Field Columbian Museum and Chicago Public Schools at the Turn of the Nineteenth Century” (M.A. Thesis, University of Wisconsin, 2007) and Kholstedt, *Teaching Children Science*, 8-19. The object-based learning agenda of these reformers squares with Steven Conn’s notion of an “object-based epistemology” guiding exhibition in turn of the century museums. See: Conn, *Museums and American intellectual life, 1876-1926*.

¹³ Schmitt, *Back to Nature; the Arcadian Myth in Urban America*, 78.

numbing industrial work that many Americans—native born and immigrant alike—were increasingly performing in the Gilded Age.¹⁴

Considering the results of Hall's study, progressive educators realized that their students often lacked accurate knowledge about nature. Science and nature needed to have a more prominent place in the curriculum. Nature study advocates began proposing incorporating nature lore in all schooling. Without these lessons, Peter Schmidt argued, "How could city children understand such folk expressions as 'piggish,' or 'social butterfly,' 'wise old owl,' 'early bird,' or 'slow as an ox,' when they had never seen a pig or a butterfly or a bird?" In addition, as nature study developed at the turn of the century, it included watered down versions of biology, geology, chemistry and physics.¹⁵ Museums, of course, offered the most comprehensive collections in these fields and museum people and educators alike recognized the possibilities, but museum collections remained largely unvisited by schoolchildren. By 1910 the Illinois Teacher's Association was a strong force in Illinois education and among the activities scheduled for the fifty-seventh annual meeting were visits to Chicago's museums.¹⁶

Two other important changes in the early twentieth century need brief mention here. The first was an increase in the number of secondary schools. Urban school systems began establishing high schools, and increasingly a child's education was expected to extend beyond the eighth grade. These schools helped prepare students,

¹⁴ Hall was particularly interested in the adolescent phase of human development. The conflicts and changes in society brought by the movement of people from farm to city and work from fields to factory in addition to the rise of university trained professionals and experts influenced his thinking about education, child psychology, and society. This change was part of Hall's view of the period as a sort of adolescence, a transitional period in American society as well. See Jeff Sklansky, *The Soul's Economy: Market Society and Selfhood in American Thought, 1890-1920* (Chapel Hill, NC: University of North Carolina Press, 2002), 163-170.

¹⁵ Ibid., 78.

¹⁶ Program of the Fifty-Seventh Annual Meeting of the Illinois State Teacher's Association, December 27-29, 1910, Chicago, DPGC, FMA.

many the children or grandchildren of immigrants, to enter the workforce and provided a basis for a degree of upward mobility. There were new office, clerical, civil service, and supervisory positions that required more education than most industrial jobs and high school graduates were well prepared for these opportunities. The second is the notion of professionalization in museums. As we have seen in chapter two, progressive impulses played out in the museum world as the institutions became centers of expertise. This was balanced with a democratization impulse—to reach a wide audience—but also to not seem undemocratic as experts. Along with this, progressive museum curators and directors developed professional standards. In the opening decade of the century the men and women (but mostly men) who were directors, curators, taxidermists (preparators in today's lingo), lecturers, and guides underwent specialized training in museum work and education. They formed the American Association of Museums, published journals, and organized conferences. In museums of all types, a new cohort of people supplanted gentlemen, amateurs, commercial folk, and world's fair showmen.¹⁷

During the Progressive Era, reform-minded pedagogues called for the replacement of recitation-based instruction with strategies that harnessed the curiosity of a child exploring the natural environment around them. In the 1890s, Ernest Thompson Seton, founder of the Woodcraft Indians, and author of a number of books believed that children were born naturalists. Historian Kevin Armitage explains Seton's belief in the theory of recapitulation; "as humans developed they repeated the evolutionary history of the human race. Children were thought to be like Indians: primitive people with an

¹⁷ One of the pioneers of the professionalization of museum work was Homer R. Dill, who created the first museum studies program at the University of Iowa at the turn of the century.

innate closeness to nature.”¹⁸ This concept circulated among education professionals at the turn of the century. If children’s development emulated human cultural evolution, then teachers needed to use educational materials that coincided with this so-called primitive state of development. Progressive Era educators believed that the betterment of American society lay not only in the reform of social institutions, but also ensuring young people maintained contact with nature.¹⁹ Teachers needed to take students out of the classroom and into fields, forests, and prairie to foster both spiritual development and a scientific mindset.²⁰

Likewise, Wilbur Jackman, who shared Francis Parker’s notion of the “divinity of the child,” combined ordered textbook learning with a dose of learning by doing. In the vein of John Dewey, children studied nature with both eyes and hands as well as by books and problems. Some educators looked to inspirational methods. In *How to Study Nature in Elementary Schools*, John Wilson advised teachers to “direct attention to the goodness and beauty in nature, so as to sweeten the life and enlarge the thought of the child.” Most urban educators looked to expose urban children to living things and experiences they could not otherwise enjoy.²¹ Initially, progressive educators used recapitulation to bridge modernist and antimodernist tendencies within the broader nature study movement, which by the early twentieth century defined not only school curricula but also the larger American relationship with nature, such as establishment of national parks. Recapitulation fell out of favor in the teens because new research in biology,

¹⁸ Armitage, “The Child is Born a Naturalist,” 43. Some educational theorists viewed child development in evolutionary stages and borrowed the notion of the primitive from anthropology. Some anthropologists, particularly in the late nineteenth century viewed Native Americans and other indigenous peoples as a part of nature.

¹⁹ Ibid., 44.

²⁰ Ibid., 45.

²¹ Quoted in Schmitt, *Back to Nature*, 81-83.

anthropology and psychology undermined its uses. As Armitage explains, “Without scientific justification, the ideological baggage attached to recapitulation no longer fit the needs of progressive thinkers. Educators and psychologists soon turned to other explanations for childhood behavior.”²² Subsequently, nature study manifested as the progressive response to urban industrial life and became a key component of a progressive educator’s curriculum.

While some considered nature study as “fads and frills” in editorial accounts, it became incorporated within the curricula of Chicago schools by the mid-1890s.²³ While the theory waxed and waned, it was speculated that Chicago’s school children actually had few opportunities for recapitulation through nature experiences. In fact, the notion of children as “primitives” circulated chiefly among top theorists such as Parker or Seton and not among the workaday teachers. Nor did it among the subject of this study: museum educators. The fact was that the schools had limited resources to teach natural science and had to look to the city’s parks, zoo, and museums for materials. Chicago’s natural history museums and their implementation of nature study was a mix of scientific inquiry and critical thinking. The museum-school partnerships described here offered a blend of both bucolic spiritualism and the rational modern by bringing children to nature spaces and encouraging them to observe nature but also to understand how scientists studied living things and how the natural world worked. Since most students could not have consistent (or even any) contact with the wilderness, the museum exhibit was the next best thing. What was more modern than scientifically arranged and sophisticated exhibits?

²² Armitage, “The Child is Born a Naturalist,” 69-70.

²³ “More Fads in School,” *Chicago Daily Tribune*, October 21, 1894.

Museums were an ideal resource and educational platform for adults and, increasingly, children. As Chicago Academy of Sciences secretary Wallace Atwood observed in 1912: “The progressive movement among museum workers is all directed toward children. They have demonstrated in New York and Brooklyn that this is work that the people appreciate. In Brooklyn \$175,000 have been appropriated for the building of a children’s museum. In New York, the American Museum of Natural History is directing much of its energies toward co-operation with the public schools. They established a children’s room and, in all ways that they are able, co-operated in the promotion of educational work.”²⁴

In Chicago, at the same time museum staff frequently gave lectures in schools, often accompanied by lanternslides. Frank Baker gave two lectures in a single day at the Ravenswood School. He was “surprised to see the amount of knowledge shown by the youngsters in bird study and I was very much pleased to see the enthusiasm with which the teachers and children greeted me.” Despite the pleasant reception, Baker “felt like a used-up dishrag. The giving of two lectures, one after the other with an intermission of only ten minutes is the most exhausting thing I ever attempted.” Then he returned to the office to find more requests for bird lectures and loans of specimens. “Now that we have started this thing,” he wrote, “there is no knowing where it will end and I fear that for some time it will be good bye to museum work.” It was good work, he conceded, “and seems to be placed at our door and the responsibility must be met.”²⁵ But how to better meet this responsibility?

²⁴ Wallace W. Atwood to Albert Dickinson, January 2, 1912, WA Correspondence, CAS.

²⁵ Letter, Frank C. Baker to Wallace W. Atwood, January 9, 1909, FB Correspondence, CAS.

In 1910, Wallace W. Atwood proudly proclaimed: “The Academy has entered upon a policy of co-operation in all ways within our power in the promotion of the nature study and science work of the schools. It is not our intention to interfere in any way with the work now in progress but to assist the teachers wherever we can. It is in that spirit that the Academy is offering the courses for the teachers, the young people’s courses, the illustrated lectures at the schools, the Friday evening popular lectures and the loan collections. It is our desire to know just what assistance the teachers and the principals want in the promotion of science work...”²⁶

4.2 Chicago Academy of Sciences

The Chicago Academy of Sciences offered some resources for teachers and students ever since its doors reopened to the public in 1893.²⁷ In Lincoln Park, the Academy was in a prime position to educate the general public as well as reach local schoolchildren. Located near the museum was Lincoln Park Zoo, also open without an admission fee, and several Northside schools including Waller High School (Lincoln Park High School today). Despite limited staff, the Academy cultivated relationships with Northside schools and promoted nature study curricula in several key ways. They loaned lanternslides and duplicate study specimens (mostly bird skins and shells) and Academy staff provided lectures in schools, clubs, and churches. Loans to schools became a mainstay of the Academy’s education programming but the development of suitable materials was slow because of the small staff. The museum had only four full-time employees and education materials were only a small part of their duties. Under the

²⁶ Letter, Wallace W. Atwood to William C. Dodge, District Superintendent Public Schools, February 9, 1910., WA Correspondence, CAS.

²⁷ For a general history of the Chicago Academy of Sciences, see Hendrickson and Beecher, "In the Service of Science."

direction of the Curator, the museum aid, Emil Youngren (in the early 1900s) was responsible for creating and organizing the materials. He aided the taxidermist, Frank Woodruff, with the mounts and accessories and then proceeded to craft each display case himself. By 1910 the Academy had about ninety items in their dedicated loan collection including single mounts in cases in addition to bird skins, shells, rocks, fossils, and lantern slides. A contemporary report noted that “thirty seven schools have made somewhat systematic use of these collections and during the year one-hundred sixty-nine such loans have been made. Through the use of these collections 1,440 museum specimens have been loaned to the schools.”²⁸

Since the turn of the century, the Chicago Academy of Sciences offered these materials without charge for teachers and principals on a first-come, first-served basis. For instance, Margaret C. Young a Geology instructor from Hyde Park High School, wanted to borrow lanternslides and other materials “illustrating various features of nature study.” She also wanted geology materials for her economic geology class demonstrating how minerals from the earth can be used in manufacturing. Young desired a loan from the Academy because she “is having difficulty in bringing into the laboratory material for study.”²⁹

However, the museum staff could not provide transportation and so teachers had to transport the materials themselves. Teachers in nearby schools frequently sent students to pick up lanternslides and specimens. A teacher from Robert Emmet School, sent: “The bearers of this note, Masters Edde [sic] Howland and Emerson Walker, will bring out the bird specimens which you find you can loan us. Should there be too many for them to

²⁸ 1910 Secretary’s Report, Chicago Academy of Sciences, Administrative, CAS.

²⁹ Letter, Margaret C. Young to Frank C. Baker, November 6, 1911, FB Correspondence, CAS.

carry, someone will call on the others tomorrow morning. The boys want to look around the Museum and Park- If you kindly tell them what hour the specimens will be ready they will return for them.”³⁰

Of course relying on teachers and especially students to carry fragile museum materials by streetcar, elevated train, and foot was not the best arrangement. It wasted valuable time and placed the materials at risk of theft and damage. This occurred infrequently, but still prompted concern when it happened. Frank Baker noted:

I wish to call your attention to the condition of one of our loan collections which was returned to us on the 28th of September.... The box of specimens was in good condition when it left the Academy, but when it returned, the six specimens were loose in the box, no attempt having been made to replace them in the positions indicated in the directions... I wish you would caution your teachers in regard to the use of the collections. They are, on no account, to be handled by the pupils as they are delicate and the children have not been taught to handle this type of material.... I do not wish to be hard on the teacher who borrowed the collection but I must say that the condition of this collection when received at the Academy was the worst I have ever seen. While it is our desire to aid in furnishing material to the extent of our ability, we cannot do so if the specimens are not received with the unnecessarily severe usage that was accorded this collection. It may be that the children who brought the box to the Academy are at fault, and if so, they should not be allowed to carry collections in the future.³¹

Teachers, principals, and students enjoyed learning from these cases. The Academy’s loans proved to be a popular learning tool: “I want to express to you my appreciation of the help you have given me in the class work,” wrote Charles Heath. “The seeds and plants which you have sent have been very good and I am sure the children have been very interested in them. It is gratifying to see how anxious they are to learn the life history of our common food plants. Each one takes a little handful home and they have them growing in their window boxes. Of course, I do not know just how much value these lessons will have in the lives of the children, but at any rate, they are

³⁰ Letter, Minerva L. Spacer to Frank C. Baker, May 13, 1904, FB Correspondence, CAS.

³¹ Letter, Frank C. Baker to Miss Minnie M. Arnold, Principal, Ole A. Thorp School, October 5, 1910. FB Correspondence, CAS.

learning that there is a free, wholesome life open to them in the country.”³² Heath’s letter suggests that many urban children did not imagine what life was like beyond the city. They could not conceive of open spaces, vistas, quiet, and fresh air. After all, the balance of population was shifting away from rural to urban and opportunities for work, business success, or education were found in cities, suburbs, and towns and not on farms or in the woods. The likelihood that these children would move to the country was slim, but it was possible they would someday visit the woods or the country for rest and recreation.³³

The Academy kept tabs on the materials loaned to schools to ensure the materials were in good condition and were of use. A circular distributed in 1912 informed principals of a special loan exhibit, entitled “Birds Weathering in Chicago” that was “on exhibition at seventeen schools and has now been called in to await another appropriate season when we again expect to place it in the schools. The exhibit was prepared and delivered to the schools at considerable expense, and is an experiment in museum extension work.... I wish to ascertain how many children have had the advantage of seeing this exhibit in each school, and to learn from you or from your teachers of the effectiveness of this special exhibit. If any special arrangements were made for using this or making it of special educational value in your school, I shall be pleased to know of those plans.”³⁴

The educational value of the Academy’s school loan cases was determined by informal feedback given by teachers and principals but also by the level of demand for

³² Letter, Charles A. Heath to Frank C. Baker, April, 9 1912, FB Correspondence, CAS.

³³ It is no coincidence that the formation of national parks in the West such as Yellowstone prompted businessmen to open lodges, hotels and restaurants nearby, and railroads advertised services to the parks. Most of these trains departed from or connected to Chicago.

³⁴ Letter, Wallace W. Atwood to Etta W. Gee, Principal, Franklin School, April 22, 1912, WA Correspondence, CAS.

materials. The constant requests from schools for loans of Chicago area specimens and materials prompted a reassessment of the Academy's museum, its exhibits and its mission. In 1912, Secretary Atwood informed newspaperman Walter Evans that "Thousands of children and teachers are reached each week by our educational courses and museum loan collections. The museum is being thoroughly rearranged from the educational point of view."³⁵

Meanwhile, Dr. Herman S. Pepoon, a medical doctor turned science teacher from Lake View High School, began to offer a series of nature study courses at the Academy (essentially an extracurricular program) consisting of three courses of six lessons. Space, in physical terms and in the number of pupils, was limited to fewer than fifty students per lesson. Classrooms elected delegates from among their peers and these delegates went to Pepoon's classes. Upon completion of the lesson, they reported back to their classmates. The program was popular because it was "a unique and very effective way of introducing new material into their nature-study lessons at the schools. The child making the report has a special opportunity to present to his, or her, classmates something that is new and fresh, and the attention which the child delegate receives is often much better than the teacher could expect to have."³⁶ The problem with this program was the small size of the Academy, small staff, and very limited funds prevented expanding the courses.

In the 1910s Doctor Pepoon volunteered his time to give informal conferences to teachers and these were so well attended, the Academy established a regular program. Offered free of charge, the courses were geared toward individual subjects or grade levels. So many teachers came that they overwhelmed the capacity of the facility and the

³⁵ Letter, Wallace W. Atwood to Walter M. Evans, *Chicago Record-Herald*, January 31, 1912, WA Correspondence, CAS.

³⁶ 1910 Secretary's Report, Chicago Academy of Sciences, Administrative, CAS.

Park Police enforced fire code restrictions. Teachers from all corners of the city wanted to attend these sessions. Such was the interest and demand for education resources. Later arrangements were made with the University of Chicago and the Art Institute so that Pepon's could reach larger audiences. Over 2,000 teachers attended a course in the Art Institute's Fullerton Hall. Another series was held at the Libby School on the southwest side to reach teachers there. The Academy lamented the limitations of its facilities and resources; "There seem to have been so many gaps, so many places where we may fit in, and the regret is that we have not better facilities at the building and a larger force who many put their personal efforts into the promotion of science work among the young people and teachers of the city."³⁷ Nevertheless, the Academy was pleased with the effectiveness of this work and sought to continue to do as much as possible.

4.3 A Children's Library

In addition to school loans, and nature study courses, the Chicago Academy of Sciences established a children's science library. The Academy's formal scientific library, which consisted mostly of journals and periodicals, was moved downtown to the John Crerar Library, where it could be properly managed and housed.³⁸ The general nature and children's books remained at the Academy and a small room was set-up for the use of schoolchildren and teachers. This was not a lending library per se, but one in which children could consult books to aid them with school projects or simply satisfy

³⁷ Ibid.

³⁸ The John Crerar Library was housed in the Marshall Field Building until 1921 when it moved into a building on the corner of Randolph Street and Michigan Avenue. In 1984 the Crerar library relocated to a new building on the University of Chicago campus. See: Jane Aikin, "John Crerar Library," <http://www.encyclopedia.chicagohistory.org/pages/348.html>. Accessed September 1, 2016.

their own curiosity. This was significant because at the turn of the century, access to good books by the general public, especially about science, was often limited.

Chicagoans had better access to libraries than most Midwesterners, and this focused collection on science and nature was special. While the exhibits and guide lectures did most of the teaching, these books served as a means for children to extend their enquiries with the expertise of books. Most of the children who used the materials came with school clubs on the weekend and in the summer. When the first collection was made available, the Academy was pleased with the initial response. Secretary Atwood reported: "The Children's Library is a great success. It is usually filled to its capacity in the latter part of the afternoon and on Saturdays when the children are free from their school duties and wish to read. The children are coming from the schools with definite assignments to look up in the library... and the teachers are coming to look upon the library as a distinct help to them."³⁹

There was concern about theft and vandalism but according to Charles Hills, "the average child visitor is good [emphasis in original], and it is very evident to the writer that the Library is sowing good seeds. There is a shrinkage in the inventory of Books [sic], very small, but constant, this cannot be avoided unless we have an attendant charge all the time."⁴⁰ Most children fit Hills's definition of a respectful visitor that is to say they did not steal or vandalize books and materials and they were studious and generally well-behaved. There were troublemakers who stole from the library or disrupted other visitors but these were, by all accounts, a minority of children who came to the library and museum (or adults for that matter).

³⁹ Letter, Wallace W. Atwood to Mrs. Albert Dickinson, October 15, 1912, WA Correspondence, CAS.

⁴⁰ Letter, Charles F. Hills to John M. Coulter, December 4, 1916, CH Correspondence, CAS.

Under the careful direction of Grace Harsch, the reading room and library grew into a valuable resource even if the collection grew very slowly. In fact the library saw few additions to its collection that a donation of two hundred books from the Chicago Public Library in 1939 amounted to an overwhelming revitalization of the collection.⁴¹ Many of these books were dated and did not explain the latest scientific theories and nature studies, but were well suited to the task and were much more current than the older volumes in the library. The lack of current books and journals for the scientists was a problem for some. At the time, the library's use by the staff was limited and a major complaint of Director Howard Gloyd in a 1940 missive to the Board of Trustees in which he nearly threatened to resign. In Gloyd's opinion, the earlier removal of books and journals to the John Crerar Library was a mistake.

In addition to the children's library and school loans, the Chicago Academy of Sciences encouraged teachers to bring students to the museum. The nearby grade schools were frequent visitors because of the proximity to the museum. While consistent, precise records were not kept of visitors, classes of twenty-five students or more frequently came to study the exhibits.⁴² In 1910 alone, eighteen classes visited the museum with their teacher and some 3,000 students were believed to have come through the doors. The schools were able to send classes during the usual school day, but some came later in the afternoons or on weekends. For schools further away (i.e. carfare required), weekend or after school visits were more common, especially for younger students, but advanced

⁴¹ Chicago Academy of Sciences, *Report of the Director for the Years 1938-1939*. Publications, CAS.

⁴² The lack of data kept on this score is mentioned in various reports. For instance, the Secretary's report for the year 1923, states "The attendance of visiting classes from the public, private and parochial schools, in the study of Natural History, would doubtless, if records were made, show a substantial increase on any preceding year. Some classes enter, and leave the building quietly, while others enter with loud shouts which are increased as the scholars see the exhibits in the Lobby." Secretary's Report, 1923, Administrative, CAS.

students from as far away as suburban La Grange High School visited during the weekday. Students from parochial and private schools also attended the museum in school groups.⁴³ Regardless of the distance traveled, teachers and students alike found these excursions educational and fun. All of the grade levels made use of the Academy, but junior high and high school students were the most numerous. Teachers were excited by the possibilities the Academy gave them. Clarence Holtzman from Waller High School wrote:

In the few years now that the Academy has been reaching the school children through the splendid classwork... It has resulted in my getting a group of pupils in Biology who are wide awake and taking an active interest in science. I have often met the remark- "I know something about that. I learned that at the Academy when I was a delegate there." I think it is a misfortune that the work for the schools has been restricted; for as my location has made it possible, I have made unlimited use of the exhibits at the building with my classes. I can feel sympathy for the schools farther away.⁴⁴

Schools farther away did make use of the Academy, despite the distance. When Margaret Young sought to bring her students north from Hyde Park, she was assured that the Academy "will do all we can to make the trip valuable to the class. I would suggest, however, that in order to make it most valuable, you should come alone a few days before you bring the class. You can look over our material and select just those cases and specimens which you want the children to see. A number of teachers have used the museum in this way and made out lists of questions that the children use on their visit. This gives definitiveness and uniformity of purpose in the study."⁴⁵

On weekends, nature study clubs, teachers, parents and children came to hear talks at the museum. Secretary Wallace Atwood recalled one visit: "The little children

⁴³ 1910 Secretary's Report, Chicago Academy of Sciences, Administrative, CAS.

⁴⁴ Letter, Clarence L. Holtzman, Waller High School, to Wallace W. Atwood, February 14, 1914, WA Correspondence, CAS.

⁴⁵ Letter, Frank C. Baker to Mrs. Margaret C. Young, Instructor in Zoology, Hyde Park High School, September 7, 1911, FB Correspondence, CAS.

came to the Academy last Saturday morning and I never spoke to a more delighted audience... A number of parents accompanied their children and several of them spoke to me in the highest terms of praise of the project which we have carried through. One remarked that such a prize won by a little child would mean a life long interest in birds, and one mother from the village of Blue Island, who came with her little boy asked whether she would be permitted to bring her child to some of the classes at the Museum for he had no opportunity for instruction in nature-study and she realized she could not expect the teachers to bring them that distance. Other parents from the North Shore suburbs asked if we could not extend the work of the Academy beyond the city limits so they might take advantage of it.”⁴⁶

Just what kind of lessons were children learning? Let’s look at some museum slips, or worksheets (dated 1905) from the Chicago Academy of Sciences to find out. The lessons draw upon the broader departments of zoology, botany, and geology and reflected the beginnings of change in educational philosophy from rote memorization to critical thinking. A zoology sheet posed questions of the Duck Mole: “How do front & hind feet differ?” and to identify bird-like features and mammal-like features of the specimen. The assignment also asked questions regarding a Giant Kangaroo, Armadillo, Bottle-Nose Dolphin and a Manatee. After careful examination of the specimens a student was expected to understand how the animals lived by identifying the characteristics of eyes, teeth, limbs, and habitat.⁴⁷ The second sheet in the series compared the habitat and relative size of a “caste of characters” made up of Ungulata

⁴⁶ Letter, Wallace W. Atwood to La Verne W. Noyes, June 16, 1911, WA Correspondence, CAS.

⁴⁷ *Museum Slip (Mammals) No. 1, Adapted to the Chicago Academy of Sciences for 1905*. Printed Material-Exhibits Related-Academy Education 1905, undated. The Peggy Notebaert Nature Museum of the Chicago Academy of Sciences Archives (Exhibits, CAS).

(hooved mammals). Students were asked to fill out a chart with the information and then answer more detailed questions such as “How do the horns of #10 male and female differ” and “How many vertebrae in the neck of #12?”⁴⁸ Worksheets for rodents, primates, and carnivores required similar observation skills. As we can see, the questions asked of mammals sought to underscore powers of observation by careful examination of the physical features of each animal but also to make connections between the characteristics and the ways in which the animals lived.

The Academy had a large collection of invertebrates on display and the museum study guide directed students to a series of cases containing mollusks, Echinoderms, and Coelentera. Questions here range from physical characteristics; “How do they [sponges] differ in color and apparent texture?” to habitat; “In how deep of water was the Basketfish?” and relationship with other organisms; “Is the boring sponge, the oyster’s friend or enemy?”⁴⁹ Students were asked to draw the specimens on display and to make visual comparisons. The Academy’s museum study series focused on the strongest collections and thus most of the sheets concerned invertebrates, local birds, fish and reptiles. Regardless of the topic at hand, the assignment was expected to take an hour or so and several sheets ensured students were prepared to face a separate quiz at the end of the lesson.⁵⁰

The reader should note that these questions pointed to animals arranged in contextual displays such as habitat dioramas and the questions were directed toward identifying the features of the animals and making connections among specimens in the

⁴⁸ *Museum Slip (Mammals) No. 2 Order VI Ungulata*, Exhibits, CAS.

⁴⁹ *Bulletin Z No. 2. Museum Study Sponges, Coelentera, Echinodermata*, Exhibits, CAS.

⁵⁰ *Bulletin Z No. 11. Museum Study of Sponges and Coelenterates*, Exhibits, CAS.

case. The arrangement of specimens was designed to show the physical differences between individuals as adults, juveniles, and seasonal coloration. If visitors saw families in the groups they did so because it reflected the social arrangements of their home and community.⁵¹ Visitors had (and still have) great power to shape their own meaning from museum displays. Visitors took pleasure in learning by making connections, as one woman wrote: “I had a most interesting time with the mounted animals and birds in the museum. Do you remember having seen the specimens of squirrel monkey which is down there? I always had a suspicion that gammins [sic] and red squirrels were closely related and now [emphasis in original] I can trace the evolution.”⁵²

By the end of the Progressive Era, the value of museum materials inside and outside the classroom was clearly recognized by educators and the burgeoning museum professionals alike. Indeed such connections were becoming commonplace. Perhaps no commentary better sums up the work of the Academy and the schools than this letter from Principal A.O. Coddington to the Academy. Noting the value of museum work he wrote: “If in our elementary grades, we can do no more than to arouse an interest in nature, establish in the child’s mind the scientific point of view, and the habit of observation with even a limited power of drawing conclusions based on observed facts, we have done a great deal.... A body of first hand knowledge may be given that otherwise the city child may never get.”⁵³ The manmade city was too artificial and contrived for nature study.

Coddington continued; “The value of your exhibits for this work cannot be over

⁵¹ Sometimes the family grouping was deliberate as in the case of three grizzly bears exhibited in the Field Museum. See Asma, *Stuffed Animals and Pickled Heads*, 223-224.

⁵² Letter, Mary C. Judd to W.K. Higley, September 29, 1903, WH Correspondence, CAS.

⁵³ Letter, A.O. Coddington, Principal of Stewart School to Charles F. Hills, December 8, 1921, CH Correspondence, CAS.

estimated. There is the same opportunity... to observe, compare, and to draw conclusions... that there is in dealing directly with nature. In some respects the exhibits are better...many trips would have to be made to collect the information conveyed in any one exhibit. There may be some loss in the matter of the aesthetic side of contact with nature, but even in that the artistic setting of the animal and bird life which you have approximates in its appeal the work of a painter.”⁵⁴ The Academy’s exhibits—especially the habitat dioramas—gave visitors an experience parallel to nature itself and a substitute for trips to nature preserves or national parks that were too far away or expensive to travel to.

Because the Chicago Academy of Sciences was located in Lincoln Park it positioned itself as an educational partner of sorts with the Lincoln Park Zoo. Neither institution had a formal relationship on this score, but each encouraged visitors of one to venture into the other. The zoo offered living specimens of large mammals that amused visitors in ways even the best habitat dioramas could not, while the zoo enclosures lacked the accurate ecological context for the animals, and their playful antics, sounds, or poses certainly encouraged visitors to gawk but not necessarily to observe and understand ecology, habitat loss, or conservation. Unlike the stoic taxidermy in the museum, the zoo’s animals were alive. Yet, zoo animals then, as today, are often out of view.⁵⁵ Visitors were kept at a distance. In the museum, visitors walked up to the case and looked eye to un-seeing eye at the animal. One could get a sense of the size and character of the creature that was always visible. Children were undoubtedly drawn to both institutions and they remain essential as animal ambassadors sending messages of

⁵⁴ Ibid.

⁵⁵ In the zoo, animals are frequently resting or otherwise obscured.

compassion for animals or concern for habitat devastation.⁵⁶ Much like their twenty-first century counterparts, turn of the twentieth century visitors generally could not spend time at both institutions on the same day and they had to choose to go to one or the other.

Whether traveling as a family, club, or school trip, teachers and students devoted one day to the Academy and another to the zoo. One certainly could not visit both of Chicago's natural history museums in a single day.

4.4 Field Museum

When the Field Columbian Museum opened in 1894, it was most convenient to Hyde Park residents and to the new University of Chicago. Many of the visitors to the museum in its early years were Southside residents and curious tourists. The location limited its attendance, as did its relative isolation from major transit lines in the city. The Columbian Museum was particularly inaccessible to many of the city's students and teachers. Museum officials lamented the situation and embarked on plans to move the institution to a central location. Director Frederick J. Skiff understood that location was a key to the success (in terms of attendance, institutional growth, and fulfillment of educational missions) of other major museums such as New York's American Museum of Natural History (Central Park) and Chicago's Art Institute (Grant Park). In the minds of the Columbian Museum, its ideal home was next to the Art Institute, an idea later echoed by the Burnham Plan of 1909 that envisioned a grouping of cultural and civic institutions in Grant Park. The central location was theoretically, at least, accessible to everyone in the city.

⁵⁶ For a brief history of Lincoln Park Zoo see Mark Rosenthal, Carol Tauber, and Edward Uhler, *The Ark in the Park: The Story of Lincoln Park Zoo* (Urbana: The University of Illinois Press, 2003).

Such plans would take time and the museum did the best it could in Jackson Park. It began to offer lecture programs at the museum and various venues citywide for adults and children. Lanternslide presentations were particularly popular and the talks ranged from anthropology to zoology, but frequently included presentation of topics about local natural phenomena. These presentations were in line with nature study and encouraged the audience to observe local animals and plants.

Even before the Field Columbian Museum formally opened, museum officials envisioned some kind of partnership between it and Chicago's public schools. Many of the women and men involved with the Columbian Exposition were now involved with the museum. The Exposition's managers had noticed that a number of students used the fair as a learning environment. The Chicago Board of Education reported that the Exposition was used "to make real the things which had been formerly known only by written descriptions."⁵⁷ The teachers "appreciated the fact that this was the opportunity of a lifetime for the pupils to study products, manufactures and inventions, the habits and characteristics of the nations of the earth."⁵⁸ The *Chicago Daily Tribune* noted that three hundred and fifty thousand public school students visited the fair during an October week in which schools were dismissed so that students could see the fair. Museum administrators assumed that the public schools would be equally attracted to the Exposition's successor. Skiff worked with the Board of Education to arrange free admission for public school students and teachers for the 1894-1895 school year. Despite

⁵⁷ Chicago Board of Education, *Thirty-Ninth Annual Report of the Board of Education for the Year Ending June 30, 1893* (Chicago: Geo. K. Hazlitt & Company, 1894), 50.

⁵⁸ Ibid.

this arrangement, he reported disappointing admissions for all classes of visitors and a "special decrease in the attendance of schoolchildren and students."⁵⁹

The use of the Columbian Museum by students did not emerge as museum officials hoped. What was the problem? Skiff explained that "the emphatic cause is that people who the first year visited the Museum under the impression that it was a miniature World's Fair, have discovered their error... being uninterested in the real scope of the Museum."⁶⁰ His assessment was one part of the problem. The Columbian Museum inherited, but also purchased, a mixed bag of exhibition materials. Its scope was broad, yet lacking in coherence and unity. To be of the most educational value, the museum needed to focus on natural history and lose the Columbus sculptures, mining apparatus, and railroad cars. However, as we shall see, the main reason for the paltry student attendance, it turns out, was not the collections, but distance.

In 1896, Board of Directors President Harlow N. Higginbotham hatched a scheme to encourage public school students to visit the museum. He received support from Samuel M. Inglis, Illinois Superintendent of Public Instruction, to offer a series of prizes for essays written by students who studied exhibits, arguing that cooperation would result in "making them more familiar with the wealth of its scientific treasures, and inspiring them to a broader knowledge and a higher culture."⁶¹ Skiff supported the effort and was hopeful that "it will lead to a higher appreciation of the aids which the Field Columbian Museum offers for the education of the children and youth in our public schools, that it

⁵⁹ Field Columbian Museum, *Annual Report of the Director to the Board of Trustees for the Year 1895-1896* (Chicago, Field Columbian Museum, 1896), 111.

⁶⁰ Ibid.

⁶¹ Field Columbian Museum, *Annual Report of the Director to the Board of Trustees for the Year 1896-1897* (Chicago, Field Columbian Museum, 1897), 197-198.

will arouse in their minds a deeper interest in the collections of the Museum."⁶² On May 20, 1897 the *Chicago Daily Tribune* announced Higginbotham's essay contest and a pot of three hundred dollars' worth of prize money for winning essays to be judged by a committee of curators and teachers.⁶³

The contest required students to describe the method of installation as well as the content of exhibits and collections of interest to the student. It also required that the essays "consider the value of special collections therein found, or of the Museum as a whole as aids to education," thereby encouraging teachers and students alike to appreciate the instructional value of the institution.⁶⁴ The press revealed the prizewinners on December 24, 1897. Students from eighteen public schools were awarded prizes ranging from five to fifty dollars each, but the majority of the winners attended a nearby high school.⁶⁵ The contest increased the number of free admissions by 3,000 and the total number of visiting students rose from 4,922 (1895-96) to 8,381 (1896-97).⁶⁶ But enthusiasm waned and without continuing the contest (and the pecuniary incentive) the number of student visitors fell. In 1898 the total admissions of students dropped to 6,128 despite Board of Education claims that teachers and students were using the Field Columbian Museum as "aids in their work" and that "the collections are made an

⁶² Ibid.

⁶³ "Field Museum Prize Essays," *Chicago Daily Tribune*, May 20, 1897.

⁶⁴ Field Columbian Museum, *Annual Report of the Director to the Board of Trustees for the Year 1896-1897*, 197.

⁶⁵ The winners were from Englewood High School, which at the time served a largely working-class community of German, Irish, and Polish descent. See: Clinton E. Stockwell, "Englewood" <http://www.encyclopedia.chicagohistory.org/pages/426.html>. Accessed October 1, 2016.

⁶⁶ Field Columbian Museum, *Annual Report of the Director to the Board of Trustees for the Year 1896-1897*, 202. See Field Columbian Museum, *Annual Report of the Director to the Board of Trustees for the Year 1895-1896*, 116.

objective study."⁶⁷ However the reality was rather different. The distance and cost of travel was a significant factor that limited attendance and when classes did go, the students (much as they do today) placed their own agendas in the museum before that of their instructors'.

In a 1905 address before the National Education Association (NEA), "The Uses of Educational Museums," Skiff advocated the diffusion of knowledge through the medium of the traveling museum remarked that:

While the advantages offered by the Museum seem to attract a large attendance each year, yet the number of public school children that find their way into the Museum under all circumstances is very small compared with the number of school children in the city of Chicago, as shown by the school census. The fact appears to be, that the schoolchildren being taken from their routine, and transported in a body to another, and often unfamiliar, part of the city and to a public park, to a museum, insensibly to consider the expedition in the nature of a holiday, and the benefits conferred are rather of a temperamental than an educational character.⁶⁸

In other words, a trip to the museum for the students was more of a fun day out of school and not taken seriously as part of their schoolwork. The museum tended to be more of a distraction because it was a new setting for the class to meet but also because museum staff, teachers, nor students used its exhibits to the fullest educational potential.

In addition to a more central location, Skiff's solution to this problem was to bring the museum into the classroom. He suggested, "If, on the other hand, small representative specimens from the museums, accompanied by a prepared paper on the collections, which the teacher may read, should at stated intervals be sent to the different public schools, and introduced as a part of that day's study exercises, it seems to me that the benefits are likely to be multiplied many times, and the impressions— the

⁶⁷ Chicago Board of Education, *Forty-Third Annual Report of the Board of Education for the Year Ending June 25, 1897* (Chicago: John F. Higgins, 1897), 82; Chicago Board of Education, *Forty-Fourth Annual Report of the Board of Education for the Year Ending June 30, 1898* (Chicago: John F. Higgins, 1898), 72.

⁶⁸ Quoted in, S.C. Simms, untitled manuscript, n.d., Harris Extension Papers, FMA.

instruction— will be received with more intelligence and greater hope of permanency."⁶⁹

Without loan collections, teachers needed to bring their classes to the museum or, as in the case of a teacher from Oak Park provide students with descriptions of exhibits to aid their studies. Not surprisingly, this was not as effective as viewing the displays in person.⁷⁰ Something better needed to be done.

4.5 Norman Waits Harris Signs a Check

In 1906, the institution reorganized and renamed itself Field Museum of Natural History and attempted to relocate but was embroiled in a bitter legal fight against Montgomery Ward and his allies who sought to enforce a legal prohibition against building anything permanent in Grant Park. As part of the legal struggle, the Field Museum vigorously expanded public programs, such as free lectures, and more free admission days to prove the educational and civic value of the institution. By 1911 these programs caught the attention of banker Norman Waits Harris. Like many other wealthy men of his age, Harris embraced cultural philanthropy as a means to give back to the city and the people who built his wealth. He was also serious about education and had a personal interest in nature.⁷¹

Perhaps like students today, Harris understood that “to certain children study is a drudgery and school work toil, and they grow up in opposition to established rules and a compliance with them.” If students were introduced to engaging lessons, particularly those through objects, “the habit of acquiring knowledge is like any other habit in that it is more likely to become permanently established if its acquisition can be made attractive

⁶⁹ Ibid.,2.

⁷⁰ Letter, Katherine J. Kenege to Field Museum, October 1, 1909, DPGC, FMA.

⁷¹ Ibid.,3.

and pleasing.”⁷² Harris’s thinking was in line with progressive educators in that learning could, in fact, be fun (or at least not drudgery). The effectiveness of object teaching rests in the idea that the material items, be they natural or man-made, connect to the lessons in the books and make it real. In this way, natural science literally and figuratively comes to life when students encounter nature in parks, woods, fields, and around the home.

Harris approached the Field Museum with an offer: he would give them a \$250,000 endowment for the establishment and maintenance of a Public School Extension" under the provision that its name would remain "The Harris Public School Extension of the Field Museum," and with the stipulation that the accrued interest be used "exclusively for the establishment and maintenance of such extension and kept in the Harris Trust and Savings Bank," and the Board of Education and Museum agree upon the use of the extension.”⁷³

The board of trustees agreed to Harris’s terms and established a committee to design and implement an education program that would benefit local schools and the museum. This committee included museum curators, teachers, principals, and scientists. Several ideas were proposed but the winning concept was an innovative school loan system that would combine the best of nature study and science curricula with museum exhibition. They sought advice far and wide, but inexplicably, did not confer with the Chicago Academy of Sciences. One can only speculate as to the omission: either the committee were all well aware of the Academy’s activities and it did not warrant a

⁷² Ibid., 4.

⁷³ N.W. Harris to the Board of Trustees of the Field Museum of Natural History, December 25, 1911. Harris Public School Extension Papers: The Field Museum Archives. This original endowment was augmented several times by other donations from the Harris family including an additional \$125,000 by his estate. See also: Field Museum of Natural History, Resolution by the Board of Trustees, August 14, 1916, Harris Extension, FMA.

detailed report; or the Academy's program was deemed too insignificant (or too much of a competitor) to notice.

Exclusive of the Academy's efforts, there were other loan programs in other cities. The Commercial Museum in Philadelphia, for example, prepared and distributed seven hundred specimens. These were economic and commercial raw products of the world such as grains, fibers, oils, seeds, minerals, etc., most donated by manufacturers or obtained from world's fairs. The materials were "accompanied by all information which is necessary for ordinary work in the elementary school." Photographs accompanied the specimens to show the growth patterns or origin of the different materials and the process of preparation and manufacture. The museum received funds from the state to prepare and circulate the loans and thus materials were distributed throughout Pennsylvania and put to good use by teachers and students.⁷⁴

The nucleus of inspiration came from St. Louis, where the school district—not a museum—operated a loan system for science teachers that already included lanternslides, equipment, and portable exhibit cases. A central dispatch center distributed the materials to the schools upon request by a delivery truck.⁷⁵ The school board secured donations of materials from the St. Louis World's Fair exhibitors in addition to museums and government agencies.⁷⁶ The committee's plan entailed something similar, except rather than being run by the Board of Education, it would be the work of the Field Museum.

They thought this was a better option because the museum could provide superior

⁷⁴ Memorandum, S.C. Simms to F.J.V. Skiff, January 3, 1913, Harris Extension, FMA.

⁷⁵ The Harris Extension was loosely modeled on a loan system operated by the St. Louis Board of Education. Like the Columbian Exposition, the Louisiana Purchase Exposition of 1904 in St. Louis, also was a venue for education. At the close of the fair a number of exhibits were donated to the school district for an "educational museum." Rather than on-site exhibitions, the materials were transformed into traveling exhibits. A central office fabricated and dispatched materials for the local schools. For a brief history of this program, see: James A. Allen, "Bring the world to the child," *TechTrends* 58, no. 3 (2014, May/June), 8; S.C. Simms, "The N.W. Harris Public School Extension of the Field Museum of Natural History," (Chicago: The Field Museum of Natural History, n.d.).

⁷⁶ Memorandum, S.C. Simms to F.J.V. Skiff, January 3, 1913, Harris Extension, FMA.

materials and expertise to develop the exhibits. It also bypassed the board's physical or financial resources and avoided any need to raise funds in the future. The Harris bequest and the museum would cover all of the costs (materials, labor, and time) involved.

Among the committee's recommendations for carrying out the work of the Harris Extension was ensuring that the program was available for use by the elementary schools because they hosted a greater number of pupils and had fewer science resources than the high schools. Indeed, the elementary schools had nearly exclusive access to the loan materials until 1920. The committee suggested that elementary school teachers could use the collections not only to supplement nature study and ecology, but also English, economics, geography, history, drawing and modeling. They identified course-related collections to be developed for the Harris Extension by each of the four departments at the Museum—zoology, botany, geology, and to a lesser extent, anthropology. The collections included an informative pamphlet to aid teachers using the resources and it was recommended that teachers be trained to use the Extension through the Chicago Teachers' College and that Teacher Institutes be arranged through district superintendents.⁷⁷

The committee desired an individual with curatorial experience to head the new department and recommended that "he be a thorough educator and familiar with both school and Museum work, have business training or ability and be in every respect fully capable of supervising and carrying out the details of the extension work."⁷⁸ The museum chose S.C. Simms, then Assistant Curator of Anthropology, to be the curator of the Harris Public School Extension, a position he held for nearly twenty years. Simms was a

⁷⁷ Committee on Distribution of N.W. Harris Fund to Board of Trustees and Director of the Field Museum of Natural History, June 17, 1912, Harris Extension, FMA.

⁷⁸ Ibid.

passionate believer in museum education and in the power of sophisticated displays to teach people about nature and science. He was a true museum man and among the ablest administrators—skills and experience that would later elevate him to the museum's directorship.

Simms oversaw a small staff dedicated solely to the Harris Extension that created the exhibits and the cases. Simms worked closely with curators and scientists in each department to ensure that the best specimens were acquired and labels were accurate. The department was allocated "work rooms and distributing offices," and the material "shall be prepared in such manner that it can circulate from school to school rather than form a permanent exhibit in any school," and that deliveries would be made "each of the five schooldays of the week" upon reservation by phone or mail, through the principal.⁷⁹ The loan system changed in response to demand and resources during this period but always on the premise that the cases would be rotated among the schools. Originally, the loan period was two weeks but in 1917 it was extended to three weeks. Each school was assigned to one of four sections and the cases rotated within sections. When the first section was done, the case moved on to the second section, whilst the fourth section's case moved to the first. This was done to allow classes more time with the exhibits but also to maintain a reliable schedule. The delivery truck was fitted with a special rack system to easily accommodate the very sturdy, but eminently transportable exhibits. A second delivery truck was purchased in 1919 to better facilitate deliveries.⁸⁰

⁷⁹ Ibid.

⁸⁰ S.C. Simms, "Report of the N.W. Harris Public School Extension for 1917, 2-3, Harris Extension, FMA. Interestingly, the new truck had different configuration that improved safety and efficiency. Simms requested eliminating running boards on the new truck because school children tended to jump on the truck when it was moving. "The doing away with the running boards," he wrote, "would increase the carrying capacity of the body, provided the body extended to the limits of the running boards now in use." Memorandum, S.C. Simms to F.J.V. Skiff, March 24, 1919, Harris Extension, FMA.

After careful research and experiment, museum officials agreed upon three standard designs for the loan cases. The exhibits needed to be durable and transportable as well as sit securely on a stand and be of pleasing overall appearance. The ends and tops were of mahogany and backs and bottoms of veneered poplar. Each case was (and still is) 24 ¼ inches long and 21 ¾ inches high. The depths of the cases varied. The four-inch deep cases were used for the economic cases that displayed raw materials and processes. The seven-inch depth was very well suited to entomology materials. A ten-inch deep case was developed for larger taxidermy mounts and small habitat dioramas. The ten-inch cases were also equipped with lights.⁸¹ Two framed explanatory labels made wings on each side of the box and could be folded inward during transportation and also prevented the labels from being left behind. When extended out from the side of the box, the labels were easy to view by teachers and students. The labels gave an overview of the subject. A zoological case will suffice as an example. The Ribbon Snake's label read:

The Ribbon Snake is first cousin of the common garter snakes. Like them it is quite harmless, and, although when cornered it will run out its little forked tongue and strike threateningly, it has no fangs and only very small teeth so it may be picked up and handled safely. It is more slender than the common garter snake and not so variable in color the light colored stripe being straight and ribbonlike without breaking up anywhere into spots. The central stripe is usually reddish orange and the side stripes yellowish. The habits of the Ribbon Snake are much like those of the garter snakes. It feeds on small frogs, pollywogs, and perhaps also small fishes. It is a good swimmer and frequently enters small pools in streams or swamps and dives to the bottom. It feeds or hides among water plants. On land it is very active and quick moving pursuing small frogs or other prey with great rapidity. In the vicinity of Chicago the Ribbon Snake is not very abundant and has been found principally in the vicinity of the Indiana sand dunes.⁸²

⁸¹ S.C. Simms, "The Development of the N.W. Harris Public School Extension of Field Museum of Natural History. May 17, 1916, 2-5, Harris Extension, FMA.

⁸² "Ribbon Snake" case label prepared by Curator Osgood, September 1920, Harris Extension, FMA. The labels attached to the cases approached the specimens in a manner similar to the Academy museum questionnaires mentioned previously, except rather than ask questions, the labels identified the specimens within the case, provided hints as to what to pay close attention to (feathers, colors, etc.) and general context. For example, in the "Winter Visitants" case, the label notes that these birds can be seen in the Chicago area but in varying regularity. Then it describes the birds "No 1. Purple Finch. Male above, female below. Common at times during the winter. No 2. Evening Grosbeak. Male above, female below. This beautiful species is fairly abundant some seasons and absent others, generally appearing in flocks of a dozen or more and feeding on such seeds and small fruits as remain hanging onto trees and shrubs, the winged seeds of the Box Elder being one of their favorite foods." "Winter Visitants" label, Harris Extension, FMA.

Note what the label says and what it does not say about the Ribbon Snake and what lessons it seeks to teach. First and foremost, this snake is harmless to people. Unless one's pet frog is on the loose, the snake poses no threat to family pets and farm animals. Snakes were (and still are) misunderstood and feared. People are quick to consider them dangerous pests to be at the very least avoided and at worst killed. Snakes have a bad image throughout human history; this label attempts in a small way to change this. If one encounters a Ribbon Snake it is not to be feared but to be observed. The description of its colors and habits (in addition to the mounted specimen) endow the student with the knowledge to identify the snake. The identifying features and behavior are the second major concepts expressed in the label. For those still squeamish about snakes, rest assured, one is unlikely to find one in the city. What the label does not express is why. Did people try to eradicate them? Did habitat loss drive them out of the area? It also says nothing about their reproductive habits or identifiable sexual differences. Those aspects were more commonly described and displayed for birds and mammals where the rearing of young is more involved and dimorphism more readily identifiable than with reptiles. What is important here is that the language, while accessible, was not romantic or anthropomorphic but rather a direct report of observable animal behavior.

Inorganic materials received similar matter-of-fact treatment. The fold out case label for "Fossils from the Rocks Near Chicago" explained, "the rocks underlying Chicago are limestone which are formed by the accumulation of remains of marine animals." While the case label created by geologist Oliver Farrington did not mention the geologic era of the specimens, it did explain the relationship to living animals, for

instance, “the Trilobites were allied to the modern crabs and crayfishes” and “Orthoceras was a chambered-shelled mollusk similar to the modern Chambered Nautilus.”⁸³

Economic cases, such as “Useful Minerals” exhibited how the materials were used by people in commerce and industry. Pyrite, we are told, “is a sulphide of iron mined for its sulphur [sic]. The sulphur [sic] is obtained combined with oxygen by burning the pyrite in kilns. Most of it is made into sulphuric acid, but much is used in the manufacture of paper.” The case also contained feldspar, barite, yellow ochre, and gypsum, a substance with many uses.” As with displays of organic materials, each specimen was individually labeled in the case.⁸⁴

The backgrounds of the cases varied by content but generally black was used for economic collections and light grey for zoological and botanical displays. Light grey was preferably because it gave mounted specimens greater realism and “the educational advantages of these nature study groups consist largely in their realism.”⁸⁵ A solid glass pane sealed the front of the case and once in the classroom was placed on specially designed stand (provided by the schools). On the back of the stand a sign provided information about the Field Museum’s hours, tours, and travel directions that was only visible when a case was not installed. These were basically “eyes on” rather than “hands on” materials.⁸⁶

The Harris case specimens were, by necessity, “dry.” The Field’s study collections, as with other museums and universities, contained numerous preserved

⁸³ Oliver C. Farrington, “Fossils From the Rocks Near Chicago” exhibit label copy, n.d., Harris Extension, FMA.

⁸⁴ Oliver C. Farrington, “Useful Minerals” exhibit label copy, October 31, 1913, Harris Extension, FMA.

⁸⁵ S.C. Simms, “Annual Report, The N.W. Harris Public School Extension of Field Museum of Natural History” n.d, Harris Extension, FMA.

⁸⁶ Annual Report: The N.W. Harris Public School Extension of Field Museum of Natural History, 1914, 1-2, Harris Extension, FMA.

specimens (particularly fish, cephalopods, reptiles, and amphibians). From the beginning, Simms and the Harris staff wanted to circulate similar preserved specimens and contacted several manufacturers in an attempt to develop a reliable means to do so, but the results were unsatisfactory. There was an aversion to cylindrical containers because they tend to magnify or distort the contents. Rectangular containers were better suited for displaying preserved specimens but these needed to be sturdy enough to handle the rigors of circulation. Museum staff created wooden boxes with glass faces for powders and grains but liquids eluded their skills. In the end mounts and models were used for the loan collections.

Under Simms's leadership, the Harris program gained steady momentum in its first years and quickly earned a reputation for quality materials and service to boot. When the program began in 1913, 80 cases were ready to loan. Most of the cases were zoological and botanical but there were 21 geological exhibits and one anthropology case (zoology remains the largest category). Records show that in the first year, six elementary schools (Burr, Mann, Warren, McAllister, Haines Practice and Carter Practice) made use of the initial collections. By the end of the following year, 1914, the Harris program had 286 cases used by 326 Chicago schools. This increase in use speaks to the interest among schoolteachers and the successful integration of these materials into the classroom. The number of schools using these cases increased steadily, even through the Great Depression. By 1941, there were nearly 500 schools and "children's institutions" using more than 1,000 loan cases. The Harris Public School Extension reached all kinds of schools throughout the city: public and private, elementary schools and high schools, technical schools, teacher's colleges, and other organizations.

President Henry Field regarded the Harris gift as “second in importance to the original gift which led to the foundation of the museum.”⁸⁷

4.6 The Chicago Way: Showcasing Harris Extension at World’s Fairs

The Harris School Loan program was heralded nationwide as well. Organizers of the education pavilion of the 1915 Panama-Pacific Exposition in San Francisco invited the Field Museum to showcase the Harris program at the fair.⁸⁸ The Field museum was often reluctant to participate in outside venues and frequently lacked the funds to do so. However, N.W. Harris offered to assist the museum with the expense and the museum took this opportunity to increase its reputation. Curator Simms was charged to select cases that illustrated the character of the extension work and was sent to personally oversee the organization and installation of the exhibition. He also promoted it in the press. The Field Museum installed thirty-four cases in a 1,300 square foot exhibition devoted to the Extension program and the work of the museum. Inside of a small beaux-arts pavilion, Simms arranged a series of cases from all of the branches of natural science. The cases were placed on stands with placards unfolded as if they were in a classroom.

In addition to the cases, the museum displayed photographs of the director and board of trustees along with renderings of the new museum building. In a rather innovative move, Simms screened films demonstrating how the loan cases were used in Chicago’s schools. By watching the films, fairgoers saw the cases loaded into the

⁸⁷ S.C. Simms, untitled manuscript, n.d., Harris Extension, FMA. The numbers here are intended to show the general scope of the growing collections. A summary of the loan cases, derived from the Museum’s annual reports is available from the current Harris Learning Collection. Marjorie Rice compiled the summary in 2013. I looked through various editions of the *Annual Report* and internal reports written by Curator Simms and verified the information, but I have not the time at present to look through every year.

⁸⁸ The Field Museum won a prize for their installation at the Exhibition. See: Field Museum of Natural History, *Annual Report of the Director to the Board of Trustees for the Year 1916*, 29. In 1926, Simms oversaw another installation at the Sesquicentennial Exhibition in Philadelphia.

delivery van at the museum, unloaded at the school, scenes of students examining them in class and teachers conducting lessons. Finally, Field Museum books and pamphlets were distributed including 25,000 pamphlets devoted entirely to the Extension.⁸⁹

It worked. The Harris Public School Extension exhibition was awarded the grand prize in the education division of the fair. The cases on exhibition in San Francisco gathered praise (and much envy) from many quarters beyond exhibition judges. Officials in San Francisco immediately sought to establish a school loan program. Dr. Maria Montessori, the renowned educator, sent an *unsolicited* letter to the Field Museum:

I admire very much the way in which nature is interpreted in this exhibit. The units attract the child's attention and do not teach errors. They truly represent nature. Besides, they have the added value of permitting prolonged observation of the many details which in nature could only be seen in passing glimpses and to which it would be hard to attract the child's attention. The knowledge of these facts observed in this way makes the future observation of real nature more interesting to the child. I consider this collection a most desirable contribution to school work and education generally. I hope that many more of these beautiful exhibits may be made.⁹⁰

The Harris program was fast becoming a model and inspired similar systems, large and small, beginning in other cities. In 1916, for example, the Field Museum sent four cases to exhibit at the meeting of the American Association of Museums in Washington, DC. Other institutions, including the American Museum of Natural History, U.S. National Museum, Royal Ontario Museum of Zoology, San Antonio High School, as well as normal schools and university education departments requested cases to study as a model for developing their own programs to train teachers. By 1920, the museum formally added high schools to the rotation in addition to the 253 elementary schools and

⁸⁹ S.C. Simms, "The N.W. Harris Public School Extension of Field Museum of Natural History," n.d., 1, Harris Extension, FMA.

⁹⁰ *Ibid.*, 3.

parochial schools. An estimated 344,000 pupils attended these schools and could learn about nature from the exhibit cases.⁹¹

In 1921, the U.S. Department of Agriculture contemplated a rural loan system—reminiscent of the “book mobile” libraries—and examined the Harris cases as a model design for the program. Nationwide, there were requests, but Simms was careful to loan these only during the summer “off season” when demand for cases among Chicago schools and organizations was lower. Loans to local institutions were frequent and Simms and later curators were happy to accommodate clubs, churches, Chicago Public Library, and the park district but the schools always came first. Cases were loaned to the Municipal Pier (Navy Pier today) during the summer months and the Art Institute was a frequent borrower of materials as models for art students. International visitors were impressed too. A contingent of Japanese educators sought to borrow economic cases as models to develop a similar system in Tokyo.⁹²

The Museum took pride in all of their cases, but some stand out because of the presentation, the high demand for the case, or the difficulty acquiring the specimen. In 1919, the Ring-Billed Gull was one such case. Other cases were less difficult to assemble but still required outside concerns to provide materials. Economic geology cases such as “Useful Things Obtained from Coal (1921)” and “Model of a Gold Mine (1927)” were very detailed scale models (made by museum staff) and among the most frequently requested cases. Such cases were useful to students because they illustrated the process

⁹¹ S.C. Simms, “Annual Report of The N.W. Harris Public School Extension of Field Museum of Natural History for 1920,” 2, Harris Extension, FMA.

⁹² Materials were loaned to Marshall Field and Company as well for special displays. For instance in 1920, Skiff approved a loan of six cases for a Fall Exposition in the State Street Store. Later that year, six cases were loaned to the Wild Flower Preservation Society of America for display at the Annual Nature Study Exhibition at the Art Institute. Those out of the city were asked to pay for the safe shipment and return of the cases, usually by railway express. There are many other examples in the N.W. Harris Public School Extension papers.

by which natural materials were transformed into commonplace products. This was a visual means of showing human ingenuity and progress through manufacturing. In addition to these were exhibits demonstrating the various processes to make paper, glass, chinaware, linoleum, cloth, and other industrial products (a concept that would later become the mission of the Museum of Science and Industry). The economic cases were to “be of practical advantage to every child and to every teacher” and the demonstration of processes hoped to be “interesting and instructive” to the students.⁹³ Chicago was a commercial city with many commercial possibilities for these soon-to-be employees. The teachers observed that the students were understandably interested in commerce such as they were surrounded by not only the smoking chimneys and factories but also the advertisements for all the finished goods.

The specimens, and in some cases complete exhibits, were given to the museum by manufacturers partly out of philanthropy aimed at educating future workers, consumers, and managers, but also for the free advertising. The exhibits demonstrated a process or a natural resource and such materials shed light upon how these specimens were transformed into products. Industrial progress as much as zoology, botany, or geology was on display, and such an arrangement was no accident and beneficial to both parties. One of Simms’s early tasks was to solicit donations of materials for the program. The materials were clearly labeled as provided by The Washburn-Crosby Company (later General Mills) or other such concern. The labels were subtle but nevertheless made the corporate connection known and probably brought the company’s products to mind next time the viewer went shopping. The economic cases were particularly useful “in the courses that deal with practical phases of natural production and distribution, geography

⁹³ Letter, S.C. Simms to Washburn-Crosby Co., January 31, 1913, Harris Extension, FMA.

and commerce.”⁹⁴ This was eminently practical for Simms as well because there were few resources of either commercial related materials or natural history specimens for use in the extension program.⁹⁵ Many of the specimens were in fact, purchased out of endowment funds from field collectors and Ward’s Natural Science Establishment.

Much like the Academy’s school loans, the Harris program’s local materials (such as Chicago area birds) were in the greatest demand by teachers as this was most relatable to the students. Taxidermist Leon Pray’s exquisite fish models were used in some of the cases as were certain birds frequently seen in the Chicago area. “Phases in Life of the Honey Bee (1924)” and “Seven Species of Salamanders Found Near Chicago (1932)” were frequently requested.⁹⁶ As teaching tools, these displays were preferable to—and superior to—written accounts of animal behavior. Even though the specimens were inanimate, they told a story and were useful in other disciplines beyond natural science. As one teacher recalled, “We used the model on soil formation in garden lessons; cotton and wheat in geography. We had the children read the statements that are on each model and retell for English expression.” With little time to make museum trips, loan collections like those from Harris Extension “can be called for to clinch the subject at the psychological moment.” Another educator praised the way the extension cases “stimulates an interest in our children along such a wide variety of natural history that cannot but establish in their minds a determination to investigate this wonderful field on

⁹⁴ Simms, untitled manuscript, n.d.; Memorandum, S.C. Simms to F.J.V. Skiff, February 28, 1913, Harris Extension, FMA.

⁹⁵ Simms requested duplicate materials so there was more than one of each display. To the Washburn-Crosby Company, his “reason for asking for six sets is that the number of schools in Chicago is so great that less number would hardly be of much advantage. It is the intention to exhibit these cases in the class-room for a period of not less than a week at a time, which should be ample for the child to learn considerable of the contents of the case and for the concern donating the same to derive advertising benefits.” Letter, S.C. Simms to Benjamin Bull, Washburn-Crosby Co., February 13, 1913, Harris Extension, FMA.

⁹⁶ Simms, “The N.W. Harris Public School Extension of the Field Museum of Natural History.” The papers of the Harris Public School Extension and the S.C. Simms Papers, Director’s Correspondence are filled with letters from teachers, principles, and interested parties seeking to borrow materials. For brevity, I chose not to outline specific requests here (they vastly outnumber those of the Chicago Academy of Sciences). See: Harris Public School Extension Files, Field Museum Archives.

the nature studies.”⁹⁷ The larger goal was not just fulfillment of schoolwork but encouraging lifelong learning.

Institutions and organizations other than schools sought to borrow specimens and Harris cases in particular. George Masslich, director of YMCA’s Camp Channing (near Minooka, Illinois) wanted materials for nature study activities. He wrote, “We ask the boys to find and know the names of a number of plants, birds, and insects, and in the past years there has been no one in camp who knew much about these matters.” Museum specimens for comparison would be a great incentive for the children to look for the plants and animals. If the museum would not loan materials, he wondered if the museum would send someone to go into the field with them.⁹⁸ The museum agreed to send Harris cases since the camp activities were held when schools were on summer break. Some students sought to make exhibits for class projects. Lucille Miller, a student at Bethel Lutheran School was trying very hard to get an exhibit on silk. She cast a wide net asking Chicago and New York institutions for materials. The Field was able to provide a pair of silkworm moths and cocoons from duplicate material. The museum referred her to wholesale silk firms that might provide other specimens.⁹⁹

The post-1906 focus of the Field Museum on natural history began to draw school visits in greater numbers. Teachers and students were admitted free and this fact attracted people from many different schools. City, suburban, public, and private school groups counted among the visitors to the museum. To gain free admission, cards were

⁹⁷ Letter, Susan S. Alburtis, In Charge of Nature Study, James Ormond Wilson Normal School, Washington, D.C., to J.W. Hiscox, USDA, June 20, 1923, Harris Extension, FMA; Letter, W.M. Mason, Principal, John F.Eberhart School to S.C. Simms, May 25, 1931, DPGC, FMA.

⁹⁸ Letter, George Masslich to S.C. Simms, May 17, 1918, Harris Extension, FMA.

⁹⁹ Letter, Lucille Miller to Field Museum, June 13, 1929, DPGC, FMA.

issued with the signature of the school principle or president. Only students and teachers were admitted. Family or friends had to pay admission. However, there were some problems, and abuses of the admission pass system did occur. In 1913, for instance, a number of people claimed to attend the Moody Bible Institute and presented false passes. The museum threatened to revoke the Institute's privileges if abuses continued.¹⁰⁰ The Field Museum's move to Grant Park in 1921 and a more accessible location supercharged the institution's desire to bring more students to the museum. The Field worked with Chicago Board of Education Superintendent Peter Mortensen to bring schools to the museum and established a special guide service. Mortensen provided space in the *Chicago Schools Journal* for announcements by the museum and gave permission to distribute information to principals. The Field hosted a principals' meeting in the theater and worked closely with Mr. Hays, the district's Director of Visual Education to ensure compliance with the curricula.¹⁰¹

4.7 Museums on their Own

The Harris gift did not go unnoticed by the Chicago Academy of Sciences. Secretary Wallace Atwood was worried. He returned from a trip to eastern museums "enthusiastic over the work which the Academy had chosen to do and with the confidence that we had a great future ahead of us." Atwood was upset that the newspaper accounts did not credit the Academy with the work it had already been doing with the schools. The Academy hoped to take the lead and now they were overshadowed. Atwood thought big—withdraw from the school loan field and do "something bigger, something

¹⁰⁰ Letter, F.J.V. Skiff to President, Moody Bible Institute, June 13, 1913, DPGC, FMA.

¹⁰¹ Report, April 17, 1922, Harris Extension, FMA.

greater and something at once which will demonstrate to Chicago our leadership in this educational movement among the museums of the city.” To President Albert Dickenson, in 1912 he proposed to build a children’s museum and laboratory of natural sciences. It would not do, he wrote, “for the Field Museum to establish a children’s museum before we do. If we establish such a museum the Field museum may follow us but we cannot follow them as appropriately. I fear it would be difficult to gain support for a children’s museum in connection with the Academy if the Field Museum had already established such an institution. I believe that this idea will be taken by others and put into effect soon and if we wish to secure eminence in the educational work in the city we must announce very soon some plans for a children’s museum.”¹⁰²

Atwood then played the ego card and proposed the new museum be called The Albert Dickinson Children’s Museum of Chicago and hoped Dickinson would “do this great and good work for the children of Chicago.” He estimated a new building would cost \$150,000 and an endowment of at least \$200,000 would be needed. The location next to the Academy and the zoo was ideal and the time was ripe.¹⁰³ Dickinson did not bite and the Academy could not compete with the Harris Extension. In 1919, they formally ceased loans of museum materials to schools (although lanternslides were still available). The Academy changed gears during the 1920s and attempted to reach out with child-centered activities and external exhibits rather than loan materials. In March 1926, for example, the Academy participated in the Davis Store Nature Exhibit. Organized by the Illinois Wild-Flower Preservation Society, Chicago Woman’s Club, and the Illinois Federation of Women’s Clubs, this “All Out o’ Doors” exhibition included

¹⁰² Letter, Wallace W. Atwood to Albert Dickinson, January 2, 1912, WA Correspondence, CAS.

¹⁰³ Ibid.

birds, butterflies, wild flowers, trees and “handwork made by children in the playgrounds of the Parks and Schools.”¹⁰⁴ In addition to the exhibits were illustrated lectures and nature study conferences. The Academy installed six transparency cases with lighted images of plants and gave two lectures: “A Photographer Among the Birds and Flowers (Frank Woodruff)” and “Nature Study for Boys and Girls of the Grammar School (Wallace Worthley).”¹⁰⁵ This helped boost attendance at the museum and justified Wallace Worthley’s plans to lead bird excursions in the coming Spring. The big event, however, was the Vacation Hobbies Exhibit (June 7- July 3, 1926). This exhibit was “to stimulate the interest of the children in doing worth-while things during the summer and consisted of representative collections such as the children themselves might make during their vacation.” The exhibit featured many collections made by children in school as well as museum exhibits. These included: pressed leaves and flowers, mounted butterflies and insects, and aquariums with amphibians, fish and pond life. By all accounts it was well attended, with over 6,000 visitors, half of whom were children.¹⁰⁶

The Chicago Academy of Sciences organized a natural science specimen hunt for grammar and junior high school students. The Academy and Chicago Public Schools coordinated on the enterprise because they shared the belief that “an enthusiastic interest in the natural sciences should be awakened in the school children of the city” and that “an interest and appreciation of nature should be developed in them.” Competition categories included: Rocks and minerals, seeds, mounted insects, pressed grasses and leaves, star charts, fossils and shells, animal snapshots, and arrowheads. The collections were

¹⁰⁴ Flier, “All Out ‘o Doors Annual Nature Exhibit.” Held at the Davis Store. March 15-20, 1926, Harris Extension, FMA.

¹⁰⁵ Memorandum, Wallace F. Worthley, April 6, 1926, WW Correspondence, CAS.

¹⁰⁶ Enid Townley and W.F. Worthley, “Vacation Hobbies Exhibit” n.d. Administrative, CAS.

exhibited in the museum during September and October and then returned to their owners. The winner in each category was awarded a junior membership in the academy and a book about their chosen subject.¹⁰⁷

4.8 Reel Nature

In 1928 the Academy's new director, Alfred M. Bailey, saw possibility in nature films as a cutting edge means of reaching wider audiences, especially students. With the advent of motion picture sound, education and training films became practical teaching tools. The *Chicago Daily News* provided funding for the Academy to produce some nature and science films and these were loaned to the handful of schools and private clubs with the equipment to screen them.¹⁰⁸ Under Bailey's leadership, the Chicago Academy of Sciences tried to establish a formal film production and loan system with the Board of Education (much of the film shot by the Academy was of birds). A comprehensive system never came to fruition, in part due to the expense of installing cinema equipment in the schools, but also because a more diverse range of films could be acquired from film distributors. Bailey was frustrated by attempts to build a science film program during much of his tenure.

The Field Museum did not produce films either, but began screening films in the early 1920s. Some of the earliest films came from the University of Minnesota's Museum of Zoology. The Minnesotans produced the reels themselves and covered a range of wildlife topics. The Field was among the first institutions to borrow these films during the University's off-season. In the days before talkies, museum staff used these films in

¹⁰⁷ Alfred M. Bailey, "Circular to Chicago Public Schools," n.d, AB Correspondence, CAS.

¹⁰⁸ Letter, Albert M. Bailey to Mrs. C.L. Hutchinson, May 31, 1928, AB Correspondence, CAS.

conjunction with lectures. The venue for screenings was the James Simpson Theater, which offered plenty of seating, modern projection equipment, as well as a stage for speakers. The museum's interest in film increased throughout the 1920s as moving pictures became not only a major form of entertainment but was also seen as an educational tool. Perhaps the most intriguing interconnection between museums and motion pictures came from producing films *about* museums. Nelson Greene, from *The Educational Screen*, a multi-university sponsored publication, approached the Field Museum about showcasing the museum's inner workings. The proposed film would be made by Atlas Educational Film Company of Oak Park and Greene suggested, "The average public thinks of a 'museum' as a mere store house for miscellaneous 'objects' which the public may look at if it cares to. People have little idea of the intricate processes necessary in the preparation of the exhibits... A film that will show these things will not only be a genuine public service but will serve as a powerful stimulus [sic] to interest in and true appreciation of museum work." There was much merit to this notion considering the many requests we have seen regarding the identification, collection, preparation, a display of specimens and objects. Greene believed "that there will be a marked demand for such a film, once its existence is known. Schools, churches, and community centers will find it most desirable for their use."¹⁰⁹ The Field was interested in the idea as a means for wooing benefactors and briefly considered "the possibility of making one or more Museum films to be shown at luncheons or dinners in place of a Museum lecturer."¹¹⁰

¹⁰⁹ Letter, Nelson L. Greene to C.A. Rehm, Atlas Educational Film Company, April 26, 1925, DPGC, FMA. The idea never came to fruition.

¹¹⁰ Memorandum for Mr. [Stanley] Field, April 28, 1925, DPGC, FMA.

Throughout the 1920s, schools began developing their own science programs and depended less and less on museums for materials. Museums, on the other hand, began to focus on internal programs—what today we recognize as museum education. In 1925, one of the largest gifts received by the Field Museum was that of “Mrs. Anna Louise Raymond, consisting of an endowment of \$500,000 and creating a memorial to her husband, the late James Nelson Raymond. The purpose of this fund is indicated in its name, ‘The James Nelson and Anna Louise Raymond Public School and Children’s Lecture Fund’ to officially bring children’s programming to the museum.”¹¹¹ The Raymond Division organized film screenings, school visits, and lectures for both children and adults, and loaned lanternslides to schools and clubs (Harris Extension primarily loaned the exhibit cases). Unlike previous efforts in the museum, which simply opened the doors to classes, this new program created supplemental materials and organized tours through the museum specifically geared toward school children. Like the Harris Extension, the Raymond Division had a dedicated staff and hired part-time docents to help teachers and students get the most out of the exhibits. It took awhile to get started and much of the first year was spent training guide-lecturers and extension lecturers and developing materials. Raymond Foundation staff queried teachers as to what kinds of information, exhibits, and experiences would be most helpful to their classes. New lectures were developed such as “Ancient Egypt,” and “Trees of the Chicago Area.” The lectures were arranged to match the curriculum of high school and junior high schools and ranged from a lecture about “Ancient Roman Life” to high school Latin classes to history related lectures for the junior high students. These were in addition to topics in

¹¹¹ Field Museum of Natural History, *Annual Report of the Director to the Board of Trustees for the Year 1925* (Chicago: Field Museum of Natural History, 1926), 393-394.

botany, zoology, and geography. Elementary school lectures were simpler and broader rather than tied to specific classes. For instance the lectures, “North American Mammals” and “Fish of the Chicago Area” were for “general assembly” while topics such as “Wheat and Corn” and “North American Indians” were geared specifically for fourth and fifth grade.¹¹²

The Raymond Foundation developed a series of booklets, *Museum Stories for Children* that were used to convey scientific concepts (as could be seen in the museum) in an accessible format. Each story drawn was from collections and publications and was corrected by the respective curators before distribution. *Museum Stories* booklets were souvenirs handed out by attendants during the Spring and Autumn motion picture series or by written request to the museum. *Museum Stories* was popular and “met with enthusiastic interest on the part of children, parents, and teachers” because they filled “a need for scientific facts given at the level of the child understanding.” Margaret Pyatt, the division chief, noted the encouragement of lifelong learning and repeat visitation as the *Stories* “incidentally encourage the museum habit by reference to Museum exhibits.”¹¹³

From 1928 on, museum education became a more important part of the Field Museum’s quest to bring in more visitors—especially schoolchildren. There was discussion about developing a children’s museum—much as the Academy had feared. A Raymond Foundation report specified six key elements needed for young learners: 1) Exhibits of museum material, rotated monthly or seasonally; 2) a library of natural history books for children; 3) drawing paper and pencils because “a child seldom sees

¹¹² “Additions To and Changes in the Present Lecture List” n.d., DPGC, FMA.

¹¹³ Memorandum, M.F. Pyatt to S.C. Simms, December 17, 1928, DPGC, FMA.

[emphasis in original] an object well unless he tries to reproduce it;” 4) provision of various museum games involving the finding, description, relationship, etc., of collections both in the children’s room and in the exhibit halls; 5) tables and chairs; and 6) an attendant always at the desk to issue books, drawing paper, etc., and “to have charge of the children and to aid them in their study of museum collections.”¹¹⁴

Significantly, this plan was prompted as much by the educational mission of the museum as it was for dampening the rambunctiousness of children. The lunchroom space was an ideal location and would go far toward placating those who “complained about the deportment of children in the museum. It is only through such arrangement as this that the Museum can definitely control and direct the visits of children who come to the Museum outside of school hours.”¹¹⁵ With accommodation of 1,200 children at a single day for lecture tours or film screenings, such a facility would have had its merits. But there were serious problems with such a scheme. There were too few staff and little money in the budget to hire more, space was limited, and there was concern over how study collections might be used. Zoology would be the chief division involved and Curator Osgood’s thoughts on the matter are worth noting here. In 1929 he wrote “At the present time the use of the reference collections is perhaps more important than it would be if educational exhibits were more highly developed on the main floor. The systematic exhibits in Zoology do not, as yet, cover their respective fields so as to be adequate for class work.” Therefore, Osgood suggested “classes of a small size, not to exceed twelve at one time, be permitted to visit the reference collections under the guidance of some member of the staff.” However, the assistant curators “have so many demands upon their

¹¹⁴ S. Roberts, “Plan for a Children’s Room,” n.d., DPGC, FMA.

¹¹⁵ Ibid.

time that I cannot recommend that they be subject to continuing requests for service of this kind.” On these points, Margaret Pyatt and her staff agreed. It was Osgood’s suggestion that a “qualified member of staff in the Raymond Division” be designated for this work. He proposed that assistant curators could “instruct some once for all as to the contents and arrangement of the collections, and, thereafter, he could bring his classes to the collections without serious disturbance to the assistant curators.” Pyatt argued that “under the present conditions it is impossible for Raymond Division to specialize to the point of appointing one particular individual for one particular duty” in addition to the challenges of coordinating and planning the classes. The staff also worked different days and schedules and as a rule they were generalists and could not specialize in a particular field or subfield. Raymond staff “must be able to introduce students to the educational advantages of the Museum by means of guide-lecture tours and extension lectures which cover general knowledge.” Pyatt suggested that if it was possible to gather all of her staff and the zoology assistant curators together for a master class, then any of her staff would be able to guide students through the reference collection. The “detailed study would of necessity be left to the school teacher bringing the class.”¹¹⁶ While a system was being hammered out, such student visits to the reference collections would have to wait for some time. The collections, including birds and mammals, were under rearrangement in new cases that would make for easier study. Fishes and reptiles (preserved in jars) would remain largely inaccessible to students. The Field Museum did not develop a child-

¹¹⁶ Memoranda, W.H. Osgood to S.C. Simms, February 8, 1929; W.F. Pyatt to S.C. Simms, February 21, 1929, DPGC, FMA.

centered space for some years but spent its efforts on guided tours, extension work, outreach, and film screenings.¹¹⁷

4.9 Museums on the Air

In the 1920s, radio was conceived as an educational and public service medium. It initially proved a less effective medium of bringing natural history to a wide audience, particularly Chicago's children, but not for lack of effort. In 1926, at the behest of WMAQ, the Academy of Sciences participated in an experiment. The *Chicago Daily News* (owners of WMAQ) and Fanny Smith, principal of the Goudy School organized a series of talks on a range of subjects to be broadcast to the children (10-14 years of age). They needed engaging speakers who could keep the attention and stimulate the imagination of younger people (despite the relative novelty of radio).¹¹⁸ These and other museum radio lectures were broadcast in the "slack morning and afternoon hours when the audience was small." These early broadcasts received little enthusiasm from listeners.¹¹⁹

Not to be outdone, the *Chicago Daily Journal's* voice, WLS, approached the Field Museum about radio lectures too. Drawing inspiration from a radio broadcast by paleontologist Roy Chapman Andrews, fresh from the Gobi desert, the radio editor realized that the Field's well traveled staff also had stories to tell.¹²⁰ The editor,

¹¹⁷ The Raymond Foundation also provided an impetus to show more films in the Field Museum's James Simpson Theater. The films shown covered a range of topics, not just natural history. The films were often run on Saturday mornings. In the spring of 1932, films screened included: "Haunts of the Golden Eagle," "Glimpses of Mexico," "Switzerland in Winter," "Around the World with the Milkman," "Marauders of the Sea" and "A Chicago Boy Goes to Greenland with Captain MacMillan." For more about nature films, see: Gregg Mitman, *Reel Nature: America's Romance with Wildlife on Film* (Seattle: University of Washington Press, 1999).

¹¹⁸ Letter, Director, WMAQ to Wallace Worthley, September 11, 1926, WW Correspondence, CAS.

¹¹⁹ Frederic J. Haskin, "Taking Romance of Museums to Public Planned," *New Orleans Times Picayune*, March 2, 1930. Newspaper clipping, Harris Extension, FMA.

¹²⁰ Roy Chapman Andrews was the inspiration for Indiana Jones.

Trumbull suggested a series of twenty-minute talks accompanied by “atmospheric” music before the program and an opportunity for free advertising in the *Journal*. His pitch extolled the station’s large audience: “We believe these broadcasts will be of great mutual benefit. WLS has developed a tremendous following in Chicago and throughout the middle west.” Furthermore, every listener was “a potential Field Museum visitor.”¹²¹ Interest among the curators was mixed, ranging from the enthusiastic Osgood (he proposed four talks) to the resistant Laufer. The plans stalled further when the station’s director found it challenging to actually schedule the talks. Despite the initial setback, the curators told their stories over the airwaves. During the 1930s, radio as a popular teaching medium (though not necessarily in schools) gained traction. By 1940, the Field Museum broadcast a weekly series over the NBC Blue Network entitled, “How Do You Know?” Topics ranged from “Truth About Superstitions” and “Irish Potatoes Are Not Irish” to “Whales not Fishes, Bats not Birds” and “How Prehistoric People Lived” all of which echoed something on display within the museum.¹²²

4.10 New Deal Initiatives

In the 1930s, the Chicago Academy of Sciences collaborated with the Cook County Forest Preserve to establish a few “trailside museums” that proved to be very popular.¹²³ The exhibits consisted of illustrations, maps, and small habitat groups and single mounts that were intended to help visitors identify plants and animals they may encounter whilst hiking in the preserve. These exhibits were placed in central field

¹²¹ Letters, L.L. Trumbull to S.C. Simms, February 1, 1929; February 9, 1929, DPGC, FMA.

¹²² Letter, Clifford C. Gregg to Mary Savage, March 7, 1940, DPGC, FMA.

¹²³ See Jane Morocco and Paul Harvey Jr., *Trailside Museum: The Legend of Virginia Moe*, Images of America (Mount Pleasant, South Carolina: Arcadia Publishing, 2015).

houses and in shelters along the trails. The Academy sought to work with the Chicago Park District to build more of these exhibits in the city's parks, particularly in the West side as both the Academy and the Field Museum are too far away to allow frequent visits from people in those areas.¹²⁴ The Works Projects Administration (WPA) placed people, at the request of the Academy, with work relief jobs in the museum. These workers were indispensable for such projects, as the manpower was needed to assemble the exhibit cases and install the specimens. Despite the help of the WPA and early enthusiasm of both the Academy and the Park District, the project was faltering in the early 1940s and completely dismantled during the war.

In 1939, fifth and sixth grade science teachers—125 in all—came to the Field Museum and toured the exhibit halls with an eye toward “how the materials used could be used in the present course of study.” The teachers were invited to bring their classes to the museum at a later date. What was significant about this meeting, facilitated by the Raymond Foundation, was that the museum offered teachers an opportunity to make suggestions about exhibits. For example, the teachers wanted an “exhibit showing the growth of a tree from sapling on showing the flowering, fruiting and entire growth” along with a “diagram of the various evergreen trees with the number and appearance of the needles.” The teachers felt that these exhibits would benefit their students. They also wanted, despite the traveling Harris case (and Academy installation), an exhibit of birds that winter in the Chicago region. Many teachers felt that a visit to the museum should precede the lessons in the classroom. This way, students had visuals and models to see before reading and discussion. It also engendered enthusiasm for the materials and

¹²⁴ Letter, F.R. Dickerson to Howard F. Gillette, January 2, 1935, FD Correspondence, CAS.

sparked renewed interest in systematic cooperation between Chicago schools and museums.¹²⁵

In 1940, the Progressive Education Association (PEA) formed the Chicago Museum-School Relations Committee, which was “Concerned with the actual problems of a working educational program between museums and schools of the Chicago area, of teacher training in the use of museums; of educational training of museum workers; and intelligent understanding of the educational contribution of museums by the public. Those invited to work on this committee represent schools of various types, teacher training commissions, and institutions, and all the museums of the Chicago area.”¹²⁶ Leota Thomas from the Raymond Foundation was represented the Field Museum and Dr. Harold Gloyd represented the Chicago Academy of Sciences. The Art Institute, Museum of Science and Industry, Adler Planetarium, and the Chicago Historical Society were all involved to some extent. This Chicago committee was a subset of a national one formed by the PEA. Carleton Washburne, PEA president believed such systematic dialog was long overdue: “School people are becoming increasingly aware of the need for using community resources, of extending education beyond schoolhouse walls.” Museums were “among the finest resources” and beneficial to co-ordinate educational programs.¹²⁷

The Chicago committee’s meeting was telling because despite nearly forty years of efforts by museums to fulfill educational missions inside and outside of the classroom, challenges remained and relations between museums and schools were sometimes

¹²⁵ Miriam Wood, “Report on Special Meeting of Chicago Science Teachers, November 4, 1939,” DPGC 1929-1959, FMA.

¹²⁶ Letter, Frances Presler, PEA to John Millar, Field Museum, March 12, 1940, Museum-School, FMA.

¹²⁷ Carleton Washburne, “The Progressive Education Association looks at the MSR Committee,” *Bulletin of the National Museum-School Relations Committee of the Progressive Education Association*, No.1 May 1940, p.1, Museum-School, FMA.

strained. Harris Extension, Raymond Foundation, and excursions were enormous steps forward but neither was a panacea. Teachers and museum staff agreed that museums provided a unique learning space and resource for students of all ages. Differences emerged over exactly how that space and resource was best utilized as a teaching tool. Some museum staff thought a museum visit worked better after lessons in the classroom while some teachers believed the museum should be the classroom. Some teachers wanted museum guides, others thought it best to let the children explore, or to lead classes personally. Museum staff wanted teachers better prepared with materials and also to keep a closer tab on their charges. At the meeting, the educators asked a fundamental question, "What is the purpose of a museum?" There were different expectations of teaching style, "Why do museum lecturers insist on giving stilted lectures and formal instruction when the teacher wants informal discussion?" Practical matters needed consideration too: "Why is there not adequate facilities for cloakrooms for visiting schools and why are there no low-priced lunches for those children who cannot afford much?" Museum representatives countered and explained some of the problems they faced in the maintenance of an institution that must serve a variety of purposes and audiences on limited budgets. They had questions too: "Why do teachers bring groups to the museums without previous preparation?" They wondered, "How can a museum be expected to educate both teachers and pupils in one short visit?" Concerned about security as much as the experience of visitors, museum people queried, "Why do teachers bring their classes to a place of interest and learning and make a Roman Holiday of the visit?" Teachers and museum staff recognized the need for understanding special

techniques of instruction that suited exhibitions but they did not agree on the ways and means of handling class visits.¹²⁸

Some teachers felt that guide lecturers intruded upon their classes while others were pleased with the experience. When classes were prepared and guides animated, the trip was more than likely a success. The committee set to figure out what made a successful visit for all parties involved and developed questionnaires to collect data about museum visits. Another project involved developing a handbook for teachers that outlined all of the resources in Chicago museums available to teachers. These projects began in earnest but, like so many activities, were curtailed with America's entry into the Second World War.

4.11 Fast Forward: Toward A Participatory Museum

In the 1920s, Science Service, a publication and educational resource formed by scientists, journalists, and educators devoted to popularizing science, sought to address a concern educators still have today—science literacy. To Science Service, as much as to the museums and schools, science literacy (indeed literacy in all fields) was essential to American democracy. Their newsletter read: “In a democracy like ours it is particularly important that the people as a whole should so far as possible understand the aims and achievements of modern science... The success of democratic institutions, as well as the propensity of the individual, may be said to depend upon the ability of people to distinguish between science and fakes, between the genuine expert and the pretender.”¹²⁹

In the opening years of the 1920s quack medicine, hoaxes, and dubious expertise in

¹²⁸ “Report on Chicago Committee,” *Bulletin of the National Museum-School Relations Committee of the Progressive Education Association*, No.2 February 1941, p.6. DPGC, Museum-School Relations Committee, 1939-1959, FMA.

¹²⁹ Edwin E. Slosson and Watson Davis. *Science Service: The Institution for the Popularization of Science*. N.d. Washington, D.C., Harris Extension, FMA.

science, medicine, and other fields rapidly competed with solidifying professional standards and training. Circuses, freak shows, waxworks, and dime museums were still common and popular forms of entertainment. As we have seen, museums in the early twentieth century worked vigorously to distance themselves from Barnumesque entertainments as museum work became professionalized. Yet, science literacy remained an issue.

It still is today—perhaps even more pressing. In this limited space one example must suffice. Over the past twenty years, Discovery Channel’s *Shark Week* became an institution of sorts. Recently, the veracity of the programming has become dubious even deceitful. Programs, such as *Megalodon: The Monster Shark Lives*, *Shark of Darkness: Wrath of Submarine* and *Mermaids* purport to show actual scientists and their research suggesting fantastic creatures still roam the seas. In reality, these are scripted dramas, more akin to entertainment films, with no indication as such. While one could argue people should not believe everything they watch on television, the fact remains that Discovery is billed as—and people expect it to be—a voice of scientific fact. If viewers want fiction they will turn to Showtime. People watch these programs and believe what they see. In fact, despite some vocal public outcries, the number of viewers continues to grow. Potential viewers are less interested in climate change, environmental damage, overfishing and conservation than they are visual spectacle. Science literacy, it seems, is still low.¹³⁰

¹³⁰ There are several very good op-ed pieces and news articles regarding the dubious programming on Discovery Networks the past few years. See: Alastair Bland, “Broken Teeth and Fake-umentaries: Another Shark Week Gone By” <http://www.npr.org/blogs/monkeysee/2014/08/18/340630812/broken-teeth-and-fake-umentaries-another-shark-week-gone-by>, Accessed September 1, 2014; NPR Staff, “When Wildlife Documentaries Jump the Shark” August 2014, <http://www.npr.org/2014/08/30/344562317/when-wildlife-documentaries-jump-the-shark>, Accessed September 1, 2014; Grant Butler, “Anger Builds over Shark Week’s Fake Submarine documentary: Readers Sound Off” *The Oregonian*, August 2014. http://www.oregonlive.com/movies/index.ssf/2014/08/anger_builds_over_shark_weeks.html. Accessed September 1, 2014.

This chapter provides a brief look at museum education, a rarely covered aspect of museum history. By examining the words, deeds, and ideals of museum staff and educators we understand how the developing practices of museum education heightened scientific literacy, encouraged respect for nature, and democratized science education through greater access. Access to information about nature and science was available within and without the classroom and the museum. Through school loans, classroom visits, public lectures, guided tours, and free days, museums broadened their audience to reach anyone. The democratization process here means both physical and intellectual access—the exhibits in the museum and loaned to classrooms was presented on a level to connect with ordinary people, not just experts. As James Cuno writes, “Museums are public institutions open to all. We invite our visitors in and let them wander as they wish. They make their own way through our collections... They, our visitors, and not the museum, are the authors of their experiences with our collections.”¹³¹

Democratization of museums through exhibits, public programs, school extension, and admissions is an important trend of the Progressive Era.¹³² All of the programs described in this chapter were part of reaching a new audience and mark one of a series of developments in museums among the others described in previous chapters. Museums are not static, they are changing—even if that change is slow to fully emerge—and encapsulate the eras in which they change. Museums respond to changing expectations of audiences and likewise people respond (sometimes positively, sometimes negatively) to the changes in museums. Chapter three demonstrated how audiences come

¹³¹ James Cuno, *Museums Matter: In Praise of the Encyclopedic Museum* (Chicago: The University of Chicago Press, 2011), 7. See American Association of Museums, *Excellence and equity: Education and the Public Dimensions of Museums* (Washington, DC: American Association of Museums, 1992).

¹³² Jeffrey Trask, *Things American: Art Museums and Civic Culture in the Progressive Era* (Philadelphia: University of Pennsylvania Press, 2012), 4.

to expect more sophisticated displays and quickly tire of rows of cases and the “dead circus” that filled the halls of natural history museums at the turn of the century. Beginning with habitat dioramas and fossil reconstructions, museums embraced tactile exhibits, films, and fully immersive experiences. The revolution—toward a true “participatory” museum as it emerges today (one infused with community involvement, political engagement, and creativity) slowly began in Chicago during the 1930s with the hands-on energetic displays at the Century of Progress Exposition and the fledgling Museum of Science and Industry.¹³³

¹³³ For more about the participatory museum, see: Nina Simon, *The Participatory Museum* (Museum 2.0, 2010). For a general history of the Museum of Science and Industry, see: Jay Pridmore, *Inventive Genius*; _____, *Museum of Science and Industry, Chicago*. For my work on the changes in museum exhibition see: Nicholas J. McCormick, "Process, Products, and Possibilities: Interactive Exhibition and the Future, 1933-1940." Unpublished manuscript. (Chicago: University of Illinois at Chicago, 2010).

Conclusion: Museums Yesterday and Tomorrow

In a radio interview in 1940, Wilfred Osgood and Clifford Gregg reflected upon the past fifty years of the Field Museum. “I suppose, Dr. Osgood,” Gregg began, “there are still people in Chicago who think that Field Museum is only a collection of stuffed animals, Indian head-dresses, and samples of rocks and minerals.” To which Osgood replied, “That’s about all it was [emphasis in original] when it was founded some 45 years ago, but since then natural history museums everywhere have changed more than in all their previous history and the Field Museum is no exception.” It was “no longer an enlarged curiosity shop but an active force in education and in service to the people.”¹

Change in museums—natural history and art museums in particular—sometimes happens so slow, they appear unchanging to the casual observer. This is as true today as it was a century ago. These types of museums embodied stability and permanence, and this perception is as much by design as by function. They exist as much to exhibit as to preserve and protect specimens and artifacts from decay and loss. Today this notion of permanence reinforces the idea that museums deal in facts, not speculation, but also spark the imagination to make connections. Yet, contemporary issues such as climate change (a parallel to the vanishing wilderness—or habitat loss—in an earlier period) or invasive species provide natural history museums with new lessons to teach with their existing exhibits. The newer museums that emerged in the 1930s—technology, industry, and children’s museums—were as visibly dynamic as their exhibits. In these museums, many objects were incorporated into “hands on” exhibits that were suited for demonstration, not long term protection. The first curators at Chicago’s Museum of Science and Industry considered exhibit material almost disposable. If people wore out an exhibit

¹ Transcript of Radio Program, WJJD, June 19, 1940, DPGC, FMA.

working it, they would just replace it. These moving displays were often facsimiles or models of course, and not something of historic value. This is where science and technology museums differ from those of nature, art or history. The preservation of display specimens (and of course study collections) requires they not only be protected from exposure and insect damage by cases and preservatives but also rarely handled or moved. This necessity is one of the chief explanations for the seeming permanence of natural history museum exhibits. For example, the “Four Seasons” deer groups—some of the first habitat dioramas ever built—have been altered twice since their initial completion in 1902, once when moved from Jackson Park in 1921, and the second time in the 1990s when additional insects, birds, and sensory experiences were added as the displays were incorporated into the “Nature Walk” exhibit. The substance of the dioramas was largely unchanged.²

Some specimens are extremely delicate and staff dare not handle them. In the Field Museum there are single mounts that were part of the initial purchase of Ward’s Natural Science Establishment in 1893. These animals are presented together in a case with minimal labeling and the animal hides show distinct cracks and wear. It is unsurprising that these “original” specimens were not added to the 2013-2014 “Opening the Vaults: Wonders of the 1893 World’s Fair” exhibit to showcase the museum’s origins and its world’s fair materials. This special exhibition sought to show not only some of the museum’s first accessions but also to show how the museum changed since 1894. Each major department—anthropology, botany, geology, and zoology were

² See: Beverly Serrell and Barbara A. Becker. “Stuffed Birds on Sticks: Evaluation of the Animal Halls as a Planning Tool for Renovations.” (Chicago: The Field Museum, 1990); _____. “Stuffed Birds on Sticks: Plans to Re-Do the Animal Halls at Field Museum” in *Visitor Studies: Theory, Research and Practice: Proceedings of the 1990 Visitor Studies Conference* 3 (1991): 263-69.

represented in this exhibit alongside ephemera and archival materials from the World's Columbian Exposition.³ Visitors learned some of the history of the fair and the story of the museum's founding. They saw displays similar to those at the Columbian Museum—specimens with a label in a glass case. The exhibit was effective at bringing the atmosphere of the 1890s museum to life and when a visitor entered other exhibits in the museum, the contrast between the old ways and contemporary exhibits was easy to see.

But the museum missed an opportunity to say more about how and why exhibits at the Field Museum (and other museums) changed, not even over the course of a century, but as we have seen in these chapters within thirty years. In “Opening the Vaults” exhibit labels were hard to see and read. Crucially, there was a lack of commentary about the source of exhibits. Nor was there any sense of how these materials contributed to science. The taxidermy specimens, including the skin of the leopard Carl Akeley strangled, lacked any context about the animal's habitat, behavior, or economic value to people—something that would have been minimally indicated in the 1890s.⁴ In addition, no commentary was provided about subsequent changes in the museum's philosophy such as conservation or protection for endangered animals, unlike in the diorama halls where signage indicates that the museum has long ceased field collection of display specimens. Nor was the installation a true recreation of an early exhibit hall as each museum branch was represented by a few cases and in no way possessed the ambiance of the open spaces of the Columbian Museum. Only one section in *Opening the Vaults*, anthropology, featured a “then and now” contrast. In this case,

³ *Opening the Vaults: Wonders of the 1893 World's Fair* was open from October 25, 2013 through September 7, 2014. <https://www.fieldmuseum.org/at-the-field/exhibitions/opening-vaults-wonders-1893-worlds-fair>. Accessed November 1, 2016.

⁴ The story of Carl Akeley strangling the leopard is as strange as it is true. See Jay Kirk, *Kingdom Under Glass*.

Sioux artifacts from 1894 were placed next to modern materials. A small sign, placed at the top of the case indicated that today, anthropologists work closely with people to acquire cultural artifacts. Nothing was said about older practices of simply taking things from people.⁵ In my mind such contrasts are much more important than the gee-whiz this was also shown at the Columbian Exposition message that the exhibition as a whole delivered. Nevertheless, even if cautiously, the museum engaged with its own history and shared it with visitors.

The other major reason why natural science exhibits were (and are) slow to change is the fact that museums were generally not on the cutting edge of science. Museums represented accumulated knowledge and the content of exhibits demonstrated accepted understanding. The exhibits sought to teach, and teaching, more often than not, was grounded in an established factual base and reasoning. As we have seen, cutting edge experiments were the province of university research, not curator's collections and labels. It was (and is) difficult to exhibit something that is theoretical or is not readily demonstrated with objects or specimens.⁶ Museum exhibits after all were not geared for experts, but for ordinary people who approached them with a range of background knowledge about the subject, level of scientific or English literacy, and their own preconceived notions.

The relatively small staff of museums and persistent shortage of funds also accounted for the reluctance of curators to change exhibit materials frequently. Much

⁵ Contrast this to an older philosophy espoused by George Dorsey, the Columbian museum's xenophobic curator of Anthropology (from 1897-1914), who once wrote: "When you go into an Indian's house and you do not find the old man at home and there is something you want, you can do one of three things; go hunt up the old man and keep hunting until you find him; give the old woman such price for it as she may ask for it running the risk that the old man will be offended; or steal it. I tried all three plans and I have no choice to recommend." Quoted in Tristan Almazan and Sarah Coleman, "George Amos Dorsey: A Curator and His Comrades" in Stephen E. Nash, Gary M. Feinman, eds., *Fieldania: Curators, Collections, and Contexts: Anthropology at the Field Museum, 1893-2002*. Anthropology New Series, No., 36., pp. 87-98., 89.

⁶ A visual medium such as a museum exhibit can tell a story no laboratory experiment can demonstrate such as evolution or geologic change because these phenomena happen slowly and one cannot witness it happen.

work goes into designing and installing an exhibit and curators were quicker to exhibit newly acquired (and often exciting) specimens and artifacts rather than revamp an existing exhibition. The final reason for slow change, I argue, is the sense of stability—again part crafted, part byproduct—which museums projected to the community. Visitors enjoyed viewing displays time after time. Some come back out of fascination, some out of enlightened interest, others out of nostalgia. Continuity also benefitted educators as well. Teachers counted on taking students to study particular exhibits and changing them frequently disrupted this system. A conversation with a long-time Chicago resident comes to mind. She used to take her children to the Art Institute just about every weekend; it was in her words, “going to church.” One of their favorite rooms was devoted to arms and armor. The suits of armor, assembled as if on a knight, were like old friends to them. Then one day the museum closed that exhibit hall for renovation and the family was stunned and saddened to be unable to greet these old friends. This experience may not be typical of all museumgoers, but it is not a common among frequent visitors.⁷ Every museum has centerpiece or hallmark exhibits, *T. Rex* Sue comes to mind, and institutions do realize the need to keep popular exhibits on continuous display.

The preceding chapters told a story of places, people, and things. The places were Chicago’s two natural history museums, the locally focused Chicago Academy of Sciences and the globally focused Field Museum of Natural History. Naturalists, some with academic credentials, and some accomplished amateurs, built these institutions.

Local elites, seeking (or encouraged to seek) a philanthropic outlet for their wealth

⁷ See Deborah L. Perry, “The Museum Impact and Evaluation Study: How Visitors Relate to Science and Technology Museums,” *Visitor Studies: Theory, Research and Practice: Collected Papers from the 1992 Visitor Studies Conference* 5 (1993): 254-59; Peter Anderson, and Bonnie Cook Roe, *Mies: The Museum Impact and Evaluation Study: Roles of Affect in the Museum Visit and Ways of Assessing Them*. Volumes 1-3 (Chicago: Museum of Science and Industry, 1993).

funded them and made the scientists' vision a reality (and stymied them when funding was hard to acquire). At the turn of the Twentieth century, the burgeoning professionalism of museum work was enmeshed with progressive reform movements concerned with wildlife conservation, environmental conditions, and public education to produce museum exhibits and school outreach programs to address these concerns. The New Museum Idea, as they dubbed it, was charged with educating people through specimens, objects and artifacts through sophisticated visual displays and outreach programs. The museum and the school, using increasingly sophisticated forms of display and pedagogy were in a prime position to put urbanites—Chicagoans—back in touch with nature and the wider scope of the world. People would be better people—citizens, students, and workers—if they learned from nature. This vision, not always unanimous in intent, scope, or execution was aimed toward the people in that fluid body that is the public. There were various publics: men and women, adults and children, teachers and students, scientists and laypeople, residents and tourists, middle class and working class, blacks and whites. These publics visited the museum for the same range of reasons people do today, from sincere personal interest to unwillingly on a school field trip, and every level of eagerness and engagement in between. In this regard museums were democratic institutions, anyone was welcome to visit and to learn. While it is true that museum staff had expectations of what visitors should learn from exhibits, there was no guarantee that they would do so.

Museum people took their work and mission to teach people about science and nature seriously. The letters, professional papers, and memoranda reveal their disappointment and frustration when exhibits failed to convey an idea or worse, tended to

be overlooked entirely. They were willing to change displays to better communicate an idea or better relate to an audience. Hence exhibit design changed to accommodate a broader public. Overstocked cases, rows of specimens, natural light, and scientific labels gave way to the lifelike habitat dioramas; uncluttered cases, and spotlights increased visibility, common names joined Latin names, and labels sported contextual information. Eventually films, sound recordings, animations, interactive panels, and television screens added new dimensions to learning in the museum. All of these borrowed from competing forms of entertainment that people grew accustomed to. Sure, experts ran museums, but they were intended for all, and the public relied upon the expertise of museum staff for accurate information. If these were not the case, what point would there be to a museum?

It was this devotion of museum staff to public education that places the work of museums, broadly speaking, in line with the progressive impulse at the turn of the century. Specifically, museum staff contributed to the progressive milieu in Chicago by making the mission of natural history museums to teach Chicagoans of all ages and creeds about nature through the visual medium of museum exhibits (and later motion pictures). In connection with contemporary nature study programs in schools and youth groups, museums created school loan programs to provide scientific materials and a knowledge base for teachers. The popularization of science generally made museums important sites for the work of reform by teaching lessons not only about natural processes, health, and the uses of natural materials, but also conservation of resources and habitats. As we have seen, the democratization of natural science and increased museum attendance was part and parcel of the broader increase in access of the period manifest in libraries, national parks, civic centers, local public parks, vocational training, public

schooling and also museums of art and history. My work demonstrates that democratization was not limited to the settlement house or body politic alone, but also to Chicago's natural history museums. I have shown the interaction between the representations of nature on exhibition, the experts who created them, and the publics that viewed them. In an age before television and the Internet, museums mattered as sites for people who could not travel—even to the local wilderness—to experience nature through habitat dioramas and to learn, through increasingly sophisticated exhibits, about the way the natural world worked. In the Twenty-first century, museums continue to matter.

Museums Today and Tomorrow

The nation's largest natural history museums, including the Field Museum, not only draw crowds of locals and tourists, individuals and school groups, but also continue to make scientific contributions. Museum scientists still embark on expeditions and return with specimens—especially when fossilized or needed to identify a new species—and often with photographs and video footage. Paleontology remains a particular museum stronghold in part because the exhibitions of dinosaurs and other prehistoric creatures continue to be among the most popular in natural history museums. The Field Museum continues to be a leader in environmental studies, conservation, anthropology, zoology, and paleontological work.⁸

What of the Chicago Academy of Sciences? Academy staff of the early Twentieth century would likely be pleased with the transformation of the museum into the Peggy Notebaert Nature Museum (1999) and its efforts to educate children about

⁸ For example, a new species of dinosaur was unearthed in Patagonia by Akiko Shinya, the Field Museum's chief fossil preparator. See Steve Johnson, "New Carnivorous, Short-forelimbed Dinosaur Discovered by Field Museum Scientists," *Chicago Tribune*, July 13, 2016. <http://www.chicagotribune.com/entertainment/ct-new-dinosaur-discovery-at-field-museum-20160713-column.html>. Accessed November 1, 2016. See also: Perry and Forland, *The Exploration Zone at The Field Museum*.

nature, local wildlife, and conservation. Indeed the museum as a whole is geared toward children and their families and features numerous interactive exhibits, such as one that demonstrates the Great Lakes watershed, or the immersive experience of the indoor tropical butterfly garden, and is home to as many living creatures as taxidermy specimens. This contemporary museum is a blend of the interactive, action filled displays found in science and technology museums and the dioramas of natural history museums. The Academy's transformation embodies a culmination of changes in natural history museums that followed World War II: more interactive exhibits, demonstrations with live animals or science experiments, specialized staff to design and install exhibits, systematic visitor studies, traveling "blockbuster" exhibits, immersive experiences (such as 4D movies or butterfly gardens) and a less-is-more approach to display.

Objects—whether dinosaur bones, taxidermy, oil paintings, Roman coins, ancient pottery, local historical memorabilia, or spacecraft—remain at the core of all types of museums and it is the display of these things that people come to see. Behind the scenes of the large urban institutions such as the Field Museum, American Museum of Natural History, and the Smithsonian the scientific study collections greatly outnumber the display collections, just as they did a century ago. These collections are a record, a catalog of life on Earth and they continue to provide useful data for contemporary scientific inquiry. Natural history museums are among the few places scholars have systematic access to a century or more of natural materials, ancient DNA, samples of extinct or extant life, or markers of long-term environmental change.

As we have seen, natural history specimens and objects have long been commodities as well as teaching tools and subjects of scientific enquiry. While

businesses such as Ward's Natural Science Establishment supplied museums and schools with materials for display and wealthy hunters mounted trophies in lodges and private studies, filling a home with skulls, bones, fossils, and taxidermy was not something ordinary people tended to do. In recent years, natural curiosities have become trendy for interior design and décor.⁹ The Victorian museum look is in and retailers' shelves, magazines, and Internet sites such as Pinterest are full of design ideas using real or reproduction specimens. The notion of "curating" collections of all kinds is the organizing ethic behind online retailers such as eBay and Etsy. Although design trends are fickle, it is interesting that the objects of natural history decorating a home would have conjured up thoughts of the *Addams Family* a few years ago now fill the pages of *Architectural Digest*.

But it is the public exhibition of natural science that concerns us here and it is worth briefly considering its future. A century ago museums competed with other amusements such as vaudeville, movies, and professional sports. They adapted display techniques and incorporated movies into their public programming. By mid century, science and technology museums, such as the Museum of Science and Industry, and World's Fairs, Disneyland and other theme parks raised yet a new challenge for natural history display as the public clamored for thrill rides and exhibits they could touch and move. By the end of the Twentieth century museums faced competition not only from a myriad of other amusements and sources of educational material (such as the Internet and cable television) but also budget cuts, hiring freezes, reduced municipal support, and the need to raise admission fees and reduce hours. These forces affected all museums and

⁹ Retailers incorporating natural history in the guise of curiosities range from upscale vendors such as Restoration Hardware, Dot and Bo to sellers on Etsy. A search on social media sites such as Pinterest or Instagram reveals thousands of results. The natural science esthetic is popular these days.

this made them, at least in terms of cost, much less accessible today than they were a hundred years before. The challenge is not only refining and updating exhibitions and display techniques, but also getting people into the doors. New programs and “blockbuster” exhibitions, often funded by corporations, provide one solution. Special programs such as overnight experiences (Dozin’ with the Dinos) for children, or evening adults-only cocktail receptions are commonplace in all types of museums. Institutions, probably much to the chagrin of the likes of Baker, Skiff, or Simms, rent their halls for special private events such as wedding receptions as a means of generating revenue. Corporate-sponsored (or non-profit funded, such as National Science Foundation) travelling exhibitions also draw museum visitors and while undoubtedly the main attraction of the visit, there is the hope that people then go visit the permanent collections.

In the twenty-first century advanced computer technologies and the ubiquitous Internet present both a challenge for museums and an opportunity. On the one hand, instantaneous access to textual and visual information online renders the need to physically go and see things less necessary. Rather than look at a stoic mounted lion in a diorama, forever poised to make a move, one can watch videos of lions doing things lions do. Three-dimensional scans uploaded to the web allow viewers to see all sides of an artifact, say an Ancient Egyptian urn without touching it and risking damage. Computer animations recreate the places and spaces to give virtual tours. Museums are cataloging collections online and allowing interested persons to access a digital facsimile of their specimens and objects, anywhere in the world. Digitization has increased accessibility in

ways Progressive Era museum staff could never imagine.¹⁰ Social media platforms provide museums a means to educate people with articles, photographs, and videos but also to advertise exhibitions and events. At the Field Museum for example, an artist with an interest in nature created not only a YouTube sensation, *The Brain Scoop*, but landed a job for herself as the museum's most famous science ambassador.¹¹ In our fast-paced, social media infused, cloud stored, instant gratification society, why go to a museum at all?

It remains the experience of standing next to something and seeing it with one's own eyes or touching it that cannot be replicated online. Photographs and videos do not provide a sense of scale or presence. This applies to all museums, not just those of natural history. It is why people crowd around the *Mona Lisa*, even though they have seen photographs or reproductions of it in books, posters, or on coffee cups. It is the same reason people stare up at the head of Field Museum's *Sue* or eagerly await a shark to swim by in the Shedd Aquarium's "Wild Reef." In their study of Americans and history, Roy Rosenzweig and David Thelen noted that "Americans put more trust in history museums and historic sites than in any other sources for exploring the past" because these places "give visitors a sense of immediacy—of personal participation." In the words of one their interviewees, such historic places "make me feel like I was there."¹² Of course this concept is not limited to historic sites or museums as it is one

¹⁰ Museums and libraries have digitization projects for image collections. Online resources include: ArtStor <http://artstor.org> and Google's Cultural Institute (formerly Google Art Project) <https://www.google.com/culturalinstitute/beta/partner>. Accessed November 1, 2016.

¹¹ Emily Graslie's title is Chief Curiosity Correspondent. Janet Potter, "How Emily Graslie Went from YouTube Science Star to Full-time at the Field Museum," *Chicago Reader*, January 27, 2014. *The Brain Scoop* is online at <https://www.youtube.com/c/thebrainscoop>. Accessed November 1, 2016.

¹² Roy Rosenzweig and David Thelen, *The Presence of the Past: Popular Uses of History in American Life* (New York: Columbia University Press, 1998), 105.

thing to see a photograph of say the Eiffel Tower, and the view of Paris from the top, and another to actually climb the stairs (or take the elevator). The notion that seeing is believing continues to be the bedrock of museums. We have seen how this experience was recognized a century ago as one of the unique things natural history museums provided. The dioramas, these picture windows of nature, were among the most dramatic means of standing and looking in on a scene one otherwise would not see because it was a far away location or the simple fact that most animals flee when approached by people. In the early Twentieth century, immersive exhibits, or “experiences,” as they are called now, first emerged in natural history museums. The Atwood Celestial Sphere was among the first of these as was the reconstructed Mastaba Tomb of Unis-Ankh at the Field Museum (installed in 1924 and still drawing visitors today). In these exhibits, visitors were literally surrounded by the display and had something to see at every turn of the head.¹³

Whether in a contrived “experience” or a static display, a personal, physical look at an exhibit is not wholly incompatible with the digital age and museums and the same challenge from the digital world also provides museums with opportunities. Movies, a staple at museums since the 1920s, are now presented in 3D and 4D formats in museum theaters. Conventional 2D presentations are incorporated into exhibit halls and allow visitors to see moving images captured in the field as well as the things behind glass. Three-dimensional scans rendered onscreen next to specimens and objects allow visitors to see the original and facsimile simultaneously without the risk of damage. In the near future, virtual reality technology will regularly transport visitors to faraway places in space and time to experience sophisticated recreations of Jurassic landscapes, Aztec

¹³ The Atwood Celestial Sphere is currently on exhibit, for an additional fee, in the Adler Planetarium.

temples, or deep under the ocean. The natural history museum exhibition of the future will likely become a blend of the specimens and the digital as a new and sophisticated means to experience those things in their natural or historical context. Through the nineteenth and twentieth centuries, museums survived fires, theft, competition, budget crises, two world wars, the Great Depression, shortage of storage and exhibit space, rebranding, and criticism. They have not only survived, but also thrived. If we accept the past as an indicator of the future, Chicago's natural history museums—indeed all natural history museums—will endure the challenges of the Twenty-first century.

The Historiography of Museums

The historiography of museums generally, and natural history museums in particular is relatively recent. For the most part, museums caught the attention of scholars only within the last thirty years. Much of the scholarly work about museums is the work of disciplines outside of history—sociology, anthropology, art history, cultural studies, and museum studies. Historians joined the party late and at present there is no thrilling intellectual warfare as there is in other subfields of history, but rather a more diverse mix of disciplines weighing in and staking analytical claims on the territory of museums. “Until the 1980s,” museum theorist Eilean Hooper-Greenhill wrote, a “blanket of critical silence” veiled museums. At that point much of the extant writing about museums was done by and for those who worked there.¹ Throughout the 1980s and 1990s scholars began to contemplate museums. In the early twenty-first century, museum studies, not studies of museums, had come of age, moving, as Sharon Macdonald wrote, “from being an unusual and minority subject into the mainstream.”² Indeed, scholars jumped into the discussion through numerous monographs, edited volumes, journals, and periodicals. Fortunately, I need not elaborate on all of these works here. Historian Randolph Starn’s article, “A Historian’s Guide to New Museum Studies” provides a useful roadmap for making sense of the deluge of scholarship on museums. He divides the historiography into four major themes: “the genealogy of museums; the shifting status of the museum object; the politics of museum culture; and

¹ Eilean Hooper-Greenhill, *Museums and the Shaping of Knowledge* (London: Routledge, 1992), 3. Some early critical writing about museums came from within. For example see: Benjamin Ives Gilman, “Museum Fatigue,” *The Scientific Monthly* Vol.2, No.1 (Jan., 1916), pp. 62-74; John Cotton Dana, “The Gloom of the Museum” (1917); Theodore Low, “What is a Museum?” (1942), reprinted in Gail Anderson, ed., *Reinventing the Museum: The Evolving Conversation on the Paradigm Shift* (Lanham, Altamira Press, 2012), pp. 17-47; Arthur W. Melton, *Problems of Installation in Museums of Art*. Edited by Edward S. Robinson (Studies in Museum Education. Washington, DC: American Association of Museums, 1935, 1996 ed); Francis Henry Taylor, *Babel’s Tower: The Dilemma of the Modern Museum*.

² Sharon Macdonald, “Expanding Museum Studies: An Introduction,” in Sharon Macdonald, ed., *A Companion to Museum Studies* (Malden, Massachusetts: Blackwell, 2006), 1.

the past and future of the ‘museum experience.’”³ This organization scheme is sensible and to it I would add visitor studies as a contemporary means of understanding the ways people respond to museum exhibits and thus to grapple with their larger purpose and function in society and places of informal education.⁴

As Starn’s essay makes clear, much of the scholarship on museums is focused on art museums, often on exhibits and practices since 1960, and anthropology collections within natural history museums (and at world’s fairs).⁵ However, anthropology is just one department of large natural history museums, as the scientific disciplines: botany, geology (including paleontology) and zoology, largest of all, make up the other major components. There is comparatively less work on the history or development natural

³ Randolph Starn, “A Historian’s Guide to New Museum Studies,” *American Historical Review*, Vol. 110, No.1, February 2005, 70.

⁴ There is a professional association, the Visitor Studies Association (<http://www.visitorstudies.org/>) and journals devoted to research and analysis of visitor experiences at museums, zoos, aquariums, parks, and other public spaces. Two important journals are *The Informal Learning Review*, published online (<http://www.informallearning.com>) and *Visitor Studies* (Taylor and Francis); Some monographs devoted to the study of contemporary museum visitors include: Judy Diamond, Jessica J. Luke, David H. Uttal, *Practical Evaluation Guide: Tools for Museums and Other Informal Educational Settings* (Lanham, Maryland: Altamira Press, 2009); Valerie Crane, Heather Nicholson, Milton Chen, and Stephen Bitgood., *Informal Science Learning: What the Research Says About Television, Science Museums, and Community-Based Projects* (Dedham, Massachusetts: Research Communications, Ltd., 1994); John H. Falk and Lynn D. Dierking, *The Museum Experience* (London: Routledge, 2011ed); _____, *The Museum Experience Revisited* (Walnut Creek, California: Left Coast Press, 2013); Elican Hooper-Greenhill, *Museums and Their Visitors* (London: Routledge, 1994); _____, *Cultural Diversity : Developing Museum Audiences in Britain, Contemporary Issues in Museum Culture* (London: Leicester University Press, 1997); Deborah L. Perry, *What Makes Learning Fun?* (Lanham: Altamira Press, 2012); Susie Wilkening and James Chung, *Life Stages of the Museum Visitor: Building Engagement over a Lifetime* (Washington, DC: American Association of Museums, 2009).

⁵ There are numerous studies of anthropology exhibition in museums and world’s fairs. See: Ames, *Cannibal Tours and Glass Boxes*; Susanne Belovari, “Invisible in the White Field: The Chicago Field Museum’s Construction of Native Americans, 1893-1996, and Native American Critiques of and Alternatives to Such Representations” (Ph.D. diss., University of Illinois, 1998); J.O. Brew, ed., *One Hundred Years of Anthropology* (Cambridge, Massachusetts: Harvard University Press, 1968); Axel Engstfeld, dir., “Minik: The Lost Eskimo,” *American Experience*, (Washington, DC: PBS, 2008); Karp and Levine eds., *Exhibiting Cultures: The Poetics and Politics of Museum Display*; Bernard McGrane, *Beyond Anthropology : Society and the Other* (New York: Columbia University Press, 1989); Nash and Feinman, eds., *Curators, Collections, and Contexts*; Robert W. Rydell, *All the World’s a Fair*; _____, “World Fairs and Museums.” In *A Companion to Museum Studies*, edited by Sharon Macdonald (Malden, Massachusetts: Blackwell, 2006), 135-51; Penelope Harvey, *Hybrids of Modernity*. For important works on art museums, see: Danny Danziger, *Museum: Behind the Scenes at the Metropolitan Museum of Art* (New York: Viking, 2007); Harris, *Chicago’s Dream, a World’s Treasure*; _____, “The Gilded Age Revisited: Boston and the Museum Movement,” *American Quarterly* Vol. 14, No. 4, (1962) pp.545-64; Francis Haskell, *The Ephemeral Museum: Old Master Paintings and the Rise of the Art Exhibition* (New Haven, Connecticut: 2000); Andrew McClellan, *Inventing the Louvre: Art Politics, and the Origins of the Modern Museum in Eighteenth-Century Paris* (Berkeley, California: University of California Press, 1994); Linda S. Phipps, “The 1893 Art Institute Building and the ‘Paris of America’: Aspirations of Patrons and Architects in Late Nineteenth-Century Chicago,” *Art Institute of Chicago Museum Studies*, Vol. 14, No. 1 (1988): 28-102; George Stocking, *Victorian Anthropology* (New York: The Free Press, 1987); Calvin Tomkins, *Merchants and Masterpieces: The Story of the Metropolitan Museum of Art* (New York: E.P. Dutton, 1970); Stephen E. Weil, *Making Museums Matter* (Washington, D.C: Smithsonian Books, 2012). For anthropology in museums—specifically the Field Museum see: Marianne Beatrice Kinkel, *Circulating race: Malvina Hoffman and the Field Museum’s Races of Mankind sculptures* Ph.D. dissertation, The University of Texas, Austin, 2001, Linda Kim, *Malvina Hoffman’s “Races of Mankind” and the Materiality of Race in Early Twentieth-century Sculpture and Photography* PhD. dissertation, University of California, Berkeley, 2006.

science exhibitions in these museums (and also on science museums and history museums) or on museums in the nineteenth and early twentieth centuries.

This study considers the exhibition of natural science—particularly zoological displays and does not delve into anthropology exhibits. I have decided to do so primarily because the subject of anthropology in museums and world's fairs is well trod by other historians and scholars but also because, as was the case of the Chicago Academy of Sciences, not every natural history museum had anthropology exhibits and collections. The materials loaned to schools and other groups by the Academy and the Field Museum in the early twentieth century did not include anthropological specimens. Today, the Harris Learning Collection includes anthropological material. This dissertation reflects my interests—both professional and personal—with the role museums played in teaching people about nature (rather than anthropology) through exhibition.

The few studies of natural history museums tend to make too general a sweep over geography and time. This dissertation narrows the focus to Chicago and two institutions with similar, yet largely divergent interests and philosophies, as a case study for museums during a critical fifty-year range. The institutional approach combined with the dedicated study of museum audiences and educational programs during the Progressive Era sets my work apart from others and is where I believe, I make the greatest contribution to the museum scholarship. These institutions also deserve to have their stories told.⁶

⁶ The only institutional histories of either the Chicago Academy of Sciences or the Field Museum are: Hendrickson and Beecher, "In the Service of Science" and a coffee table book by Cheryl Bardoe, *The Field Museum* (San Diego, California: Beckon Books, 2011). For scholarship about natural history museums and exhibits see: Steven T. Asma, *Stuffed Animals and Pickled Heads*; Steven Conn, *Museums in American Intellectual Life*; _____, *Do Museums Still Need Objects?*; Richard Fortey, *Dry Storeroom No. 1*; Steven W. Allison-Bunnell, "Making Nature "Real" Again: Natural History Exhibits and Public Rhetorics of Science at the Smithsonian

A related, but lesser historiographical aim of this project is to complicate the broader understanding of museums generally by allying myself with scholars who do not fully assent to a Foucauldian analysis of the museum environment. Foucault called into question the boundaries of disciplines and emphasized the dependent relationship of knowledge and power.⁷ His study of natural history in particular examined systems of classification and the fact that it was long centered upon what was visible to the naked eye. It is his subsequent work on order and space—as places of discipline and order—that has had the most influence upon cultural studies and museum studies, which focuses on contemporary practices, rather than historical ones. Foucault's ideas caused modern

Institution in the Early 1960s" in Sharon Macdonald, ed., *The Politics of Display: Museums, Science, Culture* (New York: Routledge, 1998), pp. 77-97; Douglas Preston, *Dinosaurs in the Attic: An Excursion into the American Museum of Natural History*; Rader and Cain, *Life on Display*; Ronald Rainger, *An Agenda for Antiquity: Henry Fairfield Osborn & Vertebrate Paleontology at the American Museum of Natural History, 1890-1935* (Tuscaloosa, Alabama: University of Alabama Press, 1991); Rowley, *Taxidermy and Museum*; Yanni, *Nature's Museums*. Some general works that grapple with general museum history, development and current practices include: Alexander, *Museum Masters*; _____, *The Museum in America: Innovators and Pioneers* (Walnut Creek, California: Altamira Press 1996); Gail Anderson, ed., *Reinventing the Museum: Historical and Contemporary Perspectives on the Paradigm Shift* (Walnut Creek, California: AltaMira Press, 2004); Whitfield J. Bell, *A Cabinet of Curiosities: Five Episodes in the Evolution of American Museums* (Charlottesville, Virginia: University Press of Virginia, 1967); Robert R. Archibald, *The New Town Square: Museums and Communities in Transition* (Walnut Creek, California: AltaMira Press, 2004); Patrick Boylan, ed., *Museums 2000: Politics, People, Professionals and Profit* (London: Routledge, 1998); Bettina Messias Carbonell, ed., *Museums Studies: An Anthology of Contexts* (Malden, Massachusetts: Blackwell, 2004); Susan A. Crane, ed., *Museums and Memory* (Stanford: Stanford University Press, 2002); Gary Edson, and David Dean, *The Handbook for Museums* (London: Routledge, 1994); Hilde S. Hein, *The Museum in Transition: A Philosophical Perspective* (Washington, DC: Smithsonian Books, 2000); _____, *Learning in the Museum* (New York: Routledge, 1998); Donald Preziosi and Claire Farago, eds., *Grasping the World: The Idea of the Museum* (Burlington, Vermont: Ashgate Publishing, 2004); Simon Knell, ed., *Care of Collections*, Leicester Readers in Museum Studies (New York: Routledge, 1994); Catherine M. Lewis, *The Changing Face of Public History: The Chicago Historical Society and the Transformation of an American Museum* (DeKalb, Illinois: Northern Illinois University Press, 2005); Barry Lord and Gail Dexter Lord, eds., *The Manual of Museum Exhibitions* (Walnut Creek, California, 2002); Sharon Macdonald, ed., *The Politics of Display: Museums, Science, Culture*; _____, *A Companion to Museum Studies* (Malden, Massachusetts: Blackwell, 2006); Janet Marstine, ed., *New Museum Theory and Practice: An Introduction* (Malden, Massachusetts: Blackwell, 2008); Joel J. Orosz, *Curators and Culture*; Jay Pridmore, *Inventive Genius*; Lisa C. Roberts, *From Knowledge to Narrative: Educators and the Changing Museum* (Washington, DC: Smithsonian Institution Press, 1997); Marjorie Schwarzer, *Riches, Rivals, and Radicals*; Beverly Serrell, *Making Exhibit Labels: A Step-by-Step Guide* (Nashville, Tennessee: American Association for State and Local History, 1982); _____, *Exhibit Labels: An Interpretive Approach* (Lanham, Maryland: Rowman and Littlefield, 2011); Lois H. Silverman, *The Social Work of Museums* (New York: Routledge, 2010); Michael Spock, ed., *Philadelphia Stories* (Washington, DC: American Association of Museums, 2000); Milton D. Thompson, *The Illinois State Museum: Historical Sketch and Memoirs* (Springfield, Ill.: Illinois State Museum Society, 1988); Morris J. Vogel, *Cultural Connections: Museums and Libraries of Philadelphia and the Delaware Valley* (Philadelphia: Temple University Press, 1991); Sheila Watson, ed., *Museums and Communities* (New York: Routledge, 2007); Stephen E. Weil, *A Cabinet of Curiosities: Inquires into Museums and Their Prospects* (Washington, DC: Smithsonian Institution Press, 1995); _____, *Making Museums Matter*; Lawrence Weschler, *Mr. Wilson's Cabinet of Wonder: Pronged Ants, Horned Humans, Mice on Toast, and Other Marvels of Jurassic Technology* (New York: Vintage Books, 1995); Patricia West, *Domesticating History: The Political Origins of America's House Museum* (Washington, DC: Smithsonian Institution Press, 1999); Andrea Whitcomb, *Re-Imagining the Museum: Beyond the Mausoleum* (London: Routledge, 2003); Louise Wilson, ed., *Inside the Science Museum* (London: NMSI Trading, Ltd., 2001); Alma Stephanie Wittlin, *Museums: In Search of a Usable Future*. (Cambridge: MIT Press, 1970).

⁷ Foucault, *The Order of Things*.

museum scholars to consider the high political stakes of exhibitions and critique museums' supposed neutrality as well as lambast an institutional master narrative.

These scholars, mostly from the disciplines of cultural studies and museology undergird their works with the writings of contemporary cultural critics and sociologists.⁸ These authors are largely writing for contemporary museum workers and do offer an interesting perspective on museums. However, they are not historians, nor are they much interested in the history of museums. Thus, they do not go to the historical record—the archives—and read the letters, memoranda, reports, and the paper trail left by historical actors. Nor do they look at newspapers, periodicals, or books by and for the general public. My study is different because I examine archival records and the historical actor's aspirations and deeds. Rather than see the museum (broadly constructed) as an elitist and deliberately oppressive organ of social control, I see Chicago's natural history museums as accessible, democratic (though informed by the values of middle class reformers), and increasingly interactive spaces for an urban public. Viewing the museum in this way, I assert that it is best to rephrase the question of control raised by the cultural critics: how do these cultural institutions liberate or confine the realm of the possible for a broader public?

This project is in direct dialog with a handful of important works. Edward Alexander's *Museums in Motion: An Introduction to the History and Functions of Museums* (1979) is one of the first scholarly overviews of museum history. Alexander

⁸ For the Foucauldian interpretation of museums, see: Tony Bennett, *The Birth of the Museum*; _____, *Pasts Beyond Memory: Evolution, Museums, Colonialism* (New York: Routledge, 2004); _____, *Culture, Class Distinction* (New York: Routledge, 2009); Douglas Crimp, *On the Museum's Ruins* (Cambridge, Massachusetts: MIT Press, 1993); Eilean Hooper-Greenhill, *Museum and Gallery Education*; _____, *Museums and the Shaping of Knowledge* (New York: Routledge, 1992); _____, *The Educational Role of the Museum* (New York: Routledge, 1994, 1999ed); _____, *Museums and Their Visitors*; _____, *Museum, Media, Message* (New York: Routledge, 1995); _____, *Museums and the Interpretation of Visual Culture* (New York: Routledge, 2000); _____, *Museums and Education: Purpose, Pedagogy, Performance, Museum Meanings* (New York: Routledge, 2007); Timothy Luke, *Museum Politics: Power Plays at the Exhibition* (Minneapolis: University of Minnesota Press, 2002); Sharon Macdonald, "Exhibitions of Power and Powers of Exhibition: An Introduction to the Politics of Display," in Sharon Macdonald, ed., *The Politics of Display: Museums, Science, and Culture*.

highlights some of the basic differences between the various types of museums and provides a suitable starting point for asking questions. However, he does not address topics such as collecting, conserving, research or display with much depth. In *Curators and Culture: The Museum Movement in America, 1740-1870* (1990), Joel Orosz examines the history of early American museums. This book provides excellent background for museums established in eastern cities and how early museums functioned. By charting the course of museums operating in early America, he demonstrates that there was a “museum movement,” led by scientists, artists, showmen, and businessmen to establish museums and similar institutions of exhibition and learning. He argues that this movement was a product of a growing democratic culture. For Orosz, these museums were true cultural centers that had to wrestle with competing agendas and interests among trustees, members, staff, and the public. Should these institutions serve the learned or the layperson, or both? The result of this tension was the “American Compromise” by which museums were to meet the needs of researchers and public education. Orosz argues that this compromise was in place before the museum building boom at the turn of the Twentieth Century.⁹ While he looks closely at the administrative differences within the institutions he studies, he has little to say about the design, philosophy, content or impact of the exhibits within these early museums.

One of the most important studies of museums that considers twentieth century natural history museums and exhibits is Steven Conn’s book, *Museums and American Intellectual Life* (1998). He examines the role of objects in public education within museums of natural history, art, history, and science. Conn views museums as intellectual projects. He argues that the museums built in the late nineteenth century

⁹ Orosz, *Curators and Culture*, ix.

were a reflection of an “object-based epistemology” in which objects were understood to be critical sources of knowledge. He argues that these institutions stood on the frontier of scientific understanding in the nineteenth century. Museums were particularly adept at bridging the gap between theological ideas and new research as scientists figured out how nature works. They were, after all, revealing how God’s designs operated. By the 1920s, however, experimental science based in university programs eclipsed museums as the chief producers of new knowledge. The museum was relegated to the display of “old” knowledge. What is critical, I believe, is Conn demonstrates that museums, contrary to anti-democratic interpretations, were very open and accessible institutions. They provided democratic access to knowledge, even if, as in the case of natural history or science and technology museums, as Conn suggests, that knowledge was not on the cutting edge of experiment-based scientific research.

In *Do Museums Still Need Objects?* (2010) Conn explicitly sees the development of museums as an episode in the history of ideas. He believes that the “place of objects in museums has shrunk as people have lost faith in the ability of objects alone to tell stories and convey knowledge.”¹⁰ I agree with Conn that museums should not be treated simply as a “text” but rather appreciated for the uniqueness by which they are part of material culture and to understand the non-verbal nature of many of the messages they send to visitors. He reminds us that many, many people are on the receiving end of these messages. While some critics and scholars such as Tony Bennett and Timothy Luke repeatedly charge museums with a fundamental elitism, Conn’s research contradicts such a view. Specifically in the fourth and sixth chapters of *Do Museum Still Need Objects?*

¹⁰ Conn, *Do Museums Still Need Objects?*, 7.

He disagrees “with the view that museums are oppressive, repressive, and otherwise controlling. My sense of how museums have related to the public leads me to believe that museums have indeed been a vital part of what we call the public sphere.”¹¹

Conn is a strong ally in keeping Foucauldian analysis in check. Indeed, this point of view often ignores the fact that any form of knowledge requires some framework for understanding and, as Conn argues, an object-based epistemology was widely shared within American society. For both of these reasons, museum exhibits spoke to visitors on many levels and in different ways. More significantly, museums (and world’s fairs) were places people went to by choice—for entertainment as well as information—and because these institutions offered a leisure activity they should not be in the same category as prisons and asylums. In this regard, he believes—and I am inclined to agree—that the questions about the relationship between the institution and people the Foucaultians ask are irrelevant to the museum environment because they draw primarily from Foucault’s work on prisons and asylums (places people *did not* go to by choice).¹² The purely theoretical approach and its tendency to look top-down, obscures the possibilities for different perspectives and responses from the historical actors, in this case, museum visitors. This approach does not allow much room to differentiate the different publics that constitute museum visitors, but also, constrains how we look at those the Foucauldian would place on top: scientists, curators, and museum staff.

Victoria E. M. Cain astutely uses archival sources and period publications in her dissertation, “Nature Under Glass: Popular Science, Professional Illusion and the

¹¹ Ibid., 10

¹² For example, in *The Birth of the Museum* on page twenty-four, Bennett writes that museums were “a space of observation and regulation in order that the visitor’s body might be taken hold of and be molded in accordance with the requirements of new norms of public conduct.” Timothy Luke in *Museum Politics* claims on page four that there are “powerful carceral implications that suggest a practice of containment and confinement.”

Transformation of American Natural History Museums, 1870-1940.”¹³ Cain makes three basic arguments. First, she asserts that the use of illusion brought museums closer to venues of commercial entertainment. Second, she found that people began to rediscover nature through museum displays such as habitat dioramas in the 1920s and 1930s. Lastly, she believes the traditional dialectic between an object-based epistemology (borrowing the phrase from Steven Conn) and illusion had been replaced by a contest between illusion and participation through objects. Indeed, museum displays became, in her terms, more multi-sensory during twentieth century, but in the period of her study (and mine) truly multi-sensory exhibits were largely developed in world’s fairs and science and technology museums in the 1930s and 1940s. Natural history museums generally adopted them later. Visual senses remained the primary target that the exhibits engaged, but they did so in increasingly sophisticated ways during the early twentieth century. Cain and I share intellectual ground and my micro history approach compliments her broader-based one. There are some significant differences between her project and mine, however. I find her project has a very weak chronology, especially within the chapters. It is difficult at times to ascertain where in time the narrative is and the use of sources in the footnotes tend to jump around too. A note may bring the reader to a 1905 source and to 1950 source in the same citation and this makes things confusing at times. By contrast, my dissertation pays careful attention to chronology in each chapter. This is important for storytelling but also for interpretation. I disagree with the chronology of some of the changes she describes. For example, she claims that objects lost public allure long before the 1920s. If this was so, why did museums continue to develop

¹³ Victoria Elizabeth Moffit Cain, "Nature Under Glass: Popular Science, Professional Illusion and the Transformation of American Natural History Museums, 1870-1940" (PhD. Diss., Columbia University, 2007). In a subsequent article she takes a very close look at a taxidermist and his collection in Colorado. It is a nicely focused article and is much more precise in time and space than the other work, "Professor Carter's Collection: Amateur Naturalists and Their Museums," *Common Place* 12, no. 2.5 (2012).

visually intense exhibits such as habitat dioramas and elaborate fossil mounts (or department stores create elaborate show window displays)? They did so to keep drawing visitors, yes, but curators also believed this is what the public wanted to see. Cain is correct that natural history museums faced competition with other forms of amusement such as movies, especially in the 1920s and 1930s. However, museums were always in competition with other leisure activities, and especially so for the working class with limited leisure time and money to spend.

Cain observes that as the representation of nature and science in museums became more artistic, the more passive the consumption of information became. This parallels the rise of passive (i.e. spectator verses participant) amusements such as professional sports like baseball and amusement parks that, in cities like Chicago competed especially for working class dollars.¹⁴ She argues that this change unfolds during the 1920s and 1930s. However, I show that in Chicago, this happened earlier, in the 1910s when the first fossil mounts and habitat groups were assembled. When curators simplified displays and their respective labels, exhibits appealed to a wider audience. This is not to say that displays were “dumbed down,” but rather made more accessible: to children and non-English speakers. In fact as the museum experience became more, multi-sensory, as she put it, the visitor had more opportunity to interact with the exhibits. Few things are more active than pushing buttons, touching objects, and otherwise being physically and mentally engaged. She argues that the illusionary aspects of display helped visitors connect to natural history on a more emotional level. This emotional connection is the important link between consumer culture, department store merchandising, and museum

¹⁴ For example, see: Aron, *Working at Play*; Duis, *Challenging Chicago*; _____, *Chicago: Creating New Traditions* (Chicago: Chicago Historical Society, 1976); Kathy Peiss, *Cheap Amusements: Working Women and Leisure in Turn of the Century New York* (Philadelphia: Temple University Press, 1986); Register, *The Kid of Coney Island*; Rosenzweig, *Eight Hours for What We Will*.

displays. To better understand these connections Cain and I draw on the work of William Leach.

While not a study of museums, William Leach's book *Land of Desire: Merchants, Power, and the Rise of a New American Culture* (1993) examines how a variety of social and economic institutions transformed American society between 1880 and 1930 "into a society preoccupied with consumption, with comfort and bodily well-being, with luxury, spending, and acquisition."¹⁵ The book primarily is concerned with how various merchant-capitalists and department stores in particular created a democratic consumer culture. In doing so he not only discusses how stores began to "stage" merchandise; he also examines a number of complementary developments ranging from the professionalization of window design and advertising to the development of business schools. The other part of the story is how citizens come to be understood as customers and the enjoyment of goods as a source of identity—"the self" derived from consumer satisfaction. In a way, museumgoers are consumers because they choose to seek information and self-fulfillment from a set of choices, and museums compete for the visitor's choice. Once inside, a visitor has to "buy" a concept or idea. Thus, it was (and is) imperative for curators to produce exhibits that are clearly understood, seemingly scientifically "accurate" and in varying degrees, entertaining. Leach briefly discusses museums in his story as part of a "sequence of alliances among diverse institutions, noneconomic and economic, working together in an interlocking circuit of relationships" such as "investment banks, hotel chains, and the entertainment industry."¹⁶ Leach does not say much about how natural history museums actually took part in creating this

¹⁵ Leach, *Land of Desire*, xiii. See also Harris, *Cultural Excursions*.

¹⁶ *Ibid.*, 9

culture nor does he discuss exhibition techniques. Rather, he points to the connection between department store display and museum exhibits and provides a launch pad for further research about some of the people involved in both spaces.

In her article, "'Thoughts in Things': Modernity, History, and North American Museums," Sally Gregory Kohlstedt notes that historians of science have not given much attention to scientific exhibition and the work of museums as public educators. When these scholars do write about museums they focus largely on collecting activity and taxonomic results or as a backdrop to the biographies of the scientists they study. She issues a call for scholars to step up and examine the activities of not only scientists and curators but also the educational staff who built exhibits as well as wrote labels, pamphlets, guidebooks, organized school tours, and other interpretive efforts for children and adults. She finds the lack of work on these historical actors surprising considering the attention such roles receive in contemporary museology. My research in the archives of the Chicago Academy of Sciences and the Field Museum uncovered the stories of staff members from directors, curators, and museum educators, but also the taxidermists and artists who made the exhibits. In the papers of these institutions there is even some documentary evidence about the life and work of the security guards and maintenance engineers.

Kohlstedt concludes that we must be sure to think about the larger position of natural history as a scientific discipline both within and without museums. Scholars, she says, need to recognize that science and natural history museums are both influenced by and influence art museums and other institutions with displays of objects.¹⁷ They share

¹⁷ Sally Gregory Kohlstedt, "'Thoughts in Things': Modernity, History, and North American Museums," *Isis* 96, no. 4 (2005), 587.

audiences too. If historians pay close attention to this fact and look for the dialog among museum staff, public and private patrons, and the reactions multiple audiences, they will learn much about how museums interacted with the urban public but also more about how science was practiced as a discipline. By going back to the sources, we will have a much better grasp of the reality on the ground in the past rather than the lofty theories of cultural critics. As Kohlstedt writes, “Museum administrators surely presented the world as they understood it, creating coherences that resonated with their experts and audiences from materials drawn from often distinctive collections. Historians need not presume more than that, or less, even as we use tactile, visual, and archival records to understand how Western imperial expansion, patterns of immigration, changing political and economic rights of women and minorities, and technological innovation played out in the museums alongside the self-conscious efforts to add to scientific knowledge.”¹⁸

Kohlstedt’s book, *Teaching Children Science: Hands-on Nature Study in North America, 1890-1930* (2010) examines how education reformers during the Progressive era embraced the study of nature in public schools. These educators tapped into American’s long-standing fascination with nature and paired it with educational theories that preferred observation and hands-on learning. Students interacting with natural history objects and specimens was deemed a superior way to learn about life science rather than lectures or simple memorization. What’s more, Kohlstedt makes tangible some of the concerns about urban children losing touch with nature.¹⁹ She builds on older works such as Peter J. Schmitt’s *Back to Nature: The Arcadian Myth in Urban America* (1969) and T. J. Jackson Lears’s *No Place of Grace: Antimodernism and the*

¹⁸ Ibid., 599-600.

¹⁹ Kohlstedt, *Teaching Children Science*.

Transformation of American Culture, 1880-1920 (1981). Lears's book discusses how Victorian intellectuals embraced various forms of anti-modernism in response to an increasingly commercial, urban, and impersonal society. Some found answers close to home in the craft ideal taught by John Ruskin and William Morris while others looked to the childlike directness of medieval culture or, echoing the transcendentalists of a previous generation, to the wilderness. While his book does not discuss nature study it shows how some members of the intelligentsia and the urban middle class were seeking absolution from a rapidly changing world.²⁰

Peter Schmitt examines popular writing about nature, the environment, and the community and argues that a "back to nature" movement took root in rapidly growing American cities. The movement produced an urbanized version of an Arcadian myth that de-emphasized the rural versus urban divisions in American thought and society. Its proponents tried to find a means for harmonizing nature with urban life and offered definitions of the spiritual value of association with nature in an urban, industrial society. He discusses the work of landscape designers, summer camps and children's organizations (such as the Campfire Girls and Sons of Daniel Boone), and most importantly, the nature study curriculum in urban schools promoted by progressives such as psychologist G. Stanley Hall, whose research revealed that urban children knew little of the way nature worked. What is missing from Schmitt's book is the role played by urban institutions such as parks, zoos, aquariums, and natural history museums in connecting children to nature both within and without the schoolyard.²¹ This dissertation

²⁰ T. J. Jackson Lears, *No Place of Grace: Antimodernism and the Transformation of American Culture, 1880-1920* (New York: Pantheon Books, 1981).

²¹ Schmitt, *Back to Nature*.

builds on Kohlstedt, Lears, and Schmitt to show how the natural history museum was central to connecting urbanites, especially children to nature.

Philosopher Steven Asma takes a personal journey through the natural history museum in *Stuffed Animals and Pickled Heads: The Culture and Evolution of Natural History Museums* (2001). Asma highlights the distinct character of the museum (as opposed to aquariums, zoos, and parks) and the philosophy of natural history and science in museums generally.²² Asma shines as an introspective museum visitor and an entertaining writer but is lacking as a historian. He has an extensive bibliography but no citations and it is clear from his narrative that he does not engage with archival sources. His approach is rooted in his personal experiences as a museum visitor and interviews with artists, curators, scientists, taxidermists and fellow museum visitors. Rather than a focused study, his journey is to various institutions in the United States, England, and France. Asma's concerns are also primarily contemporary as he attempts to reveal the intellectual architecture behind the exhibits we see today. He interprets museums as the place where science reaches a broad public. I have drawn from his insights as a philosopher and interested observer to help better understand contemporary exhibits and the development of museum display from a historical perspective.

Karen Wonders undertakes a comparative study of the development of habitat dioramas in natural history museums in the United States and Sweden from the late nineteenth century to 1930. In *Habitat Dioramas: Illusions of Wilderness in Museums of Natural History* (1993), she argues that museums in the US and Sweden embraced the habitat diorama because of a tendency to romanticize the wilderness. Other European museums tended to arrange specimens in taxonomical series without ecological or

²² Asma, *Stuffed Animals and Pickled Heads*.

geographical context. Beginning in the 1910s, taxidermists and curators built the dioramas to educate the public in the value of observation and to appreciate the beauty of nature. According to Wonders, by the 1920s, habitat dioramas expressed humankind's "effort to classify, define and understand the natural world within an ecological model." She identifies some of the major controversies hidden in the diorama concept such as "taxonomic versus ecologic understanding; art versus science; popular education versus scientific documentation; culturally biased perception versus 'objectivity;' and 'Omni-Max' versus diorama."²³ Prior to these dioramas there was no effort in the museum to display ideas about the interconnectedness of nature and the spaces in which animals and plants live.

The dioramas provided a means to simulate the way people perceived nature in the field by using a combination of specimens, lighting, and an artistic rendering of the foreground and background to create a three-dimensional space. The habitat diorama "exhibition philosophy recognized that nothing in nature is of isolated origin, but that species are the product of complex interrelationships. To understand an organism, one must represent its habitat, habits, the stages of its development, etc."²⁴ Ultimately, Wonders argues that because habitat dioramas provided the opportunity to re-create an environmental setting in its totality, they became an ecological statement by museums at the time when some progressive reformers were embracing an early form of environmentalism alongside changing attitudes toward forest management, the establishment of national parks and so on.

²³ Wonders, *Habitat Dioramas*, 9.

²⁴ *Ibid.*, 126.

Karen Wonders offers an effective critique of Donna Haraway's interpretation of the dioramas in Akeley Hall of the American Museum of Natural History. In her article, "Teddy Bear Patriarchy: Taxidermy in the Garden of Eden, New York City, 1908-36," Haraway argues that the exhibits reflected white America's conquest over the wilderness and a celebration of the hunter's victory over big game. She sees the epitome of this struggle in the form of the gorilla, because, as closest to a human (and seemingly viewed by the establishment as akin to Africans), it was the ultimate adversary for the hunter (a near equal nevertheless defeated).²⁵ She also reads into the exhibits in Africa Hall a lesson to the wilderness and to Africans that defeat, submission, and possibly extinction by modern colonial powers was near. Working class visitors were supposed to understand their place—and the consequences of transgression—from these displays. Workers could be pushed aside by modernity and progress too.

Wonders finds Haraway's article problematic. To begin with, her physical evidence is selective. Much of her case is based upon the hunter's quest for large animals with a special focus on the gorillas, which of course, the article is part of a book about human understanding and portrayal of primates. Haraway ignores the fact that the colonial powers in Europe did not produce the dioramas and displays in their museums. In Wonders' words, "Other museums do not have monumental halls of habitat dioramas but—in Europe especially—these counties and their colonies had many big game hunters and hence no correlating displays to venerate 'the masculine' or a 'meeting of equals' in the hunt."²⁶ Haraway's reading of taxidermy and display as trumpeting victories over

²⁵ Donna Haraway, "Teddy Bear Patriarchy: Taxidermy in the Garden of Eden, New York City, 1908-36," in *Primate Visions: Gender, Race, and Nature in the World of Modern Science* (London: Routledge, 1989), 26-58.

²⁶ Wonders, *Habitat Dioramas*, 224.

increasingly worthy adversaries overlooks the fact that most American and European sportsmen (and sportswomen) undertake bird hunting and bird taxidermy, and that bird groups and solitary mounts of birds constitute the largest collections of animals in many museums.

My understanding of taxidermy and habitat dioramas is more in line with Rachel Poliquin's. In her book *The Breathless Zoo: Taxidermy and the Cultures of Longing* (2012), Poliquin explores taxidermy as a storytelling medium that expresses a range of human desires, or longings, to preserve nature and memory. She does not discuss taxidermy in any specific museum, but rather dedicates each chapter to representations of a particular species as she explores seven themes. Throughout she gets "at the heart of taxidermy by answering the two fundamental questions: why would anyone want to preserve an animal, and what is this animal-thing now?"²⁷ The reasons for preserving animals are many, ranging from boasting a hunter's skill to immortalizing the effigy of a beloved pet. In museums, taxidermy is one medium for conveying lessons about ecology, endangered species, animal physiology and behavior. Museum taxidermists understood the power of their craft as a blend of art and science to tell stories and sophisticated taxidermy techniques were developed during the late nineteenth and early twentieth century in Chicago's museums.

Karen A. Rader and Victoria E.M. Cain chart the story of natural history and science museum display over the course of the twentieth century. In their recent book, *Life on Display: Revolutionizing U.S. Museums of Science and Natural History in the Twentieth Century* (2014), they explore how the development of popular educational displays prompted public natural history and science museums to craft new institutional roles and

²⁷ Poliquin, *The Breathless Zoo*, 7.

identities and also reshaped twentieth-century science education. Beginning with the story of the new museum idea that emerged in the 1890s, Rader and Cain are interested in how it inspired “a century-long renegotiation of the relationship between display, research, and education in American museums of nature and science.”²⁸ Their research and conclusions support the notion that the history of zoological and other scientific exhibits, not anthropological displays; best illustrate the scope of changes undertaken by museums in the twentieth century. Rader and Cain’s special focus on biological displays and the use of a “new intuitionist” framework, allows the authors to discuss the broader history of the institutions and how their development was full of contingency and debates over content, practices, and publics.

The publication of this book came late in my research process and while I trod some of the same ground, there are significant differences between their work and mine. In a similar vein as Rader and Cain, I investigate the role of professionalization, the educative power of display, the importance of natural science to reformers and the simple fact that display—exhibition—was an integral part of public outreach, education, and scientific work. Their work is an overview of entire twentieth century and encompasses a few museums, some large, some small, and a dizzying cast of characters. Rader and Cain are among the few scholars to attempt a history of the institutional and social development of natural history museums and to engage with a rich source base of correspondence, diaries, and memoranda in the archives. There is more to learn about the story of museums, and this project adds a new voice to fill the void. The authors do not discuss Chicago’s museums with much detail, where the most influential changes occurred (New York and Colorado are scrutinized more), nor do they make connections to earlier

²⁸ Rader and Cain, *Life on Display*, 3.

museums in the nineteenth century and to world's fairs. By narrowing the focus to Chicago, the larger contexts (such as changing notions of the public, conservation, patterns of work, leisure, consumption, and new pedagogies) that explain why reformers and educators believed scientific literacy a necessity and why museum exhibition evolved become clearer. By examining not only museum school partnerships engendered by progressive reform but also the process of professionalization and the dialog between experts and the public, I add depth to the history of natural history museums.

A Note on Sources and Method

The genesis of this dissertation project came from a historiography of Chicago seminar course in which I took on the task of exploring the literature about the World's Columbian Exposition of 1893. During the course of that research I found a passage in one of the books that claimed few scholars examined links between world's fairs and museums. This single sentence grabbed my attention. How were museums and fairs connected? Which museums have connections to world's fairs? Is this truly an unexamined topic? If so, why? I set out to answer those questions and in the process found answers, surprises, new questions, and evidence upon which to draw my own conclusions.

The study of museums embraces many disciplines—as my historiography reveals—any decent discussion of the topic that involves physical objects and visual representation is inherently interdisciplinary. My work is influenced to some degree by the literature of museum studies and art history, but this work is unabashedly that of a historian. The story I tell and analysis I set forth is drawn from these untapped sources—letters, memoranda, and notebooks—but also conference papers, scientific articles,

directors' reports, magazine stories and newspaper articles. Even though most research was conducted a short "L" or bus ride from my home, the time available each visit was brief. I treated research trips as if I was a scuba diver with limited time on the bottom and I needed a detailed plan of what to examine and what to set aside. At the start I was looking for specific things—feedback from visitors, discussions about exhibit design, publicity materials, and photographs, but so often I found things I did not anticipate and took every opportunity to examine more when I smelled a story or evidence to challenge assumptions. As much as possible, I photographed or copied materials and set them aside for detailed study later. The result was thousands of images and copies of papers from the Chicago Academy of Sciences and the Field Museum. In addition to the museum archives, I obtained materials, either in person, or via mail from the Abraham Lincoln Presidential Library, Art Institute of Chicago, Denver Museum of Nature and Science, Illinois State Archives, Newberry Library, and the University of Illinois Archives.

In addition to these primary sources, I read widely on museums, world's fairs, natural science, and histories of Chicago. Throughout the slow process of writing each chapter, I kept in mind a piece of advice shared by Civil War historian James McPherson, whose work is so readable and engaging, yet also scholastically impeccable.²⁹ Rather than fill every page with historiography, inline references and diversions of explanation, the story on these pages is like an iceberg, you see only one-sixth of what goes into it. There is a firm foundation below it, as shown in the footnotes, bibliography, and the file cabinets of the author's mind.

²⁹ Rachel Toor, "Scholars Talk Writing: James M. McPherson" in *The Chronicle of Higher Education* Online edition, February 21, 2016: <http://www.chronicle.com/article/Scholars-Talk-Writing-James/235383> Accessed February 22, 2016.

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Book Review of Steven Biel, *Down With the Old Canoe: A Cultural History of the Titanic Disaster* (New York: W.W. Norton and Company, 1996) for the Titanic Research and Modeling Association (<http://www.titanic-model.com/books/canoe/index.shtml>), 2004.

Conference Papers:

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