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The Chicago Academy of Sciences: The Development Method of Educational Work in Natural History

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LOYOLA UNIVERSITY OF CHICAGO

THE CHICAGO ACADEMY OF SCIENCES:
THE DEVELOPMENT AND METHOD OF EDUCATIONAL
WORK IN NATURAL HISTORY

A DISSERTATION SUBMITTED TO
THE FACULTY OF THE GRADUATE SCHOOL
IN CANDIDACY FOR THE DEGREE OF
DOCTOR OF PHILOSOPHY

DEPARTMENT OF EDUCATIONAL LEADERSHIP AND POLICY STUDIES

BY
EDWARD T. KLUNK

CHICAGO, ILLINOIS

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CHAPTER 1

INTRODUCTION

The educational contribution museums have made to the citizens of the United States is a little told part of American educational history. The role of the Chicago Academy of Sciences and its museum is a small episode of the story. Museums, and the organizations formally supporting them, are truly educational institutions that have developed as part of our culture. It should be recognized that American culture came about through the development of various institutions such as museums, newspapers, schools, lyceums, libraries and churches. It is through these and other voluntary associations that people developed the unique characteristics, concepts, habits, and skills that have brought to life the American culture. In using the concept of education to help describe the institutional role the Chicago Academy of Sciences played in this development, it must be used broadly to include all learning that takes place within society. Lawrence A. Cremin describes just such a scenario:

I have defined education broadly, as the deliberate, systematic and sustained effort to transmit, evoke, or acquire knowledge, values, attitudes, skills, or sensibilities, as well as any learning that results

from the effort, direct or indirect, intended or unintended.¹

Museums fit neatly into this definition as popular educators of the people who view their exhibits, study their collections, and participate in the programs they offer. The viewing and study of museum exhibits and collections advance individual knowledge, either as a leisure pursuit or as serious interest in a particular subject.

Interest in self-education stemmed from egalitarian ideals the middle class developed in the early nineteenth century. These ideals, which considered it vital for every man to gain and use all the knowledge possible for self advancement and to carry out the duties of citizenship, came in part from the belief in equality of opportunity for all white males in private and public life. These Jeffersonian concepts became topics for American intellectuals such as Ralph Waldo Emerson who frequently commented on education. To Emerson all the world, all experience, and all thought constituted a man's school. This education was continuous everywhere in a man's life through the influence of nature, books and the action of the mind.² Emerson felt men needed to know nature directly, initially through the examination and classification of nature's objects. Books were to be

¹Lawrence A. Cremin, American Education: The National Experience, 1783-1876 (New York: Harper and Row, 1980), ix.

²Ralph Waldo Emerson, "The American Scholar" (1837), in The Complete Works of Ralph Waldo Emerson (12 vols.; Boston: Houghton Mifflin Company, 1903-04), 1, 84-99.

used as agents to learn nature's truths discovered by others. On action, Emerson said, "Thinking is the function. Living is the functionary."³ Thus museums, public schools, lyceums and public libraries became part of the educational system.

Organizations, such as the Chicago Academy of Sciences, developed as voluntary associations of people who, by their intent to found a society for the advancement of science, created an educational institution, the programs of which advanced education through the viewing of exhibits, participation in museum activities, scholarly research, and formal relationships with colleges, universities, and elementary and secondary schools. When the Chicago Academy of Sciences opened its museum to the public, museums had evolved into institutions of scholarly research and popular education, a dual role uniquely American which developed after 1850, according to demands of American culture.⁴

Museums played an important role not only in formal education but also in popular education, which for the purpose of this study, I define as any learning that takes place as a result of visiting a museum and viewing its exhibits. American museums were founded by Americans in

³Ibid., 99.

⁴Joel J. Orosz, Curators and Culture: The Museum Movement in America, 1740-1870 (Tuscaloosa, Alabama: The University of Alabama Press, 1990), 1-10.

response to American cultural needs, and developed from American cultural demands. Accepting this thesis, I will demonstrate that the Chicago Academy of Sciences and its museum developed in concert with this movement and, due to its particular situation, advanced itself by highlighting educational work as its primary activity particularly, after the opening of the Matthew Laflin memorial building in 1893.

Prologue, 1857-1930

The Chicago Academy of Sciences, overcame a series of misfortunes in building its museum of natural history. Prior to 1871, the academy was influenced greatly by the Smithsonian Institution in establishing and developing its museum. The association with the Smithsonian Institution, established through Robert Kennicott, set the academy's direction along educational lines. By not becoming a research centered institution used by professional scientists, like Harvard's museum of comparative zoology, exhibits and educational programs became a major focus of the museum. Early on, the academy trustees committed their efforts to a free public museum. While they understood the need to advance science through original research it is because they were not scientists that they were able to keep purely scientific study and popular education as balanced pursuits that produced a very popular public museum of natural history.

The major thrust of this study is to relate the educational practices of the Chicago Academy of Sciences, from the opening of the Matthew Laflin memorial building in 1893, through its first thirty-five years. During this period, museum work became organized into a professional pursuit that stressed the museum's educational character. The aim of a public museum is to promote its area of specialization through exhibits and programs for its visitors. The Chicago Academy of Sciences museum is a natural history institution which, by 1894, had further specialized its interests to the Mississippi Valley and Chicago area ecology. The academy's promotion of the natural history and ecology of the Chicago area combined scientific investigation and professional museum work to develop the exhibits and dioramas in its galleries and the various programs offered to the visitors and the schools of Chicago.

The father of American museum administration, George Brown Goode of the Smithsonian Institution, influenced the organization and administration of most American museums including the Chicago Academy of Sciences museum. Goode defined a museum as "an institution for the preservation of those objects which best illustrate the phenomena of nature and the work of man, and the civilization of these for the increase of knowledge and for the culture and enlightenment

of the people."⁵ Goode who stressed the educational importance of a museum stated: "An efficient, educational museum may be described as a collection of instructive labels, each illustrated by a well selected specimen."⁶

Goode strongly held that museums were agencies for the education of the young and for the culture and enlightenment of the public in general.⁷ For a museum to be an accomplished agency for education and culture Goode laid down five necessities in museum administration: (1) a stable organization and an adequate means of support; (2) a definite plan framed in accordance with the opportunities of the institution and the needs of the community for whose benefit it is to be maintained; (3) satisfactory collections or facilities for creating collections; (4) a suitable building; and (5) proper accessories, installation materials, tools and the mechanical assistance to do the work.⁸ By 1893, the Chicago Academy of Sciences was in the position to meet these requirements, having come to an agreement with the Lincoln Park Commissioners which assured

⁵George A. Dorsey, "The Aim of a Public Museum" Proceedings of the American Association of Museums 1 (1907): 98.

⁶Ibid., 99.

⁷George Brown Goode, "Recent Advances in Museum Method," Annual Report of the Board of Regents of the Smithsonian Institution (Washington D.C.: The Smithsonian Institution, June 1893): 21.

⁸Ibid., 202.

permanence for a museum in Lincoln Park and which created the means to support the collections of the society on a long term basis.

On 17 August 1893 a public meeting was held in the office of the director general of the Columbian Exposition which would influence the direction of the academy's museum. The purpose of the meeting, which was attended by about one hundred prominent Chicago citizens, was to establish plans for a museum to house the collections assembled for the Columbian Exposition. A suggestion to operate under the charter of the Chicago Academy of Sciences was opposed and spoken against in favor of a new and strong organization, independent of educational institutions, locality, creed or calling, and which was strong enough to take in everything obtainable from the exposition.⁹ Edward Ayer, who resigned his trusteeship in the Chicago Academy of Sciences, played a major role in establishing the Field Columbian Museum, which opened in the Fine Arts Building of the exposition in June of 1894. Named in honor of Marshall Field, for his philanthropic donation of one million dollars, the immense size and grandeur of the new institution immediately overshadowed the Chicago Academy of Sciences. These events influenced the men of the Chicago Academy of Sciences and altered the

⁹J.V.F. Skiff, "An Historical and Descriptive Account of the Field Columbian Museum," Field Columbian Museum Publications 1 (1894): 11.

mission of the academy's museum, which because of its small size and the founding of the Field Columbian Museum, blended the pursuit of local natural history, education and scientific investigation. The Field Columbian Museum's world-wide focus created a niche for local natural history that the academy would easily fill because of its natural history survey already well underway in 1894.

The plan undertaken by the Chicago Academy of Sciences to develop a museum of natural history specializing in the ecology of the Mississippi valley and Chicago area linked the academy to the needs of the community and separated it from the Field Columbian Museum's world-wide focus. The specialization of the academy's museum set its direction mainly toward popular education and relationships with schools. Scientific work was supported and encouraged but was accomplished through voluntary efforts of prominent university scholars and not by men who worked at the academy. Even though the academy's museum was small by comparison to either the Field Museum or the Smithsonian Institution, its specialization and primary focus clearly determined its character and intent when the Matthew Laflin building opened to the public in 1894.

The collections in storage very adequately allowed the academy's new museum to function when the building opened. Acquisition of materials proceeded with a plan centered around the academy's focus on local natural history and was

not a thoughtless acceptance of unsuitable objects. The natural history survey of the Chicago area, begun by the academy in 1892, established the theme for the acceptance of gifts and the purposeful collection of museum specimens. The development of the academy's museum, unique because of its particular circumstances, can be better understood when the history of the museum as an educational agency is known. Museums did not begin as educational institutions they evolved and matured into organizations concerned with education.

From the time of George Brown Goode's tenure at the Smithsonian in 1887, until the American Association of Museums was well established, his influence was present in the administration and organization of most American museums. This is evidenced by the conscious striving to make public museums educational. However, with the passing of Goode's influence and the founding of the American Association of Museums in 1906, the primary concept of the museum as an educator changed. The debate between education and scientific work was clearly indicated in the early years of the museum association. Frederick J. V. Skiff of the Field Museum spoke of allying the American Association of Museums with the National Education Association.¹⁰

¹⁰"Minutes of the First Meeting of the American Association of Museums," Proceedings of the American Association of Museums 1 (June 1907): 12.

The education of school children and the enlightenment of the public as a museum's primary responsibility was openly debated against by those who thought the greater emphasis should be on scientific research. Goode's concept of the preservation of material primarily for the diffusion of knowledge was changing to one which embraced the pursuit of knowledge through original scientific investigation. In large institutions capable supporting scientific research departments in different areas of their museums, this change in philosophy occurred quickly.

This change in museum philosophy gave the green light to the scientifically trained men working in the museums across the country to pursue their discipline without regard to the traditional museum functions. Natural history museums became centers for original scientific research similar to universities a situation that would create strong relationships between museums and universities. Curators would build their collections towards the museum's research interests not just for study by persons from outside or the creation of public exhibits. It is reasonable to surmise that men trained as professional scientists would want to continue their research interests when employed by museums; resulting in educational work being put on the back burner. George A. Dorsey of Chicago's Field Museum expressed this change in philosophy at the first meeting of the American Association of Museums:

I may state in conclusion that I consider the chief aim of a museum the advancement of science. This is its function; it must not go to the public; it must lead. The promotion, the advancement of science in the laboratory, and the writing on large letters of the laws of science, this should be the aim of every public museum.¹¹

Inconsistent with the new philosophy expressed by Dorsey the Chicago Academy of Sciences attempted to balance the research and educational aspects of a museum. The staff of the academy museum was very small and there was no budget to hire individuals to pursue specific scientific research. The trustees and officers of the academy considered their situation and reasoned that because the resources of the Field Museum and the University of Chicago for scientific work were so great, the academy should primarily work toward developing educational programs for the public and schools. Decisions made by the trustees kept the academy museum small and isolated from the influence of the individuals and institutions that wanted a large museum of world wide character. This situation caused a perpetual lack of adequate funding not only for expansion but the day to day operations as well. In 1927, when Alfred M. Bailey became director, interest in scientific research increased and began to consume a share of the academy's limited resources thus the educational programs did not continue to expand or develop.

¹¹Ibid., 100.

Museums, Education, and Schools

Museums evolved in the United States from the collections of individuals that became cabinets of societies, library companies, lyceums or mechanics institutes. It is important to understand that the cabinets were the instruments of the educated not the instruments of education. Cabinets of plants, minerals, fossils, and other items were put together to explain natural and man made phenomenon. The variety of voluntary associations that expanded their libraries and collections of curiosities to include scientific apparatus, plants, animals, fossils, and other unique articles eventually developed into museums. This phenomenon can be viewed in the activities of Benjamin Franklin's "Junto" and the Library Company of Philadelphia, which by the 1740s had a variety of collected artifacts available to its members.¹² A similar situation can be observed at Harvard University as early as 1739.¹³ In 1773, the Charleston Library Society was the first to organize its collected curiosities or cabinet into a museum.¹⁴

¹²Brook Hindle, The Pursuit of Science in Revolutionary America: 1735-1789 (Chapel Hill, N.C.: The University of North Carolina Press, 1956), 50-65.

¹³Samuel Eliot Morison, Three Centuries of Harvard: 1636-1936 (Cambridge: Harvard University Press, 1936), 92-97, 170-73.

¹⁴Robert Goodwin Rhett, Charleston: An Epic of South Carolina (Richmond: Garrett and Massie, 1940), 196-200.

Joel J. Orosz has organized museum development into six intervals.¹⁵ The first period, 1740-1780, saw the European curio cabinet transplanted to the United States in Philadelphia, Boston and Charleston. These were tentative beginnings because these collections were randomly formed and not accessible to the public. The second phase of museum history, the "Moderate Enlightenment 1780-1800," brought American museum founders influence from the British enlightenment. These men were taken with the idea that museums may be able to suppress vice by providing sensible amusement and enjoyable education. Impressing upon visitors the order and benevolence of God's creation.

During the "Didactic Enlightenment, 1800-1820," museums were viewed as guardians of the social order. This was an elitist view of teaching acceptable behavior to people of the underprivileged classes. By 1820, the "Age of Egalitarianism" brought control by the rising middle class. The museum became a mechanism for a man to gain all possible knowledge. The museum, the lyceum, the public library and the public school were all part of the educational system. This view of the museum, as part of the educational system, became overshadowed briefly from 1840 to 1850, by the "Age of Professionalism" during which time scientists, in their

¹⁵Joel J. Orosz, Curators and Culture the Museum Movement in America, 1740-1870 (Tuscaloosa, Alabama: The University of Alabama Press, 1990), 6-8.

scorn of amateurism, brought a brief decline to popular education by putting an emphasis on scholarly research alone. The final period of museum evolution, 1850-1870, witnessed the synthesis of popular education and scholarly research. Orosz holds that establishing this compromise was the most crucial period in museum evolution because with this accomplishment, the form of the modern American museum was determined. By 1870, the "American Compromise" of scholarly research and popular education became fully accepted as equal goals of American museums. Thus, the thesis that American museums were founded by Americans, responding to American cultural needs, developing according to the dictates of the changing American culture can be made and evidence presented that this scheme determined the form of the modern American museum.¹⁶ The thesis of the "American Compromise" puts aside the unfounded views that museums consisted of spectacular or bizarre objects with no scientific or educational value or that they developed by an antiegalitarian elitist stance for the elite.¹⁷

For those who view their exhibits, museums are educational institutions. This kind of popular education

¹⁶Ibid.

¹⁷George Brown Goode, "Museum History and Museums of History," in Papers of the American Historical Association (New York: Putnam and Sons, 1888), 263; Theodore L. Low, The Museum as a Social Instrument: A Study Undertaken for the Committee on Education of the American Association of Museums (New York: The Metropolitan Museum of Art, 1942), 8-10.

attracts people through their curiosity about specific subject matter, exhibits or exhibitions offered to the public. A museum is also a place where objects are collected and made available for scholarly research. Museums, through the conscious decisions of their directors, place popular education in a primary or secondary role.

Generally, the needs of professional scientists involved in research are primary when popular education is placed in a secondary role. The Chicago Academy of Sciences placed popular education and formal relationships with schools in a primary position throughout the first thirty-five years in the Matthew Laflin Memorial Building. A museum further educates by offering public lectures, special programs, field trips, and special exhibitions. Special relationships with schools develop when activities such as traveling museums, loan collections, children's museums, school lectures, school tours, and teacher's courses are on the front burner.

Popular education takes place through a museum's exhibited collections and educational activities for visitors and patrons, it is, however, the museum's direct contact with public and private schools that links it to formal education. The Chicago Academy of Sciences, after the opening of the Matthew Laflin memorial building, developed formal ties with elementary and secondary schools and their teachers. These activities included instruction for

teachers and programs of nature study for students in elementary and high school. The Chicago Academy of Sciences, through programs developed for Chicago area public and private schools, made school relationships a significant aspect of the museum and its staff. The importance of the school relationships to the academy can be clearly recognized through the actions of the membership in 1907, when the Superintendent of the Chicago Public Schools was made a member of the executive board. The academy in carrying out educational services to schools was not alone. Museums across the country developed programs of school service. The American Museum of Natural History in New York city can be considered a leader in the early twentieth century in programs of school service.¹⁸ The Boston's Children's Museum, the School Museum of the St. Louis Public Schools, and the Harris Public School Extension of the Field Museum of Natural History are other examples of the relationships between educational institutions and museums. From 1894, forward, the Chicago Academy of Sciences linked itself to programs of school service. By providing services to schools and their students, the academy filled a niche in the Chicago educational community. The diffusion of scientific information about natural history was the purpose of

¹⁸George H. Sherwood, "The Story of the Museum's Service to the Schools: Methods and Experiences of the American Museum of Natural History," Natural History 27 (1927): 315.

the academy's educational efforts because the men who founded and maintained active membership were interested in natural history. Their interest in natural history was not an uncommon curiosity. Scientific and religious interest in natural history came with our early settlers from Europe. The collection of nature's work, originally done for religious reasons, became a topic of study for scientific understanding and international political standing.

Museums, Science and the Chicago Academy of Sciences

The North American continent was a natural historian's utopia through most of the nineteenth century, a period when the scientifically unknown continent attracted many Americans and Europeans to collect flora, fauna, and geologic specimens. The promoters and practitioners of natural history collected specimens in the field to be brought back to the laboratory for detailed study and identification. Identification, a difficult and often impossible task needing individuals trained in taxonomy, required enormous amounts of time and energy to correctly name and catalogue garnered specimens. Further complicating this task was the lack of access to "type specimens," the single individuals that were chosen to represent an organism morphologically for biological classification. As a result, newly identified flora and fauna were often unrecognized or incorrectly classified because the detailed study of an

organism's characteristics required comparisons with "type specimens" and they had been sent to be housed in European institutions.

The purpose behind the collection and identification of flora and fauna varied from the strictly scientific to the figurative as the means to know the handiwork of the deity. Since amateurs, who frequently collected natural history for purely aesthetic reasons, cherished natural history's beauty for its own sake, taxonomic identification became the major concern of the serious natural historian. However, the collector-taxonomist's labors disclosed the diversity of nature, which provided challenge to or stimulus for the development of explanatory theories.¹⁹

The best known and most successful example of American natural history used to challenge an explanatory theory was Thomas Jefferson's Notes on the State of Virginia, written in 1781. This work, which established the national attitude toward the identification and collection of the continent's natural history, challenged George Louis Leclerc comte de Buffon's theory on degeneration. Jefferson's challenge of Buffon's work, as it applied to North American fauna, was politically as well as scientifically motivated. Buffon, an eminent and respected European authority on the study of

¹⁹Nathan Reingold, Science in Nineteenth Century America A Documentary History (Chicago: The University of Chicago Press, 1985), 29-31.

natural history, put the North American continent in an unfavorable world position by hypothesizing that the New World had an unhealthy climate which caused the degeneration of its fauna. This argument was then extrapolated to apply to native Americans and colonial settlers as political propaganda to discourage emigration to the United States.²⁰ As a response to Buffon's theory of degeneration, Jefferson's Notes not only skillfully and successfully refuted one of the most respected scientific minds of the period, but also became the most politically influential scientific treatise produced by an American during the first half of the nineteenth century. At the end of the eighteenth century, Americans were hesitant to enter disputes with European authorities or colleagues against Buffon's theories. However, when his ideas were applied to the peoples of the New World, the silence came to an end. Jefferson's refutation became so popular that it was published in the United States, England, France, and Germany through several editions.

Jefferson's promotion of the sciences and his successful defense of the North American continent marked a new approach to American natural history in which American species were recognized as distinct from Old World forms.

²⁰Durand Echeverria, Mirage in the West (New York: Octagon Books, 1966), 9-14.

With Jefferson's encouragement, physicians and naturalists, including William Currie, William Bartram, Alexander Wilson, Thomas Nuttall, William Baldwin, William Maclure, Thomas Say, Benjamin Rush, George Ord, and John E. LeConte united to defend the North American landscape as a suitable habitat for man and animal.²¹ The fitness of the country in relation to human actions and the well being of American fauna became the prime concern of natural historians, who at every opportunity refuted the premise that the American countryside was unfit.

Jefferson's encouragement of the identification and collection of natural history served to build a national spirit and to defend the United States against foreign criticism. Public and private expeditions, of which the first sponsored by the federal government was that of Lewis and Clarke in 1804, received Jefferson's endorsement to collect natural history specimens.

During the nineteenth century natural history became eminently respectable. There was a rich variety of participants in the nineteenth century scientific community. As the professionalization of the men involved in scientific pursuit developed, professional credentials provided the specialization needed to concentrate efforts in particular areas. The role played by amateurs, who by definition

²¹Charlotte M. Porter, The Eagle's Nest Natural History and American Ideas, 1812-1842 (Tuscaloosa, Alabama: The University of Alabama Press, 1986), 15-25.

lacked credentials, though not necessarily expert knowledge, cannot be overlooked as they helped set the stage for the professionals themselves.²² The founding of the Chicago Academy of Sciences was largely the result of amateur interest in natural history.

Charles Wilson Peale's Philadelphia museum, founded in 1786, managed the first public collections at Jefferson's request because Congress could not be convinced to allocate federal funds to manage and house national collections of natural history. Private collections, including those of Jefferson at Monticello, were maintained but a national institution for this purpose was not thought of by Congress until after 1842 when the National Institute for the Promotion of Science was named the national repository for the United States Exploring Expedition collections. The national institute, given a twenty year charter by Congress, failed to accomplish this function.²³ The institute's founder Joel Roberts Poinsett, who directed the United States Exploratory Expedition of 1838, the largest and most scientifically sophisticated ever sponsored by the United

²²Nathan Reingold, "Definitions and Speculation: The Professionalization of Science in America in the Nineteenth Century" in Alexander Oleson and Sanborn C. Brown eds., The Pursuit of Knowledge in the Early American Republic (Baltimore: John Hopkins University Press, 1976), 33-69.

²³A. Hunter Dupree, Science in the Federal Government (Cambridge, Mass.: Belknap Press of Harvard University, 1975), 22-27.

States government, was unable to provide the leadership needed to continue the institute's objectives. Poinsett tried to position the national institute as the benefactor of the Smithson bequest. His scheme failed and the collections acquired by the institute were absorbed by the Smithsonian Institution in 1857.²⁴

In 1846, Congress passed legislation to establish the Smithsonian Institution from the Smithson bequest of \$500,000 given to the United States in 1829, to establish an organization for the increase and diffusion of knowledge among men. Joseph Henry, a professional scientist and the first secretary of the Smithsonian Institution, viewed the institution as a center for research even though the Congress had made no mention of research and specifically directed a museum, library, gallery of art and a lecture room as part of the legislation. Custody of the government collections was also to be under its tutelage. The story of the Smithsonian and Joseph Henry has been told elsewhere but relates to the Chicago Academy of Sciences by virtue of the relationship among Robert Kennicott, Spencer Fullerton Baird, Joseph Henry, and Louis Agassiz.

By 1855, Spencer Fullerton Baird, the assistant secretary of the Smithsonian Institution, acquired the

²⁴William Stanton, The Great United States Exploring Expedition of 1838 (Berkeley: The University of California Press, 1975), 1-72.

authority from Joseph Henry to develop a national museum under his direction and philosophy. Baird felt the national museum should increase the public knowledge of natural history and provide scholars with comparative materials for biological research.²⁵ Joseph Henry's resistance to a museum was tempered by the need of professional scientists to have specimens available for study and research. Henry's objections were to general display for the purpose of educating the public. For this and other reasons, Henry strongly supported Louis Agassiz's efforts at Harvard in the creation of the Museum of Contemporary Zoology.

Agassiz, the United States' most eminent scientist, became a bitter opponent of Spencer Fullerton Baird in the competition to establish the most comprehensive collection of natural history in the country. Coming to the United States in 1846, as an established European scientist and scholar, Agassiz became a national leader in the professionalization of science and specifically in the study of natural history. Agassiz portrayed himself as the ultimate authority on the interpretation of natural history in the United States. Agassiz's Contributions to the Natural History of the United States, published in 1857, included a treatise on the fixity of species at a time when many were

²⁵Wilcomb Washburn, "A National Museum" in The Smithsonian Experience (Wash. D.C.: The Smithsonian Institution, 1965), 20-27.

questioning the concept. When Charles Darwin's Origin of Species appeared in 1859, Agassiz began to lose support from professional scientists. Agassiz's arguments, based only on the weight of his reputation and his work in Europe, could not fend off major professional criticism.²⁶

Spencer Fullerton Baird viewed Agassiz as a threat to the creation of a national museum as the institution that would house the major collections of natural history in the United States. Agassiz's view, that collections should be for the use of professional scientists and under his control, was also in opposition to Baird's philosophy of a national museum. Baird's support of Robert Kennicott and Chicago's efforts to establish a natural history museum made the Chicago Academy of Sciences a repository for some of the major collections of the Smithsonian Institution. Agassiz wanted Kennicott's collections and services as a field naturalist for his museum at Harvard. While intellectually cultured Chicago citizens held Agassiz in high regard, Kennicott viewed him as an obstacle to his Chicago plans and as an opponent of Baird, his mentor. Kennicott's relationship and communications with Agassiz were always through a third person, Baird or Henry. This was due to Kennicott's lack of credentials, a fact that made him unacceptable as an

²⁶Edward Lurie, Louis Agassiz A Life In Science (Chicago: The University of Chicago Press, 1960), 166-211.

equal to Agassiz. This reinforced his loyalty to Baird and created a strong relationship with the Smithsonian Institution.

That the academy did not become a formal research oriented institution can be attributed to Robert Kennicott's association with Spencer Fullerton Baird. Formal research as a primary endeavor never became the academy's major focus at any point in its history, aside from Kennicott's role, this can be attributed to two major factors: the academy's refusal to make formal ties with any other institution; and, the influence of amateurs, who because of their interest in science, formed a large part of its membership. Talented amateurs, especially physicians, found the academy an outlet for their pursuit of natural history. The academy provided the scientific expertise needed by the amateur. Chicagoans prominent in science including Thomas C. Chamberlin, John M. Coulter and Henry C. Cowles, all from the University of Chicago, associated themselves with the academy in the early twentieth century.

Philosophy and Mission of the Chicago Academy of Sciences

The philosophy and mission of any assemblage are found in its formal organization and activities. The men who organized the Chicago Academy of Sciences did so because of their common interest concerning natural history. The original charter of the Chicago Academy of Sciences clearly

defined its mission: "The objects of the Society shall be the increase and diffusion of scientific knowledge, by a museum, a library, the reading and publication of original papers and other suitable means."²⁷

Those founding the society immediately started to assemble collections of natural history specimens. At first, the collections served only the members and those formally involved in the study of natural history. However, as the collections grew, and Robert Kennicott's explorations received recognition, the public gained access to the museum, the maintenance of which the society conducted with a great deal of enthusiasm. The very nature of maintaining a natural history museum involves specimen collection and, as the specimens accumulate, constitutes the scientific worth of the museum. The collections of a museum thus establish the value of the institution. The nature of exhibits for public display and the scientific value of the collections greatly influence the educational impact of a museum. While museum operations classify, catalogue, document, and preserve objects of natural history, the museum's public worth comes in a large measure from exhibits, programs and activities. Museum contents then become part of the cultural assets of the city. A museum's

²⁷Constitution, By-Laws and List of Officers and Members of the Chicago Academy of Sciences (Chicago: James Borner Printers, 1859), 4.

purpose, by its very nature, allows persons to view exhibits and collections with a range of motivations from simple curiosity to a deep specific interest to study specific subject matter. The academy's stated purpose is to increase and diffuse scientific knowledge by a museum. This purpose alone creates a wholly educational endeavor.

The heart of a society founded for the increase and diffusion of scientific knowledge is the regular exchange involving members at the meetings of the organization. The camaraderie created among men assembled with a similar interest is an elementary reason for the founding of any organization. The regular meetings typically began with the reading of the minutes followed by the treasurer's report. Correspondence, acquisitions to the library and museum were then announced. New and deferred matters rounded out the business portion of the meeting. The reading and discussion of a scientific paper, or the presentation of a prepared paper ended the meeting. Following reorganization in 1865, the board of trustees conducted business meetings at a different time than the regular membership meetings.²⁸ Consequently, the majority of the regular meetings was given to the delivery and discussion of scientific subject matter. By 1900, over 300 papers, primarily on natural history

²⁸Walter 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 2, 7 (1972): 262-663.

topics, had been presented. The use of the society as a forum for scientific inquiry and discussion accomplished the stated purpose of the society. The educational value of this kind of activity can only be described as very great. Despite the overwhelming difficulties of two debilitating fires, the premature deaths of its first two directors, and economic problems, that constantly plagued development, the academy survived its first thirty years.

After 1890, a conscious decision was made by the membership to specialize in the natural history of the Chicago area, including the entire Mississippi Valley. In 1892, the academy began a natural history survey of the Chicago area which resulted in the publication of a series of monographs between 1896 and 1927. The titles in the series included: The lichen-flora of Chicago and vicinity, The Pleistocene features and deposits of the Chicago Area, The Mollusca of the Chicago Area; part 1, The Pelecypoda, part 2, The Gastropoda, The paleontology of the Niagaran Limestone in the Chicago Area; part 1, The Crinoidea, part 2 The Trilobita, The mineralogy of the Chicago Area, The birds of the Chicago Area, The higher fungi of the Chicago Region; part 1, Hymenomyces, part 2, The Gastromycetes, and An annotated flora of the Chicago Area.²⁹

²⁹Publications of the Chicago Academy of Sciences 1866-1966, Chicago Academy of Sciences Library.

The philosophy surrounding the thought and conduct of the academy closely paralleled its stated purpose. The increase and diffusion of scientific knowledge saw no boundaries or limits from its founding in 1857 through 1890, during which time collections came to the academy from all over the North American continent. Prior to the great Chicago fire, the museum of the academy was becoming a natural history repository of "type specimens" due to the special relationship developed with the Smithsonian Institution. A continent-wide outlook surrounded its philosophy in building the museum. The unknown from the northern reaches of North America tantalized the citizens of Chicago. Events occurred during the first several years of the 1890s that changed the philosophy of the academy toward its scientific pursuits and collections. As previously mentioned, a consensus decision was made to study the natural history of the Chicago region, thus limiting or putting boundaries on the pursuit of natural history. This change in philosophy can be related to the decision by Edward Ayer to resign his membership and position on the academy board.³⁰ Mr. Ayer spoke positively of the decision of the trustees to accept a plan to secure a building site in Lincoln Park as a result of Matthew Laflin's donation for

³⁰The Chicago Academy of Sciences Minutes of the Regular Meetings, 21 December 1892, 284, Chicago Academy of Sciences Archives.

a museum building. Ayer's successful efforts in convincing Marshall Field to support a museum to house the collections gathered for the World Columbian Exposition persuaded the membership to concentrate its efforts on local natural history.³¹ Evidently, Ayer could not convince the men of the academy that the enthusiasm generated as a result of the Columbian Exposition could garner financial support to establish an institution with the grandeur of the Columbian Exposition itself. The large number of exhibits and world wide character of the Field Columbian Museum reinforced the philosophy of the academy to pursue local natural history and education. This philosophy has remained with the academy into its current activities.

In examining the academy's activities, the publication and presentation of scientific papers consumed a large part of its agenda and the papers it published up to 1934 were largely informational reports and surveys on a broad range of scientific topics and phenomena.³² Original scientific research was clearly not carried out as a primary objective. This fact in particular is pivotal in establishing the philosophical outlook around education and local natural history. After 1934, the academy more specifically served

³¹F.J.V. Skiff, "An Historical and Descriptive Account of the Field Columbian Museum," Field Columbian Museum Publications 1 (1894): 1-15.

³²Publications of the Chicago Academy of Sciences 1866-1966, Chicago Academy of Sciences Library.

as an outlet for original scientific research in natural history by staff members, members of the academy and those who based their research upon collections in the academy museum.³³ Those involved with the academy from time to time struggled with the question, "Should the Chicago Academy of Sciences be a scientific or an educational institution?"

Governance and Organization

The deliberate assembly of persons for any purpose is generally guided by its formal organization. The constitution and by-laws agreed upon by the founding members governed the routine operations of the academy.³⁴ Memberships were organized into three distinct areas: members, corresponding members, and honorary members. Candidates for admission to the society submitted a written application endorsed by two members. The academy's membership then voted on the candidate at the next regular meeting. Three negative ballots caused rejection. However, candidates who failed to gain admission could reapply after one year. The constitution contained stipulations for removal of members, for cause, after a hearing by the membership and a two-thirds vote of the members present at a regular business meeting.

³³Ibid.

³⁴Constitution, By-Laws and List of Officers and Members of the Chicago Academy of Sciences (Chicago: James Borner Printers, 1859), 1-14.

The officers of the society also served as trustees of the organization.³⁵ The offices consisted of president, two vice presidents, recording secretary, corresponding secretary, treasurer, librarian and curator. All officers held life terms, except the librarian and curator who were elected to a one year term at the annual meeting held on the second Tuesday in January. Vacancies were filled as they occurred, by ballot, at any regular meeting, provided the recording secretary gave notice of the election prior to the meeting. Member's voting eligibility required that all dues were paid and that a member had attended two regular meetings within a six month period. Officers could also be removed for cause, after a hearing, by a two-thirds vote of the membership present at the meeting. The same two-thirds vote was required to amend the constitution.

The by-laws of the society set the meeting dates, listed the duties of the officers, established standing committees, set dues and established the order of business for all meetings.³⁶ The regularly scheduled meetings took place on the second Tuesday of each month. The corresponding secretary set the hour of the meeting in a required notice sent to all members residing in the city. The president of the academy, who presided over all meetings,

³⁵Ibid.

³⁶Ibid.

called special meetings as he deemed necessary or at the request of five members. The vice presidents performed the duties of the president in his absence. The recording secretary carried out a variety of routine matters stipulated in the constitution which included maintaining a record of the proceedings of regular meetings, making known elections and committee appointments, maintaining a list of the membership, keeping the academy seal, and notifying members of all meetings. The recording secretary prepared, distributed, and reported to the membership all communications received and sent out. The treasurer accepted responsibility for all funds, collected all monies due, and paid all bills authorized by written order of the president and recording secretary. The treasurer also prepared and delivered an annual report of the finances. The librarian and curator supervised and managed the library and museum respectively.³⁷

Standing committees of three members each pursued scientific investigations in zoology, botany, geology, chemistry, and physics. Committees to deal with publications, library, and finance provided the means for scientific investigation. The members of the standing committees, elected by ballot, made annual written reports

³⁷Ibid.

to the membership. All the committees were filled when the academy was organized.

Members monetary support, established by the constitution, required a ten dollar initiation fee and a five dollar annual assessment. Life membership could be obtained for a one hundred dollar fee. Withdrawal from membership called for all dues to be paid in full.³⁸

The by-laws specified the order and structure of the regular meetings, which proceeded with the following order of business: call of the roll, reading of the minutes of the previous meeting, reception of donations, committee reports, correspondence, deferred business, new business, and the reading and discussion of scientific papers.³⁹ The by-laws could be suspended by a unanimous vote or in the case of an order of business by a majority vote.

When sufficient funds were raised in 1864-1865 to construct a museum building to house the Kennicott collections, a reorganization of the society became necessary. The most significant part of the reorganization expanded the authority of the board of trustees. Not significantly mentioned in the constitution of 1859, the board of trustees gained full authority over all money, property, effects, and real estate of the society. J. Young Scammon, George C.

³⁸Ibid.

³⁹Ibid.

Walker, Horatio Loomis, Daniel Thompson, Edmund Aiken, Ezra B. McCagg, Eliphalet W. Blatchford, William E. Doggett, and Robert Kennicott were named trustees in the new constitution with one other person to be appointed by a majority consensus of those named.⁴⁰ The trustees accepted life terms under the condition of residency in Chicago. To insure the trustees complete control over the academy, the constitution specifically stated: "No provision of this Constitution relative to said Board of Trustees shall be changed or altered. . . without the consent of said Board of Trustees."⁴¹ Vacancies to the board were filled through nominations by the remaining trustees and confirmation by two-thirds vote of the members present at any regular meeting. The treasurer of the board of trustees accepted payment of initiation fees, dues, and annual assessments. The trustees received the authority to perfect their own plan of organization and elect their own officers.

The academy's officer configuration was altered by removing the curator's officer status.⁴² The curator and director of the museum would be appointed by the board of

⁴⁰Act of Incorporation, Constitution, By-Laws, and Lists of Officers and Members of the Chicago Academy of Sciences with a Historical Sketch of the Association; and Reports on the Museum and Library (Chicago: Brewster and Hanscom, Printers, 1865), viii.

⁴¹Ibid., ix.

⁴²Ibid.

trustees, changes which assured the board of trustees complete control and influence over the entire society. The responsibilities of the officers remained unchanged. The two secretary positions were combined into a single office with the same responsibilities. The standing committees were expanded to include ethnology and entomology. Elected by the membership standing committees became responsible for submitting written annual reports. The initiation fee and dues remained the same, but the life membership fee became five hundred dollars.

The constitutional changes, resulting from the 1865 reorganization, gave control of the academy the officers of the board of trustees including J. Young Scammon, president; William Doggett, vice president; George C. Walker, secretary and treasurer; and Robert Kennicott, director of the museum.⁴³ Clearly, Kennicott accepted Fullerton Baird's advice to place his trusted confidants in positions of authority.⁴⁴ The officers of the academy for 1865, included Edmund Andrews, president; Daniel Thompson, vice president; Benjamin F. Culver, vice president; William Stimpson, secretary; and George H. Frost, librarian.⁴⁵

⁴³Ibid., xviii.

⁴⁴Baird to Kennicott, 28 November 1863, Spencer Fullerton Baird Collection, Record Unit 7002, Smithsonian Institution Archives.

⁴⁵1865 Act of Incorporation, Constitution and By-Laws, xvii.

By 1877, petitions for regular membership required a written application directed to the secretary. In 1877, a change of the by-laws established a standing committee on membership, composed of three members, which reviewed applicants for sufficient scientific attainment and adequate interest in the society.⁴⁶ If the committee came to a favorable decision on a particular candidate, they reported their decision to the membership at the next regular meeting. The members in attendance were required to vote on the candidate. Three negative ballots rejected the applicant. By restricting regular membership to review by committee, the academy became a closed circle and not generally open to the public.

In 1877 constitutional revisions, the membership classifications and museum access by the general public underwent change designed to improve finances. The reorganization and expansion of membership reflected growing interest in the academy and its museum. Persons paying \$2,500 to the treasurer would become "Patrons of the Academy," the privileges of which included life membership, admission to the museum at any time, ten season's tickets, and ten single admission tickets. Life membership remained at \$500. Life members accessed the museum at will and

⁴⁶Historical Sketch of the Chicago Academy of Sciences with the Act of Incorporation, Constitution, By-Laws and List of Officers and Members (Chicago: Jameson and Morse Printers, 1877), 16.

received four season's tickets and ten single admission tickets. To become a "Fellow of the Academy" required a \$250 fee. Fellows were given museum admission privileges, two season tickets and ten single admission tickets. A \$100.00 fee named a member "Associate Fellow" and gave access to the museum, one season's ticket and ten single admission tickets. A fee of ten dollars made a person a "Subscriber" to the academy, entitling admission to the museum.

The growth in membership at this time brought about changes in governance and in the organization of scientific pursuit. The addition of a recorder to the echelon of officers expanded their ranks.⁴⁷ This office, under the direction of the secretary, carried out routine clerical duties. The duties of the recorder included keeping a record of all proceedings, notification of members on their election, committees of their appointment, keeping a current list of members, and the responsibility to notify all members residing in Chicago of meetings. The standing committees, comprised of three members, investigated and researched specific areas of science. They were replaced by the formation of "sections," a group of eight or more members, which took the name of the specific science for which it was formed.⁴⁸ Each section established its own

⁴⁷Ibid., 17.

⁴⁸Ibid., 20.

organization consistent with the constitution and by-laws of the academy. When a section member, through research or investigation, desired publication in the transactions or proceedings, the findings were read before the general membership and were subject to the rules of publication.

A general committee consisting of the president, retiring president, the two vice presidents, the secretary and six members reviewed all motions considering new business before final action, and approval of all papers read before the academy. The standing committees were selected by ballot annually.

In 1882, the life appointment of the board of trustees ended. This change in governance vested greater control of the academy's activities in the membership. The actions of the board of trustees now would be more accommodating to the desires of the majority of members. At the annual meeting in January of 1883, all trustee's terms of office ended. Trustees were then elected by the membership to terms ending in a yearly sequence so that two trustees would be due for election every year.⁴⁹ The trustees terms were limited to five years.

⁴⁹Constitution and By-Laws of the Chicago Academy of Sciences as Amended and Adopted December 12, 1882 (Chicago: Jameson and Morse Printers, 1887), 6.

The constitution adopted in June of 1893, formerly removed the term "society" from the constitution and replaced it with "academy":

The objects of this Academy shall be the promotion and diffusion of scientific knowledge, by the reading and publication of original papers, by the maintenance of a library and a museum and by other means calculated to arouse interest and stimulate scientific investigation.⁵⁰

Membership designations were again reorganized and expanded to include active, associate, life, honorary, corresponding and patron members. Active and associate membership was offered to any person "in sympathy with the objects of this Academy."⁵¹ Candidates continued to make written application to the secretary, with the membership committee reviewing the applications before being presented to the membership at a regular meeting for vote. Associate members could not hold office or vote. The standing committee on membership, now appointed by the president-elect, reviewed applicants and made recommendations in regard to membership. The membership structure now permitted any person interested in the activities of the academy to become actively identified with the institution, upon nomination by two voting members.

⁵⁰The Charter Constitution and By-Laws of the Chicago Academy of Sciences (Chicago: David Oliphart Printer, 1893), 5.

⁵¹Ibid.

When the academy moved into the Matthew Laflin memorial building in 1893, changes in the organizational governance were needed because of the expansion. The board of trustees was expanded to twelve with the addition of the academy president and president of the Lincoln Park board of commissioners as ex-officio members. An executive board was established to consider all motions relating to new business. The executive board reported their recommendations to the board of trustees before any final action. The executive board was responsible for all scientific undertakings. The structure of this board brought active members into the academy's governing structure. The board included the president, vice president, secretary, president of the board of trustees and six members elected by the membership.⁵²

In 1907, the superintendent of the Chicago public schools became a member of the executive board.⁵³ The constitution specifically addressed the duties of the executive board to include the scientific and educational activities including the apportionment of available funds to promote scientific and educational work. The addition of

⁵²Charter, Constitution, By-Laws and List of Members of the Chicago Academy of Sciences (Chicago: David Oliphant Printers, 1894), 7.

⁵³Chicago Academy of Sciences Minutes of the Regular Meetings, 26 November 1907, 132, Chicago Academy of Sciences Archives.

the Chicago school superintendent to the executive board indicated the "intimate cooperative relations which the academy has established with the public and private schools of the city."⁵⁴ The executive board's duties also included nomination of the official ticket of officers. Voting procedures were amended to permit additional nominations on the ballot cast by mail. These procedural changes allowed a larger percentage of the membership to vote.

In 1911, the board of trustees increased to fifteen members. The by-laws of the board were revised to accommodate recommendations of academy president Thomas C. Chamberlin⁵⁵ that the board's responsibilities include the supervision of the museum and library employees, to recommend the addition or changes in the number and compensation of officers to care for the museum and library.⁵⁶

After 1911, the name of the executive board was changed to the board of scientific governors.⁵⁷ The board of

⁵⁴"Constitution and By-Laws of the Chicago Academy of Sciences," Bulletin of the Chicago Academy of Sciences 3, 6 (July 1911): 171.

⁵⁵Thomas C. Chamberlin, "Report on the State of the Staff Work of the Chicago Academy of Sciences, with Recommendations by the President of the Academy," Chicago Academy of Sciences Archives.

⁵⁶"The Chicago Academy of Sciences By-Laws of the Board of Trustees," Chicago Academy of Sciences Archives.

⁵⁷"Constitution and By-Laws of the Chicago Academy of Sciences," Bulletin of the Chicago Academy of Sciences 3, 6 (July 1911): 176.

scientific governors' major responsibility was to prepare recommendations for the apportionment of funds available for the promotion of educational and scientific work of the academy. These recommendations were to be prepared, with recommendations from the director of the academy, to be presented at the annual meeting of the board of trustees. The members of the board of scientific governors included the president of the academy, the two vice presidents, the secretary, the president of the board of trustees, the presidents of the scientific sections of the academy, the superintendent of the Chicago public schools, and six members of the academy elected by ballot from nominees presented by a committee of the board of scientific governors. The president of the academy, the two vice presidents and secretary served as chairman, vice chairmen and secretary of the board of scientific governors. While this board was given the authority for many routine operations of the academy, the nature and scope of its vested responsibilities made this board all powerful in the scientific and educational work of the academy.

In many instances, the recommendations of the board of scientific governors were binding on the board of trustees. This board handled all functions of the academy except title to money and property, disposition of property, contracts, contributions, and investments all of which came under the jurisdiction of the board of trustees. The constitution

gave the board of scientific governors the following duties and responsibilities: (1) determining for what purpose funds available for scientific and educational work would be used; (2) recommending all nominees to elected offices of the academy; (3) granting approval of all applicants for elective membership into the academy; (4) joining with the board of trustees to appoint the director and curators of the museum; (5) giving direction to the president and vice presidents of the academy; (6) holding authority over the director and curators of the museum; (7) approving all publications of the academy; (8) approval of applications of admission to the status of scientific section of the academy; (9) holding hearings to remove for cause any member or elective officer; (10) authorizing the dropping from membership of any person who defaulted in payment of dues.⁵⁸ It can be said that this board exclusively directed the activities of the academy.

An executive committee, comprised of the president of the academy, the first vice president, the president of the board of trustees, the secretary, and the treasurer became a necessity in dealing with the growing number of employees. The constitution charged the committee with all hiring and releasing of employees.

⁵⁸The Charter, Constitution and By-Laws of the Chicago Academy of Sciences, (Chicago: The Chicago Academy of Sciences, 1931), 21.

As sketched here the governance and philosophy of the academy changed and adapted to the developments that occurred throughout its history. Before 1893, the Chicago Academy of Sciences was the only organization dedicated to the pursuit of natural history in Chicago. From early on in the academy's history, there was an interest to develop an organization and museum that would compare to the Smithsonian Institution. It is the evolution and development, trials and tribulations, successes and failures in the years between 1857 and 1890, that laid the foundation for the growth and expansion occurring in 1893. To achieve an understanding of the educational work accomplished by this natural history organization its entire epic must be examined.

CHAPTER 2

HISTORICAL OVERVIEW, 1857-1892

Founding and Early Development

Chicago by 1857, developed into the a shining star of western growth. Within twenty years of the city's incorporation in 1837, approximately ninety thousand people had settled within its limits. Chicago, recognized as a hub of development in the west, provided many financial, cultural, and intellectual opportunities. The explosive development opened the doors that allowed people to accumulate wealth and give others a chance to earn a living wage.

Chicago's first public secondary school, Central High School, opened in 1857, with 169 students. Elementary school enrollment of about six thousand students in public schools, and with as many students in private schools, showed an interest in schooling and the shared American ideal that any individual could bring himself from the most lowly to the most recognized station in life through hard work alone.¹ The stark reality compared to this idealized thought often gave no thought to education by the common man

¹Alfred Theodore Andreas, History of Chicago from the Earliest Time to the Present (Chicago: A.T. Andreas Co. Publishers, 1885), vol. 2, 102-15.

at the low end of the socioeconomic scale. The Chicago of 1857 was developed by this ideological concept in theory only. The accumulation of wealth by a small part of the population brought intellectual, cultural, and leisurely pursuits: do-gooders worried about the social welfare; religious institutions spread their theology.

The pursuit of and curiosity with natural history came to the United States from Europe. Providing great impetus for the study of natural history was the "Doctrine of Design," which stated: nature provided the greatest illustration of the design of the creator; everything in nature has its purpose; and nature is indicative of the goodness of God.² Settlers to the new world, both trained and untrained, collected animals, plants, and precious minerals that were brought back to the curious and greedy aristocrats in Europe. The pursuit of natural history was carried out with a scientific and theological purpose. By 1857, American science and particularly natural history gained respect in the world.

The two aspects of natural history, theological and scientific, were clearly defined and separated. Natural history's pursuit exclusively for scientific study, became the dominant perspective and unknown flora and fauna in all newly settled areas of the country became the target of

²William M. Smallwood, Natural History and the American Mind (New York: Columbia University Press, 1941), 228.

scientific classification and collection. These tasks received enthusiastic promotion from professional men of science as well as amateurs who lacked credentials but not necessarily expert knowledge. The professionalization of science in nineteenth century America has been described as being nurtured by the activities of amateurs who helped pave the way for the professionals.³ A variety of participants accomplished this professionalization including researchers, practitioners and cultivators of science who formed scientific societies which drew upon local interests and participants.⁴

As a profession, medical doctors were zealous cultivators of the natural sciences. Chicago's Rush Medical College, a distinguished center for medical education, brought recognition and repute to the city for the proficiency of its graduates.⁵ James Van Zandt Blaney who was connected with the founding of Rush in 1842, taught chemistry, medicine, and pharmacy at the school. Blaney

³Sally Gregory Kohlstedt, "The Nineteenth-Century Amateur Tradition: The Case of the Boston Society of Natural History," in G. Holton and W. Blanpied, eds. Science and Its Public: The Changing Relationship (Dordrecht: D. Reidel, 1976), 173-190.

⁴Nathan Reingold, "Definitions and Speculations: The Professionalization of Science in America in the Nineteenth Century," in Alexander Oleson and Sanborn C. Brown eds., The Pursuit of Knowledge in the Early American Republic (Baltimore: John Hopkins University Press, 1976), 33-69.

⁵Andreas, History of Chicago, 528.

studied chemistry under Joseph Henry at Princeton before coming to Chicago with Dr. Daniel Brainard, his cohort in the founding of Rush. Blaney's interest in chemistry and natural history helped contribute to his decision in 1857 to accept the chair of natural philosophy and chemistry at Northwestern University in Evanston, Illinois. Blaney and other prominent Chicago natural history enthusiasts met regularly to discuss science and natural history.⁶ The eventuation of these gatherings was the organization of a society which was interested in pursuing scientific studies, particularly natural history. The Chicago Academy of Natural Sciences adopted a constitution and elected the following officers in early 1857: Professor James van Zandt Blaney, president; Professor Nathan S. Davis, vice president; Professor Hosmer A. Johnson, corresponding secretary; Doctor Henry Parker, recording secretary; Colonel Robert K. Swift, treasurer; and Professor Edmund Andrews, curator of the museum and library.⁷ The heart beat of the Chicago Academy of Natural Sciences came from its youngest and most ebullient member, Robert Kennicott.

⁶Robert Kennicott to Spencer Fullerton Baird, 10 March 1856, Spencer Fullerton Baird Collection, record unit 7002, Smithsonian Institution Archives, Washington, D.C.

⁷Nathan S. Davis ed., "The Chicago Academy of Natural Sciences," Northwestern Medical and Surgical Journal (March 1857): 1.

Robert Kennicott was the moving force in the establishment of the museum of the Chicago Academy of Sciences. Born 11 November 1835 in New Orleans, Louisiana, he was brought to West Northfield, Illinois as an infant. Robert's father, John Kennicott, relinquished his medical practice to pursue horticultural science in Illinois. John Kennicott's residence "The Grove," eighteen miles northwest of Chicago, quickly became a center of study in horticulture, agriculture and natural history. "The Grove" attracted the educated, refined and scientific men from the adjacent countryside. Through the encouragement of family and friends Robert grew up in the "wildness" of the agrarian area around "The Grove." Robert's delicate health interfered with formal schooling. In view of this fact, John Kennicott decided against formal elementary schooling for Robert. Robert was schooled at home largely in the fields, woods, marshes and other wild areas around "The Grove."

Robert fostered a remarkable interest in natural history. His mental attitude developed into a devotion for the study of the flora and fauna around him. This interest in the collection and study of natural history at "The Grove" convinced John Kennicott that formal study of natural science would benefit Robert. An old friend, Jared Potter Kirtland, suggested and encouraged John Kennicott to send Robert to Cleveland. Robert studied with Kirtland, an expert in natural science and horticulture, during the

winter of 1852-1853.⁸ Kirtland introduced his student to Spencer Fullerton Baird, the Assistant Secretary of the Smithsonian Institution, and suggested developing an ongoing exchange of letters. Taking Kirtland's advice, young Kennicott started a regular correspondence with the Smithsonian Institution, becoming friends with Baird.

In 1854, Robert studied in Racine, Wisconsin, with P. R. Hoy, a well known ornithologist, who greatly advanced Robert's knowledge of practical field zoology. The study of local birds etched into Kennicott's brain an all inclusive catalogue of recognition by song alone. Hoy remarked of Robert, "Bob is a good kind hearted and very conscientious boy; a little too bold and confident to suit everyone but he suits us."⁹ His periodic study with Hoy continued for several years.

In the winter of 1854, a serious attempt devoted to formal study and consideration of the medical profession proved ill fated. Poor health and recommendations from friends convinced Kennicott to stop the study of medicine and take his entire education by studying natural history in the field. Returning home he went back to the fields around "The Grove" that had supplied his education. Freedom from

⁸"Biography of Robert Kennicott," Transactions of the Chicago Academy of Sciences part 2 (1869): 134, The Chicago Academy of Sciences Archives.

⁹Ibid., 135.

formal schooling molded Kennicott into an authority on Chicago region animal life.¹⁰ The time spent in the woods, prairies, and marshes germinated and ripened his understanding and expertise of the natural world around him.

The Illinois Central Railroad Company, looking toward opening the Illinois frontier to development, proposed to the State Agricultural Society its cooperation and support in a natural history survey of the state. Plans were developed and organized in the spring of 1855. Through the influence of his father, Robert was appointed as the naturalist in charge of the survey. The railroad provided assistance with passes, the services of its employees, and the equipment needed to make collections. Robert began working on 30 May, using the entire summer to make collections throughout Illinois. The specimens collected were identified, catalogued, and described during the fall and early winter. Kennicott's first professional expedition proved to be a success.

The Illinois expedition documented Kennicott's ability and fervor as a field zoologist. He constantly came into contact with men of science, influence, and wealth who shared his interest in natural history. During the spring of 1856, Robert associated himself with a group of prominent

¹⁰Robert Kennicott, "Catalogue of Animals Observed in Cook County Illinois," Illinois State Agricultural Society Transactions 1 (1855): 577-96.

Chicago men who would organize the Chicago Academy of Natural Sciences in 1857.¹¹

The state agricultural fair, held at Alton in October 1856, brought public recognition to Kennicott's work on the state natural history survey. An illustrated collection of the vertebrates of Illinois assembled during the 1855, survey was placed on display. The value of the collection and its description to the agricultural community and men of science invoked strong acknowledgement. So complete and detailed was the collection that Spencer Fullerton Baird convinced the U.S. Commissioner of Patents to propose that Robert write for the Agricultural Report of the Patent Office. Entitled Quadrupeds of Illinois injurious or beneficial to the Farmer, the report detailed the natural history of Illinois mammals and their relationship to agriculture. Kennicott pointed out that an understanding of the relationships in the natural world can be the farmer's most powerful tool:

However injurious wild animals may be to man he should not forget that he himself is very often the cause of their undue destructiveness . . . before waging war upon any animal, let us study its habits, and look well to the consequences which would follow its extermination. We must remember that it is an undeniable fact that the dangerous increase of any species is due to the destruction of its natural enemies. . . ." ¹²

¹¹Robert Kennicott to Spencer Fullerton Baird, 10 March 1856, Spencer Fullerton Baird Collection, record unit 7002, Smithsonian Institution Archives, Washington D.C.

¹²Robert Kennicott, "The Quadrupeds of Illinois injurious and beneficial to the Farmer," Report for the

In 1857, Northwestern University instituted a natural history museum for use by its students and to assist in the identification of the unknown natural history of the region. With his repute established as a field zoologist, the university engaged Kennicott as curator to gather specimens for its museum. Soliciting public assistance by distributing a letter in which he detailed instructions for the collection and preservation of specimens, Kennicott evangelized his infatuation with natural history and its collection:

Any person in the country while walking in the woods and fields, or a farmer, while engaged in his daily work, could, by carrying in his pockets a small bag for reptiles and mammals and a strong half-ounce wide-mouthed vial of alcohol for insects, with the loss of only a few minutes, secure many valuable and often new or rare species. Several hours spent in searching among the grass, examining flowers, turning over stones and old logs, and stripping off dead bark, or fishing, in any region unexplored by naturalists, could scarcely fail to expose species unknown to science.¹³

A true zealot, he always looked toward advancing natural history in altruistic manner:

Duplicates of specimens obtained will be placed in the hands of competent naturalists engaged in studying the various classes, that all may be accurately determined and the new species described; and the University will, by giving the Smithsonian Institution and other scientific organizations with large opportunities for the diffusion of knowledge, the benefit of any new

Commissioner of Patents for the year 1856 (Washington D.C.: Cornelius Wendell 1857): 52.

¹³Robert Kennicott, undated public letter of solicitation and directions for collecting specimens for Northwestern University, Chicago Historical Society Library.

collections and discoveries made, and by other means endeavor to make its collections of the most use to science, education and the agricultural interests at large. The time has come when the practical benefit resulting from such collections is too well known among the intelligent to need comment.¹⁴

The collection of specimens, their identification, and organization of the museum progressed successfully. In the winter of 1857, Kennicott made his first visit to the Smithsonian Institution to help complete his work at Northwestern. Arriving in the middle of December, he worked through April of 1858. Selection, classification, and description of collections for the museum as well as specific work on herpetologic specimens gathered on various occasions occupied most of his time. The results of this work, which were published in Proceedings of the Academy of Natural Sciences of Philadelphia, established Kennicott's reputation nationally as a field zoologist of worth.¹⁵ Returning to "The Grove," he continued work at Northwestern through July of 1858, at which time, in a dispute over compensation, he broke his association with the university and rejected the suggestion that he place his personal collection in their museum.¹⁶

¹⁴Ibid.

¹⁵Robert Kennicott, "Notes on Coluber calligaster of Say, and descriptions of new species of Serpents in the Collection of the Northwestern University of Evanston, Ill.," Proceedings of the Academy of Natural Sciences of Philadelphia 11 (March 1859): 98-100.

¹⁶Robert Kennicott to Spencer Fullerton Baird, 20 November 1863, Spencer Fullerton Baird Collection, Record Unit 7002, Smithsonian Institution Archives.

Encouraged by Spencer Fullerton Baird of the Smithsonian Institution, Kennicott wrote to Sir George Simpson, Governor of Hudson Bay Territory, to ask approval for an expedition to make collections. Receiving a favorable reply, the expedition was begun in April of 1859, under the sponsorship of the Smithsonian Institution, individual patrons, members of the Chicago Audubon Club, and members of the Chicago Academy of Sciences.¹⁷ With some reluctance, Kennicott returned to Chicago in October of 1862, as a result of hearing news of the outbreak of the Civil War.¹⁸ However, upon advice of family and friends, Kennicott decided not to enlist in the Union Army. He then proceeded to the Smithsonian Institution to work on the collections of the arctic expedition. This expedition produced zoological and ethnological specimens of unknown natural history from the northern regions of North America and brought Kennicott national recognition as their collector.

In the academy's early years, Kennicott's enthusiasm and frustrations in the establishment and development of a museum are evident. In the time between 1857, and October of 1862, his efforts were largely given to collecting

¹⁷Robert Kennicott to Spencer Fullerton Baird, 21 April 1859, Spencer Fullerton Baird Collection, Record Unit 7002, Smithsonian Institution Archives.

¹⁸"Biography of Robert Kennicott," Transactions of the Chicago Academy of Sciences part 2 (1869): 133-226, The Chicago Academy of Sciences Archives.

expeditions. The major part of Kennicott's life was spent in field work, collecting, and exploring.

Kennicott returned to "The Grove" in the spring of 1863, on receiving news of the illness of his father. John Kennicott's death in June of 1863 kept Robert with his family through most of the year. It was during this time his energies were focused on creating a major natural history museum in Chicago.

Upon his return to Chicago in the spring of 1863, Kennicott was viewed as something of a celebrity by the citizens of the city. This recognition gave rise to a movement to bring Kennicott's personal portion of the arctic expedition collections to Chicago, setting the stage for the expansion of the museum of the Chicago Academy of Sciences, with Kennicott in the leadership role.¹⁹

That Kennicott wanted to establish a world class museum in Chicago was undeniable.²⁰ In November 1863, Kennicott sent plans for a museum to Spencer Fullerton Baird for his comments and answers to specific questions. As developed by Kennicott the museum's plan addressed the scope and char-

¹⁹Robert Kennicott to Spencer Fullerton Baird, 24, 25 October; 16, 18, 23 November 1863, Spencer Fullerton Baird Collection, Record Unit 7002, Smithsonian Institution Archives.

²⁰Robert Kennicott to Spencer Fullerton Baird, 26 November; 4 December 1863, Spencer Fullerton Baird Collection, Record Unit 7002, Smithsonian Institution Archives.

acter of the museum. The collections he envisioned would illustrate American natural history and be comparable to the largest in the country. He viewed a building with a main hall fifty by one hundred feet with sufficient work areas to carryout all museum tasks. Estimates of the sum of money needed for immediate expenditures that included a suitable salary for a secretary, museum furniture, and supplies were outlined in the plan. The plan spoke to the need for an extensive library. Kennicott's altruistic character becomes evident in what he considers the objects of the museum:

But the museum alone if well labelled and correctly illustrating Natural Science in its present advanced state would go far towards effecting the following objects.

- A. The elevation of Natural Science to its proper dignity as a matter of common education in the west.
- B. To afford facilities in this city for the study of Natural Science in any and all of its details.
- C. To make Chicago the great center of science in the west - as it now is of wealth and of commercial intellect and energy - and by a combined effort on the part of even a few persons specially interested in Natural Science - in who appreciate it as a matter of general education - they might easily, - in connection with such a museum eventually effect the following grand desiderator.
- D. To thoroughly investigate the entire field of Nature in the west and apply the knowledge so gained to the best purpose.
- E. The publication of such original investigations as may increase knowledge; or of any special and general works that may diffuse more widely the knowledge now possessed only by a few.²¹

²¹Robert Kennicott to Spencer Fullerton Baird, 10 December 1863, Spencer Fullerton Baird Collection, Record Unit 7002, Smithsonian Institution Archives.

Kennicott's plans for a Chicago museum of natural history developed in his mind early on. As part of a regular gathering of natural history enthusiasts who met in the offices of Dr. Edmund Andrews, Kennicott became part of the circle of zealots who founded the Chicago Academy of Natural Sciences in 1857.²² The group of prominent Chicago founders of the academy included Dr. James Van Zandt Blaney, a founder of the Rush Medical College; Dr. Nathan S. Davis, professor at Rush Medical College; Dr. Hosmer Allen Johnson, teacher at Rush; Dr. Edmund Andrews; a founder of Chicago Medical College; Dr. Franklin Scammon, Col. Samuel Stowe, philanthropist; Richard K. Swift, banker; Captain Joseph D. Webster, W. H. Zimmerman, businessman; Dr. Henry Parker and J. A. Lapham.²³

The promotion of scientific study was the academy's objective and the primary means to accomplish this goal was the formation of a natural history museum and library. Rooms were secured in the Dearborn Seminary to house the museum and library. Kennicott, appointed chairman of the standing committee on zoology, enthusiastically began obtaining and collecting specimens for display, as did the

²²Robert Kennicott to Spencer Fullerton Baird, 10 March 1856, Spencer Fullerton Baird Collection, Record Unit 7002, Smithsonian Institution Archives.

²³Nathan S. Davis (editor) "The Chicago Academy of Natural Sciences," The Northwestern Medical and Surgical Journal (March 1857): 1.

other members of the society. "The objects of the society commend themselves to all friends of science and education. The natural sciences would seem particularly fitted to interest and profit our Western people."²⁴ Public contributions were sought to build exhibit cabinets to display and study the collections. The second object of the society was to interest the various educational institutions growing up in Chicago:

And will it not be better to unite their efforts, and make one extensive and valuable museum than for each to attempt to have one of its own, and so have none of any pretensions to completeness? It is proposed to give students of these institutions access to the collections of the Society, for the purpose of lectures and inspection.²⁵

The twenty-one year old Kennicott became frustrated with the attempts at raising funds for the museum. In a letter to Spencer Fullerton Baird, Kennicott said, "I don't mean to say that Chicago people are all ignorant of natural science and its results but as a class they care as little and know as little of such things as any folk I ever heard of that called themselves civilized and enlightened."²⁶ Kennicott also asked if the Smithsonian Institution could make contributions to the Chicago museum to provide encouragement to

²⁴Ibid.

²⁵Ibid.

²⁶Robert Kennicott to Spencer Fullerton Baird, 10 March 1857, Spencer Fullerton Baird Collection, Record Unit 7002, Smithsonian Institution Archives.

the members of the society, persons who were giving financial support, and to help increase contributions from the public. His disappointment in the citizens, however, resulted more from the financial condition of the city than the attitudes of the people toward natural history:

The great financial crash which immediately followed, however, exerted a most depressing influence on the young association. Of the subscriptions to the initial fund, a very few only could be collected. It was found impossible to salary a curator, to build cases or to publish Transactions. The society however struggled along under difficulties, and a few of the members continued to work at leisure hours in the museum and to keep monthly meetings.²⁷

Kennicott's reputation and renown as a collector and explorer provided the celebrity necessary to interest the wealthy, cultured, and influential citizens of Chicago. Needing assistance and guidance with the 1863 plan, Kennicott relied on Spencer Fullerton Baird his long time mentor and friend.

Kennicott's reputation as a field zoologist attracted the attention of Louis Agassiz. Through Joseph Henry, then Secretary of the Smithsonian Institution, Kennicott began to make plans for Agassiz to visit Chicago. Agassiz, the pre-eminent natural scientist in the United States, was recognized as having great influence in raising funds in support

²⁷Edmund Andrews, "Historical Sketch of the Chicago Academy of Sciences," Act of Incorporation, Constitution, By-Laws, and Lists of Officers and Members of the Chicago Academy of Sciences with a Historical Sketch of the Association; and Reports on the Museum and Library (Chicago: Brewster and Hanscom Printers, 1865) xiii.

of natural history. Kennicott concluded that the wealthy and influential Chicago people could be moved to build a museum if Agassiz visited the city and offered his support: "The sons of wealthy men here tell me that Agassiz's strong endorsement of my plan would be worth ten thousand dollars in raising money here. The fact is Agassiz's popular reputation is all powerful here in such matters."²⁸

Kennicott asked Baird to comment on his plan through correspondence during November and December of 1863. Kennicott outlined his idea to gain Agassiz's favor and commitment to come to Chicago in a letter of 18 November to Baird in which he indicated he felt the Chicago museum would go ahead and that Agassiz's support was needed to raise money. Kennicott did not wish to offend the prominent Harvard zoologist by declining his request to go to Cambridge and work in its museum of comparative zoology. Kennicott tells Baird "I confess to you I'm bound to try on a little claptrap and humbug to help me carry out the plan here."²⁹ Kennicott further reasoned that working with or for Agassiz (even for a short time) would provide an "eclat" that would also facilitate his Chicago museum plans.

²⁸Robert Kennicott to Spencer Fullerton Baird, 16 November 1863, Spencer Fullerton Baird Collection, Record Unit 7002, Smithsonian Institution Archives.

²⁹Robert Kennicott to Spencer Fullerton Baird, 18 November 1863, Spencer Fullerton Baird Collection, Record Unit 7002, Smithsonian Institution Archives.

Kennicott's insight and planning were materializing. The idea was to have the museum plans in place and made public before Agassiz's visit. Kennicott reasoned that in that way the museum would be Chicago's idea and Agassiz would give the plan a "boost."³⁰

Baird and Agassiz were not on friendly terms. Agassiz was actively working to prevent Baird's membership in the recently formed National Academy of Sciences. In his desire to have his museum at Cambridge become the first ranked zoological collection in the United States, Agassiz made attempts to have the Smithsonian's natural history collections, controlled by Baird, transferred to Cambridge. The entire scenario made Agassiz and Baird bitter opponents. Joseph Henry, Secretary of the Smithsonian Institution, who supported Baird, was the third party necessary to establish the communications which brought Agassiz to Chicago in early February 1864. Agassiz's Chicago visit brought George Walker, Horatio Loomis, Edmund Aiken, Daniel Thompson, Erza B. McCagg, Eliphalet Blatchford, J. Young Scammon and William Doggett together as a committee of prospective donors for a Chicago museum. During the Chicago visit

³⁰Robert Kennicott to Spencer Fullerton Baird, 5 November 1863, Spencer Fullerton Baird Collection, Record Unit 7002, Smithsonian Institution Archives.

Agassiz spoke of the importance of Kennicott's collections.³¹

Kennicott's shrewd maneuvering of Agassiz through Henry and Baird brought the backing and support of prominent Chicago citizens. Kennicott's loyalty was to Baird upon whom he repeatedly relied for advice and answers to specific questions about the establishment and management of a museum. Baird advised Kennicott to be sure his friends controlled all funds as he would find both eastern and western men who would try to "cut you out" if the museum succeeded.³² Baird's advice convinced Kennicott to accept personal donations from patrons such as George Walker, a prominent Chicago businessman. Information supplied by Baird also went into the Constitution and By-laws of the Academy.

A short time after the Agassiz visit, sufficient funds were raised to meet Kennicott's requirements for a museum to house his collections. Joseph Henry agreed not only to turn over Kennicott's share of the arctic expedition of 1862 but felt the Chicago plan under Kennicott's direction worthy of a series of all duplicates in the collections of the Smith-

³¹Robert Kennicott to Spencer Fullerton Baird, 15 February 1864, Spencer Fullerton Baird Collection, Record Unit 7002, Smithsonian Institution Archives.

³²Spencer Fullerton Baird to Robert Kennicott, 28 November 1863, Spencer Fullerton Baird Collection, Record Unit 7002, Smithsonian Institution Archives.

sonian Institution. The Chicago Academy of Sciences, through Kennicott's work and dedication became endowed with the funds and collections to establish a natural history museum of worth. Kennicott was elected curator and work on the museum began in February 1864 at which time an estimate of the collections included ten thousand plants, two thousand minerals, seventy-five thousand fossils, ninety-seven thousand animals including one thousand mammals, three thousand birds, two thousand bird eggs, five thousand reptiles, ten thousand fish, forty thousand insects, five thousand crustaceans, thirty thousand mollusks and one thousand radiata.³³ Kennicott personally supervised the packing and shipping of the collections from Washington to Chicago. The collections were arranged in the Metropolitan Building at LaSalle and Randolph streets and the museum opened to the public 1 January 1865.³⁴

In the winter of 1864, the Western Union Telegraph Company had asked Kennicott to take part in the Overland Telegraph Expedition. His experience and knowledge of the northern climes brought an opportunity to further explore unknown northwest regions and to collect natural history

³³Robert Kennicott to Spencer Fullerton Baird, 24 February 1864, Spencer Fullerton Baird Collection, Record Unit 7002, Smithsonian Institution Archives.

³⁴Walter 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 2, 7 (1972): 222.

specimens. Additionally, supplementing the 1862 expedition would be of great advantage to the academy and the museum. The Smithsonian Institution and the Chicago Academy of Sciences agreed to help scientifically outfit the expedition and share in the collections made.

Kennicott could not resist the possibilities unfolding: greater personal recognition, expansion of the museum in Chicago, and undiscovered natural history to be collected and identified. Accepting the offer, he took command of the party destined to survey Alaska and the Yukon River for a route to lay an overland telegraph line to Europe. Prior to his departure, Kennicott made provisions for the work on the Chicago museum to continue. He left the city in March of 1865, never to return. Kennicott, who died at Nutalo, on the Yukon River, 13 May 1866, had summed up his life long desire in a letter to a friend: "You have heard me speak of my wish to establish a good museum in Chicago which should enable me to work more effectively at what I consider my vocation -- the making popular of natural history, and its advancement."³⁵

When Kennicott arranged his leave from the academy for the expedition, William Stimpson accepted the acting curator's position. Stimpson, a professionally trained

³⁵Karl P. Schmidt, "Robert Kennicott Founder of Museums" Program of Activities of the Chicago Academy of Sciences 7 (January 1936): 6.

experienced naturalist, was a friend of Kennicott's who had worked with him at the Smithsonian Institution. He ardently continued the organization and development of the academy's museum. As a consequence of Agassiz's trip to Chicago, contributions to the museum, which totaled \$65,000, permitted a reorganization of the Chicago Academy of Sciences in 1865.³⁶ The reorganization created a board of trustees empowered to hold property and receive funds. The first board of trustees included J. Young Scammon, president; William Doggett, vice president; George C. Walker, secretary and treasurer; Edmund Aiken, Eliphalet Wickes Blatchford, Robert Kennicott, Horatio G. Loomis, Ezra McCagg, and Daniel Thompson.³⁷ Officers of the academy in 1865 were president Edmund Andrews, vice presidents Daniel Thompson and Benjamin F. Culver, secretary William Stimpson M.D., and librarian George H. Frost.³⁸ Officers of the board of trustees were president J. Young Scammon, vice president William Doggett, secretary and treasurer George C. Walker.³⁹

³⁶Eliphalet Wickes Blatchford, "Sketch of the Chicago Academy of Sciences," Supplement B of the reminiscences of Eliphalet Wickes Blatchford, Blatchford Papers, Box 1, Folder 31, Newberry Library Archives, Chicago.

³⁷Act of Incorporation, Constitution, By-Laws and Lists of Officers and Members of the Chicago Academy of Sciences with a Historical Sketch of the Association; and Reports on the Museum and Library (Chicago: Brewster and Hanscom Printers, 1865), 18.

³⁸Ibid.

³⁹Ibid.

Following a fire which damaged the holdings of the museum in the Metropolitan Building, the board of trustees purchased a site on the corner of Wabash and Van Buren streets on which was erected a fire proof structure fifty-five feet by fifty feet and fifty feet high. Constructed of masonry the building had iron stairways and enormous iron shutters covering the doors and windows to render the structure as fire proof as 1865, construction methods allowed.⁴⁰ The design of the building was influenced by the design of the museum of the Smithsonian Institution.⁴¹

The first regular meeting held in the newly erected museum building occurred on 28 January 1868. The procurement of collections for the museum surpassed expectations and by 1871 the holdings in the general collections of the museum numbered: two thousand mammals, thirty mounted skeletons, including two mastodons, an African elephant, a sea otter and an elephant seal; ten thousand birds, one thousand birds nests with eggs, one thousand reptiles, five thousand fish, including large sharks and rays; fifteen thousand species of insects, five thousand species of mollusks, three thousand jars of radiates, one thousand jars of mollusks, eight thousand species of plants, fifteen

⁴⁰Blatchford, "Sketch of the Chicago Academy of Sciences."

⁴¹Hendrickson and Beecher, History of the Chicago Academy of Sciences, 224.

thousand species of fossils, four thousand minerals, and one thousand specimens of American archeology and ethnology.⁴²

The special collections of the academy were of national significance and included the Benjamin Walsh collection of insects, the State of Illinois insect collection; the Cooper collection of marine shells, one of the most complete in the country; a fully illustrated collection of the zoology of the Florida coast collected during two expeditions; the Hughes collection of minerals; collections of the Western Union Telegraph Company's Alaska expedition; the Smithsonian collection of crustaceans, the largest in the world; the collection of invertebrates made by William Stimpson from the northern Pacific; Stimpson's collection of marine shells, collected from Maine to Texas over a twenty year period; the Scammon herbarium of six thousand plant species, the Arctic collections of Robert Kennicott; the Scammon collection of Central American pottery and implements; the United States Coast Survey collection of deep sea crustaceans and mollusks; and, the Gould manuscripts of the crustaceans of the world which cost the federal government \$100,000.⁴³ The library contained two thousand volumes and over five thousand pamphlets and maps. The manuscripts of

⁴²William Kerr Higley, "Historical Sketch of the Chicago Academy of Sciences," Special Publication number 1 of the Chicago Academy of Sciences (Chicago: Chicago Academy of Sciences, 1902), 27.

⁴³Andreas, History of Chicago, vol. 3, 429.

William Stimpson's life work on marine invertebrates, close to completion, were kept in the academy's vault. The exchanges, permanent loans, and gifts from the Smithsonian Institution, arranged through Kennicott and Stimpson, attracted the scientific community and put many scientifically valuable collections in the academy's care. By 1871, the academy museum had become a major repository of natural history collections.⁴⁴

Initially, the academy only admitted members, students of natural history, and invited guests, a policy which limited its educational impact. Since the new museum brought numerous requests from the general public to view its collections, the board of trustees adopted the following resolution on 9 November 1869:

Resolved, That the museum of the Academy, located in their building, be opened to the public every Saturday from 9 o'clock a.m. to 5 o'clock p.m. On other weekdays members of the Academy, students of the natural sciences, and strangers will be admitted upon application to the secretary of the building.⁴⁵

Opening the museum's doors to the public marked the beginning of the academy's popular natural history education of the people of the Chicago area and during the last five months of 1870, 2,058 persons visited the museum.⁴⁶ Though

⁴⁴Blatchford, "Sketch of the Chicago Academy of Sciences," 7-12, and Higley, "Historical Sketch," 22-27.

⁴⁵Higley, "Historical Sketch," 21.

⁴⁶Ibid., 22.

the academy had opened its membership to women earlier that year, no women were listed on the membership roles. The rapid development of the academy during its first few years represented an astounding episode of museum advancement, which was summarized in the 1877 historical sketch produced by the academy:

the progress of the Academy under the skilled administration of Dr. Stimpson was rapid and its success assured. The choicest material constantly flowed to its care from exchange, from collection and from the Smithsonian Institution.⁴⁷

The great beginnings crashed in a harrowing extermination when the entire museum and its contents were destroyed by the great Chicago fire in October 1871. Because the museum was believed to be fire proof, the board of trustees did not carry fire insurance on the building or its contents. The cataclysm changed the academy's stature permanently. Unable to replace its collections, the museum would no longer rank as a leading natural history repository. While the calamitous fire snuffed out in a few short hours an institution destined to substantial attainments in natural history, it did not destroy the enthusiasm and desire of the trustees and members to rebuild their museum. At the first meeting of the membership after the holocaust, plans were made to reconstruct the collections and to

⁴⁷Historical Sketch of the Chicago Academy of Sciences with the Act of Incorporation, Constitution and Lists of Officers and Members 1877 (Chicago: Jameson and Morse Printers, 1877), 1-11.

solicit funds to rebuild the museum.⁴⁸ The decision to construct another building on the same site received ardent support. Eliphalet Wickes Blatchford and William Stimpson carefully prepared a circular which they distributed to "friends and correspondents" of the academy. The letter begged assistance, outlined what was lost, and asked interested persons to donate collections.⁴⁹

William Stimpson, who had lost his life's work in the fire, also lost the enthusiasm to pursue the rebuilding of the academy. Ill with tuberculosis, he left Chicago and died in his home at Ilchester, Maryland on 26 May 1872.⁵⁰

The board of trustees decided to rebuild the museum on the rear of the original property reserving, the front to construct retail buildings. The scheme was to use the rental income from the stores to pay the \$80,000 mortgage and the expenses of the academy. Eliphalet Blatchford stated the plan did not succeed because: "the large reduction in rentals through severe business depression sadly disappointed our hopes."⁵¹

⁴⁸Higley, "Historical Sketch," 28-30.

⁴⁹Blatchford, "Sketch of the Chicago Academy of Sciences," 8-10.

⁵⁰Hendrickson and Beecher, History of the Chicago Academy of Sciences, 227.

⁵¹Blatchford, Sketch of the Chicago Academy of Sciences, 10.

The academy held its first meeting in the rebuilt museum on 14 October 1873, but financial problems, as noted by Blatchford, interfered with growth and development and in 1883, the insurance company holding the mortgage foreclosed on the property. The academy remained in the building until 1885, at a rental of \$1,200 per year.⁵² During the years spent in its second home, the academy's activity was reserved when compared to the development of the society before the Chicago fire. There were no transactions published, the library was not catalogued and the "sections" for the encouragement of specific scientific investigation received little attention.⁵³ Though papers were read by members at regular monthly meetings, it was not until 1883 that any of the papers were published. The Bulletin of the Chicago Academy of Sciences became the written record of the activities of the membership. Volume number one contained ten titles published between 1883 and 1886.

When the museum of the academy reluctantly departed its quarters due to the foreclosure in 1885, a temporary exhibition hall on the lake front was offered by the managers of the Interstate Exposition Building. The generosity of the managers to house the museum, provide office space and pay the curator's salary deferred temporarily the crisis of

⁵²Andreas, History of Chicago, vol. 3, 429.

⁵³Blatchford, Sketch of the Chicago Academy of Sciences, 6-9.

finding storage for the collections. The wooden framed structure, recently erected for commercial displays provided mediocre accommodations for the collections. The collections, which remained in the exposition building for six years, were housed under very poor conditions. The museum collections, which were displayed, were constantly exposed to dirt, smoke, and handling by visitors who had no regard for their scientific value. The library collections were packed and stored during this time. In the spring of 1892, when the building was razed to build the Art Institute, the trustees had no choice but to store the museum collections.⁵⁴

From the time of William Stimpson's death, Jacob W. Velie took charge of the museum collections. Velie came to the academy in 1871, as an assistant to Stimpson.⁵⁵ Velie's personal natural history collections of thirteen years perished in the building destroyed by the Chicago fire. Trained as a medical doctor, Velie, who expressed an interest in all aspects of natural history, had special interest in conchology and ornithology. He served as acting curator from 1873 to 1876, secretary from 1879 to 1891, and curator from 1879 to 1893.⁵⁶ Personal devotion motivated

⁵⁴Minutes of the Board of Trustees of the Chicago Academy of Sciences 11 January 1892, 8 June 1896, The Chicago Academy of Sciences Archives.

⁵⁵Andreas, History of Chicago, 430.

⁵⁶Higley, "Historical Sketch," 47.

his expert care for the academy's collections until they were placed in the Matthew Laflin Memorial Building in 1893.

The academy's history up to this juncture was one of many trials and tribulations. The educational role the society played involved public viewing of the museum, the reading of scientific papers and the public esteem created by the natural history collections of Robert Kennicott. To be the fifth ranked museum in the country by 1870 was no small accomplishment. The academy became a permanent well known institution by 1871. The collections before the Chicago fire can only be described as exceedingly valuable scientifically. To the students of natural history who used the academy's collections, a great service was rendered. To the citizens of Chicago who viewed the collections, a great deal of natural history education took place.

Between 1857 and 1892, two distinct eras marked the academy's history. The time up to the Chicago fire saw a nationally ranked institution develop, bringing immeasurably valuable natural history collections to Chicago. The development of public self esteem centered around Kennicott's collections created great interest in the museum. Robert Kennicott desperately wanted to bring natural history awareness to the people of the city. He did have a significant impact and should be considered Chicago's first environmental educator. William Stimpson seemed destined to pick up where Kennicott left off. The museum building

erected in 1868 became a well known place of interest especially; for the cultured citizens of the city, but the Chicago fire changed the prospects of the academy.

From the fire until 1892, the academy rebuilt and gained the popular attention of Chicago citizens. The collections became significant but not the invaluable collections of the pre-fire institution. The collections of the academy's museum did not return to a position of national rank. The institution did become a popular natural history educator but the lack of financial resources restricted contact with the general public.

It is with the opening of the Matthew Laflin Memorial Building in 1893, that the Chicago Academy of Sciences was able to take a active role as a popular natural history educator. The educational work that would take place over the next thirty years brought Robert Kennicott's desire, to enlighten Chicago residents to the wonders of natural history, to reality. It is in the next part of the academy's chronicle that its educational impact is realized.

CHAPTER 3

A NEW BEGINNING, 1892-93

Since the academy's founding in 1857, Chicago became the nation's second largest city. Chicago was a city of wealth and a city of outrageously poor individuals who lived and worked in deplorable conditions and served by a school system that was overcrowded and inadequate. As the Chicago Academy of Sciences moved into the 1890s, its prospects to build a permanent museum of natural history were improved. Interest and membership in the academy had increased and the philanthropy generated for the Columbian Exposition brought with it opportunities to link the academy's expansion and development to the enthusiasm for this celebration. Public subscriptions to fund the exposition, which totaled over \$10,000,000 expressed the fervor of the wealthy and cultured for this international event honoring four hundred years of development since the arrival of Columbus. The funds collected from city residents amounted to 62 percent of the total \$17,000,000 required to build the exposition.¹

¹The Columbian Exposition and World's Fair Illustrated (Chicago: The Columbian Engraving and Publishing Co., 1893) xvi-xvii.

The situation, as it developed, would put the academy in a position to expand and build a new museum. Not since 1865, when Robert Kennicott's notoriety generated the public interest needed to raise the funds necessary to build a museum, would the trustees find people knocking at their door with offers to erect a museum. The West Park board offered the academy \$100,000 and a site on the fringes of the city. The members of the academy also considered the opportunity to unite with the University of Chicago and share in the \$34,000,000, oil magnate, John D. Rockefeller had donated to build the university. However, the trustees of the Chicago Academy of Sciences did not accept these opportunities to expand and build a museum.

The Search for a New Home

The major concern the academy's membership faced in 1890 was where to locate the museum.² Since the academy's move into the temporary quarters in the Exposition Building in 1886, the question of a permanent home preoccupied the academy's membership. Erecting a building in Lincoln Park had been a topic of discussion among the membership and park commissioners as early as 1885 but the necessary legislative changes needed to form such partnership were not

²Chicago Academy of Sciences Minutes of Regular Meetings, 14 January 1890, Chicago Academy of Sciences Archives.

successful.³ The collections, housed under poor conditions in the Exposition Building, could not be properly used or adequately maintained by the members who always took great pride in their collections. Having learned that the Exposition Building was to be razed to construct the Art Institute, the subject of a new home for the academy generated lengthy discussions throughout 1890 and 1891.

At the January 1891, regular academy meeting, Edward Ayer, a wealthy Chicago businessman who had made his fortune cutting forests in Arizona and Mexico to supply timber to the railroad industry, became a member and was elected to the board of trustees.⁴ While Edward Ayer had no connection with the Chicago Academy of Sciences before 1891, he immediately took an active role in the pursuit of a permanent museum which put him in opposition with long time trustees. His philanthropic and cultural interests did not come from an extended relationship with the academy. Ayer's interest in using his wealth and influence to establish a major cultural institution had the support of many members.

The long time trustees Eliphalet W. Blatchford, George C. Walker, William Egan, Edmund Andrews and Charles

³Chicago Academy of Sciences Minutes of Regular Meetings, 10 March 1885, Chicago Academy of Sciences Archives.

⁴Chicago Academy of Sciences Minutes of Regular Meetings, 13 January 1891, Chicago Academy of Sciences Archives.

Higginson did not support giving away their society just to establish a major museum. The academy had always been a closed circle of men whose common interest was a museum built to house the academy's collections and which would operate under their administration. They feared the loss of direct control of the collections and activities if the academy entered an agreement with a public institution or university. Others feared a loss of identity if the museum were located on a university campus or on the fringes of the city. Discussion was given to a prominent location in the center of the city which would attract the general public.

The long time trustees and members had a feeling of ownership and belonging. They did not feel comfortable with the thought of ~~losing~~ that which had become part of their social world. The academy was the place where they would meet to socialize and to discuss their interest in natural history. It could be said that the academy had become sort of a private club for wealthy businessmen interested in natural history that attracted intellectuals with amateur and professional interests in science. With membership increasing because of intense cultural interest generated at the beginning of the decade the academy was in a position to propel itself into a position of permanent prominence in the city. However, because the trustees choose to keep their independence, the museum they built would not become the only prominent natural history institution in Chicago, the

Field Museum would erect a building of world wide character and everlasting distinction on the lake front in Grant Park.

Early in 1891, consideration was given to loan the academy's collections and library to the University of Chicago for twenty years, giving the trustees adequate time to plan and build a permanent home. The University of Chicago desired the academy's collections and library for use by its professors and students pursuing the study of natural history. The plan was debated at the November 1891 regular meeting, but the membership in attendance declined to accept the University of Chicago offer by a five to four vote.⁵ The vote by such a small number of the membership attending the November meeting was not in line with the required constitutional provisions and therefore not binding. The required prior notice of the vote was not given to the membership. The university's offer ended up in the hands of a committee of five appointed by the trustees to investigate a permanent home.

Most trustees feared that an agreement with the University of Chicago would relinquish their control and access to the collections, a fear not well established among the membership. Discussion, heated at times, about a museum building continued among the membership who argued that the

⁵Chicago Academy of Sciences Minutes of Regular Meetings, 10 November 1891, Chicago Academy of Sciences Archives.

trustees were not keeping them informed as to what was being discussed in board meetings. The University of Chicago's offer persisted in the discussions about a permanent home for the academy throughout 1891.

The urgency to move the collections and the pressure from the membership to accept the university's offer caused the trustees to put the proposition to a nonbinding formal referendum. The membership would have the opportunity to vote on the question via a mailed ballot. The agreement, negotiated with the trustees, provided that in return for the twenty year loan of the academy's collections and library the university would build a fire proof building to exhibit the collections, provide for their care, and guarantee access to the library and collections to all members. The agreement provided that the university pay all expenses and salaries to maintain the museum, appoint a curator, pay the cost of moving, and arrange for a temporary building if necessary. Access to all academy collections, which would be identified as the property of the Chicago Academy of Sciences, would be limited to the university, academy members, and the interested public by arrangement with the university. If at the end of the twenty year period the academy desired to move its collections and library a one year notice would be given to the university. With identity and ownership of academy property fully protected, copies of

the agreement and ballots were sent to all life and resident members early in December of 1891.⁶

The board of trustees met on 11 January 1892 to discuss the results of the referendum in which the membership had voted eighty-two to twenty-two to accept the university's proposition.⁷ The vote overwhelmingly indicated that the membership supported the referendum but the long time trustees did not. At the regular meeting held 12 December 1892, with thirty members in attendance, the referendum vote was reported to the membership. Even though the membership had voted to accept the University of Chicago's offer, influential trustees and members spoke against the non-binding referendum. The discussion which followed clearly indicated that the members present did not believe that the University's offer was in the best interest of the academy. The idea of erecting a building in Lincoln Park again entered the discussion as it had since 1885. Dr. S.J. Jones moved:

that the present committee to seek a new home for the museum be still further empowered to solicit funds necessary for accomplishing that purpose and to cooperate with the board of trustees in securing such a

⁶Chicago Academy of Sciences Minutes of Regular Meetings, 12 January 1892, Chicago Academy of Sciences Archives.

⁷Chicago Academy of Sciences Minutes of the Board of Trustees, 11 January 1892, Chicago Academy of Sciences Archives.

home in Lincoln Park, if found desirable, on the most favorable terms practicable for the academy.⁸

The motion carried. The question of a permanent home was now in the hands of the trustees. Knowing that their temporary quarters in the Exposition Building had to be vacated, Eliphalet Blatchford, a charter member of the board of trustees, directed said board to look into the possibility of making arrangements with the Lincoln Park commissioners to locate a museum in the park which they could support with park revenues.⁹

Lincoln Park, a 409 acre parcel of land on the lake front, was a major recreational attraction of the city. Thousands of Chicago area residents visited its conservatory, zoo, gardens, tennis courts, baseball grounds, lagoon with access to Lake Michigan, bathing beaches, boat landings, lily ponds, picnic grounds, duck ponds, fountains, monuments, band stands, and pavilions. In addition to ten miles of vehicle drives, almost fifteen miles of pedestrian walkways ran through its boundaries. Immediately north of Grant Park, located directly in the middle of the city on the lake front, Lincoln Park was one of the most highly accessible and prominent locations for a public museum. The

⁸Chicago Academy of Sciences Minutes of Regular Meetings, 12 January 1892, Chicago Academy of Sciences Archives.

⁹Chicago Academy of Sciences Minutes of Regular Meetings, 10 November 1891, Chicago Academy of Sciences Archives.

academy's relationship with Lincoln Park dated to 1878, at which time the park's commissioners granted the academy's request to mount for exhibition the bodies of animals from the park collection.¹⁰

In 1884, park commissioners and the academy trustees met to discuss the erection of a museum for the academy but necessary legislation failed to pass the state legislature.¹¹ Since a park and academy partnership would provided a regular source of income to relieve the academy's constant financial problems, Blatchford was enthusiastic in pursuing these arrangements for the academy.¹² The property tax revenues generated for the park were \$323,222 in 1894. Blatchford's knowledge, through friends and relatives, of the successful cooperation in linking private enterprises similar to the Chicago Academy of Sciences with the Central Park Board in New York City, encouraged him to aim at similar arrangements in Chicago. Ezra McCagg, an attorney and an active academy member, supported Blatchford.

McCagg's association with the Lincoln Park board, having

¹⁰I. J. Bryan, A History of Lincoln Park and the Annual Report of the Commissioners (Chicago: Published by the Commissioners, 1899), 56.

¹¹Chicago Academy of Sciences Minutes of Regular Meetings, 10 March 1885, Chicago Academy of Sciences Archives and Bryan, History of Lincoln Park, 56.

¹²Sketch of the Chicago Academy of Sciences, Supplement B of the Reminiscences of Eliphalet W. Blatchford, Blatchford Papers, Box 1, Folder 31, Newberry Library Archives.

served as its president, helped facilitate a favorable atmosphere with the Lincoln Park commissioners. William Bross, former speaker of the state senate, William C. Goudy, president of the Lincoln Park Commissioners and George Walker, businessman, were other influential academy members supporting this move. Personal agendas, politics and influence were coming together in favor of a Lincoln Park site.

Though no recorded minutes of the board of trustees between 11 January and 26 July 1892 are intact there were meetings 14 January and 9 July 1892 recorded and questions about their legality mentioned.¹³ Holding the board meetings in his office Edward Ayer, the newcomer to the academy and its board, who favored the association with the University of Chicago, took an active role to influence decisions for the academy's permanent home. At the board of trustees meeting on 26 July 1892, Edmund Andrews reported that the West Park board proposed \$100,000 for a building to be located on a thirty-two acre site in Garfield Park near Madison Street, between Douglas Boulevard and Central Park Avenue.¹⁴ The trustees present questioned the terms of the West Park board's offer. It was at the 26 July meeting that

¹³Chicago Academy of Sciences Minutes of the Board of Trustees, 14 January and 26 July 1892, Chicago Academy of Sciences Archives.

¹⁴Ibid., 26 July 1892.

Eliphalet Blatchford reported that a private citizen offered \$75,000 toward a building in Lincoln Park. He spoke of the offer's conditions but did not reveal the donor. Ayer asked if the present Lincoln Park board could legally bind future boards to an agreement and if it would be possible to raise another \$75,000 to meet the conditions of the offer. George Walker did not feel that the park board could enter a legally binding agreement. William C. Goudy, who happened to be waiting in an outer office, was asked to join the meeting. Goudy replied to Walker's question saying he felt an agreement would be legally binding on future boards. Ayer then asked Goudy if the academy could move its collections from a building in Lincoln Park under an agreement. Goudy replied "Yes undoubtedly."

Before the meeting adjourned, Blatchford, Ayer, and Higginson, the current president, were appointed as a committee to: (1) consult further with the Lincoln Park Commissioners about an agreement to build a museum in the park which was contingent upon the conditions of the \$75,000 donation and the academy's terms of acceptance; and, (2) consult further with the West Park commissioners as to the terms of their offer and the academy's conditions of acceptance.¹⁵ The meeting adjourned, the trustees did not meet again until 15 November 1892, at which time it was reported

¹⁵Ibid.

that the offer by the West Park Commissioners could not be made legally binding on their successive boards. Therefore, the academy could not enter into a contractual agreement with said board. After some discussion on the Lincoln Park site Higginson moved:

That this board is in favor of accepting the offer of the Lincoln Park Board for a home for the academy in Lincoln Park upon subscription by such Park Board of seventy-five thousand dollars [\$75,000] towards a building and working fund and also such annual payments towards the care and maintenance of the building, library and collection as are embraced in there original offer the terms being as below . . . and also upon the setting aside of such land as will be needed for probable future extensions.¹⁶

The motion carried unanimously and the meeting adjourned.

The agreement reached among the trustees was reported to the membership on 12 December 1892. The fact that nothing was discussed by the membership about a home for the academy since January of 1892 may show that the members who attended the meetings felt comfortable with the trustees intentions. The members attending the meetings may have feared awakening those members who had voted for the University of Chicago's offer into taking an active role and losing the academy to the university. The only point clearly recorded is that Blatchford and his supporters arranged an agreement for a museum building that would be a place of prominence, as Robert Kennicott had desired. The

¹⁶Chicago Academy of Sciences Minutes of the Board of Trustees, 26 November 1892, Chicago Academy of Sciences Archives.

trustee's action averted control of the museum by a university and kept it centrally located in the city.

Edward Ayer must have felt defeat in his inability to convince the men with whom he worked to accept his ideas. At the board of trustees meeting held 22 December 1892, Ayer resigned. In his letter to the trustees he wrote:

I wish you would extend to the members of the academy and the Board who were opposed to my views of going to the Chicago University, and undertook the great task of providing a house for the academy elsewhere, practically on its own, my sincere congratulations upon their success. I did not believe they could do it, but they have and I now feel that the best interests of the academy have been served in their course, because nothing could be better than the arrangement for Lincoln Park.¹⁷

The members and trustees associated with the academy's early development, who were still involved in the continuing efforts to rebuild a prominent natural history museum, must have felt a sense of satisfaction in the success of the Lincoln Park museum site. It indeed would be a prominent landmark in an outstanding Chicago park. The forced move from the temporary quarters in the Exposition Building must have caused a great deal of frustration in these men, knowing that the building was to be razed for the erection of the Art Institute. The events of the past brought an attitude of caution to their continued work to bring the academy to a prestigious position in the scientific, intellectual, and cultural circles of Chicago. They were

¹⁷Ibid., 22 December 1892.

starting to see some success in their struggle to bring their enterprise back to a position of national significance.

Edward E. Ayer's vision to incorporate the enthusiasm generated by the Columbian Exposition into a world class natural history museum must have brought those cautious academy members to the conclusion that he was a wildcat when he suggested that the collections being assembled for the exposition should be obtained to establish a natural history museum of world wide character. Ayer discovered Eliphalet Blatchford, Ezra McCagg and the Laflin's--Mathew, George, and Lycurgus--extremely influential in academy affairs. Their noninterest in his suggestions may have caused him not to make any great effort to convince the academy trustees to accept his ideas. Hearing Blatchford's Lincoln park plans, and understanding the resolve of the influential academy members in accepting what they considered a sure thing, Ayer must have decided it was an impossible task to convince the academy trustees to pursue the artifacts of the Columbian Exposition. Ayer, after leaving his position with the academy, approached Marshall Field, the wealthy Chicago department store founder, with his grandiose plans. Subsequently, Ayer convinced Field to contribute one million dollars towards a museum to house the natural history collections and curiosities assembled for the Columbian

Exposition. Marshall Field was a life member of the Chicago Academy of Sciences.¹⁸

The Field Columbian Museum was easily established from the collections amassed for this celebration. Occupying the exposition's fine arts building allowed the Marshall Field gift to be used to purchase and display natural history collections from around the world. In a few short months, the Field Columbian Museum became a prominent natural history institution of world wide character as the academy trustees were carrying out their Lincoln Park plans. This new institution influenced the academy's mission and philosophy because of the eminent size of its collections, its cultural and intellectual influence, and its international character.

A Memorial to Matthew Laflin

Individual philanthropy did exalt the academy, providing the resources needed to rebuild a museum that would be a memorial to one of Chicago's developers. Matthew Laflin, a successful Chicago businessman, wished to leave a legacy which would honor himself and his family after his death. From his arrival in Chicago in 1838, selling gunpowder for the Illinois Michigan canal, until his death at age ninety-two in 1897, Laflin successfully built and

¹⁸Historical Sketch of the Chicago Academy of Sciences with the Act of Incorporation, Constitution, By-Laws and List of Members (Chicago: Jameson and Morse Printers, 1877).

operated business enterprises closely associated with the development of Chicago. Through his son George, a school friend of Eliphalet Blatchford, arrangements were made to give the academy \$75,000 to build a museum in Lincoln Park. The conditions of the gift were: (1) the building was to be fireproof; (2) it was to be located in Lincoln Park; (3) admission to the public was to be free of charge; (4) the building's plans were to be approved by the Laflin family; and, (5) construction should start in 1893 and be completed by 1894.¹⁹

A committee of the membership, appointed 13 January 1892 to investigate a permanent home for the academy, reported at the 12 December 1892 meeting that sites proposed by Lincoln Park, the University of Chicago, the Crerar Library and the Chicago Public Library were considered by their committee. After careful consideration, the committee regarded the Lincoln Park site the most acceptable. President Peabody then called for a report from the trustees. Edmund Andrews, president of the board of trustees, deferred to Dr. Higginson, claiming he was not prepared. Higginson, a member of the trustees permanent home committee, told the membership that the Lincoln Park proposition was acceptable to the trustees and that acceptance would be legally binding

¹⁹William Kerr Higley, "Historical Sketch of the Chicago Academy of Sciences," Special Publication Number 1 of the Chicago Academy of Sciences (Chicago: Chicago Academy of Sciences, 1902), 37.

on future park boards; the West Park offer was acceptable but would not be legally binding on future boards; and that the University of Chicago offer was already before the academy. Intense discussion followed the report. Representatives of the Lincoln Park commissioners, The West Park commissioners and the University of Chicago spoke to their respective proposals.²⁰ Each presented positive arguments for its particular organization; legal opinions were given on several issues; and a dozen members discussed the merits of the three sites. During this meeting, discussion of Mr. Laflin's proposed donation of \$75,000 dollars, took place. The Lincoln Park offer was moved for acceptance. The motion was then amended to direct the trustees to bring all propositions in proper form before the academy membership. After some additional discussion, a substitute motion was introduced:

That Lincoln Park is a desirable location for a home for the academy, and that the Board of Trustees of the academy be requested to make such contracts with the Lincoln Park commissioners as will protect the academy in their opinion, and present the same to the academy for acceptance or approval at the next regular meeting.²¹

The motion was approved and adopted as follows: Lincoln Park forty-one, University of Chicago eight, the lake front four.

²⁰Chicago Academy of Sciences Minutes of Regular Meetings, 12 December 1892, Chicago Academy of Sciences Archives.

²¹Ibid.

The board met 22 December 1892 and adopted an agreement with the Lincoln Park Commissioners. When negotiations were completed, Blatchford announced that Matthew Laflin was the academy donor. At the regular meeting of 10 January 1893, Matthew Laflin, William C. Goudy, president, Lincoln Park board of commissioners, and Charles S. Kirk, member, Lincoln Park board of commissioners, signed the agreement. The membership of the academy, by a vote of thirty-three to two approved the resolution presented to accept Mr. Laflin's donation.²² The academy board voted to accept the signed agreement 13 January 1893, as required by the constitution.²³

The proposal, determined to be legally binding on all parties, contained the following provisions: (1) that the whole cost of the building be accepted by the academy and that construction would begin as soon as the \$75,000 was in hand; (2) that the site in Lincoln Park would be mutually agreed upon by the commissioners of Lincoln Park and the board of trustees of the academy; (3) that the construction plans, to be determined by the board of trustees of the academy, be fireproof in nature and not less than \$75,000 shall be in hand to erect such building; (4) that a memorial

²²Ibid.

²³Chicago Academy of Sciences Minutes of the Board of Trustees, 13 January 1893, Chicago Academy of Sciences Archives.

tablet be placed on the building for any person giving the full sum of \$75,000; (5) that the building remain permanently in Lincoln Park and be maintained exclusively for the use of the academy; (6) that the money for construction be in hand by 1 April 1893; (7) that the academy, at all times, have exclusive charge, management and control of all property placed in the building; (8) that the commissioners of Lincoln Park contribute \$25,000 toward the construction, and a sum not to exceed \$5,000 annually for light, heat, maintenance, telephones, the curator and assistants salaries, and expenses for the custody, care, management, protection, collection of specimens, the library, and other property in the building; (9) that the museum, under proper restrictions, be free and open to the public; and, (10) that three rooms be made available for use by the Lincoln Park commissioners.²⁴

It was not until Matthew's death in 1897 that Blatchford commented publicly on his struggle to convince him to be the academy's benefactor. In his tribute to the academy's patron at a special commemorative meeting 21 May 1897, Blatchford recounted his first efforts to persuade Laflin. He said, that Laflin lacked interest in science and when it was suggested that he donate a building to the academy he would not consider the idea. Despite being

²⁴Ibid.

rebuffed, Blatchford recalled that he again approached Laflin the day before he agreed to give \$75,000 and had again been refused. "Upon returning to my room in the Newberry Library the following morning, I found on my desk a letter from George Laflin stating his father had at last consented to give \$75,000 for a building in Lincoln Park."²⁵

Immediately after acceptance of the Laflin agreement, the board of trustees prepared to start the construction of the building. The architectural firm of Patton and Fisher was retained to design the building. Though the architects, with support from the membership, designed a museum building of eminent proportions, available funds permitted construction of only the northern wing. The trustees foresight to ensure realization of the grand plan for the academy's museum was never be realized, because the original estimate to build the north wing of a grand museum, almost \$120,000, was more money than was available at the time. Consequently, the construction was scaled back to remain within the \$100,000 budget. Though the museum's classical Italian Renaissance design was retained, limestone replaced granite and the building dimensions were slightly reduced. The corner stone was laid 10 October 1893. Construction of the building, which measured 132 feet long, 62 feet wide and 70

²⁵Chicago Academy of Sciences Minutes of Regular Meetings, "Special Meeting," 21 May 1897, Chicago Academy of Sciences Archives.

feet high, proceeded rapidly once the Laflin's approved the plans.

The basement of the building contained work rooms and the heating plant. The first floor contained offices, the library, herbarium, lecture room, entrance hall, and rooms for the park board. The main exhibit hall was located on the second floor. The third floor was designed as a gallery for smaller exhibit cases and to view the main exhibit hall from above. An attic, ran around the perimeter of the vaulted ceiling, which contained a skylight that illuminated the main exhibit hall and gallery. The building's architectural design ensured that the dimensions of all interior spaces would allow the most efficient use of exhibit cases. The building's piers were placed ten feet on center so that exhibit cases could be placed between the windows and naturally illuminated through a combination of side and ceiling light. Since the design allowed the light to flow through the entire exhibit area, the need for artificial lighting was almost nonexistent. Though the report of the U.S. National Museum described the museum's design as one of the best in the country, it expressed regret that its dimensions could not have been expanded.²⁶ Just over a

²⁶Adolf Bernard Meyer, "Studies of Museums and Kindred Institutions of New York City, Albany, Buffalo, and Chicago, with some Notes on European Institutions." Report for the United States National Museum for 1903 (Washington D.C.: United States Government Printing Office, 1905): 311-608.

year after the corner stone was laid, the Matthew Laflin Memorial Building was completed and opened on 29 October 1894.

The direction the academy trustees would take operating the museum for the next thirty-five years was clearly outlined in the opening ceremony address by academy president Selim H. Peabody. Peabody, who also served as a trustee from 1895 to 1896, spoke of the academy's past and its future role to advance scientific knowledge for the benefit of humanity. Peabody spoke about the scope and duty the academy would pursue for the citizens of Chicago. Speaking with respect to all sciences, their mutual relationships, and the activities involved in scientific investigation, the president cautioned against undertaking active investigations in all sciences. He told the audience that the present preference for research in the biological sciences would continue, going on to say that selecting the lines of work the academy should pursue must be: "made with conservative judgement considering the conditions and opportunities for each."²⁷ The present museum's specialization in the flora and fauna, paleontology, geology, drainage, sanitation, and sociology of Chicago, Cook County, and the

²⁷Selim H. Peabody, "An Address before the Chicago Academy of Sciences, At the Opening of the Matthew Laflin Memorial, In Lincoln Park, Chicago, October 29, 1894," The Chicago Academy of Sciences Archives.

State of Illinois would provide the topics for scientific investigation for a considerable amount of time.²⁸

Noting that funds were not available to support independent research, he mentioned the many current members who were effective students of underdeveloped fields of science who the academy assisted by furnishing materials, apparatus, and literature. The results of the member's research was published and made available to the scientific community and general public. Through providing assistance to the members who are students of the sciences, Peabody claimed the academy's duty to foster scientific advancement was being accomplished. He went on to explain that because the academy was doing original scientific investigation, it had a duty to diffuse this newly discovered scientific information to the public through popular education. It is through instruction that the results of research will be made known Peabody expounded.

Peabody also outlined the academy's educational policy, which included publication, the use of the museum by the members, scholars, and the public at large, classes in subjects of the academy's specializations, and a free lecture series regularly given for all audiences of the academy. In speaking of the museum, Peabody pointed out that though it would probably never become a "curiosity-

²⁸Ibid.

shop" of world-wide character, the membership should make it a complete illustration of the Chicago area's natural history. Peabody closed his address by saying:

There is then a work before the academy. It must demonstrate its capacity to enter upon the field thus generously opened before it, and to administer the large estate to which it has fallen heir. It is set in the midst of people who have the insight to appreciate wise practice; who will rally to approve and then to foster and extend an enterprise which they recognize as worthy; who will take just pride in the academy as an exponent of sound science and exalted culture. I have no fear that the academy will fail to meet its responsibilities. Its vitality is demonstrated by its history.²⁹

Though the opening of the Field Columbian Museum in August 1894 forced the academy to redefine its plans in some respects, it did not waiver from the mission which Peabody launched in the opening address. Until the Field Museum moved into its present lake front site in 1921, the Chicago Academy of Sciences was the preeminent museum of natural history in Chicago.

The Natural History Survey

In his address at the opening ceremony of the Laflin building Selim Peabody stressed the importance of continuing the work in the biological sciences that emphasized Chicago area natural history. In 1892, shortly before the academy formally undertook a natural history survey of the Chicago area the academy published The Flora of Cook County Illinois

²⁹Ibid.

and Part of Lake County Indiana. An extensive work by academy secretary William K. Higley and Charles S. Raddin, updated the work of Henry Homes Babcock, academy president from 1878 thru 1881. Babcock, the director of the Chicago Botanic Garden, published the most complete catalogue of Chicago area plants available at the time. Babcock's work, "Catalogue of the Plants of Chicago" was published in The Lens, the Illinois State Microscopical Society's journal.³⁰ The Higley and Raddin update of Babcock's work contained a map of the inventoried area that included all of Cook County, Illinois and part of Lake County, Indiana.

In the spring of 1892, at the urging of William K. Higley, the membership appointed a committee to prepare a topographic map of the Chicago area. The area suggested to the committee by Higley and Raddin was the region covered in their work on the flora. Accepting the recommendation, the committee reviewed the map and established the boundaries of the area as: the northern Cook County line starting at Lake Michigan west coincident with the county line to Kane County then south along the eastern line of Kane and Kendall counties then east coincident with the Cook County line to the west line of Lake County, Indiana then north to Lake

³⁰William K. Higley and Charles S. Raddin, "The Flora of Cook County, Illinois and Part of Lake County, Indiana" Bulletin of the Chicago Academy of Sciences 2, 6 (1891): vi-viii.

Michigan.³¹ The boundaries were further expanded on the east to run twelve miles into Indiana from the southeast corner and then north to Lake Michigan.³² This area included the whole of Cook and DuPage counties, the nine northern townships of Will County and a portion of Lake County, Indiana.

Soon after the committee began working a decision was made to expand the topographic map project to include a series of reports to cover the geology, paleontology, zoology and botany of the map boundaries.³³ Deciding to collect all possible existing data before setting out to do any field work, it was discovered that only a small area in the west and south of the area boundaries needed actual field work to prepare the map. The committee reported to the membership that a large amount of actual mapping work had been done by the railroad profiles, the Sanitary Commission, the United States Geological Survey and private corporations. The scale of the map was set at 1.5 inches to the mile with contour intervals of five feet. This scale would produce a map approximately six feet square. The original title of the project "The Geologic and Natural

³¹Chicago Academy of Sciences Minutes of Regular Meetings, 14 June 1892, Chicago Academy of Sciences Archives.

³²Ibid., 27 September 1892.

³³Ibid., 14 June 1892.

History Survey of the Chicago Academy of Sciences" was changed to the "Natural History Survey of the Chicago Academy of Sciences" when it was decided that the major work of the survey would catalogue the flora and fauna within the map boundaries.³⁴

The work proceeded rapidly once started and progress reports were made at the end of each regular meeting. The survey was divided into three divisions: (1) geology and paleontology, (2) topography, and (3) botany and zoology. The work in geology was to include; the study of rock formations, the various strata of the same type of rock within the area boundaries and their mapping. The study of the rock formations included the strata known as the Niagaran limestones (420 million years old), the study of the areas glaciations during the most recent geologic time period, the Quaternary Period, available drill records, Chicago fossils, and the geology of Calumet Heights. The topographic map prepared was titled "The Topography and Drainage of the Chicago Divide."³⁵

The zoologic and botanic work was to be a study of the structure, distribution, habits, and ecology of the fauna and flora occurring within the limits of the mapped area. Each discipline was subdivided as follows: zoology; inver-

³⁴Ibid., 11 January 1898.

³⁵Ibid., 27 September 1892.

tebrates including protozoa, porifera, coelenterata, vermies, mollusca and arthropods; vertebrates including fishes, batrachins, reptiles, birds, and mammals; botany; pteridophytes, bryophytes, fungi, cyperaceae, lichens, algae, and phaenogamia; higher plants of the northern district; higher plants of the southern district.³⁶ All of the collecting work and written reports were to be completed by men recognized as specialists in their specific field of endeavor.

The area included in the survey contained many different types of environments. The northern area was well wooded on a number of high ridges with marshy areas interspersed between them. The west and south was mainly prairie with woodlands along the river banks. The area south of the Chicago River along Lake Michigan was low and swampy with a number of small lakes that are connected to Lake Michigan. The northeastern limit of the area, located in Lake County, Indiana, is covered with a extensive series of sand dunes bordering Lake Michigan. This habitat supports a unique flora and fauna.

The importance of the academy's natural history survey was best explained by Frank Baker:

The importance of a natural history survey of a region like the environs of Chicago cannot be fully appreciated until we grasp the fact that slowly but surely the native animal life is being exterminated and

³⁶Ibid.

if records are not made at a very early date the possibility for preserving the history of the local biota will have passed beyond recall.³⁷

Included in the survey would be a collection illustrating each published report. The collections of mollusks, birds and paleontology were the most comprehensive. Eight monographs were published by the academy from 1896 thru 1927 under the heading "Bulletin of the Natural History Survey."³⁸ Fourteen other titles planned were never published.³⁹

The Natural History Survey of the Chicago Academy of Sciences became the academy's focus when it was decided that the museum's scope should be limited to a specialization of Chicago area environments. Set in motion before the completion of the Laflin building, the survey can be considered a serendipitous undertaking that focused the direction of the academy's specialization. The triumph of erecting a new building in Lincoln Park created enthusiasm in many academy members to move and arrange the collections for the anxious residents of the city who regarded the museum a major attraction. The future seemed very optimistic but lack of

³⁷Frank C. Baker, "The Natural History Survey of the Chicago Academy of Sciences," Proceedings of the American Association of Museums 2 (1908): 18.

³⁸"Publications of the Chicago Academy of Sciences, 1866-1966," Chicago Academy of Sciences Archives.

³⁹Frank C. Baker, "The Natural History Survey of the Chicago Academy of Sciences," Proceedings of the American Association of Museums 2 (1908): 16.

adequate funding and the inability of the trustees and staff to generate additional revenue sources restricted the growth of the museum. Even though financial constraints restricted its development during the first fifteen years the academy's museum became the third most visited museum in the country.⁴⁰

⁴⁰Bulletin of the Chicago Academy of Sciences Annual Report for the Year 1908 3, 1 (February 1909): 9.

CHAPTER 4

THE LAFLIN BUILDING'S FIRST FIFTEEN YEARS, 1893-1908

When the Matthew Laflin Memorial Building opened at the end of October in 1894 museums were viewed as agencies to educate young people and for the public's cultural enlightenment.¹ The academy trustees desired a public museum and the agreement with the Laflin's required the public have free access to the museum. The trustees and museum officers developed the philosophy at this time that there was little reason for the academy with its limited funding to indulge in scientific work, maintain a scientific library or arrange a research oriented museum collection because of the influence of and support for the Field Columbian Museum and the University of Chicago in carrying out scientific research.² The Laflin building opened at a time when museum work was developing into a professional discipline. When the American Association of Museums organized in 1906 Frank Baker, the academy's curator, was a charter member. At the

¹George Brown Goode, "Recent Advances in Museum Method," Annual Report of the Board of Regents of the Smithsonian Institution (June 1893): 21.

²Frederick A. Lucas to Henry B. Kummel, 17 January 1916, Frank C. Baker Collection, American Museum of Natural History Archives.

opening meeting of the newly formed association a debate raged among natural history professionals concerning museum purpose. Was a natural history museum primarily an educational institution or was it primarily an institution for the advancement of science? Frank Baker delivered a paper at the first meeting titled "The Educational Arrangement of a Natural History Museum." Also attending the meeting was Frederick J. Skiff of the Field Museum who presented the following resolution: "Resolved, That it is the sense of this Association that the American Association of Museums should be allied with the National Education Association."³ The other side of the debate was clearly expressed by George Dorsey of the Field museum who considered the chief aim of a public museum the advancement of science. Skiff's resolution to ally the American Association of Museums with the National Education Association was not accepted.⁴

Because of its financial situation and the position taken by the trustees and museum officers the academy pursued programs for the public and the schools. Other than the Natural History Survey the academy would not pursue scientific research until after 1929. The work of the

³"Minutes of the First Meeting of the American Association of Museums, held in New York City May 15-16, 1906," Proceedings of the American Association of Museums, 1 (1908): 12.

⁴George A. Dorsey, "The Aim of a Public Museum," Proceedings of the American Association of Museums 1 (1908): 97-100.

Natural History Survey was largely accomplished by local individuals associated with various area universities who volunteered their work because of personal interest.

Because the academy had little money to support work for the Natural History Survey most of it was based on voluntary agreements resulting in many of the reports going unpublished or uncompleted. The largest portion of the academy's money and efforts were directed into educational programs for the members, the public, and the schools.

Frank C. Baker

The arrangement of the museum's collections, exhibits and displays was the responsibility of Frank Baker, the newly appointed curator who, with his assistant Frank M. Woodruff, came to the academy from the Field Museum. Frank Baker, born in Warren, Rhode Island, 14 December 1867, attended Brown University and the academy of Natural Sciences in Philadelphia as a Jesup scholar. Baker obtained his bachelor of science degree from the Chicago School of Science in 1895.⁵ While working as head of the department of invertebrates for Ward's Scientific Establishment in Rochester, New York, Baker accepted the Curator of Zoology position at the Field Columbian Museum which he resigned in July of 1894, to accept the curator's position at the

⁵"Frank Collins Baker Biographical Notes," Frank C. Baker Collection, Chicago Academy of Sciences Archives.

academy. The prospect of arranging an entire natural history museum was a challenge which stimulated Baker's hard-working nature and his love of science.

When Baker accepted the curator's position at the academy in 1894, he seized an opportunity to put his scientific training and interest to practical use organizing a new museum. His personal scientific interests not only provided him with the motivation to create a museum that would be a major attraction to Chicago's citizens but also caused the trustees to take away his authority over the entire operation of the museum by 1912. The greatest impediment to Baker's personal agenda was not the competition created by the founding of the Field Museum but the trustees of the academy, a situation that was succinctly summarized in the 1903 report of the Smithsonian Institution: "The curator of the museum, a professional man, is in all his plans dependent upon the decisions of the trustees, who are nonprofessional; a fact that is not very favorable to the progress of the museum."⁶

Baker's scientific interest in conchology made him one of the foremost authorities on freshwater mollusks in the United States. He was a regular contributor to The Nautilus, the professional conchologist's journal. He

⁶Adolf Bernard Meyer, "Studies of Museums and Kindred Institutions of New York City, Albany, Buffalo, and Chicago, with Some Notes on European Institutions," Report of the United States National Museum for 1903 (June 1904): 438.

described many new species of clams, mussels and snails while studying and reporting about their ecology. Baker's work was extensively published. His research work published by the academy included: A Preliminary Outline of a New Classification of the Family Muricidae (1895), The Mollusca of the Chicago Area; the Plecypoda (1898); the Gastropoda (1902), The Gross Anatomy of Limnaea emarginata (1900), Description of a New Species of Limnaea (1901), The Digtations of the Mantle in Physa (1901), and The Lymnaeidae of North and Middle America, recent and Fossil (1911). Baker viewed his research interests as a legitimate part of his museum work. Combining research interests with all of his administrative responsibilities, as the general curator of the academy's museum, forced him to work long hours. Frederick Skiff of the Field Museum commented to Baker: "You are doing good work and I said to a friend the other day, I don't see why Baker has not killed himself he works so hard at the academy."⁷

The small staff employed by the academy forced Baker to divide his time between the academy museum and research. As the general curator, Baker assumed complete control of the museum and its employees even though the academy's constitution allowed the appointment of a general director. The

⁷Frank C. Baker to William K. Higley, 26 May 1906, Frank C. Baker Collection, Chicago Academy of Sciences Archives.

trustees allowed this administrative control by the curator, regarding it as the best possible scenario for the limited financial resources. Baker worked hard trying to keep all aspects of the museum in balance. The trustees approved and encouraged him to visit other museums to obtain materials and gather ideas. He included as much research and field study in his travels as possible so that exhibits and collections could be scientifically accurate and up to date. Astutely aware that he must keep the academy's museum a major public attraction, Baker arranged and rearranged exhibits and collections largely using his own innovations and insight. In writing to academy secretary William K. Higley, while visiting east coast museums in 1902, Baker claimed Chicago museum techniques were superior to what he was observing:

Between you and me the museums of Chicago (particularly the C.A.S.) are far in advance of the eastern museums in the arrangement of their collections for the use of the public. . . . However, I obtained one or two good ideas in each museum and saw very plainly how not to arrange a collection.⁸

In summarizing his trip Baker comments:

After my recent visit to the eastern museums I am more than ever convinced that the eastern museums are a "little" ahead. There is nothing comparable with the groups at the Field Museum, nor with our installations

⁸Frank C. Baker to William K. Higley, 14 August 1902, Frank C. Baker Collection, Chicago Academy of Sciences Archives.

in the gallery. I think Chicago can give the east a few "points" on museum work.⁹

Though Frank Baker was the ranking museum officer, the academy's constitution allowed the trustees to appoint a director who would have general charge of the conduct of the museum, library, and other property of the academy. The director would also be responsible for carrying out the policies outlined by the board of trustees.

When academy secretary William K. Higley died in 1906, Baker assumed greater responsibility by accepting the duties of secretary during the years 1907 and 1908. Baker completed a reorganization of the museum at this time. In 1909, the trustees appointed Wallace C. Atwood secretary. Atwood, associated with the academy since 1893, would now be brought into the administrative functions of the museum. This appointment would change Baker's authority and ultimately result in his departure from the academy.

Collections, Exhibits and Their Arrangement

The collections were moved from storage to the basement of the Laflin building immediately after completion. Frank Baker sorted and catalogued them so that the best specimens could be arranged in the new museum display cases. As one of the few museums in which the size and arrangement of the display cases corresponded exactly to the distance between

⁹Frank C. Baker to William K. Higley, 30 August 1902, Frank C. Baker Collection, Chicago Academy of Sciences Archives.

the centers of the building piers all museum windows were unobstructed. Since artificial lighting was poor and inefficient at the time the museum was built, the care the museum's architects devoted to this detail ensured that the cases were fully illuminated by natural light. In addition, because of the relationship between the sizes of the display cases and the dimensions of the building, all cases could be moved and interchanged, without affecting the efficient use of space or the flow of natural light. Where possible, the cases were also used to store collections in their bases. Spaces under the horizontal cases were provided with interchangeable drawers for scientific study collections used by professional scientists or university students. Unfortunately, this practice interfered with the public viewing of the museum since the museum would be closed when these collections were being used.

The richly decorated and elaborately painted interior walls, ceilings, and columns imbued visitors with the grandeur this magnificent edifice devoted to the display of valuable, rare, and intriguing collections of natural history. Normand S. Patton, one of the architects who designed the Laflin building, commenting on the design, said:

This building is designed on the theory that a museum is a place for the effective display of specimens; in which case it is important to bear in mind that bare white walls and mean architectural surroundings will belittle the value of whatever is contained therein;

while a rich architectural setting will give to the public a true impression of the value of the collections displayed for their benefit.¹⁰

The opulence of the setting was a deliberate attempt to create in visitors the desire to observe every display case in the museum. This is an important aspect of a natural history museum in 1893, because displayed specimens were rigid, lifeless, taxidermy mounts with no artistic quality or prepared natural environmental setting. The rigidly mounted specimens were displayed in cases with all sides of glass. This situation easily produced boredom in the visitor. The surrounding elaborateness of the building was designed to counteract this reaction.

The decorative painting of the ceilings resembled mosaic tiles. The vaulted ceiling of the main floor gallery contained a central skylight which extended the entire length of the room. The combination of skylight and spacious windows created exceedingly well lighted exhibit areas, the building's main advantage.

The central hall of the main floor extended through the third floor to create a surrounding gallery. The main floor's vaulted ceiling was supported by pilastered and columned iron beams that rested on the gallery. The gallery was supported by an identical series of columns on the main floor. Between the pilastered supports were located

¹⁰Adolf Bernard Meyer, "Studies of Museums and Kindred Institutions," 432.

secondary supporting columns with decoratively sculptured capitals and prominent bases. The columns and pilasters support a decorative frieze and cornice. The central hall displayed a mammoth skeleton; a glyptodon, a very large extinct south American mammal of the armadillo family; gorilla, musk-ox, American elk, and a group of lions.

The traditional taxonomic museum arrangement displayed specimens within their cases without any regard to their relationships to other living things or their habitat. The specimens were displayed and arranged to create interest in their unknown nature, great size, or curiosity of form, not to portray anything about their ecology or relationships to other living things. Some efforts were made to display specimens in a natural setting but, for the most part, specimens were displayed as isolated examples of a particular species. To create curiosity and interest in viewing the museum contents examples of flora and fauna from far away places were mixed in with the local natural history.

The cases, numbered starting at the north end of the gallery, were arranged in a progressive taxonomic series illustrating the natural world in an orderly succession from simple to complex, based on the current understanding of the evolutionary relationships between organisms. The gallery contained the geologic, paleontologic, and invertebrate collections. The main floor accommodated the vertebrate collection with the large specimens arranged in the open

central hall. The entrance hall received six or seven large group cases that would stimulate interest as the visitors entered the museum. Cases 1 through 166, were located in the gallery, 167 through 298 on the main floor, and 299 through 305 in the entrance hall.¹¹ The cases were all arranged by family, genera and species in strict organization by taxonomic classification. Specimens within the cases were arranged strictly by taxonomic organization, labeled with a simple tag of common and scientific names, and if applicable where shot and by whom. Nothing concerning the habits, ecology, geographical distribution, or other details were included. By 1896, the entire academy collection, which numbered approximately fifty thousand specimens, was labeled, arranged, and catalogued, something that had not been done in many years.¹²

The exhibit case arrangement divided the collections into the different museum departments. The content of the collections which were displayed indicated the magnitude of the various museum departments. The collections were arranged in a progressive fashion unfolding a complete phylogenetic tree from lower to higher forms. This

¹¹Frank Collins Baker, "The Chicago Academy of Sciences: Its Past History And Present Collections," Special Publication number 2 of the Chicago Academy of Sciences (May 1908): 4-7.

¹²Chicago Academy of Sciences Thirty-Ninth Annual Report for the Year 1896 (12 January 1897): 6.

taxonomic arrangement was the most commonly used system in natural history museums. The academy considered the department of paleontology to contain its most valuable collections. The donation, in 1895, by W. C. Egan, of two thousand Cook County Paleozoic fossils helped make this department scientifically valuable. The most complete collection in the museum was represented by the department of mollusks. Containing over two thousand species and seventeen thousand specimens from all over the world, the collection was nationally recognized. Especially rich in American land and freshwater shells, the collection also contained significant numbers of marine shells from Florida and the West Indies. The department of ornithology was considered by the academy to be the best arranged collection in the museum. The birds of north America made up the largest part of the collection. Frank M. Woodruff, ornithologist and taxidermist, was responsible for the noteworthy collection and its display. Because of Woodruff's efforts and his extensive collecting of birds from the Chicago area, the academy loaned significant numbers of bird specimens to other museums. Woodruff's skill in taxidermy and exhibit preparation would bring recognition to the academy in many areas.

While the department of mammals did not contain a large collection, it could be characterized as the most impressive in the museum. Predominantly North American, the collection

also contained striking foreign specimens of tigers, lions, gorillas, baboons and other exotics which generated interest. Though a large male bison donated by George Laflin stood in a display case on the main floor, the single largest specimen, considered a museum attraction, was a complete and mounted skeleton of a mammoth. The fossilized bones of Elephus primigenius were obtained in 1886 by the members of the Mastodon Club who donated the funds for the purchase and presented the bones to the academy.

J.W. Velie, acting curator, supervised the assembly which took two months to complete. The bones, unearthed in Spokane County, Washington, in 1878, included the remains of four mammoths.¹³ Since none of the four skeletons were complete, preparation of the mounted specimen required the use of replicas prepared from plaster casts. In performing this restoration, Velie's group determined that the bones necessary to make the measurements of the missing pieces were present. Bones of the Asian elephant, Elephus indicus, considered identical in form at the time, served as patterns for the missing skeletal parts. The assembled skeleton which stood thirteen feet in height, was the only assembled mammoth remains in the country. Before the skeleton was displayed in the Laflin building, it was exhibited by the

¹³William K. Higely, "A Paper on Elephus Primigenius," Bulletin of the Chicago Academy of Sciences 1, 10 (1886): 123.

State of Washington at the Columbian Exposition and billed as the "largest specimen of its kind in the world."¹⁴ When the exposition closed, the mammoth was returned to the academy with other specimens that the state of Washington exhibited at the exposition. Academy secretary William Higley reported that the skeleton of a whale, a collection of fish, a complete scene of the state and, if desired, a series of mounted plants would be given to the academy in return for the mammoth loan.¹⁵

In 1912, the skeleton was examined for authenticity at the request of Wallace Atwood, secretary and acting director. J. W. Williston of the University of Chicago recommended that, in light of present knowledge, the skeleton be dismantled because of the inaccurate restoration. After the examination of the skeleton, Williston determined that:

for the most part a restoration in plaster, and very faultily done. The skeleton stands nearly two feet taller than it should, the legs composed almost wholly of plaster of paris, having been much too long. The skull is apparently that of an Asiatic elephant, an animal much smaller than the extinct species of America - the right tusk only is of the extinct form, which so far as I can judge is Elephus primigenius. The skeleton fairly well restored at the time, in the absence of definite knowledge of the missing parts, does not at all conform to our present knowledge, and

¹⁴The Graphic Chicago: An Illustrated Weekly Newspaper 9, 16 (14 October 1893): 312.

¹⁵Chicago Academy of Sciences Minutes of the Board of Trustees, 17 November 1893, Chicago Academy of Sciences Archives.

conveys a very wrong impression of the animal to the amateur. To the paleontologist it casts discredit upon the museum.¹⁶

The skeleton, dismantled and removed from the museum, was sold to the Field Museum in January of 1914 for five hundred dollars.¹⁷

Acquisition of new materials proceeded rapidly after the opening of the museum. The collections exhibited and those for scientific study were constantly being completed, expanded and upgraded. The quality of the museum systematically improved as the work on the collections progressed. Charles M. Higginson, president of the academy in 1896, commented: "The exhibits in the museum are better arranged for use and reference by the public than heretofore, and with one or two exceptions the collection in all branches is on exhibition, complete."¹⁸

Taxidermy work became a full time activity. The arrangement and makeup of the display cases in the museum received constant attention to improve their detail and scientific accuracy. Seventy-five percent of the collections represented the flora, fauna and geology of the Mississippi valley, due in part to the natural history

¹⁶S. W. Williston to Wallace Atwood, 28 February 1912, Chicago Academy of Sciences Archives.

¹⁷Chicago Academy of Sciences Minutes of the Board of Trustees, 27 January and 14 April 1914, Chicago Academy of Sciences Archives.

¹⁸Chicago Academy of Sciences Thirty-Ninth Annual Report (12 January 1897): 5.

survey of the Chicago area, begun in 1892, which emphasized these collections. By 1895, the academy reported: "A great deal of collecting has been done in and about the city and nearly a complete collection of its fauna, flora and geology has been obtained."¹⁹ The remaining twenty-five percent of the collection was an eclectic mix of specimens from around the country and world which were not united with the local collections in any organized manner.

The collections, by 1902, included the following specimens: five thousand, mineralogy; fifteen thousand, paleontology; twenty-five hundred, lower invertebrates; seventy-five thousand, mollusca; thirty-five thousand, arthropoda; three thousand, lower vertebrates; four thousand, ornithological; two hundred, mammals; and, one thousand, ethnological. Special collections included the W.C. Egan collections of local Niagaran and Paleozoic fossils; the John Walton collection of the genus *Cypraea*; the Andrew Boltea collection of insects; the Frank M. Woodruff collection of local birds; the Frank C. Baker collection of local mollusks; the Howard N. Lyon collection of mollusks; the William K. Higley collection of local mollusks; the J.H. Ferris and J.H. Handwerk collection of local birds; the Francis S. Dayton collection of local birds and bird eggs; the Charles M. Higginson collection of

¹⁹Chicago Academy of Sciences Thirty-Eighth Annual Report for the Year 1895 (14 January 1896): 4.

minerals; the Charles W. Johnson collections of dipterans; the J.W. Velie collection of Florida fauna; and, the skeleton of a mammoth.²⁰ By 1910, the museum's collections contained over 250,000 specimens.²¹

Despite the perpetual lack of funds for the museum, Frank Baker arranged and rearranged the museum constantly striving to improve upon the exhibited collections. His work during the first fifteen years in the Laflin building created interesting, well organized exhibits that attracted the public. The site of the academy's museum in Lincoln Park, combined with the appeal of the park's zoo made the museum the busiest attraction of its kind in the city during the years 1893-1908. Although the displayed specimens in the museum were given careful attention and their arrangement constantly improved, traditional museum methods portrayed them solitarily and without context. In 1908, with the halls of the museum growing cramped, Frank Baker recommended to gradually rearrange the museum so that the exhibits illustrate more completely the flora and fauna of Illinois and the adjacent portions of the Mississippi valley. The museum would be further transformed by the

²⁰William Kerr Higley, "Historical Sketch of the Chicago Academy of Sciences," Special Publication Number 1 of the Chicago Academy of Sciences (January, 1902): 41.

²¹Bulletin of the Chicago Academy of Sciences, Annual Report for the Year 1910. Winter and Spring Announcements 3, 5 (February 1911): 149.

extensive use of habitat exhibits that were developed and constructed by Frank Woodruff.

Museum attendance was greater than the academy had hoped. In the years between 1895 and 1908 attendance averaged over 300,000 per year, only in 1897, did the total yearly attendance fall below 300,000, rising in 1898 to 413,390.²² Attendance at the academy during these years was only surpassed by the American Museum of Natural History and the Smithsonian Institution.²³ In speaking of the academy in his reminiscences, Eliphalet Blatchford commented: "The number of visitors to the collections from the crowds of men, women, and children who visit this park for purely recreational purposes has far exceeded our expectations."²⁴

The Work of the Museum, 1893-1908

The organization and arrangement of the Laflin building did not allow its immediate use when the building was completed. The first regular meeting held in the Laflin building was on 26 March 1895. The meeting was a commanding event with over two hundred in attendance.²⁵ Subsequent

²²Bulletin of the Chicago Academy of Sciences, Annual Report for the Year 1908 3, 3 (April 1909): 9.

²³Ibid.

²⁴Blatchford Reminiscences, 11, Blatchford Papers, Box 1, Folder 31, Newberry Library.

²⁵Chicago Academy of Sciences Minutes of Regular Meetings, 26 March 1895, Chicago Academy of Sciences Archives.

regular meetings generally found twenty to forty members attending. The first educational programs the academy organized were lectures and the reading of technical papers during regular meetings. The regular meetings of the academy held in the Laflin building were open to the public. The business portion of the meeting was generally short with the majority of time given to a lecture or the reading of a technical paper. Lectures were a popular activity and were well attended. In 1898, regular Friday evening lectures were presented to interested adults. Lectures were eventually organized for the regular meetings, for teachers, the general public and school children.

Charles M. Higginson's remarks for the 1895 Annual Report indicates the educational energy the academy created when programs began to take place in the Laflin building:

The attendance of visitors to the Museum, and at various lectures, meetings and classes, has been beyond our expectations, and in fact has exceeded that of some more pretentious institutions in similar lines. . . . We believe no similar institution in this country is, with the same income, giving as many advantages to the public in the way of lectures and classes.²⁶

Higginson strongly felt that the academy should provide educational programs. He was responsible for starting the initiatives for Saturday morning teacher's lectures, a course of scientific lectures offered on Thursday evenings,

²⁶Charles M. Higginson, "Report of the President," Chicago Academy of Sciences Thirty-Eighth Annual Report for the Year 1895 (14 January 1896): 3.

and popular lectures for the general public.²⁷ A listing of the programs presented in 1895 and 1896 provides an insight into the extent of the agenda's educational sphere:

Thursday Evening Scientific Course, 1895

9 October "The Nebular Hypothesis Illustrated." George W. Hough LL.D., Professor of Astronomy and Director of the Dearborn Observatory, Northwestern University.

28 November "Toadstools and Mushrooms." Charles F. Millspaugh, M.D., Curator of Botany Field Columbian Museum.

5 December "Protoplasm: A talk on the Fundamental Phenomena of Life." Winfield S. Hall Ph.D. Department of Physiology, Northwestern University Medical School.²⁸

The lecture programs generated great interest; in 1895, 2,022 attended, in 1896, 4,537 attended, and in 1897, 3,265 attended.²⁹ The programs were generally filled to capacity leaving standing room only. In the spring of 1895, Frank Baker and former academy president Professor Selim Peabody conducted a short elementary lecture course in biology. In

²⁷Chicago Academy of Sciences Minutes of Regular Meetings, 23 April 1895, 25 June 1895, 27 August 1895, 11 January 1898, The Chicago Academy of Sciences Archives.

²⁸Chicago Academy of Sciences Thirty-Eighth Annual Report for the Year 1895 (14 January 1896): 8 and Chicago Academy of Sciences Thirty-Ninth Annual Report for the Year 1896 (12 January 1897): 13.

²⁹Chicago Academy of Sciences Thirty-Eighth Annual Report for the Year 1895 (14 January 1896): 9, Chicago Academy of Sciences Thirty-Ninth Annual Report for the Year 1896 (12 January 1897): 16, and Chicago Academy of Sciences Fortieth Annual Report for the Year 1897 (11 January 1898): 7.

the fall of 1896, a laboratory course followed. The two courses and a separate monthly lecture by Mr. Baker were organized with the north division science section of the Chicago Institute of Education. The strictly technical subject matter attracted teachers in the area. The average attendance at these gatherings was about one hundred persons.³⁰ Frank Baker continued the lectures in biology thru April of 1896. The titles of the lectures are indicative of their technical nature: "The Chemical Composition of Protoplasm," "The Cell, the Unit of the Organism," "The Essential Characteristics of a Plant," and "The Essential Characteristics of an Animal."

From 15 July to 15 August 1896, The Chicago School of Science and the academy presented a free seminar course in science. The program consisted of lectures given daily from 9:00 a.m. to 4:00 p.m. This course was very well attended by school teachers. Because of these kinds of activities the academy became a popular place for teachers in the vicinity. Frank Baker regularly gave informal lectures and tours of the museum when classes were brought to the museum by their teachers. The number of classes visiting the academy museum averaged six per week.³¹ Baker also provided

³⁰Chicago Academy of Sciences Thirty-Eighth Annual Report for the Year 1895 (14 January 1896):9.

³¹Chicago Academy of Sciences Thirty-Ninth Annual Report for the Year 1896 (12 January 1897): 15.

assistance to teachers, students, and the general public when asked to identify unknown specimens. Accommodating these requests and guiding classes through the museum required a great deal of Baker's valuable time. Baker noted in the annual report for 1897 that:

The museum has been consulted by 133 teachers with their classes; the curator has frequently been called upon to conduct these classes through the museum and explain the principal classifications. It is very gratifying to note the continuous use of the collections by the teachers of the city.³²

The academy museum was a busy place working with schools, teachers and students with broad ranging formal and informal programs related to natural history and science education. Academy president Thomas C. Chamberlin described the pragmatic educational efforts the academy directly provided to the schools, teachers, and students of the city when he reported:

The public utility of the collections of the Academy has been shown . . . by the formal visitation of 133 classes from our schools, attended by their teachers, who have thus directly connected the Museum with the educational agencies of the city and demonstrated at once its place and usefulness.³³

Lectures became a regular part of the academy's program offerings and were the most significant special effort made to diffuse scientific knowledge to the different constituencies that were attracted to the academy's museum. The

³²Chicago Academy of Sciences Fortieth Annual Report for the Year 1897 (11 January 1898): 8.

³³Ibid., 3.

popular lectures were moved to Friday evenings in 1908. The number of persons attending the lectures was usually more than the lecture hall could seat leaving many standing and causing many to leave when the lecturer could not be heard.³⁴ The academy not only began to provide educational programming for students, teachers and the general public but also the membership of the academy.

Field Meetings

On 30 July 1898, the academy held its first "field meeting." A "field meeting," an annual excursion in place of the regular monthly meeting, brought members and their friends to some place of interest to study, explore, or collect specimens. The geology, topography, physiography, and flora and fauna were the usual topics of interest. Special railroad trains were chartered and the various rail companies accommodated the trips by offering special rates or donating the use of a train. Trip participants included faculty members and students from the University of Chicago and Northwestern University, among others.³⁵

The first "field meeting" was a train excursion along the Chicago Sanitary and Ship Canal. The train stopped at

³⁴Bulletin of the Chicago Academy of Sciences Annual Report for the Year 1908 Winter and Spring Announcements 3, 1 (February 1909): 4.

³⁵Frank C. Baker, "Shell Collecting on the Mississippi," The Nautilus 16 (1908): 102.

points of interest along the way and specimen collecting done mainly in conchology, Frank Baker's major scientific interest.³⁶ The first stop was a few miles outside the city, where the canal cut through the glacial till and the geological fractures of glacial deposits were observed. Several species of mollusks were also collected at this stop. The train's next stop was east of Summit, Illinois, close to the Des Plaines River where some collecting was done from the canal and river. A stop was made at Willow Springs and a long stop at Lemont enabling the group to examine piles of limestone for Niagara fossils. Only a few imperfect brachiopods, mollusks, and crinoids were found. A stop at Romeo produced a number of different mollusks from the canal. The final stop was made at Lockport where the dam was the topic of study for the majority while several others collected several more species of mollusks.

"Field meeting" excursions were a popular activity of the academy membership in the years from 1898 through 1903. The 1903 and 1904 excursions were four or five day trips to Wisconsin Dells. After 1903 interest in the trips began to decline. Fewer than twenty-five members participated in the 1904 excursion prompting a return to day trips from 1905 to 1908. After 1908, there is no record of "field meetings" being held. For academy members with a very serious

³⁶Frank C. Baker, "A Day on the Drainage Canal," The Nautilus 12 (1898): 63.

interest in a specific field of science "sections" provided the membership with the opportunity for more formal study.

Sections of the Chicago Academy of Sciences

The academy's constitution provided that if a group of eight members in good standing wanted to pursue investigation or study in any area of science, they could unite.³⁷ These organized groups were known as "sections" of the Chicago Academy of Sciences. Each particular "section" formed was given the name of its specialization. Once formed, every member of the academy had the ability to join the section and participate in its activities.

The "sections" of the academy held their own meetings, organized themselves with by-laws and officers, and were able to publish scientific papers through the academy. "Sections" provided the membership the latitude to pursue their specific scientific interests. Little information is available on the activities of the organized sections as minutes of their meetings have not been recorded. During the first fifteen years academy sections included: chemical, photographic, physics/mathematical and astronomical, microscopical (affiliated with the state microscopical society), pathological, geological (affiliated with the Geological Society of America), ethnological, entomological, ornith-

³⁷Charter, Constitution, By-Laws and List of Members of the Chicago Academy of Sciences (Chicago: David Oliphant Printers, 1894): 13.

ological (affiliated with the state Audubon Society), and geographical (affiliated with the Geographical Bureau).³⁸

Of special interest to the academy's relationship in work specifically related to schools is the affiliation with the Geographical Bureau. The University of Chicago founded the Geographical Bureau in 1894 for the specific purpose of promoting geography instruction in the public schools. When the academy was approached to unite with the bureau, the executive board of the academy suggested the formation of a section called "The Geographical Section of the Chicago Academy of Sciences." It was noted in the report of the executive board that the academy was especially interested in any project that has to do with the welfare of the public schools.³⁹ The academy agreed to provide meeting space, a room in the basement of the academy to store specimens acquired by the bureau, and furnish an office space for the director. The academy required that the Geographical Bureau follow its constitutional requirements for the formation of a "section" of the academy. These conditions bound the bureau to accept the title "The Geographical Bureau Section of the Chicago Academy of Sciences" and that all members of the bureau become members of the academy subject to the

³⁸Chicago Academy of Sciences Minutes of Regular Meetings, 14 June 1892, 27 September 1892, 11 November 1892, 25 September 1894, 14 January 1896, 28 May 1901, Chicago Academy of Sciences Archives.

³⁹Ibid., 28 May 1901.

initiation fee and dues. Special provisions were established so that the fees collected would only be used for the Geographical Bureau Section under the control of the section officers.⁴⁰ Current academy members who were school teachers and desired membership in the section would be admitted as the academy constitution required.

The changes that would take place after 1908, were the result of an unexpected gift to the academy. The museum and its programs were limited during the first fifteen years by lack of adequate funding. Academy trustees and staff could not seem to generate new funding sources or build an endowment fund. Its location in a prominent Chicago park made the museum the most visited in the city. The academy museum even though it lacked adequate funding became a major attraction of the city. The trustees insistence to locate the museum in a major city park is the main reason for the large number of visitors. Their decision however to isolate themselves from linkage with other institutions caused the difficulty in attracting revenues and the establishment of an endowment fund. The development of programs that would create relationships with schools of the city would come from an unexpected gift. The gift of \$100,000 in December 1907 added new life to the Chicago Academy of Sciences.

⁴⁰Ibid.

CHAPTER 5

MUSEUM REORGANIZATION AND EXPANSION OF EDUCATIONAL PROGRAMMING, 1908-1915

W. Moses Willner Bequeath

The unexpected monies realized from the Willner bequest allowed the academy to increase educational programming and reorganize the entire museum. The funds pumped new life into the stagnant state of affairs the academy operated under due to inadequate finances. The only regular source of income was the \$5,000 received annually from the Lincoln Park Commissioners. These funds were given as part of the agreement signed in 1892 that allowed the museum to be built. However the academy's planning from year to year met with uncertainty because the park commissioners did not always meet their obligation. In 1899 the park commissioners reported that revenues were reduced to such an extent that the salaries of Frank Baker and Frank Woodruff would have to be reduced from \$125 to \$75 per month and from \$60 to \$50 per month, respectively.¹ Museum expansion that would have created programs for the schools and teachers

¹Minutes of the Board of Trustees of the Chicago Academy of Sciences, 18 October 1899, Chicago Academy of Sciences Archives.

could not be developed as the trustees had hoped because of the lack of adequate revenues.

The academy had many friends who were aware of its desire to expand the work with the schools. W. Moses Willner, long time academy friend, was particularly aware and supportive of museum activities for school children. His observation of children involved in activities at the museum led him to conclude that this work was a noble cause. When Willner died on 16 September 1906, he left \$220,000 in legacies of which \$100,000 was given to the Chicago Academy of Sciences. The gift from Willner's estate came with no stipulations or restrictions as to its use.² The trustees and the academy staff were elated at the program expansion such a generous gift would be able to accomplish.

The Willner gift brought about great changes in the entire academy organization and museum operation. The amount of money annually available more than doubled but more significant was the fact that revenues could be projected with accuracy. The original agreement with the Lincoln Park commissioners provided that; the building be kept lighted, heated and cleaned; the telephone service be paid; the payment of salaries to the curator and his assistants; the payment of expenses for the custody, care and collection of specimens and library. The total amount

²Last Will and Testament of W. Moses Willner, Wilner Bequeath Collection, Chicago Academy of Sciences Archives.

was not to exceed five thousand dollars. While five thousand dollars could have easily been spent every year the commissioners did not meet their agreement during years in which tax revenues were reduced. From 1893 to 1895, the park commissioners met their obligation but in 1896 they reduced the funding level to \$3166 followed by a further reduction to \$2520 in 1897.³ This crisis created a situation that restricted the continued development of the academy museum. The only expenses that could be paid were the salaries of the curator and his assistants. When the trustees tried to negotiate the payment of the promised Lincoln Park funds, they found the commissioners hesitant and difficult, claiming the park revenues would not permit them to meet their obligation. Revenues fell to such a low level in 1898 that the salaries were reduced and at one point only the salary of the curator could be paid and even that was at a reduced level. As early as 1895, Charles Higginson called for the creation of an endowment fund.⁴ Although the trustees and staff attempted to establish an endowment fund they could not attract any philanthropic

³Chicago Academy of Sciences Thirty-Eighth Annual Report for the Year 1895 (14 January 1896): 4-6, Chicago Academy of Sciences Thirty-Ninth Annual Report for the Year 1896 (12 January 1897): 6-7, and The Chicago Academy of Sciences Fortieth Annual Report for the Year 1897 (11 January 1898): 7-8.

⁴Chicago Academy of Sciences Thirty-Eighth Annual Report for the Year 1895 (14 January 1895): 5.

donations to the academy coffer. The financial uncertainty that began in 1896 continued until 1907.

Throughout 1907, the academy waited to be given the money from Willner's estate. There were claims made by the estate's attorney that there was insufficient personal property to pay Willner's debts and legacies.⁵ Legal questions were raised about the use of real estate to pay these. The estate's attorney claimed that real estate could not be used for that purpose. In February of 1908, Frank Baker and Joseph R. Putnam signed an agreement for payment of \$70,000. A payment of \$30,000 was made to the academy shortly thereafter. The trustees looking to produce a regular source of income invested the \$30,000 in a business and apartment block at Park Avenue and Ohio streets in the Austin community.⁶ The rental on the property would produce a yearly income of approximately \$3,000. The additional monies from Willner's bequest were paid in \$10,000 installments in April, July, November and December of 1908, with the remaining \$30,000 paid on 31 December 1908 after much legal maneuvering by the trustees. The entire \$100,000 was paid with an additional \$2,480.20 of interest for the time

⁵Taylor and Mayer Attorneys at Law to Joseph R. Putnam President of the Board of Trustee of the Chicago Academy of Sciences, 12 December 1907, Chicago Academy of Sciences Archives.

⁶Bulletin of the Chicago Academy of Sciences, Annual Report of the Year 1908 3, 1 (February 1909): 5.

from 1 November 1907 thru 31 December. Sixty thousand dollars of this money was invested as an endowment fund in the Chicago City Railway, Chicago Telephone Company, and various farm mortgages, all paying five percent interest.⁷ The remaining money from the bequest was used for immediate needs and expenses. The trustees sense of business convinced them that investments in securities and real estate would produce a regular income for the academy.

Willner's belief that the academy was an advantageous resource for the public, particularly school children, allowed the academy to expand its work to include specific programs for schools and teachers. The additional income resulted not only in the development of educational programs but a reorganization of the museum and its staff. The board of trustees approved recommendations of the executive board to promote educational work which would assist in improving science teaching in city schools.⁸

The investment of \$60,000 of the Willner gift into interest bearing securities established an endowment fund that produced revenues slightly over \$3,000 annually

⁷Minutes of the Board of Trustees of the Chicago Academy of Sciences, 5 January 1909, Chicago Academy of Sciences Archives and Bulletin of the Chicago Academy of Sciences Annual Report for the Year 1908 3, 1 (February 1909): 5.

⁸Minutes of the Board of Trustees of the Chicago Academy of Sciences, 4 May 1909, Chicago Academy of Sciences Archives.

beginning in 1909.⁹ Monies available before 1908 for the operation of the museum were about \$5,000 per year or less in financially troubled years. With the advent of the Willner gift in 1908 annual revenues jumped to \$12,000 for the museum and its programs. Because the income from Lincoln Park was difficult to determine with any degree of certainty the academy trustees approached the park commissioners with a plan to relieve the park board of the \$5,000 annual payment early in 1909. To relieve Lincoln Park of the academy's financial burden the trustees asked the park commissioners for assistance in securing passage of legislation permitting a property tax assessment to support the academy's working expenses.¹⁰ The Lincoln Park commissioners declined, even though the final decision would be determined through a referendum and similar arrangements had been made for the Art Institute and the Field Museum.

Before Willner's legacy the academy paid four salaries; the secretary, curator, taxidermist and an office assistant. In 1909 the paid staff included the secretary, curator, taxidermist, assistant taxidermist, assistant in entomology,

⁹Bulletin of the Chicago Academy of Sciences Annual Report for the Year 1909 Winter and Spring Announcements 3, 3 (February 1910): 6.

¹⁰Minutes of the Board of Trustees of the Chicago Academy of Sciences, 6 March 1909, Chicago Academy of Sciences Archives.

office assistant and museum aide.¹¹ By 1912 the paid staff had increased to include acting director and secretary, assistant secretary, librarian, curator, curator of ornithology, special lecturer, special preparer and taxidermist, painter and museum aide, three part-time museum aides, special assistant and investigator, artist and special artist. The total salaries increased from \$2613 in 1897 to \$6870 in 1909 and \$9456 in 1912.¹²

The increased staff significantly improved the ability of the academy to provide programs to the museum's various audiences especially students in the public schools. The added resources thrust the work of the academy forward at a time when it had become stagnant because of the lack of adequate funding. The gift that came from an unexpected patron who was not even an academy member brought about changes which united the academy with the schools of the city. For the next twenty years the academy's major focus would be working with schools, students and teachers.

¹¹Bulletin of the Chicago Academy of Sciences Annual Report of the Year 1909 Winter and Spring Announcements 3, 3 (February 1910): 1.

¹²The Chicago Academy of Sciences Fortieth Annual Report for the Year 1897 (11 January 1898): 3, Bulletin of the Chicago Academy of Sciences Annual Report for the Year 1909 Winter and Spring Announcements 3, 3 (February 1910): 6 and Bulletin of the Chicago Academy of Sciences Annual Report for the Year 1912 Winter and Spring Announcements 3, 10 (April 1913): 258.

Wallace Atwood and Academy Reorganization

Wallace W. Atwood, a Chicago native, became associated with the academy while studying at the University of Chicago, from which he received his Ph.D. in 1903. Trained in physiography and geology, his interest in the education of young people helped to emphasize the importance of geography in the academy's educational work. Atwood, who served as the academy's secretary from 1909 to 1918, also served as director from 1913 to 1918 and vice president from 1918 to 1920. His research included glacial and physiographic studies, locally, nationally, and internationally: through this work at the University of Chicago he became an expert on the physiographic evaluation of several Rocky Mountain ranges.¹³ Locally his work included the Physical Geography of the Devil's Lake Region (1899), Physical Geography of the Evanston - Waukegan Region of Illinois (1908), and the Interpretation of Topographic Maps (1908). He left his University of Chicago assistant professorship in 1913 to accept the William Morris Davis chair of physiography at Harvard University.

Wallace Atwood's professional success and distinguished work at the University of Chicago along with his active association with the academy made him a superior choice to

¹³"Wallace Walter Atwood," The National Cyclopedia of American Biography 37 (Ann Arbor, MI: University Microfilms): 46-48.

fill the secretary's position in the trustees eyes. From the time Atwood accepted the secretary's duties in 1909, he worked closely with Frank Baker in all areas of museum management. The revenues from the Willner legacy expanded museum operations and specifically directed greater involvement with the schools. During Atwood's first two years as secretary, the administration and management of the entire museum was reviewed.

The review resulted in academy president Thomas C. Chamberlin issuing a report in November of 1911. The report titled "Report on the State of the Staff-Work of the Chicago Academy of Sciences with Recommendations by the President of the Academy" was thoroughly reviewed by the trustees. Even though they had never felt a need to appoint a director, the apparent lack of efficient administrative direction indicated in the report put Baker's command as curator in question. The report pointed out that Baker was overworked, performing many duties outside the curator's responsibility, and while he was a superior museum professional and conchologist, his weak managerial direction left the museum operation inefficient in many areas. One of the reasons for this situation was Baker's management style of personal involvement in all decisions, leaving a small but excellent staff unable to act without his approval. This fact alone caused Baker to be stretched so thin that many routine matters were handled with little thought for the efficient

overall museum operation. Chamberlin's report was critical of every aspect of the museum's administration and management.

Chamberlin recommended that the daily work hours be lengthened, the work week arranged so that the majority of staff was present when the museum was open and vacations regulated and limited.¹⁴ The authority to set employee vacations would be taken away from the curator and given to a committee composed of the president of the board of trustees, the secretary and one other member of the board of trustees appointed by the president of the board. The record keeping work, currently unorganized and undone, was made the responsibility of the secretary who would assign various staff members specific responsibilities such as the accession register, card catalogs, donor's register, museum register, and the preparation and printing of labels and placards. He called for the hiring of a museum aid to carry out errands and perform unskilled chores that were wasteful to the valuable time of the professional staff.

The report redirected the responsibility for certain academy collections.¹⁵ Frank Woodruff was given full control over the ornithological collections and made

¹⁴Thomas C. Chamberlin, "Report on the State of the Staff-Work of the Chicago Academy of Sciences with Recommendations by the President of the Academy," Chicago Academy of Sciences Archives.

¹⁵Ibid.

assistant curator of ornithology while retaining his taxidermy responsibilities. The petrographic, mineralogical and paleontologic collections were put in the charge of Atwood. The collections of mammals, fishes, reptiles, insects, and other invertebrates would remain under Baker's charge as well as the general curatorship of the museum. The report directed Baker to refocus his immediate efforts on the insect collection: "With the full concurrence of Mr. Baker, I recommend that he be asked to make reinstallation and enlargement of the insect collection his foremost effort for the immediate future."¹⁶

For several years Baker had concentrated his efforts on exhibiting the collection of freshwater mollusks, his personal research interest. Baker outlined his ideas for an exhibit of mollusks for the American Association of Museums in 1909. The exhibit was to include mollusk taxonomy, geographical distribution, faunal exhibits, ecology, structural characteristics, protective adaptations, and the economic uses of mollusks.¹⁷ In commenting on Baker's mollusk exhibit outline, Frederick A. Lucas of the Brooklyn Institute said:

If Mr. Baker were not a practical museum man, I would ask him if he realized how much space his plans would

¹⁶Ibid.

¹⁷Frank C. Baker, "Suggestions for an Educational Exhibit of Mollusks," Proceedings of the American Association of Museums 3 (1909): 56-59.

take. We have every family of shells represented in the Brooklyn Museum. The local shells are by themselves and an exhibit such as Mr. Baker mentions would be interesting, but it would take an enormous amount of room.¹⁸

Chamberlin's recommendations clearly directed Baker away from his personal interest in mollusks to an area in need of development in the museum. Baker approached his assignment from the academy's president with the same energy which he approached his previous work at the academy. The insect exhibit that he developed was innovative and unique. The exhibit was located along the gallery railing using a modified version of the standard museum "A" case. The exhibit was not taxonomic but a combination of material that would be interesting to the average museum visitor. Included in the display were local species of common butterflies and moths together with their life histories, insects harmful to ornamental plants, and the use of habitat groups.¹⁹

At the same time President Chamberlin's report was presented and accepted, Wallace Atwood was appointed acting academy director on 14 November 1911.²⁰ This action took control of the museum away from Frank Baker. Atwood's

¹⁸Ibid., 59.

¹⁹Frank C. Baker, "A Method of Exhibiting Insect Collections," Proceedings of the American Association of Museums 6 (1912): 108-111.

²⁰Minutes of the Board of Trustees of the Chicago Academy of Sciences, 14 November 1911, Chicago Academy of Sciences Archives.

salary was increased in 1912 by \$500 per year to \$166 per month in recognition of the additional services and responsibilities in serving as acting director and secretary. Frank Baker's salary was reduced from \$187 per month to \$150 per month. Clearly, Frank Baker had lost favor with the academy trustees, allowing Wallace Atwood to step into the leadership position. With his role diminished and salary reduced, Baker's spirit was broken, taking away from the quality of his work. In January of 1915 Atwood reported to the trustees that Mr. Baker had made several errors in the construction of the large bird and mammal habitat display that required the reconstruction of a significant portion of the display case, the purchase of new materials, the abandonment of photographic backgrounds, and the loss of much time. It was also reported that Baker hired his wife as an artist without Atwood's knowledge or permission. The errors in the construction of the habitat case and the engagement of Mrs. Baker was referred to the executive committee.²¹ At the 8 June 1915 board of trustees meeting, on a motion properly carried, the services of Frank C. Baker were terminated.²² To save Baker possible embarrassment, he

²¹Minutes of the Board of Trustees of the Chicago Academy of Sciences, 12 January 1915, Chicago Academy of Sciences Archives.

²²Minutes of the Board of Trustees of the Chicago Academy of Sciences, 8 June 1915, Chicago Academy of Sciences Archives.

submitted a letter of resignation dated 9 June 1915.²³ The restrictions placed on Baker several years earlier, suppressed his zeal, hampered his scientific work, and undoubtedly resulted in the situation that caused him to leave the academy.²⁴ When Baker left the academy he became the zoological investigator for the College of Forestry at Syracuse University until 1918. In 1918, he accepted the curator's position at the University of Illinois natural history museum, holding the job until his retirement in 1939 and as curator emeritus until his death, 7 May 1942.

The Expansion of Educational Programming

When the academy realized the potential of the Willner gift early in 1907 the staff began to increase the programs and services for school children. The superintendent of the Chicago Public Schools was named an "ex officio" member of the executive board in 1907, one of the first major actions to reorganize the academy along educational lines.²⁵ This change in the structure of the executive board, designed to bring about a direct relationship between the academy and

²³Frank C. Baker to The Board of Trustees of the Chicago Academy of Sciences, 9 June 1915, Chicago Academy of Sciences Archives.

²⁴Frederick A. Lucas to Henry B. Kummel, 17 January 1916, File 262, American Museum of Natural History Archives.

²⁵Minutes of the Regular Meetings of the Chicago Academy of Sciences, 26 November 1907, Chicago Academy of Sciences Archives.

the city schools, helped create direct communication between the Chicago Board of Education and the academy. There is no record of the Chicago school superintendent taking an active role on the executive board, however, the school system did make announcements about academy programs through its official bulletins to the schools.

The educational programming began with enthusiasm on many fronts. A school loan program was begun early in 1908, when Frank Baker prepared twenty-five sample loan collections. The academy also donated duplicate specimens to the schools and began to prepare lantern slide collections for loan. Academy publications were distributed to the schools in an effort to aid teachers. School children were admitted to the regular Friday evening lecture programs and Baker began giving lectures to classes at the academy and in the schools. The museum was made available as a meeting place to offer course work for teachers. Baker and Atwood worked hard to build a cooperative relationship with the schools of the city.

As he did to arrange and organize the museum in 1902, Frank Baker visited the major east coast museums in May and June of 1909, surveying their educational work as part of the planning process in expanding the academy's programs for school students and teachers.²⁶ Baker visited the Phila-

²⁶Bulletin of the Chicago Academy of Sciences Annual Report for the Year 1909 Winter and Spring Announcements 3, 3 (February 1910): 37.

delphia Commercial Museum, Philadelphia Academy of Natural Sciences, Pennsylvania Museum, Wistar Free Institute of Science in Philadelphia, American Museum of Natural History, Brooklyn Institute, Brooklyn Children's Museum, Boston Society of Natural History, Agassiz Museum in Cambridge, Free Library in Newton, Massachusetts, Peabody Academy of Sciences in Salem, Massachusetts, and the Essex Institute in Salem. In reporting the current educational practices being undertaken at these museums Baker described specimen loan collections, lantern slide loan collections, special children's libraries and rooms, the annual funding for museum educational work from city and state sources, student and teacher courses, and "educational" museum exhibits. His report summarized the major educational practices currently taking place at each museum. While each institution directed its educational efforts so that its work fit into its particular situation, Baker identified recurrent, successful accomplishments. From the information he gathered and his opinion that "The Chicago schools are in a recipient mood for nature work,"²⁷ he recommended: (1) the addition of another building to contain a lecture hall and library; (2) reconstructing the present library into a children's room that would contain a few exhibits, a library, a

²⁷Bulletin of the Chicago Academy of Sciences Fall Announcements 3, 2 (September 1909): 33.

reading room, aquaria and vivaria; (3) the preparation of additional loan collections; (4) the preparation of economic collections to illustrate the manufacture of familiar commodities; (5) additional lantern slide loan collections; (6) enlargement of the research collections of mollusks; (7) active cooperation with the state academy of science in its ecological survey of the state; (8) the rearrangement of the museum with habitat groups to illustrate the flora and fauna of Illinois and adjacent Mississippi Valley.²⁸

Baker must have realized his recommendations were beyond the scope of the academy's current resources even with the unexpected windfall from the Willner estate. He felt the endowment fund established with the Willner monies needed to be enlarged by \$500,000 and a separate fund established to expand the current museum building. During 1908 and most of 1909 the academy planned and organized programs and activities to expand its educational efforts. After reporting on the work taking place at other museums Baker and Atwood held conferences and discussions with teachers, principals, and district superintendents in the planning of the academy's educational work.

When Baker presented his recommendations and public appeal for additional monetary support in 1909, Wallace Atwood finalized plans for the educational work that would

²⁸Ibid., 34.

be offered to all schools. The plans included museum loan collections, picture loan collections, lantern slide loan collections, a lecture study course for teachers, and afternoon course in nature study for students, the publication of leaflet reading slips to accompany loan collections, and the admission of student delegates from upper grades to evening lectures. The academy announced all of these programs in September of 1909 for the beginning of the school year. Becoming the backbone of the academy's educational work these programs were expanded and modified over the next several school years.

The work Baker and Atwood directed toward the expansion of educational programs was not an undertaking done in unison. Baker's plans outlined in his report published in the fall 1909 academy bulletin would only provide resources to the schools and students in the form of loan collections, habitat exhibits, and by providing a children's library. Having the museum staff offer and conduct lectures and courses for students and teachers was conspicuously absent from his recommendations. Reviewing the plans he developed it is clear that he did not see the role of the academy as providing instruction to students or teachers. This is the major issue in which he and Atwood differed. Baker wanted the academy to be a natural history research oriented institution where he could work with mollusks and continue to organize and direct the work of the Natural History Survey

of the Chicago area begun in 1892. His educational recommendations specifically called for enlarging the mollusk research collections and active cooperation with the state ecological survey to which he had accepted an appointment on the ecological committee. Baker clearly understood that if the academy provided instruction his time would be consumed lecturing and carrying out instructional field work with students and teachers leaving little opportunity to carry out his own research interests.

Wallace Atwood organized and directed the academy's educational work from 1909 to 1911 while he specifically formulated plans to reorganize the academy's educational programming so that the academy's primary work would be instructional services provided to students, schools, and teachers while maintaining the museum as a resource to the educational programming. Natural history research would not be the concern of the academy staff; however, he viewed independent researchers from area universities as providing the academy with expertise and up to date scientific information in preparing exhibits and for instructional programming. He would welcome the scientific community to use the academy facilities but did not envision the academy staff carrying out research themselves.

Baker and Atwood differed in their overall philosophy on the thrust of the academy's educational work. Baker felt that educational programming for school children should be

part of the museum's work as in many other natural history museums across the country by providing resources and not instructional programming. Baker realized the academy's small budget would not allow the hiring of full time staff for research and instructional programming and he was not willing to give up his strong interest in mollusk research to provide instructional services to students and teachers. Atwood on the other hand viewed the academy as becoming primarily an educational institution that would provide instructional programming for school children and teachers. He agreed with the view of the trustees that the limited monies available to the academy could be best used in the area of natural history education. Because of his own scientific study he did realize that the academy's educational work should promote and encourage independent scientific research carried out through the academy. Atwood's knowledge of the work accomplished by the Geographical Bureau and his interest in the education of young people helped him formulated a philosophy and design of the academy's educational programming.

Knowing that the number of students wanting to participate in the various programs would far exceed the space available to accommodate them a school delegate system was devised for the initial instructional programs begun in September 1909 so that the greatest number of schools could participate in the program offerings. The delegate system

allowed one student from each seventh and eighth grade room to be selected as the room representative to attend a particular academy program. The room delegate attended the activity knowing that he/she had been given the responsibility to report the program's contents to the entire class. This unique system made it possible to accommodate all schools desiring to attend classes, field activities, and lectures. The delegate's responsibility to report to the entire class created a very attentive audience. The total number of students exposed to a natural history lesson via the delegate system was at least twenty times the size of the academy class. The delegate system proved very successful. The system was first used for a nature study course designed to meet on six consecutive Saturday afternoons. Expecting twenty-five to thirty seventh and eighth grade students to attend, the first class had one hundred and one delegates fill the halls of the academy.²⁹

Seeking feedback from the schools Wallace Atwood requested principals and teachers to make comments to him regarding the nature study course. Receiving thirty-two letters he found the delegates reported back to their classes in a variety of ways, that their was strong support

²⁹Bulletin of the Chicago Academy of Sciences Annual Report for the Year 1909 Winter and Spring Announcements 3, 3 (February 1910): 8.

for the delegate system, and that similar programs should be continued.

In the spring of 1909 under the supervision of Frank Baker the academy expanded the number of school loan collections. The collections Baker prepared were easily transported in specially made wooden containers. Teachers or students picked up the collections from the academy and returned them after their use. Because of the demand for collections schools were limited to one collection per loan for a period of one week. The collections designed for nature study provided illustrative materials and were organized into several series around specific topics. Literature for use by the teacher accompanied each collection. Each collection contained a variety of actual specimens that could be handled by the students. Some of the titles in the ornithological set included: (1) "Winter Residents," (2) "Summer Residents," (3) "Early Spring Arrivals."³⁰ The initial twenty-five collections were expanded to over one hundred individual collections by 1912. The loan collections were arranged in sets that included the following topics: birds, zoological series, economic series, geological series, nature study, and physiography.³¹ The

³⁰Bulletin of the Chicago Academy of Sciences Annual Report for the Year 1910 Winter and Spring Announcements 3, 5 (February 1911): 159.

³¹Bulletin of the Chicago Academy of Sciences Annual Report for the Year 1910 Winter and Spring Announcements 3, 5 (February 1911): 123, Bulletin of the Chicago Academy of

nature study series were sets of lantern slides and the physiography collection sets of stereoscopic viewer pictures.

Frank Baker carefully prepared sturdy packing containers to transport the collections. The collection containers had to be easily transported, provide protection especially during transportation, and have enough space to provide adequate materials to illustrate its topic. Wooden boxes of seven-eighths popular were constructed in two sizes: nineteen and a quarter inches long by fourteen inches high by thirteen and one half inches wide and thirteen inches by nine inches by fourteen inches.³² The larger box contained handles on each side while the smaller box contained a handle on the center of the cover. The cover on both containers was two inches in height providing space for the storage of any literature included with the collection. Besides the prepared collections the academy made special specimen loans upon request. Between the years 1909 and 1912 thousands of loan collections were made to public and private schools.

Sciences Annual Report for the Year 1911 Winter and Spring Announcements 3, 8 (February 1912): 233-37, and Bulletin of the Chicago Academy of Sciences Annual Report for the Year 1912 Winter and Spring Announcements 3, 10 (April 1913): 281-86.

³²Frank C. Baker, "School Loan Collections as Prepared by the Chicago Academy of Sciences," Proceedings of the American Association of Museums 4 (1910): 38-40.

During 1912, Frank Woodruff prepared two museum loan exhibits for use in the schools. The exhibits titled, "Wintering Birds in Chicago" and "Small Mammals Living Near Chicago," were habitat groupings depicting the Chicago area environment. Due to their large size (four feet by four feet by three feet) and fragile nature a free pick up and delivery service shuttled the exhibits between schools. A three day loan period was established because of the exhibits popularity. Woodruff prepared a third traveling exhibit "Migrating Spring Warblers."

Wallace Atwood's Plan for the Academy's Educational Work

At the same time president Chamberlin's Report on the State of the Staff Work was released in 1911 Wallace Atwood unveiled the course of action he would pursue in expanding educational programs. The ambitious plans he put into action would consume the entire academy staff over the next several years. Atwood had the complete confidence and support of the academy trustees and officers. He was a recognized scholar and leader in his field with tremendous organizational skills. His direction would thrust the academy into providing instructional programming directly to students in elementary and secondary schools and to teachers. His influence in this area being so great that to this day the Chicago Academy of Sciences is primarily con-

cerned with providing programs to students, teachers, and schools.

Atwood's plans called for the immediate expansion of the number and variety of loan collections. He recognized the need for descriptive written information to accompany each loan collection and directed its preparation. Not only were the loan collections to be supplied to the schools but to the parks and settlement houses of the city.³³ The Chicago Board of Education's cooperation would be pursued so that the loan collections could be distributed to as many of the public schools as possible. The students would be instructed in the preparation and care of museum materials so that the students could become "curators" of school collections and school museums.³⁴ Atwood directed the expansion of the courses offered to students and teachers as the academy was not meeting the current demand. To keep the public interest high he recognized the importance of Friday evening popular lectures and suggested creating a series of special lectures for members and invited guests that would have a strong social element. The lecture program would be expanded into the schools in an effort to arouse interest in

³³Wallace C. Atwood "Suggestions from the Secretary for the Further Development of the Educational Work of the Academy," Minutes of the Board of Trustees of the Chicago Academy of Sciences, 14 November 1911, Chicago Academy of Sciences Archives.

³⁴Ibid.

nature study and the academy's work in local natural history. Nature study lessons would be given at the academy by appointment. Taking the cue from annual academy field meetings he developed field excursions for teachers and students.

Atwood directed the development of a children's library and reading room in cooperation with the Chicago Public Library. The academy could house and conduct the reading room while the public library supplied the necessary books and materials. Afternoon programs for students and their teachers using the automatic stereopticon illustrating natural history and geography studies would be offered regularly to stimulate interest in the children's reading room.

Atwood suggested a periodical publication on nature study that would be distributed to young people in the schools so that the academy's influence might reach beyond the city limits. Dr. Atwood felt the entire museum should be developed from an educational standpoint. He wanted the museum exhibits to "arouse and promote an interest in the sciences and in scientific study."³⁵ To do this he directed museum exhibits to be planned and executed that would promote and be related to the educational programming. In making this change he wanted the systematic collections used

³⁵Ibid.

by university students for study and research removed from exhibition and made available in private rooms of the museum.

To accomplish these plans he asked for the staff to be increased and to secure additional time from Herman Silas Pepoon as an instructor for teacher and student courses. He directed Ms. Hardman be relieved of administrative responsibilities and her time given to educational work with school children. By creating the position of assistant secretary, who under Atwood's direction was given charge of instructional programming with instructions to oversee the work and advise the secretary on its progress, Atwood was free to monitor the entire staff. A full time museum aid was hired to manage the loan collections and assist with the educational work. The changes directed by the secretary in creating an instructional museum devoted the time of all staff to educational work. Frank Baker followed Atwood's directives but not with the same enthusiasm with which he pursued his duties when he had charge of the museum.

The New Exhibit Methods of Frank Woodruff

The change in the nature of exhibit displays from solely taxonomic to include geographical distribution, faunal exhibit, ecology, morphological characteristics, environmental adaptations, and economic usefulness made it necessary to separate the exhibit collections from taxonomic

study collections. Baker and the staff of the academy understood that the number of visitors who came to the museum with a purely scientific point of view was few in relation to the thousands of individuals who passed through the museum. Baker felt that taxonomic collections should be completely divorced from the exhibit collections.³⁶ Study collections, for those interested in serious scientific pursuit, were to be located in a different part of the museum building where they could be examined under conditions which restricted access to the general public. Moving study collections from the museum proper separated two conflicting museum functions. From an educational standpoint, the conflict of museum access that existed between the professional scientist's research needs and the demand by the public for an institution that would be a cultural resource was solved by this simple separation. The change from the taxonomic to educational methods of exhibiting collections proceeded with enthusiasm at the academy. Habitat groups, which portrayed plants and animals in an ecological context, was the most significant change in exhibit preparation at the turn of the century. While Baker and Woodruff began to prepare habitat exhibits as early as 1903, it was not until additional revenues from the Willner

³⁶Frank C. Baker, "Suggestions for an Educational Exhibit of Mollusks," Proceedings of the American Association of Museums 3 (1909): 56-59.

donation in 1907, that the academy would prepare large habitat groups which would eventually fill the entire museum.

The museum's birds of North America exhibit was the first significant work that revealed something of the habits and habitat of the specimens. As early as 1903, North American bird exhibits were designed and built to exemplify habits, environments, geographical range, and sexual differences in coloration during the breeding season. Species were mounted in pairs, in spring plumage on natural branches. Illinois species were shown nesting or with fledglings in a small recreation of their habitat that clearly revealed their typical environs. The dark finished oak and mahogany cases used soft bluish-gray backgrounds. The glass shelves used in these exhibits made them very inconspicuous and allowed light to be diffused throughout the case. Eventually, techniques that fastened the natural branches directly to the case eliminated the glass shelves.³⁷ Top shelves were placed no higher than five and one half feet from the floor so that the average visitor could view details and read the labels. A map indicating breeding range, winter range and migration path accompanied each species. Supplementary maps showed how distribution and migration routes overlapped.

³⁷Frank C. Baker "Exhibit Cases without Shelves," Proceedings of the American Association of Museums 3 (1909): 128-130.

As an introduction to the birds exhibit, an avian morphology case displayed the obvious forms and structures of the different groups of local birds. Avian displays included types of bills, feet, wings, and tails; the structure and color patterns of feathers; sexual differences; the size, color, and shape of eggs; and correlations between body structure and environment. The educational purpose of the exhibit was profoundly more effective and instructional than single specimens solitarily mounted and simply labeled in a taxonomic series.³⁸

The first habitat groups produced by the academy were of insects. Exhibit cases were enclosed on all sides but the front and hidden electric lights used for illumination. These small ecological habitat groups embraced such topics as: "Autumn Insects," "Old Log Habitat," "Swamp Insects," and "Beach Insects."³⁹ Backgrounds were hand painted and foregrounds carefully prepared to depict common Chicago area insects in their natural habitat. The use of hand painted backgrounds to create these dioramas, though not a new concept, was expensive and time consuming. The American Museum of Natural History and the Field Museum hand painted

³⁸Frank C. Baker, "Some Instructive Methods of Bird Installation," Proceedings of the American Association of Museums 1 (1907): 52-57.

³⁹Frank C. Baker, "A Method of Exhibiting Insect Collections," Proceedings of the American Association of Museums 6 (1912): 108-111.

magnificent habitat groups but at great expense.⁴⁰ Frank Woodruff's ingenuity not only brought habitat group cost within the realm of the academy's budget but the photographic methods he developed produced better results than the more costly hand painting.

The sterile taxonomically displayed specimens that filled the museum slowly vanished with Woodruff's habitat groups taking their place. The first large habitat group displayed Virginia deer in a forest setting within a large glass sided case put on the museum floor around 1905. By 1913, the main floor exhibits were removed and a large case able to contain numerous individual habitat groupings was set in the center of the main exhibition hall. This exhibit case contained two rows of thirteen separate exhibit spaces on each side; the ends of the case contained space for four additional exhibits. Each of the exhibit spaces contained a small habitat grouping approximately three feet by three feet by two feet deep along the bottom row, two and one half feet by three feet on the top row and the exhibit spaces on each end being almost six feet long. The top of the case was surrounded by mounted flying birds enclosed in a continuous exhibit case that surrounded the entire display. Most every conceivable local habitat was represented in the

⁴⁰Frank C. Baker, "Some Instructive Methods of Bird Installation," Proceedings of the American Association of Museums 1 (1907): 35.

fifty-six different dioramas contained in the exhibit that was over fifty feet long.⁴¹ The exhibit with forty-one completed habitat groups was presented to the membership at the conclusion of the business portion of the annual meeting 12 January 1915.⁴² Woodruff's work when finished represented almost a complete catalogue of Chicago area fauna.

Twenty additional small habitat dioramas were suspended by steel cables from the ceiling over the top of the exhibit. These cases were viewed from the gallery. The small habitat groups included over seventy dioramas of the birds, small mammals, and fish of the Chicago region.⁴³ All the dioramas were the work of Frank Woodruff.

Frank Morley Woodruff, born in Leavenworth, Kansas on 16 July 1867, came to Chicago at age four. Due to his frail health, he spent much of his early life outdoors. Like Robert Kennicott, Woodruff took his education in the field. After several other moves he took a teaching position at the Cook County Normal School under Colonel Francis Parker in

⁴¹Much of the information about this display was gathered with the use of original photographs.

⁴²Minutes of Regular Meetings of the Chicago Academy of Sciences, 12 January 1915, Chicago Academy of Sciences Archives.

⁴³"Outline of the Collections and Exhibits of the Chicago Academy of Sciences" Academy Exhibits and Collections, Chicago Academy of Sciences Archives.

1888.⁴⁴ Woodruff, a capable ornithologist, worked for the Illinois State Ornithological exhibit at the Columbian Exposition. After a short stint with the Field Museum, Woodruff came to the academy as a taxidermist where he supervised and performed taxidermy and exhibit preparation. He served the academy as ornithologist and taxidermist from 1894 to 1911, curator of ornithology from 1912 to 1915 and curator from 1915 to 1926.

Woodruff's major interest was ornithology. He collected and prepared whole mounts and skins of hundreds of bird specimens for the academy. Woodruff began preparing habitat groups of Illinois birds and mammals in 1903. His Birds of the Chicago Area was published as bulletin number VI, of the Natural History Survey of the Chicago Academy of Sciences in 1907. Woodruff's genius lay in the preparation of museum exhibits. Using photographic enlargements as backgrounds he painted realistic scenes and skillfully blended prepared birds, mammals, trees, stones, and any other natural materials necessary into the foregrounds to create a landscape so natural one felt it was real. The largest background photo produced by Woodruff was ten feet by ninety-six feet long.⁴⁵ To prepare the photographic backgrounds four by five or eight by ten cameras were used

⁴⁴Frank M. Woodruff Biographical Notes, Frank M. Woodruff Collection, Chicago Academy of Sciences Archives.

⁴⁵Ibid.

to produce negative plates. Special trays were built to develop and fix photographic paper that measured five by fifteen feet. Six people were required to handle the paper through the developing process. Woodruff personally supervised the entire procedure. The finished photographs were tinted with transparent oil colors. The tinting process required ten days to two weeks to complete. Twenty bird groups were completed over a one and one half years using this technique.⁴⁶

Woodruff's greatest accomplishment was the Chicago Environs dioramas of the Indiana Dunes completed in 1916 and the Lake Calumet marshes and oak ridges completed in 1920. Woodruff considered the diorama an exercise in deception. To merge a tinted photographic background with an artificially contrived foreground of taxidermic animals and artificial vegetation, giving the observer the illusion of reality, was a skill that few museum men mastered. Woodruff understood that the human eye used shadow to interpret reality and that the proper intensity and direction of light in a diorama was the single most important element on which the observer relied. With the correct artificial lighting Woodruff could deceive the human mind, if only for an instant, to accept the diorama as real. Woodruff's ability

⁴⁶Avis Gordon Vestal to Frank M. Woodruff, 11 September 1918, Frank M. Woodruff Collection, Chicago Academy of Sciences Archives.

in combining photographic background techniques, detailed foregrounds, superior taxidermy, and deceptive lighting secured his reputation as a master of exhibit preparation. The Indiana Dunes diorama, the first of the Chicago Environs group, produced such startling reality that even a photograph of the exhibit looked real.⁴⁷

Woodruff died suddenly on 21 July 1926, leaving the completion of the Chicago Environs groupings to Earl G. Wright. Woodruff's goal was to completely surround the main floor of the museum with a diorama that would move from one major Chicago area habitat to another. Wright, hired after Woodruff's death, completed the wolf and lynx dioramas begun by Woodruff. Wright completed the main floor diorama construction, with a Fox River area canyon scene of a female mountain lion and two cubs without using the photographic techniques.

The completed Chicago Environs series dioramas filled the entire periphery of the main floor under the gallery. The museum visitor was able to view all of the different environments of the Chicago area in a short walk around the museum's main floor. The varied ecological settings of the Chicago area were exemplified by the Indiana sand dunes including the shore of Lake Michigan, dune slopes, marshy

⁴⁷Frank M. Woodruff, "On Diorama Construction," Frank M. Woodruff Collection, Chicago Academy of Sciences Archives.

areas behind the dunes and the wooded regions beyond the dunes. The gulls and terns on the lake shore give way to a bald eagle, crows and various other small birds on the dune slopes. Beyond the slopes, the small mammals, herons, bitterns and osprey that occupy the dune's marshy area move the visitor into the wooded areas beyond the dunes to see turkeys, a common woodland resident.

Moving westward the Calumet marshes are exhibited with sandhill and whooping cranes standing among snow geese, blue geese and Canada geese. The sandstone cliffs of the Starved Rock area portray a colony of cliff swallows. The forests of the Palos area depict Virginia deer and a family of woodchucks. The Sag River Valley shows a beaver colony busy at work. Moving into the Illinois prairie west and northwest of Chicago, a family of prairie wolves maintain their den. The Palos area is again depicted during the winter season with timber wolves and the Canada lynx. The exhibit ends in a canyon of the Fox River area that is the home for a female mountain lion and her two cubs.⁴⁸

The 270 foot continuous diorama represented all major terrestrial environments found in the Chicago area. The wolf and lynx exhibits were completed by Wright in May of 1933 for the opening of the World's Fair. The entire main

⁴⁸"Outline of the Collections and Exhibits of the Chicago Academy of Sciences" and "Chicago Academy of Sciences Museum of Natural History," Academy Exhibits and Collections, Chicago Academy Sciences Archives.

floor was completed by 1935. Combined with the numerous small habitat groups in the center of the main floor the academy museum was a panorama of the ecology of the region.

The gallery at this time contained study exhibits; cases explaining the evolution of ecological communities; small habitat cases of insect life; botanical exhibits of the Chicago area flora; a number of synoptic arrangements of fossils, insects, and birds; and exhibits explaining biological principles such as mimicry, metamorphosis, and hibernation.

Herman Silas Pepoon

One of the absolute benefits resulting from the Willner funds was the addition of Herman Silas Pepoon to the academy staff. Pepoon, brought a wealth of experience and expertise to the instructional programs he taught to students and teachers at the academy. He loved to stimulate interaction with young people when teaching natural history. The enthusiasm he had for teaching was not found in Baker or Woodruff. Born in Warren, Illinois on 21 January 1860, Pepoon never finished high school but was allowed to enter the University of Illinois by passing examinations in all required subjects. He studied botany, ecology and pre-medical courses graduating in 1881. He then obtained a medical degree from Hahneman Medical School in Chicago. Pepoon practised medicine for the next eleven years in rural

Nebraska and Illinois. His move back to Chicago to become a high school botany teacher was an unexpected event:

I never expected to be anything but a doctor. . . . My practise was a thriving one. Then suddenly I received an invitation from the superintendent of Chicago schools to come there to teach botany in the Chicago high schools. I came and here I am.⁴⁹

Pepoon came back to Chicago in 1892, to begin his teaching career at Lake View high school in September of that year. His interest in botany drew him to an association with the Chicago Academy of Sciences shortly after he started to teach at Lake View high school. Located at Irving Park Road and Ashland Avenue, Lake View was located in an undeveloped area of the city. Pepoon quickly discovered that the areas around the school were ideal to teach botany and prime collecting areas for botanic specimens. He actively collected, identified, and catalogued Chicago area plants. His work with the local flora resulted in the preparation of An Annotated Flora of the Chicago Area, published as part of the academy's natural history survey in 1927. His influence may have played a role in establishing the annual field meetings of the academy. It was his practise to hold annual field excursions for students and teachers to the Indiana Sand Dunes at Millers, Indiana. Up to 600 persons attended the trips on a specially chartered

⁴⁹"Many Cheerful Memories Gathered by 'Doc' at L. V." Lake Re View 18, 14 (15 January 1930): 2.

train of fifteen coaches and baggage cars.⁵⁰ Pepon's eagerness and energy to work with young people made him an outstanding teacher. He conducted classes for students and teachers at the academy beginning in 1911 when he became part of the academy staff. Pepon's work with the academy earned him a life membership and the position of honorary curator of botany.⁵¹ Pepon was active in the Illinois Academy of Sciences and the Illinois Natural History Survey.

Wallace Atwood's work reorganizing the academy was largely an administrative function improving museum management and increasing educational programming. His success in this area would not be the only impact he had on the academy. In 1910, Atwood obtained a U.S. patent on the Atwood Celestial Sphere, a planetarium that was built in the academy's gallery. His patent design became a model for later developments in planetarium construction.

The Atwood Celestial Sphere

Wallace Atwood's greatest impact on the academy's exhibits was his patent celestial sphere. The Atwood Celestial Sphere was the forerunner of the modern day planetarium. The sphere, a fifteen foot diameter rotating globe was suspended from the south end of the gallery. The sphere sat

⁵⁰Ibid.

⁵¹Vern O. Graham, "Herman Silas Pepon 1860-1941" The Chicago Naturalist 5, 1 (1942): 11-12.

fifteen viewers who, as the globe rotated, viewed an accurate representation of the night sky over Chicago. The metal skin of the sphere was perforated with different sized holes which accurately indicated star position and magnitude when light passed through them. The sphere rotated around its internal platform once every eight minutes to give the viewer the opportunity to observe the positions of the stars as they moved through the sky over a twenty-four hour period. The entire sky above the horizon of Chicago's latitude was represented. All first, second, third, and fourth magnitude stars and a selected number of fifth magnitude stars were represented by 692 visible points of light.⁵² The planets Jupiter, Saturn, Mars, and Venus and the moon were represented as illuminated discs and the sun, by a small electric light.

The sphere, an engineering marvel, was donated by LaVerne W. Noyes. Noyes, owner of the Aero Motor Company, manufacturer of windmills, had the sphere constructed in his factory and installed in the academy.⁵³ Mr. Noyes, who came to the academy in 1906 as a member of the board of trustees, served as the board's president from 1911 until his death in 1919.

⁵²Wallace W. Atwood, "Atwood Celestial Sphere," Bulletin of the Chicago Academy of Sciences 4, 2 (1913): 9-13.

⁵³Claudia Walker to Kathryn Gloyd, 2 January 1949, Chicago Academy of Sciences Archives.

When the sphere became operational in 1913, it was Chicago's only planetarium, a position it held until the Adler Planetarium in Grant Park was built in 1930. The Atwood sphere was the only device of its kind in the United States that could be used for accurate study of the night sky. The sphere's representations were so accurate that during World War II, United States Navy personnel attached to the Naval Reserve Training School at Northwestern University, were trained in celestial navigation using the Atwood sphere.⁵⁴ As a museum exhibit, the sphere was a major attraction for the academy. Its aura aroused the wonder and curiosity of young and old alike. To the serious student of astronomy who could make accurate observations of the sky at any hour of the day or night, the celestial sphere provided an instructional device to teach college astronomy courses. To teachers of elementary and secondary students, the sphere was an invaluable tool to aid in the teaching of astronomy's fundamental concepts and the details of the heavens. The sphere was praised by teachers as being superior to the Adler planetarium, especially for small groups of students.⁵⁵ Although never constructed, LaVerne Noyes had planned to install another celestial sphere at the north end

⁵⁴Eliot C. Williams to Wallace Atwood, 19 November 1940, Chicago Academy of Sciences Archives.

⁵⁵Wallace F. Worthley to Lewis C. Walker, 21 October 1937, Chicago Academy of Sciences Archives.

of the gallery to represent the southern latitudes from the city of Buenos Aires, Argentina.⁵⁶ Letters of interest about the celestial sphere came from as far away as Kyoto, Japan.⁵⁷

When the Adler Planetarium opened in 1930, the popularity of the Atwood Celestial Sphere declined. The sphere, its exterior painted in relief to represent the earth, remains suspended from the ceiling painted with constellations. The Atwood sphere was not used from 1960 through 1983 at which time it was reopened. However, due to inadequate lighting and untrained personnel, operations were quickly shut down. On 20 October 1986, the sphere was reopened as a regular academy exhibit.

Wallace Atwood had set the academy's course and major thrust to work directly with schools and to provide instructional programming. He did not want to split the academy's efforts along two lines: professional researched based museum work and educational programming for schools, teachers, students, and visitors. He realized that splitting available resources between two areas of specialization would only produce marginal accomplishment in

⁵⁶Bulletin of the Chicago Academy of Sciences, Annual Report for the Year 1912, Winter and Spring Announcements 3, 10, (April 1913).

⁵⁷Y. Hirase to Wallace Atwood, 25 August 1913, Atwood Celestial Sphere Collection, Chicago Academy of Sciences Archives.

either. He opted for educational work as the academy's primary focus knowing that the association with the University of Chicago would continue working relationships with scientific experts at the academy. This was essential to the educational programming and would allow the academy staff to be concerned with educational museum exhibits and instructional programming. Others would produce the scientific research needed to keep the academy scientifically up to date. Atwood understood this idea because he was a professor at the University of Chicago who was an active researcher. While this concept was clear to him when he broke his association with the academy those who followed were more interested in research based museum work. The financial situation would not improve and the organization would again split its resources and become indecisive about being an educational or scientific institution.

CHAPTER 6

EDUCATIONAL PRACTICES DECLINE, 1920-1958

Continued Educational Programming to 1920

Wallace Atwood provided the leadership necessary to develop the academy's educational programming. His influence and direction fostered the development of significant educational work in the schools of Chicago. As explained by Atwood:

During the past year the work and influence of the academy have become more strongly educational. The scientific collections and exhibitions in the museum are carefully maintained and will always be available for specialists to study, but the museum is rapidly taking on a distinctly educational policy and the exhibits are being appropriately altered or replaced. It is evident both from the work of the museum and of the instructional courses given in cooperation with the work of the museum, that the Academy is rapidly assuming a conspicuous place among the educational institutions of the city.¹

The policies Atwood developed toward working with schools, students, and teachers become the backbone of the academy's programming. The educational work initiated and developed by Atwood remains to the present day as a significant part of the academy's activity. The precedent established by

¹Bulletin of the Chicago Academy of Sciences, Annual Report for the Year 1910, Winter and Spring Announcements 3, 5 (February 1911): 122.

Atwood's conviction for educational programming, though not shared by successors, allowed school work to continue after his departure.

During the years 1909 to 1912, the academy estimated attendance at about 500,000 per year with up to 170,000 students benefitting from the various educational activities.² Atwood, Baker, Woodruff, Pepoon, and Hartman of the academy staff conducted courses, lectures, and field activities. A small number of non-academy personnel were also retained to conduct these activities. Herman Silas Pepoon was by far the most prodigious lecturer and course instructor. His nature study teacher courses attracted over two thousand in 1910.³ Pepoon's popular style and robust enthusiasm filled the academy's halls when he conducted student or teacher lectures and courses.

The programs and reorganization of the museum accomplished by Wallace Atwood by 1912 were carried out in earnest through the remainder of the decade without significant changes. The educational stature the academy attained

²Bulletin of the Chicago Academy of Sciences, Annual Report for the Year 1910, Winter and Spring Announcements 3, 5 (February 1911): 131, Bulletin of the Chicago Academy of Sciences, Annual Report for the Year 1911, Winter and Spring Announcements 3, 8 (February 1912): 217-226, and Bulletin of the Chicago Academy of Sciences, Annual Report for the Year 1912, Winter and Spring Announcements 3, 10 (April 1913): 263-267.

³Bulletin of the Chicago Academy of Sciences, Annual Report for the Year 1910, Winter and Spring Announcements 3, 5 (February 1911): 131.

during this time can be gleaned from the statements of Peter A. Mortenson, superintendent of the Chicago schools:

In Chicago there has grown up the closest possible relation between the museums and the public schools because the former have acted upon the psychological principles of children's interest in arranging exhibits for public view. Particularly is this true of the Chicago Academy of Sciences. Limiting its scope to the Chicago area, this museum aims to present the ecology of the region in its habitat situation. . . . Many of the north side schools, especially the high schools are using the museum of the Chicago Academy of Sciences.⁴

The Chicago Academy of Sciences had carved out its niche as a museum whose primary interest was to provide educational exhibits and programs for elementary and secondary schools, students and their teachers. In 1920, Wallace Atwood ended his association with the Chicago Academy of Sciences to become president of Clarke University where he established the first graduate school of geography in the United States.⁵ The end of Atwood's association with the academy left a void in educational programming. While Frank Woodruff continued work to complete the series of Chicago environs dioramas located on the periphery of the museum's main floor, instructional programs and educational activities, lacking Atwood's leadership, would not continue as the major function of the Chicago Academy of Sciences.

⁴Peter A. Mortenson, "The Contribution of Museums to Public School Education," Museum Work 3, 5 (May 1920): 242-46.

⁵"Wallace Walter Atwood," The National Cyclopedia of American Biography 37 (Ann Arbor, MI: University Microfilms): 46.

No one on the academy staff, board of trustees or board of scientific governors, shared Atwood's interest in the schooling and education of young people. The unified direction created by Atwood would again become fragmented.

The Academy Library Converted to a Children's Library

The library of the Chicago Academy of Sciences was a rich collection of books, pamphlets, and maps in all areas of natural history which in 1907 contained 29,170 pieces. The collection, particularly well provided with exchange materials from other natural history museums from around the world, provided a valuable source of information for the membership. Many of the arrangements with other museums were made under the tenure of Robert Kennicott and William Stimpson. When the academy moved into the Exposition Building in 1885, the library collection was boxed and put into storage until it was moved into the Laflin Building in 1893. Largely uncataloged, the materials were placed on the shelves without any real organization.

Little attention was directed toward the library until 1907, at which time a title catalogue was prepared. Accession of library materials created problems because of the lack of shelf space. It was reported in the 1909 annual report that "It is not possible, without additional help to prepare properly an analytical card catalog, a work which

would add immeasurably to the usefulness of the library."⁶ In 1910 a coat check room was converted to library stacks for the U.S. Department of Agriculture and Illinois State Experiment Station publications but no other work could be accomplished on organizing the collection.⁷ By 1911, all available space held books including several thousand volumes stored in the attic. Because of the imperfect organization and incomplete cataloguing, the library could not be used effectively or efficiently. It was at this time that plans for a children's library were announced.⁸

Atwood's plan of action for educational work called for the creation of a children's library and a children's museum though the academy building lacked space for either. The trustees supported Atwood's plans for the children's library and museum. At the January 1912 board of trustees meeting, they authorized Atwood to solicit funds on behalf of the academy for the erection of a children's museum.⁹ Knowing

⁶Bulletin of the Chicago Academy of Sciences, Annual Report for the Year 1909, Winter and Spring Announcements 3, 3 (January 1910): 46.

⁷Bulletin of the Chicago Academy of Sciences, Annual Report for the Year 1910, Winter and Spring Announcements 3, 5 (January 1910): 151-52.

⁸Bulletin of the Chicago Academy of Sciences, Annual Report for the Year 1911, Winter and Spring Announcements 3, 8 (February 1912): 206.

⁹Chicago Academy of Sciences Minutes of the Board of Trustees, 3 January 1912, Chicago Academy of Sciences Archives.

that the erection of a children's museum was not a certainty, Atwood proceeded to establish a children's library within the Laflin building.

Reviewing the situation of the library, its limited use, and the lack of space for a children's library, Atwood convinced the trustees to authorize him to secure bids from other institutions interested in purchasing the academy's library.¹⁰ Finding no great interest to purchase the library, the trustees approved plans to give the library to Chicago's John Crerar Library.¹¹ As required by the academy's constitution, the plan was presented to the membership who approved the action at the annual meeting held 14 January 1913.¹² It was not until 1917, however, that an agreement was finalized and the John Crerar Library received the academy's library.¹³ The final agreement provided that all the academy's collection used by the Crerar would be considered a special collection with book plates naming the academy as donor; that annually the Crerar would pay the

¹⁰Chicago Academy of Sciences, Minutes of the Board of Trustees, 2 July 1912, Chicago Academy of Sciences Archives.

¹¹Chicago Academy of Sciences, Minutes of the Board of Trustees, 7 November 1912, Chicago Academy of Sciences Archives.

¹²Chicago Academy of Sciences, Minutes of the Regular Meetings, 13 January 1913, Chicago Academy of Sciences Archives.

¹³Annual Report of the John Crerar Library (17 January 1917): 16-17.

academy one half the value of the library exchange list, the proceeds to be used by the academy as a publication fund; and that the Crerar would assign special seats and permit the use of their facilities to academy members engaged in special research.¹⁴ With the library removed from the academy proper, the constitution was amended by striking references to the library and librarian.

The plan for the children's library presented in Atwood's educational plan in November 1911 proceeded rapidly after approval by the trustees who also appropriated two thousand dollars for bookcases, tables, chairs, magazine racks, and other furnishings.¹⁵ The library was located in a first floor office separated from the secretary's and stenographer's desks by a railing. When arranged, the room had capacity to hold fourteen thousand volumes and accommodate fourteen children at one time. Four hundred and sixty-five books on botany, agriculture, zoology, geography, geology, and astronomy were initially purchased.

The children's reading room was opened 5 August 1912 and, by the end of the year, 3,907 children had used the

¹⁴"Letter to the Membership of the Chicago Academy of Sciences," 9 January 1917, Library Collection, Chicago Academy of Sciences Archives.

¹⁵Bulletin of the Chicago Academy of Sciences, Annual Report for the Year 1911, Winter and Spring Announcements 3, 8 (February 1912): 228.

room.¹⁶ The librarian reported that the children's library was in a continually crowded condition serving as many as sixty children in one day and that the number of adults wanting to use the room exceeded the number using the regular academy library.

Early in 1912, the trustees directed Atwood to solicit funds for the construction of a children's museum and natural science laboratory. Telling Albert Dickinson, an academy benefactor, that \$150,000 would be needed to construct a building equal to the present building, Atwood referred to the addition as the "Albert Dickinson Children's Museum of Chicago."¹⁷ He told Dickinson of the need to act quickly to establish the academy as the leader in this area of educational work, of the work being done in New York and Brooklyn and of the recent gift of \$250,000 by Norman W. Harris to the Field Museum to be used exclusively for educational work. Atwood believed that if the academy were not recognized as a children's museum, the gift to the Field Museum would force the academy to withdraw from the educational arena:

When the Field Museum is in a position to undertake this educational work I think it will be appropriate

¹⁶Bulletin of the Chicago Academy of Sciences, Annual Report for the Year 1912, Winter and Spring Announcements 3, 10 (April 1913): 259-62.

¹⁷Wallace C. Atwood to Albert Dickinson, 2 January 1912, Wallace Atwood Collection, Chicago Academy of Sciences Archives.

for us to withdraw from the field but we must do something bigger, something greater and something at once which will demonstrate to Chicago our leadership in this educational movement among the museums of the city.¹⁸

Though Atwood did not convince Albert Dickinson to finance a children's museum, at his death in 1925, Dickinson bequest the academy \$150,000 to be used to construct a building for the work and purposes of the academy.¹⁹ The bequest was the amount requested by Atwood in 1912 but in 1925 it was not sufficient to erect a building. It would not be until 1949 that the academy used Albert Dickinson's gift to build Albert Dickinson Hall within the Laflin Building because of lengthy court proceedings undertaken to use the money for something other than the erection of a building as specified in the Dickinson will.

Educational Work After Atwood, 1920-1936

In asking Albert Dickinson to support the building of a children's museum in 1912, Wallace Atwood addressed the \$250,000 Harris gift to the Field Museum as "very significant" to the academy. During this time, the academy attracted the north side schools because of the Field Museum's location in Jackson Park on the city's south side. The N. W. Harris Public School Extension of the Field Museum began

¹⁸Ibid.

¹⁹"Copy of a Portion of the Last Will of Albert Dickinson," Albert and Melissa Dickinson Collection, Chicago Academy of Sciences Archives.

to take shape in 1912 when Stephen C. Simms, assistant curator of anthropology, became curator for school extension work.²⁰ Between 1912 and 1916, the Field Museum developed a school loan program that made hundreds of loan exhibits available to schools, with the courtesy of delivery and pickup.²¹ While Wallace Atwood's leadership was a significant factor in the academy's successful educational work, competition from the Field Museum did not become a major factor until May 1921 when the Field Museum opened the doors of its magnificent new building on the lake front in Grant Park. The Field's \$250,000 educational extension fund continued to grow allowing the addition of small traveling exhibits to the museum's school loan program after 1920.

In 1925, as a memorial to her husband, Mrs. James Nelson Raymond donated \$500,000 in securities for the purpose of sending lecturers into the public schools, providing lecturers and guides for school groups visiting the museum, and to provide moving picture programs for public school students on Saturday mornings.²² With Mrs.

²⁰"Fifty Years of Progress, 1893-1942, Field Museum of Natural History," Field Museum News 14 (Sept.-Oct. 1943): 22.

²¹Stephen C. Simms, "The Development of the N. W. Harris Public School Extension of Field Museum of Natural History," Proceedings of the American Association of Museums 10 (1916): 56-60.

²²Fifty Years of Progress, 1893-1942, Field Museum of Natural History," Field Museum News 14 (Sept.-Oct. 1943): 5.

Raymond's help these programs were expanded throughout the remainder of the decade. Programs and courses for students and teachers became well known activities of Chicago's new museum attraction. The academy's location in a prominent Chicago park made it the best known natural history museum, especially to north side residents, until the Field Museum's magnificent edifice was opened on the lake front.

The departure of Wallace Atwood from the academy to join the faculty of Harvard University and the opening of the Field Museum's new building detracted from the academy's educational work. Not naming another director, the trustees gave authority for museum operations to Frank Woodruff. Woodruff's primary concern was the completion of the large Chicago environs series of exhibits located on the perimeter of the main floor of the museum. Though work with the schools continued during the years 1920 through 1925 as routine offerings, the number of instructional courses for students and teachers declined during these years. In 1925, Wallace F. Worthley, a teacher at Francis Parker school, was appointed assistant secretary and given the responsibility of promoting educational programming and public relations. Worthley's campaign of announcements to schools, clubs, libraries, teachers, museum visitors, and the press that increased attendance at the academy and the educational

programs offered.²³ Worthley's work increased the use of the museum and participation in programs but these activities did not reach the levels of attendance and participation seen in the years 1907 to 1915. His most significant contribution to educational programming was the "Vacation Hobbies" exhibit, comprised of small collections of local natural history made by school children. Pressed leaves, flowers, mounted butterflies, insects, fossils, and small aquaria of living specimens made up an interesting exhibit. On display from 7 June to 3 July 1926, the exhibit attracted six thousand visitors. Worthley's efforts in promoting this activity through the schools produced a successful program. Nevertheless, lacking an energetic and inspiring leadership figure the museum stagnated, its image tarnished by a dearth of new programming and the slow work on Woodruff's Chicago environs dioramas.

In 1928, at a joint meeting of the boards of trustees and scientific governors, the academy considered undertaking a three year program to promote the academy's work.²⁴ It was suggested that the academy hire the same individual who

²³Wallace F. Worthley, "Report of the Educational and Publicity Work of the Academy of Science for Winter and Spring of 1925," Lectures, Films and Educational Programs Collection, Chicago Academy of Sciences Archives.

²⁴"Notes for a Joint Meeting of Boards of Trustees and Scientific Governors of the Chicago Academy of Sciences February 1, 1928 at the Union League Club," Miscellaneous C. A. S. Minutes Collection, Chicago Academy of Sciences Archives.

successfully promoted the Field Museum and Art Institute. The public relations campaign would emphasize the present exhibits of the flora and fauna of the Chicago region, the Atwood Celestial Sphere, Pepon's Flora of the Chicago Region, educational programming, and proposals for a North American museum, publication of the mammals of the Chicago region, a school for directors of natural history museums, and a new, \$750,000 museum building.²⁵ However, no action was taken on these discussions.

The sudden death of Frank Woodruff in 1926 came at a time when the academy consumed itself with ideas to revitalize wanning academy programs. The death of Albert Dickinson in 1925 brought the \$140,557 bequest from Melissa Dickinson's estate into the academy treasury. Albert willed the academy \$150,000 specifically for use to construct another building. The boost that these additional monies could bring excited the academy trustees, officers and staff. It is with this excitement that they searched for a director. In July of 1927, Alfred Marshall Bailey assumed the directorship of the academy. A naturalist of wide experience, Bailey had served as curator of birds and mammals at the Louisiana State Museum 1916-19, member of the United States Biological Survey in Alaska, 1919-21, member of the Arctic expedition for the Colorado State Museum,

²⁵Ibid.

1921-22, curator of birds and mammals at the Colorado State Museum, 1922-26, and zoologist for the Field Museum Abyssinian expedition, 1926-27.²⁶ Bailey brought enthusiasm back for local natural history.

In 1930, the enthusiasm for local natural history attracted the monthly meetings of the Kennicott Club to the academy basement. The group consisted of professional and amateur naturalists who entertained each other with natural history collections, live animals, and jocular stories. Northwestern University's collections of local natural history made by Robert Kennicott were given to the academy under Bailey's tenure in 1930. These collections contained rare specimens taken by Robert Kennicott when he was the curator of the university's natural history museum.²⁷

Publication of the Bulletin of the Chicago Academy of Sciences resumed in 1934 under Bailey's direction. Not published since 1913 because of insufficient funding, the Bulletin concerned itself with short papers on natural history written by staff members, members of the academy or persons who based their research on academy collections.

Bailey's contribution to educational programming was the introduction of a natural science specimen hunt.

²⁶"Biographical Notes - Alfred M. Bailey," Alfred M. Bailey Collection, Chicago Academy of Sciences Archives.

²⁷Alfred M. Bailey to L. C. Walker, 17 April 1930, Film Correspondence, Chicago Academy of Sciences Archives.

Announced in the schools as a contest that would award the winners junior membership and a book to the best exhibits, elementary and junior high school students were encouraged to collect natural history specimens during summer vacation to prepare small labeled exhibits that would be entered into the competition. A number of categories were established and it was suggested that the collections become the nucleus of small classroom museums. A spin off on Worthley's vacation hobbies program, the specimen hunt and exhibit proved successful.

Bailey's personal interest was photography, particularly motion picture photography. He brought with him a wealth of natural history experience recorded as photographic slides and motion pictures, producing numerous films while serving as the academy's director.²⁸ Bailey was a avid lecturer who used his photographic work and films to illustrate his talks. The Alfred M. Bailey lectures became a popular attraction at the academy. Bailey traveled widely, lecturing on natural history across the country. He spoke in many of Chicago's schools and created a film library for use by the schools. While Bailey brought a refreshing jolt of enthusiasm to the academy at a time when its lack luster existence plagued the academy's museum and programs, he did not make any significant changes in museum

²⁸Alfred M. Bailey, "Wild Life Cinematography," Bell and Howell Filmo Topics 6, 4 (April 1930): 1-2.

exhibits or additions to the educational programming. His major contribution to instructional programming was the production of motion pictures and the establishment of a film library.

The Trailside Museum

In December 1930, Alfred Bailey informed the executive committee consisting of Dr. Henry C. Cowles, president and chair of the board of scientific governors, Lewis C. Walker, president of the board of trustees, and Dr. Nathan Davis III, secretary of the academy, that he had met with Charles C. Sauers, general superintendent of the Cook County Forest Preserve District, who requested that the academy enter a cooperative agreement with the district to establish a series of trailside museums in the forest preserves.²⁹ The venture became a joint project of the academy and the Cook County Forest Preserve District.

The term trailside museum, coined by Herman C. Bumpus, refers to a field museum that is located where circumstances offer a subject to be explained, where nature provides an exhibit of earth formation or wild life, or man has left an archaeological or historic site.³⁰ Bumpus had developed

²⁹Alfred M. Bailey to the Executive Committee of the Chicago Academy of Sciences, 17 December 1930, Trailside Museum Collection, Chicago Academy of Sciences Archives.

³⁰Herman C. Bumpus, "Relations of Museums to the Out-of-Doors," Papers and Reports Read at the Twenty-First Annual Meeting of the American Association of Museums

trailside museums in national parks with a Rockefeller Foundation grant. The forty trailside museums established were under the control of the National Park Service. The concept quickly spread eastward and into the large cities.

Ten years after the first trailside museums were developed, the academy and Forest Preserve District would undertake a joint project to establish a trailside museum on the southwest corner of Thatcher and Chicago Avenues in River Forest. The building and surrounding land were purchased by the Forest Preserve District in 1917 for use as the district's general headquarters. The house was originally built in 1874 as a finishing school for young ladies. The trailside museum opened in May of 1932. The Forest Preserve District maintained the museum and surrounding grounds. The museum was under the academy's supervision and Mary Cooper of the academy staff was in charge.³¹ The museum, open six days per week from 10:00 a.m. until 6:00 p.m., maintained two nature trails, one about two miles long and a much shorter trail that circled a pond behind the museum building. The labeling along the trails consisted of the identification of trees, flowering plants, and topographic features. There were also some descriptive labeling

(Washington D. C.: The American Association of Museums, May 1926), 7-14.

³¹"The Trailside Museum of Natural History," Program of Activities of the Chicago Academy of Sciences 3, 3 (July 1932): 2.

and questions that were answered inside the museum. The exhibits in the museum consisted of prepared specimens of birds and other animals occurring in the Chicago area; local flowers and leaves; butterflies, moths, and other insects. Additionally, living specimens illustrating the chief phyla of animal and plant life were arranged so that phylogenetic relationships could be observed. Area geology and fossils completed the museum exhibit.

The museum proved very successful but plans to build a series of museums along a trail, from the northern edge of Cook County to the southwest corner, could not be completed because of financial problems within the Forest Preserve District. Clayton Smith, president of the Cook County Board of Commissioners, summed up the situation in a letter to Dr. Nathan S. Davis III, academy secretary, in March 1935:

We are entirely without funds for many of the things that are essential to good care and maintenance but hope to secure the necessary change in the picture through the present session of the legislature. Our predicament is brought about by the constant decrease in the appraisal of real estate values in the county.³²

The trailside venture offered the Chicago area an unique natural history educational experience which the Forest Preserve District promoted in schools throughout the area.³³

³²Honorable Clayton F. Smith to Nathan S. Davis III, 18 March 1935, Trailside Museum Collection, Chicago Academy of Sciences Archives.

³³Ibid.

Still in operation today, the academy worked closely with the trailside museum through 1940.

The Chicago Museum-School Relations Committee

The Progressive Education Association, at the February 1940 meeting in Chicago, formed the National Museum-School Relations Committee. Carleton Washburne, president of the Progressive Education Association, explained the need for the newly created committee:

School people are becoming increasingly aware of the need for using community resources, of extending education beyond schoolhouse walls. among the finest resources ready to hand are the various types of museums. That these should cease to be mere reliquaries of scientific collections and become better and better recognized as educational institutions, is the hope of both museum people and school people. The co-ordination of the educational functions of the schools and of museums is the end to be sought by this new committee.³⁴

The museums participating in the Chicago committee were the Chicago Academy of Sciences, Art Institute, Field Museum, Museum of Science and Industry, and Trailside Museum. Elliot Williams, assistant director, and Walter Necker, of the academy staff, served actively on the committee which met at the academy. During the few years of academy participation, a handbook of the services and materials available in Chicago museums was prepared for use by

³⁴Carleton Washburne, "The Progressive Education Association looks at the MSR Committee," National Museum School Relations Committee of the Progressive Education Association Bulletin 1 (May 1940): 1.

teachers. The committee grappled with such questions as: How can museums and schools cooperate toward a greater educational effectiveness? and What research can we do on what the museums are doing with the schools?³⁵ The work accomplished by the committee was generally in line with the Progressive Education Association's general position that there should be greater recognition of and cooperation with the various social agencies on the part of educators.³⁶ The committee became enthusiastically involved in bringing educators and museums together after its inception, but after several years of meetings, discussions, and conferences nothing changed at the academy. The committee's formation in 1940 came at a time when progressivism was under mounting criticism and fading in influence.³⁷ In any case, the committee had little effect and it is difficult to understand why such a committee had not been established long before 1940.

A New Director but No New Leadership

In 1936, Alfred M. Bailey accepted the director's position at the Colorado State Museum, leaving the academy in May.

³⁵Minutes of the Chicago Museums School Relations Committee, 8 May 1940 and 28 May 1940, Academy Education Efforts Collection, Chicago Academy of Sciences Archives.

³⁶Lawrence A. Cremin, The Transformation of the School Progressivism in American Education, 1876-1957 (New York: Vintage Books, 1964), 267.

³⁷Ibid.

Dr. Howard Gloyd of the University of Michigan assumed the directorship in October. Gloyd, a nationally recognized expert in herpetology, was nicknamed "The Dude Snake Hunter." Gloyd, like Bailey, produced many films about wild life for Coronet Productions in Chicago while director. He did most of his field work and filming in the southwest, particularly Arizona. Seeking to improve the museum Gloyd, removed all the small Woodruff habitat exhibits leaving only the "Chicago Region Environs Groups" around the perimeter under the balcony. The small habitat groups had not been maintained and were in serious need of repair. Without adequate funds for their restoration, Gloyd opted for their removal. The main exhibit hall was starkly open all the way to the vaulted ceiling. The removal of the small habitat groups significantly reduced the number of dioramas on display emphasizing, a rather stodgy interior architecture since no rehabilitation work had been carried out in the museum. Needless to say, interest in the museum declined.

As Alfred Bailey had no great personal interest in educational work, Howard Gloyd was a scientist with no interest in establishing educational programming as the academy's primary work. During his length of service, the scientific staff increased. Under Gloyd's directorship the most outstanding accomplishment was in expanding publication. The Bulletin became an outlet for strictly scientific papers. He increased publications with the addition of

Natural History Miscellanea, The Chicago Naturalist and a series of leaflets under a program of the Works Progress Administration. Dr. Gloyd resigned as director in 1958 accepting a teaching position at the University of Arizona at Tucson.³⁸

³⁸Walter B. Hendrickson and William Beecher, "In the Service of Science: the History of the Chicago Academy of Sciences," Bulletin of the Chicago Academy of Sciences 11, 7 (September 1972): 251.

CHAPTER 7

EPILOGUE

The most credible thing about the Chicago Academy of Sciences is that as an institution it has deliberately sustained efforts to transmit knowledge, values, and attitudes about natural history. Throughout its chronicle the academy has created curiosity in the minds of Chicago citizens, young and old alike, about the scientific intricacies of natural history. The academy has promoted science and the study of natural history methodically and systematically. In today's perspective much of this work would be called environmental education. The myriads of individuals who have passed through the academy doors have enlightened themselves about the natural world. The men who organized the society to study science and expand their knowledge formed a wholly educational enterprise.

During the first episode of the academy's story, 1857 to 1871, prominent Chicagoans with an interest in natural history formed a society for the increase and diffusion of scientific knowledge. Businessmen, doctors and other prominent Chicago men, who had a common interest, met regularly to discuss natural history. Their successful business ventures, expertise in matters of law, medicine and politics,

combined with their common interest in science and natural history, motivated them to establish a formal organization to engage themselves during their leisure time. Of special importance is Robert Kennicott, the youngest member, who brought dynamic enthusiasm to the academy. The study of natural history was his lifelong career. His exploits and accomplishments as an explorer and field zoologist brought the academy national recognition that inspired prominent wealthy Chicago citizens to give money to build a museum to house Kennicott's collections. Without Kennicott's distinguished work and the association he developed with the Smithsonian Institution the academy would not have developed into one of the foremost museum's of natural history in the United States in the years 1866-1871.

Spencer Fullerton Baird, then assistant secretary of the Smithsonian Institution, greatly influenced Kennicott. Baird's relationship with Kennicott was that of a mentor. Baird held that museums should be places where scholars conduct research but also places of popular education. This dual role was not accepted by most prominent museum men at this time. Joseph Henry, the secretary of the Smithsonian Institution, and Louis Agassiz, director of the Museum of Contemporary Zoology at Harvard, the most prominent scientific minds at the time, felt that museum collections should be used for scholarly research and professional studies isolated from the public. Kennicott followed Baird's lead making it his desire to educate all citizens about natural

history. Because of his accomplishments and leadership in promoting the study of natural history, Kennicott must be recognized as Chicago's first environmental educator. He worked deliberately toward giving all citizens an understanding of the natural world.

While William Stimpson successfully directed the museum after Kennicott's untimely death, bringing it to a nationally prominent position, the great Chicago fire destroyed the academy's museum in 1871. The museum had developed into an institution of scholarly research and popular education at the time of the Chicago fire. Kennicott's exploits made the museum a popular place for the cultured citizens of the city. The collections, destroyed by the great fire, were exceedingly valuable scientifically and as a cultural attraction to those who visited the museum. Educationally, the museum served several functions; formal scientific study of its collections, the reading of scientific papers and the viewing of the museum collections by the public. During this time, formal relationships with elementary and secondary schools did not develop as schools and schooling did not go beyond the schoolroom or the three R's. This was an era that was just becoming comfortable with Horace Mann's concepts of the common school and universal education. Recitations and drill dominated the classroom environment. This was also the era when William Torrey Harris's principles would bring economy and efficiency into schools with such ideas as graded classrooms. It would not be until the

influence of American progressivism and the work of George Brown Goode that museums would be looked to as institutions working in conjunction with schools and teachers to help educate elementary and secondary students.

The obliteration of a nationally recognized natural history museum did not diminish the enthusiasm of the academy trustees. However, the loss of its valuable and irreplaceable collections prevented the rebuilt museum from returning to a position of national prominence. The second era of the academy's history, 1872 to 1892, is one of stagnant strife. Enthusiastically rebuilding their museum, immediately after the fire, the trustees struggled in their efforts to regain national prominence. Without a dominant leader or unique collections to draw the attention of the city's citizens, financial support would not be found and the museum was again lost in 1885 through mortgage foreclosure. Storing and moving the collections into temporary quarters, the academy officers and trustees struggled in their desire to maintain a museum that would be a prominent cultural institution.

Moving into the 1890s, interest in academy collections increased membership. The trustees occupied themselves with determining how to build a permanent home for the academy. In January of 1891, the wealthy businessman Edward Ayer was elected to the board of trustees. His wealth and influence could help build a permanent home. This newcomer immediately took an active role in the pursuit of a grand cultural

institution. Ayer promoted a request by the University of Chicago to loan the academy collections to the university in return for erecting a museum building. Ayer could not gain the support of the old time trustees to accept the offer. The reluctance of the trustees to become involved with other institutions and individuals that may have limited their control, isolated the academy from public and financial support. When Ayer suggested that all the artifacts of the Columbian Exposition should be purchased to create a great museum collection, the trustees did not believe his idea was possible. Edward Ayer's attempts to use the enthusiasm generated by the Columbian Exposition to establish a great academy museum were rebuffed by the trustees who decided to go it on their own. Ayer's grand plans moved too quickly for the cautious academy trustees.

At the same time Eliphalet Blatchford, an original trustee, engineered a plan with the Lincoln Park commissioners and, with the help of Matthew Laflin's sons, convinced Laflin to give \$75,000 to erect a building in Lincoln Park. Blatchford and his allies did not want Ayer to take control of the academy or get credit for accomplishing what they had failed to do. Their reluctance to cooperate with Ayer caused him to resign his position as a trustee but this did not deter his resolve to create a grand museum. Shortly after Ayer resigned as academy trustee he convinced Marshall Field to donate one million dollars towards the purchase of the artifacts from the Columbian

Exposition. His plans for a grand museum ultimately isolated the Chicago Academy of Sciences from philanthropic cultural support. Even though the trustees were able to build a small museum in Lincoln Park the isolation they created interfered with the public support necessary to attract the financial opportunity that was needed to operate and expand their museum.

The third era of the academy's history began when the Matthew Laflin Building opened at the end of October in 1894. George Brown Goode's influence in museum management was transforming museums into places of popular education and formal scientific study. Museum work was developing into a professional discipline. Frank Baker, the first curator of the Laflin Building, worked very hard and enthusiastically in arranging the academy's collections. The museum immediately became a Lincoln Park attraction.

The founding of the Field Columbian Museum in 1893, to house the assemblage of the Columbian Exposition, had a significant impact on the character and mission of the Chicago Academy of Sciences. Because the trustees viewed the world-wide character and large financial resources of the Field Museum as such great competition, they limited the scope of the academy's undertakings to a specialization in the flora and fauna of the Chicago area.

When the academy opened the doors of the Laflin Building, Selim Peabody, the academy president, spoke of an educational policy that included publication, the use of the

museum by the members, scholars, and the public at large, classes in subjects of the academy's specializations, and a free lecture series that would be open to all academy audiences. While the academy did become the most visited natural history museum in Chicago from 1894 through 1908, the isolation created by the trustee's lack of insight and distrust of Edward Ayer, resulted in a continuous lack of financial resources.

The Laflin Building opened its doors at a time when American progressivism's vast humanitarian efforts for urban-industrial society attempted to bring the ideals of American government by, of, and for the people to those who lived and worked in the hell holes of urban life. This was the time of Jane Adams, Ellen Gates Star, and Jacob Riis on social reform. When Joseph Mayer wrote pedagogical criticism in The Forum and Francis Parker and John Dewey put their educational theories into practise in Chicago, the Chicago Academy of Sciences opened the doors of its museum to become a part of the progressive spirit of the times. The progressive view that a museum was an educator of young and old alike pervaded the museum's halls.

The founding of the Field Museum focused the academy's scientific pursuits on the natural history of the Chicago area. It was not financially possible for the academy to adopt a world-wide focus or use its limited resources to pursue original research. The Natural History Survey, begun in 1892, provided the theme for the academy's special-

ization. The academy catalogued the flora and fauna, and mapped the geological features of the region around Chicago largely with voluntary assistance from area university specialists. While the small academy staff contributed to the survey's endeavors, their varied responsibilities did not permit full time work on these projects. The academy did not have the financial resources to employ museum staff for the sole purpose of scientific pursuit. The bulletins of the natural history survey were a noteworthy achievement. The academy published eight bulletins of which two were written by academy staff. The others were completed by university specialists. Because this work was dependent on gratuitous efforts, fourteen other titles were not brought to completion. While the eight bulletins published were a noteworthy achievement, the fourteen unfinished works were a notable misfortune.

Frank Baker, the academy curator and charter member of the American Association of Museums, arranged the collections in the Laflin Building. Baker arranged and rearranged the contents of the museum, attempting to make his work as contemporary as possible, and kept himself in the forefront of museum work. George Brown Goode's concepts of the museum as an educator were put into practice by Baker. When the American Association of Museum's was formed in 1906, he delivered a paper titled "The Educational Arrangement of a Natural History Museum." Baker was dedicated to the professionalization of museum work. He wanted the academy museum

to be at the forefront of museum achievement. Baker followed the course Selim Peabody, the academy president, outlined in his speech at the opening of the Laflin building. Baker's accommodating nature made him avail himself to visitors whenever asked to provide museum tours, to answer questions about museum exhibits, or identify specimens brought to the museum without prior arrangements.

The progressive intellectual consciousness developed a community spirit in the city which can be observed in the academy's relationship with schools, teachers, universities, and the public at large. The academy did not exist in isolation as can be attested to by the number of visitors who entered its doors. Although Baker's handiwork in arranging the museum made it a popular attraction and the Lincoln Park location made the museum very accessible, progressive intellectual thought that viewed learning and education as essentially social in character played a role in the museum's development. Frank Baker had no specific interest in educational programming, he carried out these activities because they were an accepted part of museum work and were requested by schools and their teachers.

Wallace Atwood, academy secretary and director, guided the academy during its most meaningful pedagogical efforts. He had a great interest in transforming the academy into a "teaching" museum and envisioned the academy as becoming totally involved in programming for elementary and secondary schools. The work of the Natural History Survey was to

provide the scientific information used in developing educational activities for schools, students, and teachers in Atwood's outlook. Atwood's interest in education and young people had contemporary insight of the time. As John Dewey explained:

A primary responsibility of educators is that they not only be aware of the general principle of the shaping of actual experience by evironing conditions, but that they also recognize in the concrete what surroundings are conducive to having experiences that lead to growth. Above all, they should know how to utilize the surroundings, physical and social, that exist so as to extract from them all that they have to contribute to building up experiences that are worth while.¹

Atwood shaped the academy museum so that everything it did would lead to providing experiences that were educationally worthwhile. Atwood's efforts made the academy a part of the city's overall social structure; an educational institution as promoted by the current progressive thought. From 1907, when the superintendent of the Chicago public schools was named an "ex officio" member of the executive board, the emphasis toward an educational museum was evident in Atwood's actions and direction. However, if it had not been for Moses Wilner's \$100,000 bequest, Atwood's reorganization and educational programming would not have been possible. Although it is evident that Wilner was familiar with the museum and how school children were using the academy, he was not a member nor did he take part in any academy activity. There is no background information as to why he

¹John Dewey, Experience and Education, (New York: The MacMillan Company, 1938), 35.

left the bequest: his heirs tried to prevent the academy from receiving the gift, but this kind of philanthropy can be associated with the progressive spirit of the times.

To Frank Baker educational accomplishment was a secondary result of contemporary museum arrangement, research pursuits, and loan collections. For Atwood, education was the primary task to be accomplished by museum arrangement. Research would supply the up-to-date information to keep the exhibits scientifically accurate and for instructional programming for students, teachers, and schools. Instructional programming was the primary work Atwood envisioned for the academy. Baker wanted the academy museum to function in concert with the other large museums. He considered himself a museum professional. He had been hired as a curator to arrange and direct a natural history museum. Atwood did not share Baker's professional interest and viewed the academy's situation as being unable to conduct professional museum work centered around research and also take on an educational aspect for elementary and secondary school students.

The trustees had faith in Atwood's leadership and approved of his plans for museum reorganization and educational work. Atwood understood that the limited resources and staff would not allow the academy to perform research, maintain a museum, execute educational programming for young people, and provide programs for the public as the large well funded museums could do. Baker wanted to attempt doing all of it. Atwood's vision was for the academy to become an

educational museum that would provide instructional programming for students and teachers and become a resource to the city's schools. He viewed research as being conducted through the academy by independent specialists from area universities to keep the academy up to date scientifically for the preparation of exhibits and instructional programming. Atwood was also cognizant of how the competition from the Field Museum would impact the academy. He urged the creation of a children's museum when it was learned that Norman W. Harris donated \$250,000 to the Field Museum to be used exclusively for educational work. It was his opinion that a children's museum would establish the academy as the educational leader. He cautioned that the academy could be forced to withdraw from the educational arena if the Field Museum became heavily involved in educational programming. His insight was not accepted by the academy staff or adhered to after his departure.

The role of the academy in natural history education moved from being passive during the initial years in the Laflin Building to a progressive role in the years between 1906 and 1915 under Atwood's leadership and then again to a more passive stance under Woodruff, Bailey and Gloyd. Wallace Atwood had provided direction for the academy to become a museum wholly interested in educational programs and associations with schools and their teachers. He was very progressive in this vision but Atwood was the only person to hold the reins of the academy who wanted the

primary function of the academy's work to be with elementary and secondary schools. The trustees during Atwood's tenure supported the educational programming he directed and created. Baker, Woodruff, Bailey and Gloyd did not share Atwood's convictions concerning the relationships between museums and schools. The situation was not different at other institutions. Theodore Low, in his book The Museum as a Social Instrument, described those who ignored education and blocked progressive change in museums as three groups of conservative men; curators, directors, and trustees.²

In trying to understand academy leadership in the educational arena, it is significant that Woodruff, Bailey, and Gloyd were forced to compete with the Field Museum's Harris Public School Extension. Atwood was astute enough to understand that the Harris gift to the Field Museum could force the academy to withdraw from work with schools. Another point to consider is that it was difficult to change what Atwood had begun. Schools, teachers, and students looked to the academy, expecting specific educational programming. The academy's small size and inadequate funding made it extremely difficult to do research-based museum work and to provide educational programming for the schools and the public. Atwood chose the latter and set the precedent. Because those who directed the academy after his tenure did

²Theodore Low, The Museum as a Social Instrument: A Study Undertaken for the Committee on Education of the American Association of Museums (New York: The Metropolitan Museum of Art, 1942), 1-12.

not share the same vision, instructional programming declined and that which did take place took the form of an event not a series of related exercises.

The fact is that the academy provided a great service to the schools shortly after the Laflin Building opened. The most meaningful pedagogical efforts were made under Wallace Atwood's leadership. As explained in Chapter 1, we must not forget the very nature of a museum makes it an educational institution. While the preceding pages attempt to describe the educational practices and methods used by the Chicago Academy of Sciences, we cannot do justice to historiography by attempting to compare present methods and practices to interpret past events. The American progressive movement, lack of adequate regular income, the unexpected Wilner monies, the Field Museum's Harris Public School Extension and new building on the lake front influenced the academy in the context of its situation at the time these events occurred. What has been demonstrated by this study is that the Chicago Academy of Sciences pursued a deliberate didactic stance as an institution. Under Atwood this didactic stance is especially overt in creating direct relationships with schools and schooling. It is best to surmise that the Chicago Academy of Sciences has been and continues to be a school for everyone who enters its doors.

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VITA

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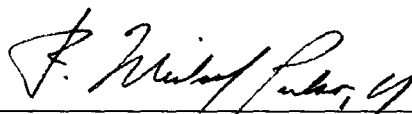
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The final copies have been examined by the director of the dissertation and the signature which appears below verifies the fact that any necessary changes have been incorporated and that the dissertation is now given final approval by the committee with reference to content and form.

The dissertation is, therefore, accepted in partial fulfillment of the requirements for the degree of Doctor of Philosophy.

14 March 1995
Date



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