January 2009

The Development of Architectural Office Specialization as Evidenced by Professional Journals, 1890-1920

Elyse McBride
Washington University in St. Louis

WASHINGTON UNIVERSITY

Department of Art History and Archaeology

The Development of Architectural Office Specialization

as Evidenced by Professional Journals, 1890 – 1920

by

Elyse Gundersen McBride

A thesis presented to the
Graduate School of Arts and Sciences
of Washington University in
partial fulfillment of the
requirements for the
Degree of Master of Arts

December 2009

St. Louis, Missouri

Acknowledgments

This paper is dedicated to my father, James Ronald Novotny Gundersen, a dedicated teacher and professor of geology. He instilled my love of learning and would have enjoyed reading this paper, because he once wanted to be an architect.

This paper would not have been possible without the guidance, support and patience of my advisors, Angela Miller and Paula Lupkin. I appreciate that they did not give up on me and encouraged me to complete this paper to the best of my ability.

I also appreciate the support and encouragement that I received during my years in Wisconsin from Anna Andrejewski. She helped me to clarify my argument, provided criticism and perspective when I needed it the most.

Table of Contents

List of Illustrations

Introduction

> "One thing, then, that has been accomplished has been the introduction of many of the architects of the country to their fellows…. and this introduction has been more than a making of names familiar as household words; it has, thanks to our illustrations, associated names with work and has helped to build up reputations and fortunes for men who would possibly have been less speedily successful without such help."
>
> American Architect and Building News, December 26, 1885.[1]

Our knowledge of architects is a product of promotion; by the architects themselves, by other architects, and by architectural critics and historians. Without acts of promotion, the architect remains unknown save by his clients. How might an architect gain status and fame? Architectural journals of the day were important mechanisms that served as a vehicle of promotion. During the late nineteenth century, periodicals in general had a considerable influence on the thoughts and attitudes of those who read them. By the 1890s, magazines had become a necessity of modern life, to keep abreast of trends and happenings. Published images and words were able to construct ideas about people and places; celebrity culture emerged from the pages of the magazine.[2]

Consider Louis Sullivan, whose basis of renown originates from the articles published in professional journals, whether written by him or about him. Among architects, Sullivan was one of the leading self-promoters of his day.[3] Influenced by the writings of Emerson and Whitman, Sullivan was a self-proclaimed non-conformist, a

quality that had great appeal to the fame makers of his era and later.[4] In the late nineteenth century, Sullivan authored many lectures and articles, promoting his architectural manifesto, that were published in regional and national architectural journals. Architectural critic Montgomery Schuyler, who regularly contributed articles to Architectural Record from its inception in 1891 until 1914, repeatedly extolled the virtues of Sullivan and commercial Chicago. Utilizing this published information, historians Thomas E. Tallmadge and Fiske Kimball included Sullivan as an influential member of the profession in their histories of American architecture published in the late 1920s. Expanding and reinforcing these earlier histories of American Architecture, Mumford, Hitchcock, Pevsner and Giedion all included Sullivan in their histories of the modern movement.[5]

Professional architectural journal articles in the late nineteenth and early twentieth centuries considered the architect as an individual protagonist, expounding on his artistic abilities and lauding his work. These articles have provided essential information to the architectural histories that trace the development of the modern movement. These same journals contained another discourse driven by the advancing wave of modernity, that of the development of the business-oriented architectural practice. Beginning in the last decades of the nineteenth century, professional architectural journals served as the chief medium by which ideas about building design and construction were exchanged.[6] Professional journals provided a forum for the discussion of how the architect should practice his profession in America in light of significant changes in the commercial world and in the construction industry. These articles reveal a dialogue in direct opposition to the idea of the iconic architect, and consider the need for specialized labor and

procedures in architectural practice. From the late nineteenth century through the early twentieth century, an increasingly specialized work force performed the productive work of the architect's office, particularly in the larger offices.

In 1996, Robert Gutman claimed that a large architectural firm was comprised of 50 or more individuals and that, for the most part, large firms were a phenomenon of the mid-twentieth century. By 1980, just over 90,000 architects were practicing in the United States.[7] (See Figure 1) According to The Inland Architect, in 1896 there were 7840 practicing architects using 5218 firm names, including 546 firms in New York and 420 in Chicago.[8] These numbers indicate that one third of architects were practicing with at least one partner by the end of the nineteenth century. By the turn of the twentieth century, an architectural office that employed upwards of 20 individuals would have been considered large. Large architectural offices executed a sizeable volume of institutional and commercial commissions, typically hundreds of buildings in working life of the principal architects of the firm. These large offices included many of the Chicago and New York offices that are familiar today: McKim, Mead and White; Burnham and Root; Holabird and Roche; Carrère and Hastings, to name but a few.[9] Not coincidentally, the leaders of the AIA in the late nineteenth and early twentieth centuries were the principal architects in these large firms.

Professional journals, especially those published on the East Coast, often published articles by and about the architects that ran these large firms and the building designs that these offices generated. Although professional journal content was directed to the trained architect, builders, draftsmen, students, craftsmen and laymen were also counted among their readership. In 1898, the circulation of the American Architect was

7500 and that of the Inland Architect was 3000.[10] With only 8000 practicing architects, it is likely that the majority of them had some contact with a professional journal, whether national or regional. Although the content was not geared to the individual practitioner, the journal was a significant resource for all architects and played a role in shaping the architectural profession by disseminating and popularizing the ideas and attitudes of the professional elite. The dialogue between the professional elite, the principals of the large architectural offices of the late nineteenth and early twentieth centuries, recorded on the pages of the professional journal reveals the development of the large architectural office as it exists today.[11]

Journal articles that considered the operation of the architectural office reveal the ongoing discourse within the architectural community as to the changing nature of architectural practice during the period from 1890, when architects were in the process of professionalizing their ranks, through 1920, as the country entered the period of prosperity that followed World War I. This period illustrates two distinct changes in the architect's perception of the profession and speculation about its future. After the Civil War, architects sought to distinguish themselves from common builders by highlighting their aptitude for artistic design.[12] Immediately following World War I, architects realized that their services were overlooked by the government in favor of the services of engineers and builders who were perceived to be more efficient and practical than architects.[13] These shifts in professional attitude serve as the framework for this study.

The journals utilized in this study include those with the largest readerships and those that continued publication throughout the period covered by this paper. These journals include: The American Architect and Building News, Architectural Record, The

Brickbuilder, the Inland Architect, The Western Architect, The Architectural Forum and The Journal of the American Institute of Architects.[14] These journals provide an archive of the discourse that was ongoing within the architectural profession in the late nineteenth and early twentieth centuries.

Advances in printing and graphic technologies in the late nineteenth century allowed for the economical production of journals, and the trend toward specialization in the marketplace encouraged specialized journalism.[15] Architectural discourse had always been an essential part of the tradition of architecture; historically, ideas about architecture had been delivered through illustrations, drawings, theoretical writings, exhibitions and lectures.[16] In the 1880s, professional architectural journals became a new way to obtain information about building design and construction. Architects as professionals were becoming more self aware of their achievements and saw journals as a means to actively promote public awareness of their designs. A rapid increase in the number of buildings constructed prompted material suppliers to seek new methods of advertising, providing the much needed financing for professional journals.[17] Previously books had been the main method of dissemination of technical and artistic information.[18] Builder's guides were widely used until the mid-nineteenth century, when catalogues of architectural materials and advice books, such as house pattern books became increasingly popular.[19] In the late nineteenth century, journals provided a more cost effective means of acquiring information about a rapidly changing field of endeavor. Initially these specialized periodicals did not distinguish between the architect and builder, but by the late 1880s professional journals differentiated their content to serve either carpenter-builders or architects.[20]

At a time when most architects were trained in the office of a more established architect, professional journals were in essence textbooks for an ongoing course in architecture; they conveyed "taste" with their illustrations, both historical and modern, and advice in their editorial columns. Professional journals served established architects as well, by providing a medium that allowed for the publication of various architectural projects. In contrast to the time and expense required to publish a book that contained an architect's designs, journals allowed timely and widespread recognition of commissions and completed designs with little to no expense to the architect.[21]

Professional journals endeavored to instruct the architect. Each journal sought to become the architect's indispensible reference on taste. Pages of reproduced examples of new and old architecture represented an encyclopedia of architectural acumen and served as inspiration for new designs. Journal editors and reporters acknowledged their responsibility for the molding of public architectural taste through their statements of purpose and reviews of other architectural publications. In addition to providing an education in architectural taste, professional journals disseminated knowledge to architects about the legal aspects of architecture, how to write specifications, and about the latest in building technology.[22]

Around 1880, professional journals that catered strictly to architects and endeavored to be national in scope found a place in the architect's office.[23] Two national architectural journals were published on the East coast in the 1880s: The American Architect and Building News and Architecture and Building. By the early 1890s four additional journals with national audiences were established, another two in the East and two from the Midwest: Architectural Record, Architectural Review, Inland Architect and

The Western Architect, respectively.[24] The editors of the principal journals cautioned their readers that the illustrations they published were not to be regarded as the best current work; they were instead examples of current buildings that had available and reproducible documentation. Although the editors of these journals may have been at the mercy of those architects who chose to allow them to publish their work, their editorial comments and articles about technical and management issues were a reflection of their attitudes about the nature of the architectural profession. Mary Woods has stated that a journal's success was largely dependent upon the support it received from professional organizations.[25] The journals' objective was not to provide architectural criticism of individual buildings or architect, but to provide certain benefits to the profession as a whole by establishing and disseminating standards for both conduct and office practice. Articles raised the general level of professional competency and the illustrations were pedagogical.[26] The development of specialized journals assisted the adoption of specialization in the architectural office through facilitation of a discourse on office practice.

The American Architect and Building News began publication in 1876 in Boston under the direction of J. R. Osgood. Osgood perceived architectural journalism as a pragmatic way to promote his more practical books and felt that the key to success was to have the backing of the architectural profession. He began negotiations with the fledgling professional organization, the American Institute of Architects and came to an agreement with the AIA in 1876 that The American Architect and Building News would become its official mouthpiece. Osgood would assume all financial responsibility as long as the AIA provided him with proceedings and members' drawings free of charge.

Instrumental in the formulation of this arrangement was Osgood's relationship with William Robert Ware, a member of the AIA and the founder of the architectural program at the Massachusetts Institute of Technology. Ware believed that a journal was needed to promote architectural education and advance the profession, and he became a leading contributor of editorials, articles and drawings.[27] William Rotch Ware, nephew of William Robert, and Wadsworth Longfellow, a former employee of H.H. Richardson, became the first editors.[28] The American Architect and Building News emphasized the notion that architecture was a fine art, and along with later Boston journals, including Architectural Review and Brickbuilder (which began publication in 1892 and changed its name to The Architectural Forum in 1900), it offered a more aesthetic stance than other journals due to the editorial guidance of highly trained professionals who were aware of European precedents and achievements in professional journalism.[29]

Architectural Record began publication in New York in 1891. It was published by C. W. Sweet, who also published the Real Estate Record and Builder's Guide, a practical guide to the New York building industry. In contrast to the commercial orientation of the Real Estate Record and Builder's Guide, Architectural Record, under the guidance of Henry W. Desmond, a man of letters, was a journal of intellectual character with a literary tone. The proclaimed purpose of the journal was not to be the mere record of indiscriminate contemporary architecture; instead it was published with the academically trained architect in mind. In accordance with this purpose, Desmond solicited and published articles from the best scholars and critical writers of the time.[30] Architectural Record's literary tone allowed for a discourse about architecture that differed from the other journals. The majority of architectural journals functioned as

portfolios, a series of visual reproductions of architectural artifacts. The purpose of the portfolio was to provide a means of analysis and production for architectural design; the portfolio presented a visual logic for the solution of design problems through the use of precedents.[31] In essence, the portfolio provided the architect the means to refer to past solutions and use them to develop new solutions, in a tasteful manner.

The first major architectural journal that was not produced on the East Coast was the Inland Architect, which began publication in Chicago in 1883. It was based on the format of The American Architect and Building News, but carried little of the latter's critical approach. The journal had a stated policy of avoiding critical evaluation of published works. The editors sought no influence or control of the theoretical writings. This non-discriminating attitude allowed for the publication of works by many Midwestern architects. It served as an organizing tool for Midwestern architects as well, becoming the official mouthpiece of the Western Association of Architects and the Chicago Architectural Club.[32]

The AIA began its own publication in 1900, a small quarterly that listed articles of interest to the architect; developed so as not to compete with professional journals. In 1913, The Journal of the American Institute of Architects began publication with the members of the Committee on Publication at its helm.[33] The publication of their own journal provided a means by which the AIA could contribute to the professional dialogue, promoting their ideals and becoming a significant voice in the debates concerning architectural practice.

Professional journals are significant contributors to the process of change through the publication of articles that analyze and discuss various ideas, methods and innovations, and their ability to effectively disseminate information to a sizeable readership. These journals served as an egalitarian forum for the discussion of how architectural practices should operate, providing a record of the exchanges among various factions of the architectural community that serve as a means to comprehend shifts in the professional discourse, as individual voices combine to speak for the whole.[34] Taken together, the journal articles provide insights into how architects perceived themselves and their profession, yielding information about trends and prevailing attitudes that evidence how the architectural practice developed across the nation in the late nineteenth and early twentieth centuries.

During the period from 1890 to 1920, journal articles illuminate the professional debate over the relative merits of the business-like operation of the architectural office. The construction industry was evolving rapidly with the introduction of new building systems, and construction and management methods. Traditional methods of architectural practice, a single practitioner responsible for design and construction oversight, were no longer able to keep pace with these advances in the construction industry. Over the course of this period, large architectural offices established business-like managerial methods and the journals reveal a didactic discourse about these methods. Professional journals of the period provide insight as to how the office management procedures and standardized design practices of various architectural offices were developed and employed. Standardization in the architectural office correlated with the specialization of office labor and procedures, and included the development of a

consistent numbering method for drawings and specifications, the use of only certain sizes of paper, and the routine use of standardized construction details. In the 1910s, the American Institute of Architects entered the debate on architectural practice and after World War I used its journal to validate and promote the use of business methods, the hierarchical management of a specialized work force and systematic methods of production, in the practice of architecture.

The first chapter examines the history of architectural practice, specifically, and business changes, in general, during the nineteenth century. During the second half of the nineteenth century, architectural practice underwent a transformation, from a craft-oriented vocation to a professionalized occupation.[35] This chapter illustrates the progression of that transformation and the cultural and technological aspects that contributed to it. Business culture changed rapidly in the second half of the 19th century. The general trend toward an efficiently run business based on the corporate model required the architect to produce effectively and efficiently in order to satisfy corporate clients, whether the building in question was a large commercial structure or an equally impressive residence.[36] Architects were forced to consider how to conduct their practice in light of changing professional precepts and the modernizing trends of business culture and building technology.

The second chapter considers the discourse of change in architectural practice and the merits and detriments of business systems in the architectural office as presented in journal articles published from 1890 to 1905. The professional journals of the last decades of the nineteenth century were overwhelmingly filled with the portfolios of residential and municipal buildings, designed by well-known East Coast architects, often

displaying them with no accompanying text or analysis. The majority of articles during this period contained editorial comments on the aesthetic value of the façade and interiors, with little attention given to the methods utilized to produce the building or its functionality. Articles that considered the architectural office typically described the décor and accoutrements of the office and not its operation, reinforcing the notion of the architect as an artist and gentleman practitioner. Increasingly after 1895, articles that addressed business techniques in the architectural office appeared in the major professional journals, most often in the regional journal, The Inland Architect.[37] Although these articles were largely theoretical in nature, they identified the need for the architect to organize his office around a system that allowed for the efficient retrieval of information during the design and construction phases of projects.

The third chapter addresses the development of business systems in specific architectural offices by considering articles that describe methods utilized to maximize efficiency and reduce repetitive labor. Articles published between 1905 and the onset of the First World War contain real world examples of architectural office procedures. The professional discourse that advocated the need to adopt business methods in the architect's office was reinforced by these articles and corroborated by the example offices described. Articles and advertisements provided evidence of a developing national standardization of information utilized by architects and reveal methods used by architectural offices to standardize office records. An emerging collective voice of the profession, advocating the structured management of the architectural office, especially evident through the use of real world examples, became the prevailing voice during this period.

The fourth chapter considers the changes occurring within the professional ranks during and immediately following World War I and how they were reflected in the professional journals. Attitudes about the practice of architecture changed dramatically in the late 1910s. Architects who specialized in the design of distinct building types, utilized efficient business practices, or used advertising to acquire clients were becoming the norm. Articles about how to establish and manage an architectural office appeared in professional journals more frequently in the late 1910s. The AIA joined the professional discourse through the publication of its own journal beginning in January 1913.[38] The AIA formed the Post-War Committee on Architectural Practice whose mission was to determine how the architect should engage in architectural practice in light of the changes wrought by the war's stimulus on industry and technology.[39]

Change in the professional discourse during this period provides an insight into how architectural practice developed into the entity that we recognize today.[40] The growing complexity and scale of modern buildings gave rise to more than 25 specialist disciplines that are involved in the design and construction of buildings, restricting the architect's ability to supply a comprehensive design without assistance. The number of individuals required to program, plan, design and construct the average building project today continues to grow.[41] This paper examines the progressive development of the specialized architectural office that has become commonplace today.

The Architect and Business in the Nineteenth Century

> "The world's attitude toward business, and, consequently, business methods, is undergoing fundamental changes. These changes, which already have become apparent, are scattered articulations of the struggle to better conditions – economic, social, and moral. The tide of reform is rising irresistibly throughout the world."
>
> Sullivan W. Jones[42]

In order to understand how and why the large specialized architectural office came into being, the forces that acted upon it during the late nineteenth and early twentieth centuries must be examined. The need for new building types during this period combined with changes in building technology, the scale of building, and the manner of construction contributed to the changes in the manner in which the architect operated his practice. During most of the nineteenth century, building methods were as they had been for centuries and one individual equipped with a vision and knowledge of construction was able to oversee the complete design and construction of a building.

Richard Upjohn, a prominent New York architect, designed and oversaw the construction of Trinity Church in New York City between 1839 and 1846. (See Figure 2) With the help of three or four draftsmen, Upjohn designed the Gothic Revival church, supervised the production of the necessary drawings, and supervised its construction onsite. From an outbuilding in the churchyard, Upjohn directed the construction of the building by making estimates and contracts, directing the builders, approving bills for the church to pay, receiving materials, moving and remaking the graves that were in the way of the construction, producing drawings for all parts of the building and keeping all records.[43]

A little more that 50 years later, the manner in which buildings were designed and constructed had changed dramatically. In 1910, Cass Gilbert began the design for the Woolworth Building in New York City, less than a half mile from Trinity Church. F. W. Woolworth, the owner of the building, was preoccupied with its design and construction, increasing the scope of the design four different times in his desire to construct the world's tallest skyscraper. The construction of the building was a collaboration of three separate entities: the architect, the structural engineer, and the building contractor. Cass Gilbert's Beaux Arts *atelier* was responsible for coordinating one of the world's most complex and rigorously scheduled projects. Gilbert's small office staff of 20 to 25 individuals produced the hundreds of drawings necessary for the construction, coordinating with the accelerated schedule of the builder Thompson-Starrett.[44] (See Figure 3)

Thompson-Starrett was one of the new general contractors or "modern building organizations" that provided construction under the single contract system that provided all the coordination and supervision of the various trades necessary for the construction of a building. Organization and systemization of all operations was paramount to the general contractor; each of the departments within the company was responsible for a portion of the work. The work was performed according to a prescribed schedule, progress was tracked and the project managed by the site superintendent.[45]

Gilbert organized a hierarchical system of coordination between his office personnel and the personnel of the engineering consultants and manufacturers, similar to the one utilized by Thompson-Starrett. The structural engineer, Gunvald Aus, utilized the talents of 30 engineers and draftsmen to produce the structural steel shop drawings

that were then sent to the fabricator, American Bridge. Atlantic Terra Cotta Company employed 25 draftsmen, who were supervised by a manager from Gilbert's office, to produce the detailed drawings necessary for the manufacture of the terra cotta panels that clad the building. The sanitary engineer, heating engineer, and electrical engineer all prepared the necessary drawings for their portion of the project. Gilbert knew that it was impossible for one man to do all that was necessary and required in the construction of a large modern building and that skilled designers and draftsmen, structural experts, sanitary, heating, ventilating, mechanical and electrical professionals were all needed to accomplish the task. The majority of the drawings produced by the 80 draftsmen were completed in three months; by the end of the project the total number of drawings exceeded 1,500. Gilbert, who considered himself an artist, had to rely on the expertise of both his managing assistants and numerous draftsmen to transform his conception of the building into construction documents, and ultimately the finished building.[46]

The differences between the architectural practices of Upjohn and Gilbert illustrate the evolution of the architect's role, from "sole" creator to administrator whose vision was implemented by a team of experts. The necessity for specialized employees and hierarchical management in the architect's office was driven by several developments, including the increasing complexity in building design and construction, changes in the general business climate, and the desire to professionalize the practice of architecture.

Complexity of Buildings and Construction

The late nineteenth century saw the rapid development of construction innovation and the desire to improve the health and well-being of those occupying buildings, especially the new large office building. The development of steel construction and the invention of the elevator in the late nineteenth century freed buildings from the constraints of masonry construction. The tall office building, or skyscraper, provided its tenants with modern luxuries that were unavailable elsewhere. Artificial lighting, heating, mechanical ventilation, hot and cold running water, sewerage systems were all part the skyscraper construction as well as the business-facilitating systems of pneumatic tubes, mail chutes, electric signaling and the telephone. The skyscraper was considered a city within itself; restaurants, retail shops, barbers, news stands, tailors, doctors, bankers, lawyers and entertainment facilities were often housed within the building, preventing the tenant from ever having to leave.[47]

Interior building layouts that provided specialized rooms, efficient and productive work spaces, and maximized rental revenue became increasingly important to clients. Structural innovations required the expertise of trained individuals. Increased competition for architectural services required the need to solicit clients and enter competitions. The complexity of the buildings and the number of drawings required to convey the necessary information to an increasingly specialized work force necessitated the use of more employees to accomplish the task in a reasonable amount of time, especially when the owner's financing was considered. These changes in building needs, capabilities and technologies transformed the practice of architecture. To remain competitive, the architect was now required to have expertise in many different fields of

knowledge in order to obtain clients, manage employees, and design the building required by the client. This expertise was provided by specialists operating within the hierarchical organization of the architectural office, with its requisite division of work responsibility.

Business

The second half of the nineteenth century saw a dramatic change in the way America did business. Companies separated production and administrative functions, corporations became the normal means of business organization, and workers in these companies were transformed from multifaceted employees to cogs in the great machinery of business bureaucracy, repeating similar tasks daily.[48] Several factors drove the development of corporate business in the United States: westward expansion, the network of railroads, the development of a national urban market, the utilization of the internal combustion engine and electricity, and the systematic application of science in business research and development. The most significant changes to business occurred between 1870 and 1900 and were largely due to changes in the market. The pre-1870 market that catered to the farmer, purchasing raw materials from the farmer and transforming them locally to goods consumed by those same farmers, was replaced by the turn of the twentieth century with a system of exchange dominated by large vertically integrated entities that provided goods to an urban market. These new business enterprises were operated through a bureaucratic process that relied on hierarchical management and decision making.[49] Separation of the productive and administrative functions of business, along with managers trained in entrepreneurial skills instead of the manufacturing process, and the increasing reliance on unskilled labor to tend the machines that drove

production, were business methods that would have been unrecognizable to the antebellum shop owner or producer.[50]

The increasing need for managers and clerks encouraged an influx of people to major urban centers. This created not only an urban market for goods and services but changing attitudes about social norms and redefined roles for the emerging middle class. Blue collar workers lost autonomy over their trade as they were increasingly subject to changes brought about by scientific advances in technology and production methods. Machines were developed to perform tasks previously done by these workers, eliminating their intellectual input and reducing them to operators whose value to the company was measured in the fulfillment of set quotas. These advances transpired as a result of the application of specialized knowledge in the analysis of manufacturing processes by the new white collar worker who was given the task of managing the company with an eye toward maximizing profit. By 1890, the corporate office, with its managerial demands for speed, precision and efficiency, was the dominant practice in American business. Both factories and offices were redesigned to regulate the efficient flow of material, whether it was the raw materials being combined into the finished product, or the paperwork pertaining to the costs of those materials.[51] Specialized education became critical for attaining positions within the corporate business world; the demand for engineering and business education generated the need for schools of specialized learning to supply the corporate body with the knowledge required to keep the enterprise viable.[52]

In his book, The Visible Hand, Alfred Chandler theorized that the modern business enterprise came into being when administrative coordination offered the potential for higher profits based on greater productivity and lower costs. To attain the

advantages of this coordination between disparate business units within a single enterprise, a managerial hierarchy was essential. Chandler declared the existence of a managerial hierarchy to be the defining characteristic of the modern American business enterprise. He further stated that this system of management advanced specialized training as a prerequisite for any managerial position and that these managers would become increasingly professionalized and separated from the ownership of the company.[53]

These changes in the business world had a direct impact on the large architectural firms that operated at the turn of the early twentieth century. Parallels can be drawn between business in general and architectural firms in particular: as the volume of business increased to a point where internal coordination became cost effective, so too, as the volume of work increased in the architectural office, allocating the resources and coordinating the finished products became more cost effective when administered by managers. In the architectural office the cause for the increasing volume of work was the expanding volume of building construction. Corporations sought to promote their image through the construction of visually significant large office buildings. Distinct and functional spaces were required to meet the needs of the occupants of these new buildings. Changes in the American way of life – increased leisure time, population shifts to cities, development of urban markets and technology - created the need for new hotels, apartment buildings, hospitals, department stores, factories, and transportation facilities.

As the American business community became increasingly involved in shaping the built environment, the larger architectural firms that catered to corporate clients

needed a businessman in their ranks to establish a good working relationship and placate building committees.[54] In the architectural practice of the larger offices, the trend by the late nineteenth century was that of an organization centered on a logical division of responsibility.[55] One of the largest offices of the period was that of D. H. Burnham in Chicago. Burnham's idea of what architectural practice should be was "…a big business, to handle big things, deal with big businessmen, and to build a big organization, for you can't handle big things unless you have an organization."[56]

Professionalization of Architects

During the mid to late nineteenth century, architectural practice was changing from the craft-oriented vocation of master builder to the professionalized occupation of architect.[57] Professionalization of occupations was a hallmark of the latter half of the nineteenth century as the cultural elite sought to retain authority over the modernizing and egalitarian effects of industrialization.[58] A profession was not an occupation, but a means of controlling an occupation. Professionalization was the historically specific process that some occupations underwent during the latter part of the nineteenth century in the context of the emerging market-oriented society.[59] The professionalization of occupations was part of the modernizing process of labor differentiation and rationalization brought about by changes in the market. As society was restructured around market principles, the professional provided an expertise that was derived from specialized education. This specialized education would allow the professional to bring order to the chaos of the market system and provide solutions to its diverse problem that would benefit society at large.[60]

The professional was a member of the emerging middle class, occupying the position between the working and monied classes. Professional ideology allowed professionals to see themselves as the reconciliatory element within society, identifying themselves as a separate group with the ability to define the standards upon which the welfare of society as a whole rested.[61] The professional sought to provide the public with a service as opposed to a tangible product. The quality of this service was judged by accurate knowledge, efficient methods and overall good judgment. The prestige brought about through the recognition of the professional's competency was the measure of middle class success at the end of the nineteenth century.[62]

The professionalization of any vocation strove to develop a presence in the market by establishing associations, licensure requirements, specialized education, a code of ethics, and above all, a claim to expertise that was in demand in the marketplace. The emerging professional of the nineteenth century sought to legitimatize his social status through claims to both superior knowledge and altruistic ethics. Exclusivism, elitism and monopoly were the means to the professional's establishment as the only legitimate authority in its field of expertise. The advance of scientific methods in the nineteenth century instituted the principles whereby professionals sought to establish themselves as experts.[63] By means of this scientific knowledge, the professional held a certain power over the natural world and endeavored to use this knowledge to the benefit of his client and society, often using impending crisis as a method of creating work and reinforcing his authority.[64] Specialized architectural practice that was grounded in the science of building and expertise in design and construction formed a strong basis for claims of professional recognition. In 1837, the American Institution of Architects was formed to

advance architectural science. Its members were primarily individuals that had been master builders, educated through craft apprenticeships, although a few had office training. The association lasted less than six months.[65]

Twenty years later, the American Institute of Architects was reorganized under the direction of Richard Upjohn. This group of thirteen New York architects came together initially to bring professionalism and collective action to the field of architectural design. In the 1850s competition between architects was fierce; design drawings and books were considered trade secrets and architects were wary of each other. Instead of becoming an egalitarian association of architects, the young AIA developed into an exclusive club for several New York architects and their friends. By 1900 only 140 of the 2000 practicing architects in the country were members, and of them over 65 percent were from the Northeast.[66] In addition to the formation of associations, the architectural profession established other institutional indicators of professionalization during the late nineteenth century: training schools to advance educational standards, licensure requirements to protect the public and exclude those without training, and a code of ethics to define the character and responsibilities of the architectural profession.[67]

Professional distinction based on building science had done little to achieve the desired separation from the craft of building, but expertise in visual "taste" and the ability to design based on specialized training allowed the architect to differentiate his profession from that of the imitative builder.[68] "Taste" was the cultural capital that allowed architects to participate in the market, exchanging it for social and economic rewards proportional to the clients' needs.[69] In the late nineteenth century, it was through this distinction that the architect sought to professionalize his ranks.

Architects asserted superiority to builders based on their "taste", a trait that was developed through specialized architectural training. As a professional prerequisite, "taste" was not available to those who did not obtain the required education. "Taste" was a traditionally gentlemanly quality, the acquisition of which allowed architects to claim social status above the common builder. The architect's requirement for specialized training precluded the possibility of professional attainment by the lower classes who did not have access to education. Professional architects possessed the cultural capital that the newly formed corporate entities desired to display in their office buildings; the forms and symbols of the past were transformed into symbols of corporate power and wealth.[70] Professionalization of architectural practice attempted two things: to give the architect autonomy, and to compel the public to recognize the architect's unique claims. The architectural profession endeavored to assure the public that architects were the sole purveyors of building knowledge that the client would be unable to attain elsewhere.

In the late nineteenth century, the methods of educating architects in America supported the notion of architecture as an art. The teaching methods of the newly developed programs at the country's universities were scrutinized and discussed at length during annual conventions and local meetings of architectural associations. Professional journals responded to this concern about the architect's training by examining the programs at various universities and publishing editorials about the nature of architectural education. AR ran several articles in 1900 that explored the methods of teaching architecture that prevailed at the several American schools of architecture.[71] The courses taught in the architectural programs at both Columbia University and the University of Pennsylvania were evaluated. The author correlated the success and influence of

schools of architecture with their ability to convey to students that architects are in fact artists. The author believed that the programs at both schools were efficient in their methods of preparatory training, indicating that further training continued in the architect's office or abroad at the Ecole des Beaux Arts.[72] The training received at American universities was not perceived as sufficient to allow an architect to go into practice on his own; further training was needed, whether it was at the Ecole or under the tutelage of a practicing architect.

The *atelier* was developed at the Ecole des Beaux-Arts in Paris, the most influential architectural school of the period. The *ateliers* at the Ecole des Beaux-Arts were administered by *patrons*, architects in service to the French government who had completed their training at the Ecole. (See Figure 4) The *patrons* taught a group of students in various stages of their education and prepared problems for the students' practice.[73] In the late nineteenth century, those Americans who aspired to the architectural profession and could afford to be trained at the Ecole sought to be accepted into the program. By the turn of the twentieth century, nine American universities offered architectural programs, all based on the program developed at the Ecole and adapted to the institutional university setting.[74]

In France, the *patrons* kept their office and professional work separate from the school problems, but American architects returning to begin practices in America utilized their offices as *ateliers*, allowing their employee trainees to work on the commissions they had received.[75] This method of apprenticeship allowed each draftsman to learn by having the responsibility of copying drawings and then continue to progress through developing details and producing renderings until the time when he had enough

knowledge about architectural design that he would be able to go into practice on his own, to in turn teach others.

The process of professionalization of the architects was aided by professional journals that allowed notice of professional ideals to be widely circulated. Images of the architect on the pages of journals helped to codify this ideal. The use of gentlemanly attire in the photographs of architects in journals promoted an image of competence, discipline, social skill, organization and managerial acumen. These photographs contrast sharply with images of the architect as artist, which contain the distinguishing signs of the artist as "other."[76] (See Figures 5 and 6)

Art versus Business

By the end of the nineteenth century, technological innovations and developments led to advancements in building systems that mandated accommodation in building design. The hierarchical development of the corporate office required differentiated space within the new office building. During this period, as buildings increased in complexity, owners demanded faster production, and larger architectural offices responded by changing the way they functioned. This change in operations raised the question as to whether architecture was an art or a business. The dispute was between those who viewed architecture as an art with the architect as a gentleman of refined taste and artistic sensibility, and those who understood that in order to succeed in an increasingly business-oriented culture, the architect needed to adopt the organizational and management principles of the increasingly cost and efficiency-conscious business

community. This conflict between concepts of architectural practice as an art or as a business was inherent in the architect's struggle for professional recognition.[77]

The conflict between the professional goals of the AIA, which included the preservation of architecture as a gentlemanly pursuit, and the everyday business of architecture was visible in professional journals at the turn of the twentieth century. Chicago architects responded to the intensifying commercial needs of their corporate clients, who were not only looking to house their offices but to make a visual statement and a profit. Because of this accommodation of the practical demands of their clients, Chicago architects were disparaged by East Coast architects as being tainted by their "business" approach to architecture. The professional discourse of the AIA demanded detachment from business and the commercial world in order to maintain an elevated professional image.[78] Further evidence of the AIA's stance on the idea that architecture was an art and not a business, occurred at the 1891 AIA convention when the organization resolved that architects who have been engaged in honorable practice for 10 years or more, upon their retirement, may retain their membership as long as they do not engage in any business or trade.[79]

Regional Difference in Architectural Practice

The circumstances of architectural practice in Chicago differed from the practice of architecture in other parts of the country. Building technology and the practical uses of buildings were the hallmark of its architecture. Chicago architects were interested in the latest news about building systems: structural, heating, illumination, ventilation and methods of fireproofing and the layout of the interior spaces. The development of the commercial skyscraper, which made the reputation of Chicago architects, was based on

the needs of speculative developers and their vulgar desire for commercial success.[80] Experimentation in building systems was commonplace in Chicago. Building codes were continually violated as clients pushed for quicker design and construction of the tall office building.[81] The Beaux Arts architects in New York, leaders of the AIA, however, viewed themselves as artists. They believed that the professional architect's intent should be to represent culture's nobler sentiment, linking the grandeur of the past to the buildings of the present. New York architects did not share Chicago's enthusiasm for the technology of the commercial skyscraper, aspiring to design institutional and public buildings instead.[82] Use of the iron skeleton, with its thinly clad outer walls, was known abroad as "Chicago Architecture" as opposed to American architecture, as it was very different in appearance and construction method from buildings that were being erected elsewhere in the late nineteenth century.[83]

The evidence from comments published in the AIA proceedings of the National Convention of 1891 in the report of the committee on Code of Ethics demonstrated that "non-Eastern" architects were more inclined to envision the practice of architecture as a business venture. The AIA Code of Ethics committee report stated that a serious complication had occurred with the joining of the Western Association of Architects and the AIA due to the changing methods of practice in some localities served by the Western Association toward "a business rather than a professional conduct of architecture." The committee on Code of Ethics was unsure if the treatment of architecture as a business was a sound or wholesome practice and realized that it would be impossible to develop a code of ethics that would be uniformly supported by those who looked upon architecture primarily as a business.[84] The editor of Architect, published in London, also renounced

this merger, but for the opposite reason, stating that it regretted the dissolution of an organization that was individualistic, self-assured and enthusiastic about architecture, as was the Western Association. The French architectural journal, La semaine des constructeurs, hoped the merger would invigorate the complacent AIA by injecting some "practicality and enterprising spirit."[85]

The professionalization of the practice of architecture, the growing complexity of building requirements and construction methods, the structural changes in the conduct of business and accompanying social changes, the differences in regional architectural practice, and the debate whether architecture was an art or a business provided the foundation for the dialogue within the architectural community as to how architectural practice should function. Architects and others involved in the construction industry in the years proceeding and following the turn of the twentieth century were able to reach a consensus about the conduct of architectural practice through the utilization of professional journalism. The next chapters reveal the progression of the architectural office from *atelier* to a specialized hierarchically managed business workplace, using evidence published in the professional architectural journals of the period.

Journal Articles, 1890 to 1905

The Architect's Role in the Construction Industry

> "…an evolution is really going on at the present time in the relation of the architect to his work and in the operations of his office."
>
> C. T Purdy[86]

This chapter considers discourse about the architect's office and its operation in professional journals between 1890 and 1905. During the late nineteenth century, architects professionalized their ranks by standardizing education requirements, ethics, and fee schedules. Although in their infancy, professional journals rapidly became a method to disseminate information, including opinions as to the methods of architectural practice. Businesses began to adopt hierarchical structures to improve efficiency and maximize profit. The construction industry likewise underwent transformations, especially with the advent of the tall office building. Professional engineers designed the structures for these new buildings and the companies that built them were driven by project financing. This financing, an investment on the client's part with return realized through rents, demanded that the new general contractor deploy highly developed organizational methods to rapidly and efficiently construct these new building types.[87]

During the last decades of the nineteenth century, discourse in professional journals addressed the architect's office in terms of the changing building industry. Both the engineer and the general contractor were gaining influence based on the new methods of design and construction. The structural engineering profession that developed in the 1880s in conjunction with the tall building was adept at designing the foundations and

steel frames of these buildings. Similarly, general contracting companies held promise for rapidly and efficiently constructing a building for a set and predetermined price and duration under a single contract. The speculative office owner viewed this arrangement favorably.[88] Articles that dealt with the architect's interaction with these new experts, that advocated for certain office arrangements, and that taught the architect how to operate within this new system of construction contributed to the discourse in professional journals.

By the turn of the century it was generally acknowledged that no one man could possibly retain all the necessary design information and perform all the tasks required by the modern commercial building.[89] This led to the need for a more complex office operating structure than that of the sole practitioner model that had dominated architectural practice since the early nineteenth century. Just prior to the turn of the century, the number of conventional partnerships in architectural firms with one individual responsible for design and the other for the business aspects of the operation increased.[90] The new modern building also demanded that architects retain assistants and specialists. The architect selected to design a building needed to maintain an office that utilized a hierarchical chain of command and an organized system of information retrieval. The use of these systems allowed the efficient and effective development of working drawings and specifications. The subsequent result was a building that satisfied the clients' demands in terms of program requirements and time constraints.

Working with Specialists

Journal articles acknowledged this need for specialists, recommending that they be employed by the architect. The workings of the construction industry in Chicago influenced the trend of cooperation with specialists. In Chicago, architects and engineers alike shared enthusiasm for the modern skyscraper, collaborating on their design and construction. New York architects, on the other hand, did not aspire to design commercial buildings and if found in that predicament, would allow the manufacturer to design the building's structure.[91] An article in the 1905 issue of AABN, titled "The Relation of the Engineer to the Architect," reported on the changes that occurred in the construction of buildings with the development of the rolled steel beam. Changes due to the structural properties of steel building components had revolutionized methods of construction and design. The architect could no longer look to earlier buildings for guidance in their design, but needed the technical calculations of a trained individual. Each building had unique requirements for structural elements, ventilation, sanitation, lighting and conveyance. These requirements necessitated the skills of an individual with specialized technical expertise in the design of modern building systems. The author C. T. Purdy, a member of the Architectural League of America and a Chicago structural engineer, explained that there were several methods by which architects could obtain the needed expertise in structural and mechanical design. He concluded that the best possible relationship between the professions was one of cooperation wherein the architect was responsible for the building project as a whole.[92] The article suggested that the architects of the nation take a proactive approach to the acquisition of the services of an engineer; engineers should take a subordinate role and support the architect's leading role in

building design. Architects should also share their fees and any credit begotten by their building projects.[93] Edgar V. Seeler, in a paper read at the 1905 AIA convention, reiterated the need for this optimal relationship between the architect and specialists in structural systems, mechanical systems, sanitation, landscaping, interior decoration and ornamentation. The most advantageous relationship required the architect to employ the necessary specialists as assistants that would adhere to the designs of the architect and the customs of the architect's office.[94]

In addition to the tall office building, cultural changes in the late nineteenth century advanced the need for new building types: department stores, museums, hospitals, schools, theaters, apartments, railway stations. Increasing specialization in building types demanded increased specialization within the ranks of those who designed them.[95] Professional journals acknowledged the need for specialized design assistance and discussed the most effective methods for interacting with specialists during the design project. The journals also proffered advice on the structure of the architect's office in response to the changes occurring in the construction industry.

East Coast Architects and the *Atelier*

Journal articles discussed both the atelier and the hierarchical specialized office during the late nineteenth century, but increasingly the discussion turned to the organized and specialized office. Prior to 1890, the articles in professional journals that considered architectural office structure advocated the method encouraged by the AIA and leading New York architects, the *atelier.* These architects encouraged the traditional interpretation of the architect's role, that of artist and planner of monumental buildings,

despite increasing specialization in the construction industry at large.[96] New York's most prominent architects were trained at the Ecole des Beaux-Arts or in offices that were styled after the Ecole's ateliers. They aspired to maintain an atmosphere of collaboration between the assistants working in the office, rather than a hierarchical chain of command. These Beaux-Arts architects viewed themselves primarily as artists and rebuffed any architect that sought commercial commissions.[97] In contrast, Chicago architects championed the new commercial building and emulated the corporate organizational means and methods of their big business clients.[98] According to Louis Sullivan, Chicago architect Daniel Burnham embraced the changes occurring in the business world in the late nineteenth century, "…For in its tendency toward bigness, organization, delegation, and intense commercialism, he sensed the reciprocal workings of his own mind."[99] Burnham's office system, like the large corporations for which he designed, delegated tasks to individuals with specialized abilities to achieve an efficient and effective outcome.[100] (See Figure 7)

Articles that described the *atelier* as office were principally concerned with the accoutrements of the rooms, the décor, and the pictures and photographs that decorated the rooms and displayed architecture, both ancient and contemporary. One of the first articles to consider the architectural office concerned the *atelier* arrangement of the office of H.H. Richardson. (See Figure 8) Published in 1884, this article praised the manner in which Richardson conducted his practice, as that of a medieval craftsman who operated his shop out of his home and kept his apprentices under his roof, ready to work long hours if necessary. The author considered "inspiration" to be Richardson's defining approach to "student" training, citing Richardson's extensive use of representations and

photographs of ancient and medieval architecture to decorate the drafting room and library. Photographs of Richardson's best works adorned the walls of the exhibition room, uniting with the other representations throughout the office to form what the author considered a museum of architecture. (See Figure 9) This knowledge of buildings, conceded the author, was "the making of an architect."[101] At the turn of the century, whenever an office was "visited" in a journal article the author felt compelled to describe the tasteful décor of the public rooms and usually commented on displays of architecture.[102] The described décor of sumptuous wallpapers, overstuffed chairs, gleaming wood paneling and the requisite fireplace reinforced the conception of the architect as a gentleman through the display of items associated with bourgeois status.[103] (See Figure 10)

Architects who attended the École des Beaux-Arts endeavored to recreate the *esprit des corps* they encountered during their time as a student in one of the *ateliers*. These architects kept their offices relatively small and encouraged a sense of active participation in all the commissions the office received.[104] A series of articles that appeared in AR in 1900 presented pictorial essays of the principal rooms of the offices of several prominent architects, and the draftsmen that worked in the offices.[105] Of interest are the numbers of individuals present in these photographs. Two of the workshops, as the offices were called by the articles, had submitted photographs of the gathered office staff, the workshops of George Post and of Ernest Flagg. (See Figures 11 and 12) The Carrère and Hastings's workshop photographs displayed the drafting rooms with the draftsmen at their desks. It appears that there were approximately 23 working in the

office of Carrère and Hastings. Ernest Flagg had at least 22 men working in his office and George Post had a minimum of 38 men in his office.[106]

The typical American Beaux-Arts *atelier* in the early twentieth century maintained about twenty-five employees, which was considered a fairly small number of direct employees in terms of a large architectural office with numerous commissions.[107] Flagg, Carrère and Hastings, and Post were New York architects, each of whom had attended the Ecole des Beaux-Arts and each had numerous commissions. Flagg designed only one skyscraper in his career, the Singer Tower, and was an outspoken opponent of this type of commercial building.[108] Both Carrère and Hastings were critics of the tall commercial building and the firm did not design any skyscrapers until the second decade of the twentieth century.[109] Both of these architectural offices appeared to be attempting to recreate the atmosphere of the *atelier*, the office arrangement encouraged by the AIA.

The New Architectural Office

Photographic evidence suggests George Post had nearly twice as many men working in his office as in the other two featured offices. Analysis of the office methods used by Post offers insight to the reason behind the large number of employees. Although a New York Beaux-Arts architect, Post was considered the "father of the tall building in New York" and was practiced in utilizing new technologies in his designs.[110] In the 1870's, George B. Post's office was involved in the design of many of the office buildings in New York. The corporate client required a building that was not only an effective symbol of their place in the commercial world but an efficient one that would accommodate their office functions and allow for the production of income from building

tenants, all the while being designed and constructed in the most expeditious manner possible. By 1872, Post employed nine assistants and had set up a system to have different individuals work on different aspects of a project simultaneously. Of the several hundred drawings produced for a project in Post's office in the 1870s, the majority were full scale details and relatively few were of the entire building, but by the turn of the twentieth century a building project required significantly more drawings to transmit the necessary information to the many tradesmen involved in the construction of the building.[111]

As buildings became more complex, and as construction tradesmen became specialized in their knowledge, the architect needed to impart enough detailed information to allow construction to progress efficiently.[112] By the 1890s, complex buildings could easily require 3,500 to 5,000 individual drawings for construction. Detailed specifications for all the materials to be incorporated within the building were also required. This mass of information required both an efficient work force for their production and an effective system for their sorting, distributing and storage.[113] The photograph of Post's office in the 1900 issue of AR provided evidence that this was a work place governed by a hierarchical chain of command; in fact, office records indicate that by 1900, Post employed sixty individuals.[114]

After 1890, professional journals began to publish articles concerning this new type of office management. This new discourse deliberated on how the architect could manage an office system to enable successful dealings with clients, consultants and contractors. By the turn of the twentieth century, the most successful architectural offices were efficiently organized around a logical division of labor and had an established

managerial hierarchy. This similarity to contemporary corporate business offices allowed for a common understanding when doing business with corporate clients. Additionally, the hierarchical and well-organized management of the architectural office reinforced professional claims of superior knowledge and ability.[115]

Project and Document Management

During the 1890s, architectural offices were evolving to accommodate changes in the construction industry. As the construction industry advanced, the architectural profession struggled to retain its place as architects faced challenges brought about by the administrative expertise of the general contractor and the specialized knowledge of the engineer. To succeed in the market the architect needed to adopt the efficient organization and service of the general contractor and the specialized expertise of the engineer.[116] In addition to hiring specialists, the architectural office needed methods of coordination between both the workers and the documents they produced. Procedures needed to be implemented to ensure that all steps were followed for each commission, resulting in a complete set of contract documents and an accurate construction of the building.

Articles that discussed efficient step-by-step methods of handling a project utilizing a practical division of labor and cast the new procedure against the traditional single practitioner model of practice initiated a dialogue about how the architect should adapt to the changes in the construction industry. One of the first articles that addressed the efficient division of labor for an incoming commission was "The Management of an Architect's Office" in the August 1891 issue of AABN. The article suggested a system to

manage the architect's office in a methodical manner and according to business principles. The key to success in the architectural office was the "proper sub-division" of the work and "systematic" accomplishment of the various tasks needed to complete each commission. The author promoted training in one area of expertise that with repetition would allow for the production of a product of greater value to the client. Recognizing that specialization was a multifaceted undertaking involving the division of the project into logical parts, and the project's development by specialized labor according to a standardized method, the author described a "natural" subdivision of the work to be followed for each commission and identified the key personnel in a typical architect's office.[117] In four subsequent issues of the journal, the writer detailed ideas for office layout, the procedures for each step of the design process, including the individuals responsible for carrying them forward, and how each step was to be coordinated between the various individuals and portions of the work. The article detailed how to systematically organize all drawings and documents to facilitate their use and retrieval. The design and construction processes were laid out in minute detail, conveying the steps of each procedure and how each of the office personnel was involved. The article concluded with representations of informational forms used to gather and distribute the factual details of each commission.[118]

The idea that the systematic organization of the architectural office could be represented as a perfect plan, free from real world limitations, was put forth by H. E. Perkins in the February 1891 issue of AABN. In "System in the Architects' Office," Perkins defined system in business as the combination of numerous procedures that work toward one result; the division of the necessary effort into many parts to produce the

required result and to keep each in harmony and constant motion. In reference to the architect's office, he considered the desired result to be the "successful guidance of building operations" and the instruments of success to be the plans, specifications, contracts and superintendence. The number of individuals required to produce these instruments of guidance demanded a system to govern the process. Perkins described the ideal system to develop contract documents by describing in detail how each drawing, specification, and business paper must be created, distributed and preserved for each commission.[119]

Relationship with the General Contractor

In addition to the organized and specialized office, journal articles considered the ways in which architects needed to interact with the new entity of the general contractor. The general contractor provided managerial and organizational expertise, and full-time administration of the building process. They expertly served the client by providing material and labor estimates, coordination of the bids and award of the contracts, scheduling and logistics of the construction, and certification of payments. The general contractor sought to usurp the architect's control of building superintendence, his management of the design and building team, and his advisory role with the client.[120]

The architect's interaction with the general contractor was part of the evolving discourse that considered the architect's role in the construction industry. Articles in the professional journals emphasized that this interface needed to be one of assurance on the part of the architect. The June 1896 issue of IA transcribed a lecture given by James R. Willet to the senior architectural students at the Art Institute of Chicago. It conveyed the

importance of the business aspects of architectural practice and their impact on the architect's relationship with both the building owner and the general contractor. Willet implored the architect to learn the business ways of both the owner and the contractor. The architect was under a contractual obligation to the owner and needed to accommodate him in terms of acceptable design and practical limits, giving the owner what he wanted, ensuring the finished building looked better than the design drawings. The architect needed to be both familiar with and utilize building trade terms to both demonstrate knowledge and allow for ease of communication; builders understood trade terms more fully than a complete explanation in common English. The architect was responsible for seeing to the accurate construction of the building according to the plans and specifications, but was not responsible for directing the contractor or the tradesmen. In his dealings with the contractor, the article advised the young architect to learn as much as possible from him, but not to rely upon him to design any part of the work. Nor was the architect to accept the contractor's work as compliant with the drawings and specifications without actual visual knowledge. In addition to interactions with the owner and contractor, the architect needed to be knowledgeable about the process involved in the execution of a building project. Willet conceded that this advice could not be found in any architectural course but was of vital importance to the success of any architect.[121] In the article "The Management of an Architect's Office," an explicit list of how to interact with the contractor was made and the importance of cooperation and assertion on the part of the architect was stressed.[122]

The Role of the Architect

The discourse in professional journal articles at the turn of the century ultimately concerned the architect's role in the evolving construction industry and discussed how the architect should conduct his practice. Many advocated the time-honored system of the *atelier* and an avoidance of commercial commissions. Toward the end of the nineteenth century, however, articles that correlated business methods with a successful practice appeared in the journals with increasing frequency. This conflict between the conception of architecture as art and architectural practice as a business was interwoven with and directly linked to the discourse about the architect's role in the construction industry. Each faction had its own opinion of the architect's role.

By the early twentieth century, specialization in the architectural field was well on its way to becoming the norm. At the same time, the conflict within the architectural community between the concepts of the architect as artist versus the architect as businessman was ongoing and unresolved. In the May 1902 issue of IA, Julius F. Harder challenged the idea of the architect as an artist, a picture maker, a befogged dreamer. He argued that the ability to design and the capacity for business were not "fatally antagonistic" qualities. The prerequisite of being a good architect was not a preoccupation with ornamental form and an aversion to progressive thought. On the contrary, Harder proclaimed that the most prominent American architects were shrewd businessmen, willing to hire those with artistic ability when the need arose. Harder stated that within the modern structure of society the successful architect was a businessman first and an artist afterward. Commissions fell to those who were unsurpassed in their business acumen.[123]

The trend toward specialization was summarized at the end of the period in an insightful article published in the April 1905 issue of AR. It called attention to the adverse effects that would befall the architectural profession if it failed to align itself with business principles. The article, titled, "Socialism and the Architect", claimed that the "industrial machinery of the twentieth century demanded of each individual the performance of the task for which he is best equipped." The author, Charles Henry Israels, suggested that the architect had forsaken his specialization, his art, to become a businessman, a requirement of any individual wishing to be successful in the new industrial age. The business aspects of twentieth century architectural practice left little time for the thoughtful contemplation of the client's problem and the development of an aesthetically pleasing solution. Israels stated that the architect needed to relinquish the management of his practice to an individual well versed in modern business practices. The architect himself was to become a cog in the complex machine of the successful architectural office, specializing as an artist.[124]

The journal articles published between 1890 and 1905 reveal the discussion by those in the profession of the proper conduct of the practice of architecture. The forces of the changing marketplace and the traditions of the architect's role competed during this period on the pages of professional journals. The discourse considered the manner in which to engage experts, the operation of office tasks, and the role of the architect within the construction industry. New ideas about the conduct of architectural practice were proposed in some journal articles and traditional methods were shored up in other articles. The period at the turn of the twentieth century was a time of debate about the means and methods of architectural practice.

Evidence indicates that by the turn of the twentieth century, the majority of large offices followed prevailing business management practices. Increasing specialization caused the method of work within the office to shift from collaboration to division. Specialists were needed in the production of a complete building design, and managers were required to coordinate the work of these specialists. However, the public's perception of architectural practice remained that of a single designer who was able to provide designs for a myriad of different types of buildings. This perception was made possible by the employment of specialists who were able to supply the specialized design services that allowed the "architect" to present a comprehensive design to his client.[125] Large architectural firms had individuals that the public perceived as the "architect" – for example, Daniel Burnham – but who in reality allowed the design and development of "their" buildings to be carried out by the myriad of specialists that worked behind the scenes in the architectural office. (See Figure 13)

Office Management Articles, 1905 to 1917

The Specialized Architectural Office

> "System and organization are the mechanism of profitable practice. System makes possible effective expedition in office work. Organization is the medium for applying the labor of the office economically."
>
> H. S. Kissam[126]

After 1905, the discourse turned from the abstract to the concrete as the articles about the management of the architectural office demonstrated methods, devices and plans that were used by some of the larger architectural offices in the United States. Prior to 1905, the architect's role in the changing construction industry and how that role shaped the ideal office were the focus of journal articles concerned with the architectural workplace. This earlier discourse considered the impacts that new methods of building design and construction would and should have on how the architect operated his practice. After the turn of the twentieth century, the discourse within the professional journals shifted to a promotion of office management practices and procedures that adhered to the conventional business practices of the day. The discourse stressed how an organized office could more completely and efficiently satisfy the clients' needs. Although many of these articles took the form of transcripts of lectures given by practicing architects, others described "visits" to practicing architects offices, imparting tangible knowledge of their day to day operations.

From around 1905 until the First World War, architectural offices across the country were reconfiguring themselves. Although the AIA still maintained its

convictions against architecture as a business, practicing architects realized that a specialized office, one that utilized an organized and expert work force and followed standardized and coordinated procedures, was the key to success. The primary concern was how an office went about developing systems and procedures that were efficient and effective. The development of the basic fundamentals for the organization and operation of an architectural office such as filing systems, office configuration, uniform paper sizes, drawings organization and standardization, and process standardization was shaped by the journal articles of the period.

Scientific Management of the Office

The theory of scientific management influenced the management of the architectural office by providing a framework for developing office procedures. Fredrick Winslow Taylor developed his principles of scientific management during the period of labor unrest that resulted from the rapid bureaucratization of industry. Taylor published his first volume on scientific management principles in 1903 and his renowned book, Principles of Scientific Management, in 1911.[127] Taylor's theorized procedures of work revolutionized the methods of industrial production in the United States and led to the scientific systematization of other aspects of American life through the use of planning, standardization and scientific method. Scientific management of the factory resulted in the assembly line and the advent of mass production by mechanizing processes and utilizing standardized parts and procedures. [128] White collar offices were rationalized in the new office building. The ability to create large rooms to house numerous workers that performed the same jobs utilizing labor saving devices like the telephone and typewriter allowed for efficient work procedures and ease of supervision.[129]

Scientific management influenced the day-to-day operations of the large architectural office by introducing organizational methods, a separation of planning and execution, specialized labor, and standardization. The need for systematic organization of personnel, information and procedures in the architect's office became an important topic in the journals during the early twentieth century. In the 1911 volume of The Western Architect, an article by Walter H. Kilham, a Boston architect, considered the tasks that took place in the everyday office practice of architects. Kilham described the duties of the architect as being 1) the design of the building and the production of intelligible working drawings and specifications; 2) the attainment of contractor bids and coordination of the letting of the contracts for construction; 3) and realization of the proper execution of the work and the certification of payments to the contractor. To accomplish these responsibilities, Kilham suggested that the architectural office function like a "business machine or system," most importantly, one that was virtually undetectable to the client or contractor who came in contact with the office environment.[130] Systematized organization of the architectural office was necessary for the effective operation of this "machine." Articles that considered organization in the architectural office were concerned with two important systems: one for information and one for labor.

Document and Information Management

The volume of paperwork related to any particular building was proportional to its complexity, making a logical and efficient filing system critical to the successful operation of any architectural office. Most architects, however, were unfamiliar with filing systems and needed guidance in devising an effective system. The importance of a

comprehensive mechanism for dealing with the large amounts of paper generated with any project was a regular topic in the journal articles during this period. These articles supplied practical advice, recommending a simple, streamlined filing system and suggesting a complete system be established at the commencement of a practice, even if it was not wholly utilized at first.[131] Kilham stressed the importance of an efficient filing system for correspondence, specifications and drawings, and the convenience of using standard sizes of paper for these items.[132] The office of Carrère and Hastings utilized a centralized filing room around which the rest of the office was planned. Every drawing, specification, order, letter, sample, shop drawing and other instrument of information passed through the filing room to be recorded and eventually stored.[133] Trowbridge and Livingston employed a system that kept all client notes, correspondence and meeting minutes pertaining to a project on a designated clipboard in the specification writer's office, after copies had been distributed to all the necessary parties.[134] The office of Charles A. Platt developed a system of vertical drawers with hinged bars that held sets of project drawings for their secure filing and ready reference. The size of these drawings was governed by the width of the drawer, 36", allowing drawings to be no more than 36" in height although it was mentioned that the drawers could accommodate drawings of any length.[135] In Donn Barber's office, all drawings and specifications were controlled by the plan clerk, sorted and folded to uniform sizes depending upon their type, and stored in drawers by project.[136] (See Figure 14)

As the number of entities involved in the design and construction of a building increased, it became imperative to the successful architectural office that all information, decisions and observations be recorded. The influence of scientific management inspired

the use of various forms to manage this information. The managing partner determined what information would be required by all participants in the production of working drawings and construction superintendence of the finished building and developed standard forms that relayed that information in the most precise and concise manner. Preprinted forms ensured the accurate recording of all necessary information to allow for the efficient administration of all phases of the project.

The forms utilized by many of the larger architectural offices were often reproduced in journal articles, allowing an insight into the types of the management information that the various offices used in the course of productive work on any given project. The development of these forms recognized that the execution of each project required the management of the same types of information and that several different entities would require efficient access to that information. In the August 1908 issue of AABN, H.S. Kissam discussed the need for standardizing and systematizing information onto documents of uniform size, emphasizing that these information documents or "forms" were the fundamental managing substance of any office system. Forms that were suitable for recording the facts and design details necessary to execute each individual's portion of the work were essential. Kissam discussed in detail the forms that were needed for each phase of a project in an architect's office; the phases included, being engaged to do the work, initiating the work, awarding the contract for the work's construction and having the work conducted and concluded. For each phase, Kissam listed the forms that should be used and mentioned that many of the same forms were used in several stages of the work.[137] The office of Kenneth Murchison used a considerable number of preprinted forms of uniform size, tending toward the adoption of

the size of the standard business letter sheet.[138] In an article in the 1913 issue of BB, D. Everett Waid, New York architect and future AIA president, advised the architect to devise a system of reports and forms that allowed an understanding of the status of every project in order to allow him knowledge of all details to thwart errors and wasted effort.[139] The 1914 issue of BB published fourteen forms utilized in the office of George B. Post and Sons and included a description of how and when they should be used in the management of a project.[140] (See Figure 15)

In addition to forms used strictly in the office to record client decisions and the time spent by a draftsman on a certain project, reports from the construction site recorded by the architect's superintendent were critical to the successful completion of the building as well as the accurate payments to the contractor. Mann and MacNeille's forms were the necessary controls for the management of their construction work and were similar to controls found in any competent contractor's office procedures.[141] In another article in the 1913 issue of BB, Waid reproduced superintendent's report forms from the offices of H. Van Buren Magonigole and Ludlow & Peabody and pointedly reminded the reader of the importance of these reports to any architectural office as evidenced by the number of firms that used them. Waid allowed that the information required by each office was often markedly different, indicating that although the profession recognized the need for information from the construction site, it was not yet sure of what data was most significant.[142]

The organization practices for the informational aspects of the architect's work were complemented by the division of labor among the employees. The division of labor within the large architectural office developed along the principles of scientific

management. The separation of the planning and execution of the project was critical to the efficient production of contract documents in the architectural office and to the successful completion of the finished building. Once the project was planned by the principals and managers of the firm, the execution of the project was undertaken by the specialists within the office. An article published in the August 1908 issue of AABN, a transcription of a lecture given by H. S. Kissam to architectural students at Columbia University, emphasized the need for system and organization in the architectural office to expedite the work and allow for the economic use of office labor. Kissam stated that within the architectural office the main division was between executive and productive labor. The executive part of the office must concern itself with the organization and efficient use of resources. The productive branch was itself divided into several parts including the drafting department, the specification department and the construction department. Each of these departments had certain responsibilities in the production of the finished building.[143] To illustrate that the advantages of managed offices as described in theoretical articles were being adopted by practicing architects, the early 1910s witnessed the publication of real world applications of specialization. Journals published diagrams of the office layouts of prominent architects along with the description of that office's division of labor, providing a tangible insight into how the division of labor was utilized in these offices.

Layouts of Architectural Offices

Assessing the organizational systems used in the most well-known, and largest, architectural offices in New York was perhaps the greatest acquiescence by the journals to the notion that the modern architectural office functioned through the use of labor

division and specialization. The journals were eager to publish the effective systems used by practicing architects. The 1913 series of articles in BB, titled "The Business Side of an Architect's Office," requested in the preface to the first article that any architects with devices, methods or printed forms that they have found to be invaluable in the management of their offices write to the author in order that they may be presented in future articles of the series.[144] Division of labor in the architect's office was reliant upon the specialization of the work force. The architect's offices that were featured in journal articles confirmed that specialists ran the production side of the architect's practice. The labor management systems of the offices described in the articles were correlated with the layout of the offices and how the layouts facilitated the functioning of the organization. The largest area of the organized offices was the drafting room, as the largest increase in employees was among draftsmen, but areas were needed for construction superintendents and clerical staff. Office etiquette meant that separate areas for meeting with clients and contractors were needed as well. Work areas were separated from meeting areas and the various people that made use of the office, clients, contractors, draftsmen, executives, clerical staff and business managers, rarely came into contact with each other, unless office procedures dictated their interaction.[145]

In 1911-12 and again in 1913-14, The Brickbuilder ran a series of articles titled "How Architects Work" and "The Business Side of an Architect's Office," respectively. These articles were authored by D. Everett Waid and provided a look at the arrangement and functioning of several architectural offices in New York City. Although each article contained a description of the office's furnishings and decoration - suggesting an acquiescence to the notion that the outward appearance of gentlemanly good taste was

considered a prerequisite to the successful architectural office - the author emphasized the unique features of the office layout that contributed to the overall efficiency of office production.[146] (See Figure 16) The progression of this series of articles indicated a growing interest in the management functions of the offices of noted architects. In the first article of the series, the author indicated that Charles A. Platt's office personnel included engineers, specification and correspondence writers, and superintendents, demonstrating that individuals with specialized abilities were utilized in the execution of the plans and specifications and during the construction phases of the office's projects. (See Figure 17) The description of York and Sawyer's office contained the statement, "Each of the three assistant executives has [a] …private office, the location of which on the plan indicates well his respective relation to the administrative work of the office." In considering the plan included in the article, it can be inferred that Mr. Ayres and Mr. Franklin supervised the personnel working in the drafting room from their adjacent offices. In the same manner, Mr. Benedict was responsible for the general office matters as his office was adjacent to the portion of the office devoted to bookkeeping and stenography. (See Figure 18) The office layout of Carrère and Hastings, "one of the largest architectural offices in the world," also reflected the relationships between the various departments and their methods of administration. The office layout was based on the office's management theory which stated, "that each individual should be entrusted with the charge of certain well-defined work and then held responsible for results …"[147] This statement verified that the office conducted its work through the use of specialization, giving the responsibility for certain aspects of the projects to individuals on the basis of their training and aptitudes. (See Figure 19)

Beginning in the last decades of the nineteenth century, architects saw advantages to working together for the advancement of their profession. The guarded secrecy and fierce competition of the past was seen as a stumbling block to the future expansion of architectural practice, due to the advancement of both the engineering profession and the general contractor. A 1913 series of articles in BB, titled "The Business Side of an Architect's Office," considered the new "Architect's Building" located at 101 Park Avenue in New York City. The building had attracted the attention of the building industry because it had been designed and was owned by several architects and engineers, who had made accommodations for contractor and material supplier offices within the building. The author of these articles, D. Everett Waid, lauded the spirit of cooperation under which the building was planned and realized, in an era of competition between architects. This series considered the unique construction features and the flexibility of the office space within the Architect's Building and made no mention of tasteful décor as in the previous series, allowing that planning and functionality were recognized as the critical elements of a building.[148]

The articles that discussed the offices located in this building focused on the division of labor within the offices and how the office layout accommodated each office's system of management. All of these offices made accommodations for middle management. The use of these middle managers in the architect's office was an indication that the era of architects as sole practitioners was at an end and the use of specialists in the architectural office to perform the expanded services required by building owners was replacing older methods of practice. Evidence of the developing use of middle managers, as specialists, was supported in the depiction of the office plans of

La Farge and Morris, and Ewing and Chappell, both of whom had made provisions in their layout for an office manager's office and a superintendent's office.[149] (See Figure 20) The office of Mann and MacNeille had the capability of executing construction work as an agent for the owner. The office maintained a construction department with the resources to estimate costs, buy material, hire labor and perform construction work. As an aside, the author warned that architects needed to familiarize themselves with construction and structural design in order to subvert the growing tendency of contractors and engineers to work directly for building owners to the exclusion of architects.[150] In describing the office of McKim, Mead and White, Waid pointed out that this was the office "from which has come the greatest volume of architectural design and executed buildings in any age or in any country" and that "so great a volume of work must have been the product of several minds and the handiwork of many, [that] the genius and methods of work which could exercise such a unifying influence are naturally of interest to the profession." Although the article stated that Mr. Mead exclaimed that the firm has never had a system, a reading of the rest of the article dispelled this statement. Each project was the responsibility of one of the five junior members of the firm and this individual oversaw the entire process: working with the client, directing the assigned draftsmen, and reviewing reports from the superintendent. The author cited individual responsibility as the key to the firm's success; the individual draftsman was responsible for their assigned portion of the work from design development through completed construction.[151] It is clear from this article that although the system followed by the office of McKim, Mead and White was somewhat different than that of other offices - draftsmen assigned to a specific project under the direct supervision of a principal versus

draftsmen assigned to a certain portion of the work on all projects - it was a process that utilized a division of labor to provide an efficiently produced set of drawings and specifications that satisfied the client's needs. The atypical system used in this office was reflected in its office layout, as the managers' offices are not adjacent to the drafting personnel under their supervision. (See Figure 21)

Standardization in the Architectural Office

In addition to organizational methods applied to the information and the personnel of the architectural office, the journal articles contained a discourse about the emerging standardization that was occurring in the construction industry. Standardization of architectural methods was not a new concept; the U. S. government had been employing standardized methods since the mid-nineteenth century. The U. S. Army sought to establish standardized plans for military forts in the West after the Civil War, but lack of appropriate materials and construction experience forestalled that plan. In the 1870's, army hospitals were the first military buildings to be standardized, as local commanders recognized the authority of the surgeon general, who stipulated their requirements. Army buildings were standardized by the end of the nineteenth century. The factors leading to this were several: professionalization of the army required that officers of a certain rank to receive certain accommodations, the availability of standard building materials due to the development of railroads, and the recognition of the architect as a professional.[152] The Treasury Department also worked toward standardized construction, succeeding in the 1850's to develop a standard design for Custom Houses under the Supervising Architect, Ammi B. Young. In addition to standardizing the designs of federal buildings, the Treasury Department was at the forefront of utilizing iron in the structure of their

buildings. By the end of the nineteenth century the position of the Supervising Architect had become one of administrator rather than designer and standardization of designs was imperative to the continued execution of the mounting work load at the Treasury Department. The continued development of standardization of federal buildings was deterred by the passage and implementation of the Tarnsey Act in 1897, which obliged the Treasury Department to allow private architects to compete for the commissions of large public buildings.[153]

Standardization in the twentieth century architectural office took many forms: uniform paper sizes for drawings and specifications, uniform methods for numbering drawings, standard details for construction and the use of labor saving devices. Standardization in office practice was an expansion of the specialization of architectural practice wherein the specialists performed according to specific and consistent methods of procedure and informational representation. Attention to the details of each individual building demanded standardization in the production of the documents that conveyed the architect's design to the building contractor. Standardized procedures allowed for the accurate delineation of drawings and enabled informed discussion among all parties to the design and construction of the building. Systematic management devices were required to direct the production of design. The development of organization aids, such as systematic numbering of drawings, distinct numbering of spaces on plans, etc., indicated an increasing complexity in the nature of buildings and in turn the increasing complexity of the working drawings needed to construct these buildings. The ability of the architect to identify and discuss distinct design details with both the owner and the

building contractor was essential to both the accurate completion of the project and the ability to satisfy the needs of the owner.

The production of working drawings was one of the most important elements of the architect's practice, in that they were the representation of the architect's design that would be used in the construction of the building. The efficient handling of the information conveyed by the contract documents was critical to the success of the finished building. Journal articles suggested how to efficiently produce the drawings and specifications and how to standardize their nomenclature. Kissam recommended a uniform size and a common method of classifying the drawings, whether they be schematics, details, building systems or plans. He proposed that each drawing include essential information pertinent to each job and recommended numbering each room on the plan and each door and window opening as well.[154] Kilham advocated all rooms, columns, windows and electrical outlets be systematically numbered to facilitate dialogue concerning building elements, stating that it was "easier to refer in a letter to pier 3-16 than … the second pier from the southwest corner on the third floor."[155] In Charles A. Platt's office even the full size details were drawn on paper no larger than thirty-six inches by sixty inches; standardized paper sizes facilitated the ease of use and retrieval of drawings.[156] In Donn Barber's office, the use of consistent page sizes for the specifications, 8 and one half inches by 11 inches with a 1 inch right margin for headings was, as stated by D. Everett Waid, an "unusual but excellent arrangement."[157] The system of standardized numbering and consistent sizes for certain types of drawings was easily understood by the draftsmen creating the drawings, the consultants hired to design the building systems, and the contractor responsible for erecting the building.

Articles that detailed procedures on how to develop working drawings enabled readers to gain the knowledge to produce contract documents that were comprehendible by all parties to the construction of the building and provided the most efficient method of relaying the necessary information. H. Van Buren Magonigle, an expert on the production of working drawings, authored the first of a series of articles in the May 1913 issue of BB describing the process used by his office to make these drawings, through the use of specialized labor, labor saving devices and systems of management. Magonigle emphasized that the architect was no longer able to get by with a general plan highlighted with important dimensions and a few sections and elevations, spending the majority of his time on site laying out the work and drawing profiles on the stone, as was the case for most of the previous century. Plumbing, heating, ventilation, electrical and structural systems had been unknown to the architect during that time. The task of producing working drawings had become vastly more important because of the increased complexity and scale of buildings. The use of system in the production of working drawings was essential to the efficiency of the architect's office to reduce time, costs, and aggravation. To facilitate use and reference, the drawings for any particular job should all be of the same dimension, and a number of sheets of that dimension should be precut for use in making new drawings, thus saving drafting time. The efficiency of information contained in the working drawings was another key component of Magonigle's article. He differentiated the level of detail required between working drawings and studies. Design studies presented to the owner required the full detail of the design, but working drawings only needed to convey all necessary information to the contractor, no more and

no less, in order to conserve the office resources of both drafting time and materials. He admonished the reader that the working drawing was not a picture.[158]

Comparison of the methods of working drawing production in large architectural offices and governmental architectural offices conveyed the necessity for economy of time and material and the efficiencies of labor saving devices. Magonigle evaluated the working drawings produced in the office of McKim, Mead and White for the Municipal Office Building of New York City, an extremely large and complex building. Several hundred drawings were required of the architect. Magonigle commented on the numbering system used for the drawings that allowed for ease of reference; notes were made on the drawings themselves that referenced the memoranda and correspondence that modified the drawings. The greatest use of standardization and systematic production of working drawings was found in the offices of C. B. J. Snyder, the superintendent of New York City Schools, and Oscar Wenderoth, the Supervising Architect of the Treasury Department. Snyder was responsible for designing millions of dollars of school buildings each year and had standardized certain types of plans, whose elevations were redesigned for each different school building. Beyond standardized plans, Snyder had developed standardized details for many repetitious items such as staircases and wall sections. The applicable standard details were bound with the working drawings for a particular building.[159] Architect William Bryce Mundie stated that the school buildings he designed during his five-year tenure with the Chicago Board of Education were varied as to style and size, but the construction details had been standardized, allowing an efficient development of working drawings and a familiarity during construction of both the contractor and the architect's superintendent.[160]

Magonigle's account of work done in the office of the Supervising Architect of the United States Treasury acknowledged that the plans and details of the buildings designed by Oscar Wenderoth had been standardized, due principally to the amount of money saved by using this method. The numbering system for the working drawings reserved a group of 100 numbers for a particular type of drawing within the set. Wenderoth used one set of plans to record all the changes that took place during the construction of the building, maintained by the draftsman in charge of the project.[161] Although Magonigle did not believe that any architectural office should turn itself into a factory, he did see the benefit of utilizing certain methods of manufacturing that would reduce costs.[162]

The systematic use of labor saving devices, developed in conjunction with the standardized methods and specialized labor division of the architectural office, was intended to improve efficiency and reduce costs. Magonigle utilized zinc cuts of the title lettering made for each job, by applying printer's ink and marking each of the sheets for that job.[163] The office system of Donn Barber advocated the use of various types of rubber stamps for consistency and reduction of labor. As labor saving devices, as well as organizational tools, rubber stamps were developed for repetitive activities.[164] The office of Ford, Butler and Oliver standardized a set of typical specifications that could easily be modified to meet the requirements of any job. The firm also used the new set of contract documents that had been recently standardized by the American Institute of Architects.[165]

A profession-wide trend toward standardization was evidenced during this period through certain advertisements for standardized products that appeared in the journals. The development and introduction of the AIA Standard Documents provided uniform contracts, general conditions, bonds, proposals and subcontracts across the architectural

profession and building industry. The documents were developed by the AIA in conjunction with legal specialists and representatives of the Building Trade Association of America. They standardized the general requirements to the contract for building construction so there was no need to reinvent them every time a building project was contemplated. Available to and used by the members of the AIA beginning in 1916, the January 1918 issue of The Architectural Forum carried an advertisement for the purchase of the forms piecemeal or as a complete set, thereby making them available to the architectural profession at large.[166] Both Sweet's Indexed Catalogue of Building Construction and the Building Trade Catalogs (A. B. C. System) included materials manufacturers' catalogs that had been standardized in size, classified into a system, and presented in binders. This information was needed by the architect for inclusion in the specifications for building projects.[167] The initial 1905 announcement of the production of Sweets declared that information about building material was just as important and equally as interesting as the "art side" of architecture. Claiming that the entire architectural profession had condemned the current "catalog method," architects were encouraged to send away for their free copy and keep up to date with the new department dedicated to providing up-dated catalog information that would be published in Architectural Record, another Dodge publication.[168] The 1905 publication of Sweets Catalog was the initial action that led to the development of standardized specification sections providing a systematic means identifying materials for use in the construction of complex modern structures.[169]

The architectural production methods put forth in the journal articles published in the early twentieth century demonstrated that the concept of architecture as a business

had been accepted by the majority of the profession, even if it was still discouraged by the official policies of the AIA. As a business that existed to satisfy the requirements of the building owner, the architectural office strove to become and remain successful by implementing procedures that ensured the efficient use of labor and materials as a means to control costs and maximize profits. During this period, journal articles provided general guidelines about how to operate an architectural office and gave specific suggestions on how to perform certain office-related tasks. An editor's note in one article reprimanded architects to heed the changes occurring in the business world and to adjust their practices to incorporate system and efficiency in order to reduce expenses and improve their production. The editor praised the office that operated within a system where each individual knew his work and was surrounded by the implements and means required to carry out that work.[170]

The discourse established in the articles that concerned the architectural office during the early twentieth century was related to the nuts and bolts of the operation. It was generally accepted within the profession that architecture was a business, and practicing architects needed information to establish efficient and effective office procedures. Articles that described the actual business methods used by large architectural offices made the reader aware of the growing trend of modernization and illustrated how the systems utilized could be adapted and expanded as a firm grew. Although each office had developed varied procedures, the beginnings of the standardized methods of today's architectural offices are recognizable: standard methods of organizing drawings and office forms, the use of project forms, the systematic numbering of drawings and specification sections, the use of standardized paper sizes,

and the job specific modification of standardized documents, specifically specifications and contracts. During this period, journal articles considered the office practices of well-known architects in an effort to promote business methods with concrete examples of procedures that had been developed to facilitate the production of work in offices that employed a large number of architectural workers. The presentation of actual office practices gave the reader tangible knowledge of business operations that allowed for the efficient completion of complex commissions.

Evidence of Changes in Practice, 1917 to 1920

The Post-War Committee of the AIA

> "…in our professional practice with these officials ….have we established, through efficient and capable professional service rendered, that deep seated conviction of the administrative ability of an architect, or has the congressional conception of an architect as a dreamer and long-haired creator of useless but expensive dewdaddles come to the Capital only from the supervising architect's office?"
>
> John Lawrence Mauran, AIA President[171]

The discourse about architectural practice changed dramatically after World War I. Architects, particularly the members of the American Institute of Architects, began to question the purpose of architectural practice and its relationship to society as a whole. This change in attitude was precipitated by the government response to building needs during the war, particularly the need for housing for industrial workers. The AIA felt that the government did not adequately utilize the design knowledge of the architectural community when attempting to ramp up the design and construction of needed worker housing during war. This slight caused the architectural community to re-evaluate their image in the eyes of the public and their own perception of what their contribution to society at large should be. The self-questioning of their service and the insistence by many that architects needed to serve all of society was founded on the progressive attitudes prevalent in the 1910s.

In the early twentieth century, Progressive Era reformers attempted to institute changes that would benefit all members of American society. Beginning as local reform

movements, by the 1910s Progressivism had become a national endeavor that attempted to provide solutions to the social ills that industrialization had begotten.[172] The urban reforms associated with progressivism included those directed at improving the living conditions of the urban poor. Jacob Riis' exposé of tenement life in 1890 prompted reform movements that resulted in the adoption of Tenement Laws that tried to alleviate poor living conditions by requiring fireproof construction, inspections of new buildings and the implementation of required standards for construction. City government was one of the root causes of the ills of society at the turn of the twentieth century; unaffected by the plight of the urban poor, city government made no attempt to provide a safe environment or to develop methods to equitably provide and distribute municipal services.[173] The City Beautiful movement was a response to the urban reforms of the progressive era that strove to provide a civic center that was accessible to all urban residents, in an effort to emphasize civic unity and counter the problems of urban living conditions.[174] The American city was divided between the "haves" and the "have nots," with architects providing services exclusively to the "haves." Architects as a whole did not question this arrangement until after World War I.

The public perceived the services of the architect as being a privilege reserved for rich gentlemen and corporate giants. Architects were considered partial to opulence and extravagant decoration and not inclined to design efficient livable housing for the masses. Progressive reformers questioned the lack of social conscience displayed by local developers in providing housing to the masses of the working class.[175] In response to the accusations of the reformers, some in the architectural community questioned the

precepts of traditional architectural practice, asking whether the architect should impart his knowledge to alleviate the problems caused by inadequate housing for the urban poor.

The discourse about architectural practice after America's entrance into World War I centered around two topics: how could architects better serve the community and how could architects modernize the profession to attain the achievements of the engineer and general contractor. The most significant change in the character of the discourse was the initiative taken by the AIA to be not only a vocal part, but to lead the discussion about how the architectural profession needed to change. AIA President John Lawrence Mauran's address to the fifty-first convention of the American Institute of Architects in 1918 reflected on the dilemma architects faced when the United States became involved in World War I. (See Figure 22) Published in the April 1918 issue of the JAIA, the address examined the reasons for the underutilization of architects in the war effort and considered the consequences wrought by the lack of government acceptance of offers of service from the country's leading architects.[176] Mauran gave several examples of individual architects or small groups that had been utilized by the government for the war effort. He then raised the issue to the convened members of the Institute as to why so few had been able to impart their patriotic service. Answering his own question, Mauran announced that the reason was that neither Annapolis nor West Point had courses in architecture and that the engineers these academies turned out had no idea about the knowledge the architect possessed in terms of planning, efficient design and construction technique. Again posing a question to the convened members, Mauran asked that even if the military engineers were not aware of the talents of architects, why didn't politicians from "back home" recommend the services of architects? Mauran found fault with the

members of the architectural profession itself, contending that many architects had been attracted to the City Beautiful movement but were less inspired by the City Practical. This preference for grandiose schemes precipitated the conception in the minds of the Washington contingent of the architect as a "dreamer and long-haired creator of useless but expensive dewdaddles." Mauran argued that to a certain degree the misunderstanding that architects faced at the beginning of the war was due to the architectural profession itself, in its failure to act for the betterment of the community during peacetime. He called upon all members of the Institute to act toward the advancement of the profession in the mind of the public at large.[177]

Establishment of the Post-War Committee

Because of the many issues that surrounded the practice of architecture immediately following the war, a committee to consider the practice of architecture in America and to report its findings to the membership at large was established the during the 51st Annual Convention of the AIA. This committee, called the "Post-War Committee on Architectural Practice," developed a multifarious scheme to petition all members of the architectural profession in the United States, including those who were not members of any professional society, as to their opinions of the relationship of the architect with the public, with the building industry and with their fellow architects to determine the status of the profession as it existed at that time. The information received from the answers to a questionnaire would be developed into a program to improve the efficiency and adequacy of architectural practice in the United States. In addition, the

committee would share the information with the architectural societies of other countries, and would obtain and distribute information about these same societies.[178]

The objective of the Post-War Committee was to determine the intersection of business and architectural practice and report back to the profession on how the architectural profession should conduct itself in the future.[179] The Committee proposed to evaluate several main areas of architectural practice, including the attitude of the public toward the Architect, the relation of the Architect to the other professions, crafts, industries and trade organizations of the building industry, the relation of the AIA to the profession as a whole, and the relation of the system of architectural education to the requirements of an architect.[180] This list of study subjects was quite comprehensive and the committee believed that having the opinions in all these areas of inquiry from the architects of the nation would provide extensive knowledge of how architecture was practiced in the nation, in each region, in each large city, in each small town and in each office. Most importantly, it would provide information indicating trends in the practice of architecture that would enable the committee to develop a program of change to guide architects across the nation to more efficient and sufficient methods of architectural practice.[181]

The guiding questions and narrative for each category of the inquiry conveyed the major dilemmas facing the practice of architecture and the internal conflicts that had been played out in the years leading up to the war: what role should business play in the architectural office, what role should the architect play in the building process, and how should the architect serve society. The first major point of inquiry was "the relationship of the Architect to the Public" and pertained to the Architect's interaction with the Public.

This question brought to light some of the major conflicts that had existed within the architectural ranks for several years, those concerned with the effects of business methods on the practice of architecture. The architect in general did not concern himself with business, civic or political organizations that could benefit from his expertise. By excluding himself from organizations that were principally concerned with living conditions and civic improvements, the architect had failed the public by not imparting his specialized knowledge of planning and construction. Another point of the inquiry questioned whether architecture was an art, a profession, or a business. The public perceived the construction of a building to be a business proposition and associated the process with engineers and contractors, not architects. The design and planning required for buildings was viewed as secondary to the actual construction.[182] These questions touch upon the discourse presented in the professional journals since the turn of the century, the question of how the profession could maintain its artistic side while incorporating methods and systems that would advance the practice along business-like lines and how the architect could retain and strengthen his position in the building process.

The second point of inquiry concerned improving the relationship between the architect and the building contractor to be cooperative rather than adversarial. The war had encouraged the business community to find ways to efficiently increase production, and architects had fallen behind in their ability to prepare their product efficiently and in coordination with the other participants of the construction process. The program of the Committee asked whether it would not be better to coordinate the work of the architect, the engineers, and the contractor from the very beginning of the project.[183]

The final point of inquiry of the Post-War Committee's program dealt with the relationship between the architect and his colleagues, questioning how professional organizations should be administered, how competitions should be managed and how those interested in becoming an architect should be taught. Very few practicing architects of the period belonged to a professional organization and the program sought to understand why individuals chose not to join, offering the supposition that the organizations spent too much time considering the art of architecture and developing rules to regulate the practice of its members. The program noted that new ways of living, industrial production and social interaction were rapidly changing the ways the architect designed and that provisions were needed to keep the architect up to date with the rapidly advancing industrial progress of the nation.[184] The program of the Post-War Committee sought to collect information to inform the profession about how architectural practice was conducted throughout the country in hopes of determining which methods held the greatest potential for the future development and success of the profession.

The establishment of the Post-War Committee provoked myriad opinions from individuals, regional chapters of the AIA, and other architectural organizations. These opinions suggested additional questions for the inquiry, expressed opposition to certain questions and evaluated the effectiveness of the program.[185] Following the convention, an editorial published in the May 1918 issue of WA praised the proceedings, noting that they addressed the nature of the architect's service and his duty to educate the public instead of the usual discussion of ethics and ideals. The editorial likened the new inclination of the AIA to the practical work of the Western Association of Architects of the 1890s.[186] To advance the cause of the Post-War Committee, other professional

journals carried commentary and published reports of the several sub-committees. One report, covering the methodology and purpose of the Post-War Committee's program, was published in the February 26, 1919 issue of The American Architect. The editors of AA promised to give the fullest publicity to the program due to the fact that the AIA proposed to survey the entire profession, the majority of which were not members of the Institute. The editors indicated the reason for the inquiry was because "the experience of the war ha[d] bared the weakness of long established methods of performance until institutions of every kind, hitherto thought to be effective, ha[d] been found wanting" and that its purpose was to determine the "right relationships" of architectural practice; did the architect have a "right relationship" with the public, with the rest of the building industry, and with each other.[187] The support of the program by journal editors reinforced the idea that the audience of professional journals was not limited to the members of an architectural society, but included all types of individuals involved in the building industry and acknowledged that the published articles would be of interest to all factions of the architectural community.

The discourse in professional journals brought about by the formation of the Post-War Committee was centered on three topics: the service of the architect to society, the efficacy of the AIA to the architectural profession, and the value of business procedure to the operation of the architectural office. The first two topics of discussion functioned to convince the profession that they needed to abandon their adherence to the precepts of nineteenth century customs. The gentlemanly principles that had guided architectural practice in the past had no place in the egalitarian society or with the industrial philosophy of America.

The Architect and the Public

The discourse concerning the architect and his service to society was a reflection of the rejection by the U.S. government of the service of the architect during the military build-up after the entry into World War I. Several architects authored articles that questioned the reasons why architects found themselves in the predicament of being unable to give away their services as the country turned its attention to the war effort. In the February 1918 issue of the JAIA, Milton B. Medary, Jr. requested architects to examine their responsibility to society as a whole. He asked the architectural profession to dispel the self-laudatory attitude rampant within the profession and consider how the profession could serve humanity better in this time of crisis. He warned architects that the public would judge architects not by isolated examples of great works but by their contribution to a more tolerable existence for the whole of society.[188] Medary reiterated his points in an address to the Institute during the 51st convention, titled "The Architect After the War," published in the May 1918 issue of JAIA. In his address, he called upon architects to utilize their knowledge of planning for the betterment of the health, morals and general life of the community. He stated that the public at large was convinced that the work of the architect was an indulgence of the wealthy. Medary considered this knowledge of the public mindset crucial to the profession's consideration of how to promote the cause of architecture.[189]

The Architect and the AIA

Architects across the nation were concerned with how the AIA was promoting the use of architectural services. Too often, architectural organizations had failed to promote

the profession to the public, being too concerned with internal regulation. Joseph C. Llewellyn commented on the address of Sidney Webb to the Royal Institute of British Architects concerning professional associations in the March 1918 issue of The Western Architect. Webb had conducted a study of professional associations, concluding that they had undergone changes; they began as subject associations, appealing to all interested in a certain subject, but over time amateurs tended to drop out and the association concerned itself with rules, codes and fee regulation until it became an exclusive club that attempted to keep all work along its line within the membership. Llewellyn stated that it should be no surprise to the profession that the public had no idea what an architect did because historically the architect failed to serve ninety percent of the population. Llewellyn reiterated Medary's position that architects should turn their attention to finding ways to be useful to a larger public.[190]

The discourse that questioned the way that professional societies functioned precipitated change in the protocol of architectural associations, most particularly the American Institute of Architects. The AIA's code of ethics came under question, especially the code dealing with advertising. Commentary appearing in the 1918 issue of WA indicated that the Illinois Society of Architects had taken the lead in "the agitation for a revision of the code of practice of the American Institute of Architects." The advertising issue revolved around several matters of self-promotion including the right of the architect to sign his buildings, or to have a plaque with his name upon the building during and after construction, and whether it should be permitted for an architect to insert a business card into publications.[191] Another editorial in the February 1918 issue of the JAIA pleaded with the Institute to eliminate the ban on advertising that existed in its

Code of Ethics, arguing that the young architect was often forced to disregard the code in order to find work. The editorial questioned the difference between sending out cards announcing a new partnership to possible clients and publishing a card in the advertising column of a local newspaper, or the difference between allowing the use of one's name in the advertisement of a material supplier and the straightforward listing of one's references.[192] The code of ethics was only rigorously enforced among the rank and file of the profession; AIA officers, both past and present, were free to bend the rules.[193]

The code of ethics, established in the late nineteenth century, had become a catalog of punishable offenses and served as a means of ensuring the good taste of its members and a method of exclusion; placing one's card in the local newspaper was grounds for exclusion from the club. The proceedings of the fifty-first annual convention of the AIA indicated that a portion of the code of ethics that included the clause that stated advertising was unprofessional, was eliminated from the Institute's bylaws.[194] An editorial in the May 1918 issue of the JAIA revealed the magnitude of this decision, calling it one of the most remarkable actions ever taken by the body. Indicative of the new concern of the Institute with the democratization of the profession, the elimination of the ban on advertising was an attempt to remove a degree of the air of exclusivity that was the Institute's reputation.[195] Efforts to unify the profession undoubtedly affected the decision to eliminate a ban on advertising as many firms run on a business basis did advertise to attract clients. The impact of eliminating the ban was revealed by the editorial letters that were published in the months after the convention that expressed enthusiasm at finally being included in the ranks of the profession.[196] Architects whose

offices operated on a business basis, catering to commercial clients through the use of advertising, were no longer to be excluded from membership in the AIA.

The Architect and Business Practices

Interest in the work of the Post-War Committee prompted a noticeable increase in the number of journal articles that discussed the need to examine the tenets of the architectural profession with respect to the business aspects of the architectural office. The pages of professional journals published in the late 1910s are filled with advice on how the architectural profession should modify its practice to advance the cause of architecture. This discourse advised architects to adopt the manner and efficiency of the business community. The January 1919 issue of JAIA declared that architecture had always been considered a profession and the commonly held belief among members of the AIA was that the professional ideal was a better basis for a vocation than the business objective. The article contended that business and professionalism were not adversarial standpoints, but that professionalism had the ability to direct the conduct of business.[197]

An imperative for change in the way architecture was practiced was brought about by the war. Government building programs during World War I relied principally upon the talents of engineers and builders who were identified as technically knowledgeable and capable of producing a highly functional product in a timely and cost-effective manner. The advancement in the approbation of engineers and practical builders was to the detriment of the architectural community and served as a wake-up call for the profession. Many large offices maintained a hierarchical business structure prior to World War I, but many architects of that period, especially East Coast members of the

AIA, maintained the stance that architecture was a gentlemanly profession and did their best to keep it untarnished by business concerns. The government did not view architects to be versed in advanced building technology or innovation. The Construction Division of the Army was formed to facilitate the design and construction of the many buildings required for the war effort. The utilization of the services of "architects" by the Army was dependent upon the definition of "architect." An article in the November 1918 issue of JAIA indicated that the profession, architectural schools and the AIA had, over the past few years, narrowed the scope of what was considered architectural services. Various specialties were relegated to the practice of engineering rather than architecture, and "engineering" defined a much broader field of endeavor than "architecture." The article complained that architects were convinced that architecture must be "Art." The Construction Division of the Army drew upon the service of engineers who had "knowledge of the art and science of building, and who put that knowledge to practical, professional service....," as the architect was perceived as responsible for the decoration of the engineer's construction.[198] The June 1918 issue of JAIA reprinted an article by William Philips Comstock that declared "the professional practice of architecture has not kept pace and is therefore doomed." Comstock called upon architects to acquaint themselves with standardization and machine-made production and urged them to adapt and strive for success using the methods of modern productivity.[199]

Prior to the war, journal articles about office practice appeared irregularly, perhaps once every three or four months. Following the establishment of the Post-War Committee and with it the AIA's admission that architectural practice needed to change and adopt the principles of specialized business management, journal articles concerned

with the office administration of architectural practice appeared more regularly; often several articles were published in one journal. The American Architect published a series of articles by C. H. Blackall titled "Architecture After the War" that discussed architectural education, organization and efficiency. The author emphasized the need for the young architect to be taught business methods, stating that "the relative importance of pure art in architecture had decreased and the business and practical sides of the profession have enormously enlarged…"[200] All business profited from a division of work and architecture was no exception. Large architectural firms had the tendency to gravitate toward efficiency in organization, but the average practitioner needed to change his preconceived notion that architecture was the product of a single mind. Blackall proclaimed that not everyone could be an architect, but there were many individuals that could contribute to a successful architectural organization.[201] AA published another series of articles in 1919 titled, "Architectural Office Organization for Post War Conditions," that stressed the importance of an efficient and functional office organization. The author, Daniel Paul Higgins, a successor of John Russell Pope's architectural firm, encouraged architects to maintain continual vigilance in regard to the advances of the technology of building materials and methods. Higgins cautioned that the modern building enterprise, or general contractor, sought to eliminate the architect and gain complete control of building projects. The architect should embrace the concept of scientific organization based on specialized functions or else the modern building organization would win over the large majority of the architect's clients, as it had already won over the federal government as proven by the war effort.[202]

Specialization and organization of the architect's office were key issues in the discourse found in professional journals as the Post-War committee was conducting their inquiry. The February 1919 article, "Architectural Office Organization for Post-War Conditions," predicted an unprecedented building surge due to the backlog created by suspension of domestic building operations during the war. Architects needed to embrace specialization to compete with engineers and contractors for these building projects. The article recommended that the architect adapt an office system wherein employees were "united into a systematic body, purposed to work for a common end, with appointed specialists in authority over divided and sub-divided parts of a whole, so that the duties of each shall correlate and co-operate with all to minimize cost and avoid unnecessary double handling…"[203] An article in the August 1918 issue of Architectural Forum, written cooperatively by the managers of four architectural offices, suggested that a draftsman's work be specialized, but stated that the draftsman needed to have a complete knowledge of the work so that he was aware that drawing lines all day was making a contribution to the finished product. The draftsman needed to be taught how much information was required on a drawing to provide the necessary information without elaborate presentation in order to contain costs. Another manager discussed how responsibility should be delegated, and considered specialization in the office of the architect a necessary and desired occurrence. Specialization was inevitable because "one man [was] particularly familiar with hospital work, another with the problems of banking…. and others with details, figuring, checking drawings, etc." The article concluded that the highest efficiency in the architectural office was attained when each man performed the work for which he was most suited.[204]

The number of articles that addressed the organization of architectural practice exploded after the establishment of the Post-War Committee. Comments about the need for the architect to embrace business ideals, operate with efficiency, provide unparalleled service to the client, and maintain the admiration of the public are repeated throughout the discourse. As noted in the last chapter, the publication of office layouts was a visual indication of the organization of architectural practice. After the war, in addition to the use of office layouts to describe organization, organizational charts were printed with the articles. Similar to the 1913 articles published by its forerunner The Brickbuilder, The Architectural Forum published several articles in late 1918 that reported on the office organization and practices of several renowned architects. The November issue published an article about the offices of Albert Kahn, with emphasis on the office layout and how it facilitated the flow of information within the office. (See Figure 23) The article called attention to the fact that the rooms housing the various departments, drafting, structural, mechanical, accounting, specifications, contractors' rooms, construction superintendents and filing, were laid out so as to place related departments in close proximity to facilitate easy communication.[205] (See Figure 24) The December issue explored the offices of Starrett and Van Vleck and explicitly named "system" as the defining characteristic of the office procedures and physical arrangement. The article described the exact procedures followed when the office received a commission, beginning with the assignment of a job number and plan file drawer, and continuing through the method of plan development and documentation. The conclusion of the job found the folded drawings and specifications stored in the plan storage room and the original tracings placed in flat storage files. Each job was assigned to a specific

draftsman with the proper knowledge.[206] In the article, "Architectural Office Organization for Post-War Conditions," author Daniel Higgins included an organizational chart to demonstrate how the division of labor could be handled in a typical architect's office and included descriptions of the functions of each department and the responsibilities of the supervising employees within each department. (See Figure 25) The author asserted that the type of organization he advocated was the basic type of organization that any business large or small needed to implement in order to succeed.[207]

Organizational charts published in the journals provided a graphic solution to the methods of organization in the architect's office. They went beyond the office layout in their description of work flow because they defined individuals or job positions and their exact place in the overall organization. Several articles published in the 1920 issue of The American Architect discussed the hierarchical supervisory office structures used in governmental architectural offices and the benefits of utilizing these structures in private architectural practice. Syracuse architect A. L. Brockway discussed at length the organizational system of the State Architect of New York, describing the various types of work for which each department was responsible.[208] An organization chart was included to display the hierarchy of the various departments and who was responsible for approvals. (See Figure 26) Brockway advocated other states to consider replication of this organization to ensure that uniformity, harmony, education, utility, economy and scientific coordination played a role in the design of every public building throughout the nation.[209] Brockway also provided a flow chart that demonstrated the process that was followed each time the State of New York needed a new public building. (See Figure 27)

He described the process in detail, allowing the reader to understand the multiple checks and balances and requirements that each step of the process demanded.[210]

Discourse about office procedures related to the business of how to keep track of money and make profit in the architectural office appeared after the formation of the Post-War committee. Articles that considered the detailed methods of ensuring the competent use of cost-tracking systems had not appeared in the professional journals prior to this period. The January 1919 issue of The Architectural Forum ran a nine page article that described in detail a cost accounting system for an architect's office. It included definitions of the various accounts and examples of journal entries, ledger pages, and various vouchers and receipts. This system was developed by the Michigan Society of Architects and published so that it could be adopted by interested architectural firms of any size, with minor adaptations.[211] "Scientific Management of the Drafting Room" appeared in the 1919 issue of Architecture and addressed methods of reducing overhead costs and increasing the efficiency of the drafting work force. The author developed a means to determine the value of a draftsperson by making charts that plotted the average number of cubic feet drawn per hour against various sized buildings in cubic feet, with a different chart for each type of building. A draftsman's rate of efficiency (cubic feet drawn per hour) could be plotted on the standard chart to determine if his rate of efficiency was above, at or below the average. (See Figure 28) This knowledge provided incentive to the draftsman and information to the office manager. The author believed that this type of charting would also provide an indication of the type of work for which each draftsman was best suited.[212] The office of Albert Kahn utilized "graphical progress reports" that charted both the proposed and actual progress of the

work for all departments. (See Figure 29) These charts were used to head off any problems that might occur during production of the work, allowing the executive in charge of each project the ability to review the chart and determine if the job was proceeding as scheduled, and if not to take any necessary steps to correct possible delays in completion.[213]

In the published Report of the Post-War Committee to the Fifty-third Annual Convention of the American Institute of Architects, it was indicated that the committee had received numerous replies to its inquiry, so numerous that the evaluation of the information would undoubtedly take years. The Report acknowledged that the committee's activity had produced a vital discussion about topics that previously had not been broached by the profession. The activities of the Post-War Committee resulted in the formation of relationships of cooperation with other professionals employed in the construction industry and had produced a list of activities to be pursued by various other committees of the AIA. The article concluded by announcing the disbanding of the Post-War Committee due to the fact that the economy of the United States had rebounded in late 1919 and those on the executive board had concluded that architects around the country "[did] not actively interest themselves in the problems concerning their profession except in times of depression." Citing this fact along with a general acknowledgement of lack of sufficient funds to carry out all the committee had desired to do, the Post-War Committee was dissolved.[214]

Although the Post-War Committee ceased to exist, its two year legacy transformed the profession's attitudes about the nature of architectural practice. Although there were still individual architects who held out for the notion that

architecture was an art, the majority embraced the idea that in order to succeed as a profession and in individual practice, the methods of architectural office practice needed to follow business principles. Within those two years, journal articles progressed from descriptions of office layouts to the publication of organizational charts, methods for using scientific management philosophy to determine efficiency in the drafting room, and systems for cost accounting in the architect's office. By 1920, the large architectural office had been transformed into a hierarchical organization and as such, established the methods of practice that continue to be used by the vast majority of architectural offices today, both large and small.[215]

Conclusion

> "While the architect has responded in a manner little short of marvelous to the demands of progress, and has amply earned the position which he now occupies as chief of building operations…it would obviously be beyond the power or capacity of a single individual, alone and unaided, to produce the design and … all the plans and specifications for a modern building of any considerable size or importance. He must build up an organization and surround himself with lieutenants who will work under his direction and will provide for….the various requirements made manifest by the character of the structure…"
>
> The American Architect, September 22, 1909[216]

Architecture is constituted by discourse; drawings, books, exhibitions and lectures merge to inform the institution that is recognized as architecture. The discourse that established the architectural profession in America included the tools of practice; contracts, drawings and specifications, and the instruments of critique; theory, history and analysis. The period examined by this paper saw the rapid development of methods that facilitated the exchange of ideas. It was also a period when architectural discourse was rapidly changing, affected by both internal and external forces.[217] Professional journals provided a means to examine the collective discourse of the period by providing an archive of that discourse.[218]

Perceived as an educational tool during the late nineteenth and early twentieth centuries, the professional journal published information relevant to the instruction of the reader, not only in design and construction methods, but also in matters that pertained to the professional status of the architect.[219] The pertinent issues of both the architectural

profession and the construction industry were presented on the pages of professional journals and allowed for a discourse on how to conduct the practice of architecture. A diverse readership permitted opinions beyond the strict protocol of the professional societies, most specifically the American Institute of Architects. The publication of opinions in opposition to the official line of the AIA certainly prompted both rebuttal and supportive commentary. Discussion about methods of architectural practice management within the pages of the professional journal allows today's reader to gather valuable information about the nature of architectural practice at the time of publication. Office management articles appeared intermittently in the late nineteenth century as the building industry began to make more demands of the architect, and then in increasing numbers, and in increasing specificity, as the profession realized, by the end of World War I, that its position in the building industry was in jeopardy of being overtaken by those trained in efficiency and cost effective method.

The second chapter considered the role of the architect in the rapidly changing construction industry as reflected in the journal literature of the period. The development of new building types, changes in methods of design and construction, and the entry of the engineer and general contractor into the industry altered the architect's traditional role. As the demand for aesthetically pleasing edifices was increasingly accompanied by the demand for functional and cost-effective office buildings, some in the profession queried whether it would not make more sense to operate the architectural office as a business. These individuals believed that an efficiently run business would appeal to corporate clients and increase the efficacy of architectural production as well.

The third chapter reveals a discourse that encouraged the implementation of business-like office procedures. The journal articles explored how the offices of well-known architects operated. The authors of the articles closely scrutinized the methods used to organize the work force, plan the flow of work through the office, and ensure that the completed building met the requirements of the owner. Beyond explaining how the layout of the office facilitated communication within and between departments, attention was given to the paper forms and their use for the documentation of essential information, information that was too extensive and too significant to be entrusted simply to memory. Labor-saving devices, standardized methods of preparing working drawings, and the use of standard construction details all acted to improve the efficiency of the office, and indicated that the collective discourse was moving toward the viewpoint that architectural practice was in fact a business endeavor.

In the late 1910s, many in the profession acknowledged that architectural practice needed to be run as a business to compete with the services of the engineer and the general contractor. The AIA had long promoted the notion of the architect as first and foremost an artist and eschewed any notion of architecture as a business. When the United States entered World War I, the AIA realized the predicament this attitude precipitated when architects found themselves being passed over for government building projects in favor of engineers and contractors. The government perceived that engineers and contractors were better prepared to design and construct buildings that were practical, efficient and cost-effective. Architects were perceived as decorators of buildings and had a reputation of not being proficient in the design of technically advanced buildings required by the war effort. The formation of the Post-War Committee was the AIA's

attempt to determine what the architects of the nation needed to do to regain their status as the principal administrators of design and building projects and to expand their services to better serve society as a whole.

The fourth chapter revealed the discourse that the inquiries of the Post-War Committee effected within the profession. Emulation of the organizational efficiency of business and the technical expertise of engineers and general contractors was espoused by the authors of office management articles that appeared in the professional journals immediately following the First World War. Articles stressed the importance of organization within the architectural office for efficient and cost-effective production of contract documents. Organizational charts displayed efficient methods for project control and lines of responsibility. Special graphs and charts demonstrated techniques for determining whether the drafting operation of the office was effective. Articles containing practical advice appeared monthly in the journals and admonished readers to pay heed to the changes occurring the construction industry.

Over the course of the time covered by this research, the organization of the large architectural office moved from generalization to specialization, while the method of production changed from collaboration to division. More specialists were added to the working staff of the large office to maintain the characteristics of the traditional general practice office. As buildings grew in complexity, collaboration between specialists, or more specifically specialist disciplines, was transferred to managers who had responsibility for coordinating the various departments of the architectural office and effecting the changes initiated by executive decision. Then, as now, the profit motive drove the large architectural office of the early twentieth century, coaxing efficiency and

maximum productivity from its employees. The artistic ideal of the nineteenth century was replaced by the ideal of service to the firm.[220]

Large or small, the architectural offices of today follow the basic organizational format that was developed in the early twentieth century in the large architectural offices of the period, such as those of D. H. Burnham, and McKim, Mead and White. The changes within the office structure of these firms were in direct response to rapidly changing methods of construction and new conceptions of building function and use. The complex nature of design and construction required the establishment of organizations with varied technical specialists. These specialists were coordinated by methods that allowed changes during both design and construction phases, large or small, to be reconciled with a minimum amount of disruption as well as a requisite comprehension of the ramifications of that same change. To achieve proper integration of decisions, the decision-making responsibility was separated from the production of the work.[221] Analogous to the corporate structure and with the inclusion of techniques of scientific management, the large architectural office of the early twentieth century was managed through the separation of planning, or decision-making, and production, and middle managers were utilized to coordinate the various divisions of production.[222] This organizational process of architectural production is standard today in most architectural offices.

A survey conducted by the AIA in the 1950s found that almost all medium (10 to 50 employees) and large (over 50 employees) architectural offices maintained an organizational method that corresponded to the one developed by the large office of the early twentieth century: a method that employed a specialized division of labor, the

separation of decision-making, and the employment of middle managers to coordinate and supervise production.[223] The transformations in the management methods of the large architectural office that occurred over the period examined by this paper reflect changes in the conduct of American business, the advent of new building methods and materials, and a modification in the perception of the purpose of architecture as the architectural office progressed from *atelier* to hierarchical organization.

Endnotes

[1] "Retrospect," American Architect and Building News 18 (December 26, 1885): 303. Upon looking back at ten years of the journals publication.

[2] Sarah Burns, Inventing the Modern Artist, Art and Culture in Gilded Age America (New Haven: Yale University Press, 1996), 5, 11. Roxanne Kuter Williamson, American Architects and the Mechanics of Fame (Austin: University of Texas Press, 1991), 168.

[3] Williamson, Mechanics of Fame, 168.

[4] James O'Gorman, Three American Architects: Richardson, Sullivan and Wright, 1865-1915 (Chicago: University of Chicago Press, 1991), xviii, 80. Williamson, Mechanics of Fame, 168.

[5] Williamson, Mechanics of Fame, 169, 173, 178, 214-215, 216, 218-219. Michael Andrew Tomlan, Popular and Professional American Architectural Literature in the Late Nineteenth Century (Dissertation: Cornell University, 1983), 11-12.

[6] Tomlan, Popular and Professional American Architectural Literature, 189.

[7] Robert Gutman, Architectural Practice, A Critical View (New York: Princeton Architectural Press, 1996), 3-5, 120.

[8] F. W. Fitzpatrick, "A Rambler," Inland Architect 27 (March 1896): 15. Gutman shows 8070 architects by 1890.

[9] Mary Woods, From Craft to Profession: The Practice of Architecture in Nineteenth-Century America (Berekley: University of California Press, 1999), 118-119.

[10] Woods, From Craft to Profession, 339.

[11] See Gutman, Architectural Practice for a study of the large office of the late twentieth century.

[12] Dell Upton, Architecture in the United States (Oxford: Oxford University Press, 1998), 255. Andrew Saint, The Image of the Architect (New Haven: Yale University Press, 1983), 80.

[13] Daniel Platt Gregory, Magazine Modern: A Study of the American Architectural Press, 1919-1930 (Dissertation: University of California, Berkeley, 1982), 20-21.

[14] The following abbreviations for these journals will be utilized throughout this paper: The American Architect and Building News (AABN) (AA after 1909 when name changes to The American Architect), Architectural Record (AR), The Brickbuilder (BB), The Inland Architect (IA), The Western Architect (WA), The Architectural Forum (AF) and The Journal of the American Institute of Architects (JAIA).

[15] Mary Woods, "The First American Architectural Journals: The Profession's Voice," Journal of the Society of Architectural Historians 48 (1989): 117.

[16] Hyungmin Pai, The Portfolio and the Diagram, Architecture, Discourse and Modernity in America (Cambridge, MA: The MIT Press, 2002), 13.

[17] Tomlan, Popular and Professional American Architectural Literature, 190.

[18] Roger Shepherd, Skyscraper: The Search for American Style 1891-1941, Annotated Extracts from the First 50 Years of *Architectural Record* (New York: McGraw Hill, 2003), xiii.

[19] Pai, The Portfolio and the Diagram, 14-15.

[20] Tomlan, Popular and Professional American Architectural Literature, 244-245.

[21] Tomlan, Popular and Professional American Architectural Literature, 189.

[22] Gregory, Magazine Modern, 8-9. Professional journals provided a wealth of information to the young architect or draftsman: drawings of completed buildings, plans from competitions, articles about historic architecture, articles about art, updates about professional society proceedings and exhibitions, commentary on building projects and legal proceedings, advice on office procedures, suggestions on cooperating with others involved in the building industry, technical instruction, and advertising that led to the purchase of additional knowledge in the form of books, or information needed for specification writing through manufacturers' catalogs.

[23] Tomlan, Popular and Professional American Architectural Literature, 215.

[24] Shepherd, Skyscraper, xiii.

[25] Woods, "The Profession's Voice," 117.

[26] Woods, The American Architect and Building News, 1876-1907 (Dissertation, Columbia University, 1983), 305-308, 341-343.

[27] Woods, "The Profession's Voice," 130.

[28] Williamson, Mechanics of Fame, 177.

[29] Tomlan, Popular and Professional American Architectural Literature, 211, 225.

[30] Tomlan, Popular and Professional American Architectural Literature, 210.

[31] Pai, The Portfolio and the Diagram, 29, 32.

[32] Tomlan, Popular and Professional American Architectural Literature, 232-233. Inland Architect merged with The American Architect [and Building News] in 1908, which subsequently shortened its title to The American Architect. Frank Mott, History of American Magazines (Cambridge, MA: Harvard University Press, 1957), 3: 129. Woods, The American Architect and Building News, 1.

[33] Henry H. Saylor, FAIA, The AIA's First Hundred Years (Washington D.C.: The Octagon, 1957), 90-91.

[34] C. Greig Crysler, Writing Spaces, Discourses of Architecture, Urbanism, and the Built Environment, 1960-2000 (New York: Routledge, 2003), 11-12.

[35] Mary Woods, From Craft to Profession, 30-31.

[36] Sibel B. Dostoglu, Towards Professional Legitimacy and Power: An Inquiry into the Struggle, Achievements and Dilemmas of the Architectural Profession Through an Analysis of Chicago 1871-1909 (Dissertation: University of Pennsylvania, 1982), 23-34, 64-67

[37] Inland Architect articles include: "System in the Architect's Office," (1891), "Glimpses of the Business Side of an Architect's Life," (1896), "Architects as Business Men," (1902), "The Business of Architecture," (1902). Other articles include: "The Management of an Architect's Office," American Architect and Building News 33 (1891), "Where our Architect's Work" series, Architectural Record 10 (1900-1901).

[38] Saylor, The AIA's First Hundred Years, 91.

[39] "Post-War Committee on Architectural Practice, Announcement of Preliminary Program for the Inquiry into the Status of the Architect," Journal of the American Institute of Architects 7 (January 1919): 6-8.

[40] Although over 65 percent of architectural firms are sole proprietorships or partnerships, the 250 largest firms (professional or business corporations with over 50 employees), representing about 2 percent of the total number of architectural firms, collect over 30 percent of the fees for architectural services. In the 1980s there were 25,000 architectural offices in the United States, 13,000 of them were run by one person who designed minor jobs, such a garage conversions or office renovations. Many of these firms were run by architects that worked full-time for one of the large architectural or engineering firms or were university professors. 50% of the remaining 12,000 firms had fewer than 5 employees, 90% had fewer than 20 employees. Magali Sarfatti Larson, George Leon, and Jay Bolick, "The Professional Supply of Design: A Descriptive Study of Architectural Firms, in Professionals and Urban Form, ed. Judith R. Blau, Mark La Gory, and John S. Pipkin (Albany, NY: State University of New York Press, 1983), 263-264, and Gutman, Architectural Practice, 4-6.

[41] Gutman, Architectural Practice, 34-35.

[42] Sullivan W. Jones, "Signs of Change, A Department devoted to Economic Aspects of the Building Industry," JAIA 6 (January 1918): 48.

[43] Judith S. Hull, "The 'School of Upjohn': Richard Upjohn's Office," The Journal of the Society of Architectural Historians 52 (September 1993): 282-283.

[44] Gail Fenske, The Skyscraper and the City: The Woolworth Building and the Making of Modern New York (Chicago: The University of Chicago Press, 2008), 120-121, 176.

[45] Fenske, The Skyscraper and the City, 172-173.

[46] Fenske, The Skyscraper and the City, 176-178

[47] Daniel Bluestone, Construction Chicago (New Haven: Yale University Press, 1991), 132, 141. Angel Kwolek-Folland, Engendering Business, Men and Women in the Corporate Office, 1870-1930 (Baltimore: The Johns Hopkins University Press, 1994), 98.

[48] Olivier Zunz, Making America Corporate, 1870-1920 (Chicago: The University of Chicago Press, 1990), 104, 106. Linda Stewart Gatter, The Office: An Analysis of the Evolution of a Workplace (MA Thesis: MIT, 1982), 18-19, 23.

[49] Alfred Chandler, "The Beginnings of 'Big Business' in American Industry", in The Essential Alfred Chandler, Essays Toward a Historical Theory of Big Business, ed. Thomas K. McCraw (Boston: Harvard Business School Press, 1988), 47-48, 50-51.

[50] Alan Trachtenberg, The Incorporation of America, Culture and Society in the Gilded Age (New York: Hill and Wang, 1982), 54.

[51] Trachtenberg, The Incorporation of America, 56, 63-65, 68-69. Alfred Chandler contends that by 1900 the basic business unit in the United States was the corporation in Chandler , "The Beginnings of 'Big Business' in American Industry," 69.

[52] Alfred Chandler, "Decision Making and Modern Institutional Change", in The Essential Alfred Chandler, Essays Toward a Historical Theory of Big Business ed., Thomas K. McCraw (Boston: Harvard Business School Press, 1988), 346, 351.

[53] Alfred D. Chandler, "Introduction to The Visible Hand," in The Essential Alfred Chandler: Essays Toward a Historical Theory of Big Business, ed., Thomas K. McCraw (Boston: Harvard Business School Press, 1988), 392- 394.

[54] Saint, The Image of the Architect, 82-87.

[55] Bernard Michael Boyle, "Architectural Practice in America, 1865-1965 – Ideal and Reality" in The Architect, Chapters in the History of the Profession, ed. Spiro Kostof (New York: Oxford University Press, 1977), 311-314.

[56] Louis Sullivan, Autobiography of an Idea, p 285-286, quoted in Boyle, "Architectural Practice in America, 1865-1965 – Ideal and Reality" in The Architect, Chapters in the History of the Profession, ed. Spiro Kostof, 315.

[57] Woods, From Craft to Profession, 30-31.

[58] Dostoglu, Towards Professional Legitimacy and Power, 12. T. J. Jackson Lear, No Place of Grace (Chicago: The University of Chicago Press, 1981), 187. Burton J. Bledstein, The Culture of Professionalism. The Middle Class and the Development of Higher Education in America (New York: W. W. Norton and Company, Inc., 1976), 54-57.

[59] T. J. Johnson, Professions and Power (London: McMillian Press, 1872), 45, quoted in Dostoglu, Towards Professional Legitimacy and Power, 11.

[60] Dostoglu, Towards Professional Legitimacy and Power, 11-14.

[61] Dostoglu, Towards Professional Legitimacy and Power, 21.

[62] Bledstein, Culture of Professionalism, 36-37.

[63] Dostoglu, Towards Professional Legitimacy and Power, 2, 4-5, 15, 26. Bledstein, Culture of Professionalism, 39, 83-85, 87-88, 95.

[64] Bledstein, Culture of Professionalism, 90, 100.

[65] Woods, From Craft to Profession, 30-31.

[66] Woods, From Craft to Profession, 32, 36.

[67] Dostoglu, Towards Professional Legitimacy and Power, 15.

[68] Upton, Architecture in the United States, 255.

[69] Dostoglu, Towards Professional Legitimacy and Power, 22.

[70] Upton, Architecture in the United States, 255-256. Dostoglu, Towards Professional Legitimacy and Power, 20.

[71] "Architectural Schools in the United States – Columbia University," The Architectural Record 10 (July 1900): 10, 14-15. The article's description of the courses required and their timing within the curriculum demonstrated that the program followed the École des Beaux Arts' teaching methods, although the author lamented the fact that the students were unable to study with the ablest of practicing architects. The article emphasized the desire for students to attain proficiency in architectural design and conceded that this was possible through the scheduling of courses that devoted the entire last year of study to a course in architectural design taught by Mr. Hornbostel, a graduate of the Ecole and a practicing architect, who besides visiting the classroom two or three times per week, routinely brought other practicing architects to class to critique the students' designs. Additionally, Columbia allowed professional draftsmen with several years of experience to enroll in classes, permitting, in the view of the author, the traditional students to gain invaluable experience through the insights and practical knowledge of these seasoned practitioners.

[72] "Architectural Schools in the United States – University of Pennsylvania," The Architectural Record 10 (1901): 316-317, 320, 325, 333. This article called attention to the emphasis that art was given in the program; the school's aim was clearly to produce an artist at the end of four years, although the article claimed that this was difficult given the requirement that one third of the student's time must be spent in liberal and scientific studies. The architectural design courses at Pennsylvania were originally taught by Philadelphia architect, Edgar V. Seeler, but the demands of his practice led to his resignation. He was replaced by Frank E. Perkins, Architecte Diplômé par le Gouvernement Français. These facts and the author's personal observations about the manner in which designs were elaborated through long hours of drawing and in response to the peer criticism, occurring during design development, allowed the reader to conclude that the program of architecture at the University of Pennsylvania was modeled on the method of design instruction used in the ateliers of the École des Beaux Arts.

[73] Arthur Drexler, ed., The Architecture of the Ecole Des Beaux-Arts (Cambridge, MA: The MIT Press, 1977), 88-89, 92-93. This method allowed younger students to learn by aiding older students in design contests that pitted the various *ateliers* against each other. Camaraderie and an *esprit des corps* developed within each *atelier* during the process of completing the drawings for the competitions.

[74] David Brain, "Discipline and Style: The Ecole des Beaux-Arts and the Social Production of an American Architecture," Theory and Society 18 (November 1989): 838.

[75] Drexler, ed., The Architecture of the Ecole Des Beaux-Arts, 89. Brain, "Discipline and Style," 830.

[76] Burns, Inventing the Modern Artist, 23.

[77] Dostoglu, Towards Professional Legitimacy and Power, 29.

[78] Dostoglu, Towards Professional Legitimacy and Power, 29-31, 66-67.

[79] "Critical Words from Abroad," American Architect and Building News 34 (December 26, 1891), 198.

[80] Dostoglu, Towards Professional Legitimacy and Power, 105-106.

[81] Arnold Lewis, An Early Encounter with Tomorrow, Europeans, Chicago's Loop and the World's Columbian Exposition (Urbana: University of Illinois Press, 1997), 91.

[82] Gail Fenske, "The Beaux Arts Architect and the Skyscraper," in The American Skyscraper, Cultural Histories, Roberta Moundry, ed. (New York: Cambridge University Press, 2005), 21-22.

[83] Lewis, Early Encounter, 118.

[84] "Report of Committee on Code of Ethics," John W. Root, editor, Proceedings of the 24th Annual Convention of the American Institute of Architects 1890 (Chicago: Inland Architect Press, 1891), 17-18. The committee found that a large number of young men had entered the profession in the West and were looking at getting ahead quickly. The committee identified three distinct methods of conduct within the Institute membership: those that followed time honored methods, those who considered architecture a business, and those who were simply concerned with "filling their pockets."

[85] Lewis, Early Encounter, 117, 120.

[86] C. T. Purdy, "The Relation of the Engineer to the Architect," AABN 87 (1905): 43.

[87] Fenske, "The Beaux Arts Architect and the Skyscraper," 20-21. Carol Willis, Form Follows Finance: Skyscrapers and Skylines in New York and Chicago (New York: Princeton Architectural Press, 1995), 146, 156-162.

[88] Fenske, "The Beaux Arts Architect and the Skyscraper," 21, 30.

[89] The Management of an Architect's Office – I," AABN 33 (1891): 97.

[90] Woods, From Craft to Profession, 121, 125. Boyle, "Architectural Practice in America," 314.

[91] Fenske, "The Beaux Arts Architect and the Skyscraper," 21-22. According to Gutman, Architectural Practice, 34, engineers were not consulted by architects in the design of the structural system of skyscrapers until the first decade of the twentieth century, and engineers did not consult architects either.

[92] Purdy, "The Relation of the Engineer to the Architect," 43-45. These methods included doing the work himself, having the work done by the steel manufacturer, having the work done by the builder, employing an engineer, associating himself with an engineer as a partner, employing an independent consulting engineer, associating himself with an engineer who was employed by the owner or being subordinated to the engineer who had direct responsibility for the building project. The author continued by describing each of these possible relationships, presenting the pros and cons.

[93] Purdy, "The Relation of the Engineer to the Architect," 45 -46. Purdy acknowledged that many clients were reluctant to pay the additional monies to acquire the services of a trained engineer, but the author emphasized the importance of attaining these monies for the engineer to ensure future cooperation between the professions, and stressed that the monies should be paid from the architect to the engineer to assure that the subordinate relationship of the engineer was retained. With the payment of the "full commission" to the engineer, the engineer assumed full responsibility for the work that he produced, thus ensuring that the work done was accurate and performed to the best of the engineer's ability, that the owner was getting the best possible product, and the architect was not liable for mistakes made by the engineer. The author protested that current practice required the architect to provide the necessary technical design whether the client provided the necessary extra compensation or not. The author suggested providing adequate compensation for technical know-how and retaining the architect's position as the sole individual

responsible for the design and execution of building project, while allowing the engineer a responsible yet subservient role. The author suggested that the American Institute of Architects appoint a committee to confer with the engineers to afford an arrangement that would be agreeable to both parties.

[94] Edgar V. Seeler, "The Relation of Specialists to Architects," The Western Architect 4 (March 1905), 4. The construction dept. would be able to solve the problems of structural, heating, ventilation, and electrical design. The most common relationship was the temporary employment of specialists leading to difficulty in procuring satisfactory results that complied with the architect's design. The need for additional fees to pay these specialists was the most significant obstacle to this method. If the financial position of the office precluded this arrangement, the author advocated the provision of a construction department, under the direction of an engineer.

[95] Magali Sarfatti Larson, "Emblem and Exception: The Historical Definition of the Architect's Professional Role," in Professionals and Urban Form, eds., Judith R. Blau, Mark La Gory and John S. Pipkin (Albany: State University of New York Press, 1983), 71.

[96] Woods, From Craft to Profession, 44.

[97] Boyle, "Architectural Practice in America," 312-313. Fenske, "The Beaux Arts Architect and the Skyscraper," 21-22, 26.

[98] Fenske, "The Beaux Arts Architect and the Skyscraper," 24. Lewis, Close Encounter, 200-203.

[99] Louis Sullivan, Autobiography of an Idea (New York, 1924, reprinted 1949, 1956), 314, quoted in Boyle, "Architectural Practice in America," 315.

[100] Fenske, "The Beaux Arts Architect and the Skyscraper," 24.

[101] "Studio and Office of H.H. Richardson, Architect, Brookline, Massachusetts," AABN 16 (December 27, 1884): 305.

[102] Series in the Brickbuilder start with the description of the office's décor.

[103] Kwolek-Folland, Engendering Business, 116.

[104] Boyle, "Architectural Practice in America," 313.

[105] "Where our Architects Work," Architectural Record 10 (1900): 76-83, 142-149, 238-244.

[106] "Where our Architects Work," 81, 146-149, 241.

[107] Cass Gilbert's Beaux-Arts *atelier* at the turn of the 20th century did not exceed 25 assistants and draftsmen. Fenske, "The Beaux Arts Architect and the Skyscraper," 23.

[108] Fenske, "The Beaux Arts Architect and the Skyscraper," 22.

[109] Mark Alan Hewitt, Carrère and Hastings (New York: Acanthus Press, 2006), 42, 95-96.

[110] Fenske, "The Beaux Arts Architect and the Skyscraper," 22.

[111] Diana Balmori, "George B. Post: The Process of Design and the New American Architectural Office (1868-1913)," Journal of the Society of Architectural Historians 46 (December 1987): 350-354.

Employees were not assigned specific tasks to repeat on each project, but certain aspects of each project were the responsibility of individuals assigned to the project. The architectural critic's lament about the lack of any national style during this period was intensified by specialization of the architectural office, and the introduction of new building types. If different individuals were developing design drawings for different parts of a building, it was easier to realize a cohesive whole if the building followed historic precedent, with universally understood rules and forms. Historical forms on revolutionary building types also lessened the shock of these new structures in the cityscape.

[112] Balmori, "George B. Post," 350-354.

[113] Woods, Craft to Profession, 121.

[114] "Where our Architects Work," 76-83. Balmori, "George B. Post," 351.

[115] Upton, Architecture in the United States, 252-253.

[116] Saint, Image of the Architect, 73. Woods, From Craft to Profession, 157-158.

[117] "The Management of an Architect's Office – I," 97-98. Written by one of the editorial staff, with the byline of *The Architect*, this article described the office procedures of "a large and important business [that] ha[d] been managed substantially on th[o]se principles for eighteen months past." The article recognized that architectural endeavor was both art and business, but the author believed the architect must recognize that "when art is applied to commercial operations, as in the design and construction of buildings, it …becomes amenable to the laws of commercial operations …" The subdivision of work advocated included 1) the preparation of the general plan, 2) the preparation of the exterior subject to the parameters of the plan, 3) the arrangement of the building structure and systems to produce an efficient construction, 4) the preparation of the specifications, 5) the supervision of the construction and 6) the keeping of all papers and accounts related to each building. The key personnel included the principal designer, the principal businessman, the general superintendent/civil engineer, the assistant superintendent(s), the head draftsman, as well as, additional draftsmen, office boys, students and stenographers

[118] "The Management of an Architect's Office – I," 98-99, "The Management of an Architect's Office – II," AABN 33 (September 5, 1891): 147-149, "The Management of an Architect's Office – III," AABN 33 (September 19, 1891): 178-180, "The Management of an Architect's Office – IV," AABN 34 (October 10, 1891): 27-29, "The Management of an Architect's Office – V," AABN 34 (December, 19, 1891): 181-183.

[119] H.E. Perkins, "System in Architects' Offices," Inland Architect 17 (February 1891): 3-4.

[120] Woods, From Craft to Profession, 155.

[121] James R. Willett, "Glimpses of the Business Side of an Architect's Life," The Inland Architect 27 (June 1896): 43-44, 53-55. The contract documents included the drawings, logically numbered and clearly drawn, specifications, and the contract itself that included the normal business details. The architect was responsible for giving the owner a building that satisfied the requirements and for providing him with all the information that pertained to the building.

[122] "The Management of an Architect's Office – I," 147-148.

[123] Julius F. Harder, "Architects as Business Men," The Inland Architect 39 (May 1902): 32.

[124] Charles Henry Israels, "Socialism and the Architect", Architectural Record 17 (April 1905): 329-331, 333. The author declared the architect devoted too much energy to business, engineering and mechanics and not enough time to the aesthetics of his designs. The architect found himself forsaking quality design because the time required to maintain client relations, to produce drawings for, and superintend building projects. The author claimed the lack of a sense of national style was the result of the architect attempting to manage and design; all the architect had time to do, and all the draftsman responsible for developing an idea were able to do, was copy buildings of the past. Israels acknowledged that architecture itself had become specialized and that in order to design specific types of buildings, the architect must become familiar with the special knowledge concerning the building type of interest. Due to the inability of a single individual to be familiar with the particularities of all building types, architects were increasingly becoming experts in certain building types, such as breweries, apartments, or theaters, and not only had a substantial amount of work in this single building type, but often served as consultants to other firms. This trend served to reduce the number of architectural offices that operated as general practitioners.

[125] Boyle, "Architectural Practice in America," 330-331.

[126] H. S. Kissam, "The Principles of the Business Management of the Office Practice of Architects," AABN 94 (August 5, 1908): 45.

[127] Mauro F. Guillén, The Taylorized Beauty of the Mechanical (Princeton, NJ: Princeton University Press, 2006), 4-5. In The Principles of Scientific Management (New York: W. W. Norton & Co., Inc., 1911), Frederick Winslow Taylor outlined the four tenets of his theory: 1) conduct time and motion studies and analyze them to divide the task into its simplest parts, 2) select the least expensive qualified worker to perform each task, 3) guide the worker in the task through the use of management and incentive, and 4) separate the execution of the work from its conception.

[128] Guillén, The Taylorized Beauty of the Mechanical, 6-7.

[129] Kwolek-Folland, Engendering Business, 107-111.

[130] Walter H. Kilham, "Some Phases of Modern Architectural Practice," The Western Architect 17 (1911): 55. Architects in general were aware of the importance of understanding contracts and maintaining the business relations necessary for success, but most architects needed help when it came to the day to day operations of the office.

[131] Kilham, "Some Phases of Modern Architectural Practice," 55. Kissam, "The Principles of the Business Management of Office Practice of Architects," 54.

[132] Kilham, "Some Phases of Modern Architectural Practice," 55.

[133] D. Everett Waid, "How Architects Work, II. – Offices of Noted Architects," The Brickbuilder 21 (1912): 8-10.

[134] D. Everett Waid, "How Architects Work, III. – Offices of Noted Architects," The Brickbuilder 21 (1912): 38.

[135] Waid, "How Architects Work, II.," 7-8.

[136] D. Everett Waid, "The Business Side of an Architect's Office, The Office of Mr. Donn Barber," The Brickbuilder 22 (1913): 197-198. Scale drawings were placed in a special set of drawers and sorted by job

into plans, elevations, plumbing, heating, etc., while shop drawings and full size details were folded to a uniform size of 8 inches by 21 inches.

[137] Kissam, "The Principles of the Business Management of Office Practice of Architects," 45-46, 53. The author stressed that forms allowed the office to manage their work effectively and suggested that students consider "convenience in size, individuality in color, [and] usefulness in subject matter" when developing a system of forms. For example the forms needed for the third phase, award of the contract for construction, are: general conditions, specifications, card catalog of bidders, invitation for estimates, proposal form, estimate sheets, acceptance form, award of contract, card catalog of work under contract, schedule of unit prices, contract, bond and labels for models and samples. Kissam displayed forms while giving this lecture to the upperclassmen of the school of architecture at Columbia University.

[138] D. Everett Waid, "The Business Side of an Architect's Office, Descriptions of the Offices of Messrs. Henry Bacon; Ford, Butler and Oliver; Ludlow and Peabody; H. Van Buren Magonigle and Kenneth Murchison," The Brickbuilder 22 (1913): 253-254. It is unclear exactly what was meant by standard business letter size as referred to in the article, but 8 ½ inch by 11 inch paper was adopted by industry sometime around World War I and officially instated by the Bureau of Standards' Committee on the Simplification of Paper Sizes during the Hoover administration. Arthur D. Dunn, Notes on the Standardization of Paper Sizes (Ottawa, Canada, 1972), 6.

[139] D. Everett Waid, "The Business Side of an Architect's Office, The Office of Mr. Donn Barber," 200.

[140] D. Everett Waid, "The Business Side of an Architect's Office, The Office of George B. Post and Sons," The Brickbuilder 23 (1914): 47, 49.

[141] D. Everett Waid, "The Business Side of an Architect's Office, The Office of Messrs. Mann and MacNeille, New York," The Brickbuilder 23 (1914): 103-105.

[142] Waid, "The Business Side of an Architect's Office, Descriptions of the Offices of Messrs. Henry Bacon; Ford, Butler and Oliver," 252-253.

[143] Kissam, "The Principles of the Business Management of Office Practice of Architects," 45-47. In larger offices, an accounting department may be necessary. Kissam stated that costs for each department needed to be kept and segregated by job in order to obtain an accurate accounting for each job.

[144] D. Everett Waid, "The Business Side of an Architect's Office, with Description of the Architect's Building, New York," 22 The Brickbuilder (1913): 179.

[145] Woods, From Craft to Profession, 121, 128.

[146] D. Everett Waid, "How Architects Work" series, Brickbuilder 20 (1911): 249-252, "How Architects Work" series, Brickbuilder 21 (1912): 7-10, 35-38. D. Everett Waid, "The Business Side of an Architect's Office" series, Brickbuilder 22 (1913): 179-181, 197-200, 267-270. D. Everett Waid, "The Business Side of an Architect's Office" series, Brickbuilder 23 (1914): 47-49, 62-64, 103-105.

[147] Waid, "How Architects Work, II. – Offices of Noted Architects," 7-10. The next article in the series, D. Everett Waid, "How Architects Work, III., 35, 38, described the office of J. H. Freelander, attributing the calm of the office environment to the presence of a manager who oversaw the general business of the office. This article concluded with the description of the office of Messrs. Trowbridge and Livingston, another of the large New York architectural offices.

[148] Waid, "The Business Side of an Architect's Office, with a Description of the Architects' Building," 179-180. The financing for the Architect's Building was facilitated by the contractor that built the building, with the architects owning stock in the building. The 16 story building complied with laws for light manufacturing, or loft, buildings. The floor space was highly flexible to accommodate all types of offices. The stories were 12 feet, instead of the typical 10, with windows set high in the wall to provide necessary light. The structure was steel with reinforced concrete floor slabs. Window frames were hollow steel, corridor floors were terrazzo, and the exterior clad in limestone and brick.

[149] Waid, "The Business Side of an Architect's Office, with a Description of the Architects' Building," 181.

[150] Waid, "The Business Side of an Architect's Office, The Office of Messrs. Mann and MacNeille," 103-105. Mr. Mann was the party in charge of design and Mr. MacNeille was trained as an engineer and therefore responsible for the mentioned construction activity.

[151] D. Everett Waid, "The Business Side of an Architect's Office, The Office of Messrs. McKim, Mead and White," The Brickbuilder 22 (1913): 267-270. HVAC, plumbing and electrical, and structural design were done by independent engineering firms outside the office, there were specialized individuals within the office to write specifications, keep track of accounting and contracts, and estimate the costs of proposed buildings.

[152] Alison K. Hoagland, "'The Invariable Model': Standardization and Military Architecture in Wyoming, 1860-1900," Journal of the Society of Architectural Historians 57 (September 1998): 300, 301, 307, 310-313.

[153] Antoinette J. Lee, Architects to the Nation, The Rise and Decline of the Supervising Architect's Office (Oxford: Oxford University Press, 2000), 37, 39, 47, 58-61, 160-161, 168-169, 180-187.

[154] Kissam, "The Principles of the Business Management of Office Practice of Architects," 54. Essential information included the job number, the date, the scale at which it was drawn, the building and drawing name, the name of the drafter, tracer and checker and the name of the person who authorized use of the drawing for construction, and other information as each office found helpful. Kissam highly recommended to the audience that they "write down everything."

[155] Kilham, "Some Phases of Modern Architectural Practice," 55.

[156] Waid, "How Architects Work, II. – Offices of Noted Architects," 8.

[157] Waid, "The Business Side of an Architect's Office, The Office of Mr. Donn Barber," 197. A revision stamp was placed in the bottom right hand corner of every drawing to record each change made, and shop drawings were stamped "received" and dated by the plan clerk when they arrived in the office.

[158] H. Van Buren Magonigle, "Some Suggestions as to the Making of Working Drawings," The Brickbuilder 22 (1913): 99-101. Magonigle acknowledged that the majority of architects considered the use of "system" repugnant. The advent of "sun printing" revolutionized the entire process of working drawing production by eliminating the need for endless retracing by draftsmen necessary to produce the number of prints required by the contractor to build the building. Magonigle stressed the necessity of managing both the production and safekeeping of working drawings.

[159] Magonigle, "Some Suggestions as to the Making of Working Drawings," 150. All plans for the Municipal Office Bldg were drawn at 1/8 inch scale, reduced photographically to 1/16 inch scale and reproduced lithographically to a standard size of 27"x40" for the building plans and 16"x30 ¾" for the interior finishes to facilitate use on the jobsite and to increase the amount of detail presented on each drawing. The drawings were marked by number in all four corners to ease reference. All shop drawings were bound and kept with the office copy of the drawing for ready reference. A miniature plan was on each drawing with the section of the building covered by the drawing highlighted. The working drawing production of the office of York and Sawyer used a standard size sheet for all jobs and, unlike other offices, drew details and sections to the same scale and on the same sheet as the plan to which the detail or section related.

[160] William Bryce Mundie, "The Architect and Chicago Schools," Western Architect 4 (July 1905): 4-8.

[161] Magonigle, "Some Suggestions as to the Making of Working Drawings," 174. For example, the numbers 400 to 499 were for structural drawings. If certain drawings showed plumbing then the suffix "P" was added to the number, similarly for heating, lighting and other mechanical drawings.

[162] Magonigle, "Some Suggestions as to the Making of Working Drawings," 150.

[163] Magonigle, "Some Suggestions as to the Making of Working Drawings," 100. The zinc cuts were made into rubber stamps for use on paper originals Reduced size copies of the stamps were made to use on other office documents related to the particular job, as a labor saving device.

[164] Waid, "The Business Side of an Architect's Office, The Office of Mr. Donn Barber," 197, 198. A revision stamp was placed in the bottom right hand corner of every drawing to record each change made, and shop drawings were stamped "received" and dated by the plan clerk when they arrived in the office.

[165] Waid, "The Business Side of an Architect's Office, Descriptions of the Offices of Messrs. Henry Bacon; Ford, Butler and Oliver; Ludlow and Peabody," 251-252.

[166] Advertisement, The Architectural Forum 29 (January 1918), 12.

[167] Advertisement, 12. "Sweets The Book of Catalogue," Architectural Record 13 (Sept 1905): 240. "Standardizing Catalogs for Architects, A Concerted Manufacturers' Movement that Proves a Big Step Toward the Solution of the Catalog Problem," The Western Architect 18 (1912): 70.

[168] "Sweets The Book of Catalogue," 240. Twenty-six hundred architects and thousands outside the profession had endorsed this new system. Today every architectural office worker is familiar with the multi-volume Sweets Catalog, arranged by standard specification number and containing virtually all available building materials and products, but in 1905 when the Dodge Corporation launched its publication, architects typically received individual catalogs from various manufacturers that were of varying size and value. Although updates appeared in Architectural Record, albeit infrequently, Sweets did not find a national following immediately, indicated by Kilham's article, "Some Phases of Modern Architectural Practice," 55, that pondered why manufacturers were unable to agree upon a standard size for their advertising materials. In 1908 another compilation of manufacturer catalogs, the Building Trade Catalog, was contacting manufacturers about supplying advertising and specification information in a standardized loose leaf format. This system of standardized catalog information was in the process of being sent to all architects, engineers and builders throughout the United States. "Standardizing Catalogs for Architects," 70.

[169] For example, a standard hollow metal door would be specified under section 08 11 13.13: Section 08 Openings; Sub-section 11 Metal Doors and Frames; Sub-sub-section 13 Hollow Metal Doors with .13 identifying a standard size. Fabricated Fireproofed Steel Columns are specified in section 05 12 16: Section 05 Metals; Sub-section 10 Structural Metal Framing and Sub-section 12 reserved for Structural Steel; Sub-sub-section 16 Fabricated Fireproofed Steel Columns. According to CSI master format specifications.

[170] Editorial comment at the end of Waid, "The Business Side of an Architect's Office, The Office of Mr. Donn Barber," 199-200.

[171] "Address of President John Lawrence Mauran," JAIA 6 (April 1918): 193.

[172] Lewis Gould, "Introduction" in The Progressive Era, ed. Lewis Gould (Syracuse, NY: Syracuse University Press 1974), 9. Thomas K. McCraw "The Progressive Legacy" in The Progressive Era, ed. Lewis Gould (Syracuse, NY: Syracuse University Press, 1974), 181-182. Progressive reforms were based on the belief in several basic tenets: industrialization and the urbanization of society had created hazardous social conditions, personal morals needed improvement, new political remedies were needed, government should be more democratic, America needed to be culturally homogeneous, scientific principles provided the best methods of reform, and some problems needed continuous management.

[173] Stanley P. Caine, "Origins of Progressivism" in The Progressive Era, ed. Lewis Gould (Syracuse NY: Syracuse University Press, 1974), 25-27.

[174] Bluestone, Constructing Chicago, 190.

[175] "To the Directors of the Title and Mortgage Companies of New York," Evening Mail (February 19, 1917), cited and republished in Milton B. Medary , Jr., "An Indictment which must be Examined!," JAIA 6 (February 1918): 79-81.

[176] As was usual, the address was published in other major journals including: Western Architect 27(May 1918): 37-42, American Architect 113 (May 8, 1918): 551-564, Brickbuilder 28 (1918): 194.

[177] "Address of President John Lawrence Mauran," 190-193. Prior to the declaration of war, the Institute had formed a Preparedness Committee to analyze the capabilities and resources available to the Institute through its various members. Once war was declared the Institute offered its services and that of its members to the government free of charge. Initially accepted by the department of the Navy, the Institute was subsequently advised to withdraw its offer due to the supposed financial strain that it would impose on the individuals who were making themselves available to government service free of charge. It was discovered that the barracks utilized for the temporary quartering of troops were woefully inadequate, as the plans had been rushed to completion by the War Department. A group of architects knowledgeable in housing issues were hastily convened in Washington and quickly developed new plans, saving an apparent twenty million dollars.

[178] "Post-War Committee on Architectural Practice, Announcement of Preliminary Program for the Inquiry into the Status of the Architect," 6-8. "Post-War Committee – Preliminary Outline of Programme," JAIA 7 (January 1919): 25.

[179] "Post-War Committee on Architectural Practice, Announcement of Preliminary Program," 7-8. It was recognized that both art and craft had been engulfed by industry by the end of the war and that industry was

rapidly encroaching on the art of architecture as evidenced by the number of buildings constructed merely for the attainment of rents.

[180] "Post-War Committee – Preliminary Outline of Programme," 25-28. The subcategories considered under the main points included the status of the architect, the need for more comprehensive service, the business vs. profession argument, the purpose of the professional organization, the responsibilities of the architect, the architect as a citizen, the contractor's function, advertising, competitions, percentage remuneration, supervision of construction, education, architectural design, and extension of social service.

[181] "Post-War Committee on Architectural Practice, Announcement of Preliminary Program," 7-8.

[182] Robert D. Kohn, "Does the Architect Function as He Should? A Resume of the Program of the Post-War Committee on Architectural Practice of The American Institute of Architects," AABN 115 (February 26, 1919): 292-294. One question was concerned with the fact that the majority of building in the United States was carried out without the services of an architect and inquired if this was because the public viewed the services of an architect as a luxury and if so, what could the architect do to educate the public as to the value of the planning, familiarity with advanced building methods and economy of architectural services. Another question considered the responsibility of the architect to the building owner in terms of accuracy of estimated costs, and if a system of quantity survey would adequately address this problem. Questions were concerned with whether the percent of cost of a building was the most reasonable method for determining the architect's fee and whether the architect devoted the proper amount of time and effort to the supervision of the construction of the building to ensure the owner that it was built accurately. The final question under this point of inquiry pertained to the question of advertising, while continuing to uphold the premise that it would be immodest and crass for the architect to advertise in the same manner as modern businesses, it was questioned if there was not some way for the architect to make known the services he was capable of rendering.

[183] Kohn, "Does the Architect Function as He Should?," 294-295. Another question concerned whether the architect should be a party to labor agreements between the contractor and the building trades. The last question dealt with the standardization of building products, suggesting that the development of standardized products had numerous potentialities in the economy and efficiency of the building process.

[184] Kohn, "Does the Architect Function as He Should?," 295-296. Related to the rules of the professional organization, the program questioned the methods of soliciting work: competitions, social networking, and the direct business method of providing sketches at no charge in hopes of receiving the commission. Finally, the program questioned the architect's method of education, one that left the new graduate with no knowledge of practical business methods or practical building know-how.

[185] "Post-War Committee on Architectural Practice," JAIA 7 (April 1919): 153-158. Four sessions of discussion at the 52nd A.I.A. convention centered on the agenda of the Post-War Committee. The first considered the extension of service that the Architect could render, the Architect as a citizen and the status of the Architect related to his practice in terms of Art, Profession or Business. The second considered the role of the Architect in the building process including the responsibility of the Architect, the percentage remuneration, the supervision of construction, the need for comprehensive service, the contractor's function, organized industry and standardization of building products. The third considered architectural societies and competitions. The fourth dealt with architectural education and professional registration. The New York Chapter published its discussion in "Post-War Committee on Architectural Practice, Meeting, New York Chapter, February 18, 1919," JAIA 7 (March 1919): 118. The Washington State chapter proposed a new set of questions for the Post-War committee to consider stating that they believed that the

current line of thinking was similar to the line of questioning that the architectural profession had attempted in the past to no avail. They believed a new line of questioning needed to be undertaken that attended to issues considered of vital importance to the architectural profession. "The Washington State Chapter Suggests that the Post-War Committee Make an Exhaustive Investigation along a New Line," JAIA 7 (April 1919): 154-155, 176.

[186] "Fifty-first Convention of the American Institute," The Western Architect 27 (May 1918): 35.

[187] Kohn, "Does the Architect Function as He Should?," 291-292.

[188] Medary, "An Indictment Which Must be Examined!," 79.

[189] Milton B. Medary, Jr., "The Architect After the War," JAIA 6 (May 1918): 227-228.

[190] Joseph C. Llewellyn, AIA, "Democratizing the Profession of Architecture: A Review of an Address Delivered by Mr. Sidney Webb before the R.I.B.A.," Western Architect 27 (March 1918): 21-23. Llewellyn agreed with Webb that professional societies should advise local authorities regarding regulation of the profession, but should not be the regulating body themselves. Professional societies should provide critical opinion of governmental agencies that performed similar services as the profession to ensure that the public received the greatest possible benefit.

[191] "Advertising the Architect," The Western Architect 27 (1918): 52. Discussed and passed during a meeting of the Society, the board of directors of the Illinois Society of Architects submitted a resolution to the AIA that read, "Be it resolved. That it is the sense of this meeting, consisting of the publicity committee, that we are in favor of a standardized tablet of approved size and design with the name of the architect placed thereon and under his name, his organization or standing, AIA or FAIA, respectively as the case may be, and that all architects who are members of the Institute be strongly advised to place this tablet against structures or improvements during the period of construction from the time the work is actually commenced until its final completion." Illinois Society of Architects Bulletin, 1917-1918

[192] "The Forum – Ethics in Advertising," JAIA 6 (February 1918): 84-85. The author did not recommend advertising as a rule, but suggested allowing the architect freedom with regard to advertising his abilities, naturally creating higher standards and allowing the lines between desirable advertising and crass commercialism to evolve spontaneously.

[193] Woods, From Craft to Profession, 169.

[194] Proceedings of the 51st Convention of the American Institute of Architects 1918 (Washington: Board of Directors of the AIA, 1918), 86, 54-55, 123. "Institute's Attitude on Advertising," WA 27 (May 1918): 42.

[195] "Shadows and Straws," JAIA 6 (May 1918): 217-218.

[196] Letter to the Editor from Lockwood, Greene & Co., "Criticism and Comment," The American Architect 115 (1919): 71-72.

[197] "Post-War Committee on Architectural Practice, Announcement of the PreliminaryProgram," 6-8. That industry's objective was to make items to sell at a profit and that art's objective was to make items with honesty and beauty, was perceived by the author to be the main cause of the conflict between business and architecture. It was vital that architects appreciated the effects that business had on the practice of architecture and that the architect needed to adapt to changes wrought by business methods.

[198] V. A. Matteson, "The Construction Division of the Army," JAIA 6 (November 1918): 527-528. These individuals were specialists in various differentiated building systems and were identified by the term "engineer" rather than "architect." The various branches of engineering had evolved along with the development of the various systems of the modern building, while the architectural profession stagnated.

[199] William Phillips Comstock, "Professional Ferment," JAIA 6 (June 1918): 306-307. Engineers had become the technical advisors to the government during the war principally because they were already working cooperatively and urged architects to do the same.

[200] C. H. Blackall, "Architecture After the War, 1. Architectural Education," The American Architect 115 (January 8, 1919): 7-8. Students should be taught from the beginning that architecture was an exacting business and that a practice failed to be of use to the community or the individual if it was not successful as a business first.

[201] C. H. Blackall, "Architecture After the War, 2. Organization," AA 115 (January 15, 1919): 89-90. Many practitioners believed that architecture produced by the cooperation of several individuals was simply the shoddy product of an "architectural mill." All in the architectural profession were members of an organization that was first and foremost a business, second a scientific construction firm and lastly an entity concerned with fine art. On pages 331-333, "Architecture After the War, 3. Efficiency," AA 115 (January 1919), Blackhall stated that it was the proper balance of business, science and art that enabled the production of good architecture. This balance was the result of the architect's relationships with the client, the builder and the public. The relationship with the client was the foundation of any project and was based in business, the relationship with the builder was scientific and resulted in the proper construction of the building. The relationship with the public was the artistic side of the profession and dealt with designing a building that fit into the community; a design that would please the public and not detract from the aesthetics of existing buildings.

[202] Daniel Paul Higgins, "Architectural Office Organization for Post-War Conditions," AA 115 (January, 1919): 13-15. The graduate architect had no understanding of the world of business and this ineptitude breed distrust among his clients. Students needed to learn business methods and practicing architects needed to follow certain precepts to succeed. In order to gain the respect of the business client, the architect needed to realize that simplicity of design, low cost of construction, high quality of construction and speed of construction were of the utmost importance to the business client. The production of modern buildings necessitated the satisfaction of utility requirements first and artistic requirements after; too many architects designed beautiful buildings that did not function as the client wanted.

[203] Higgins, "Architectural Office Organization for Post-War Conditions," 60-61.

[204] "Office Administration, A Group of Papers by the Managers of Four Representative Architects' Offices," The Architectural Forum 29 (August 1918): 27-29, 36-37. The article considered the management of the draftsman, and suggested using the time card as a way to accurately record time spent but not as a method to penalize the draftsman for spending too much time on a particular project. The article referred to the well organized office as machinery that ran with as little friction as possible. On pages 37-39, the fourth manager addressed the minutia of managing the drafting room as it related to the payment of employees and bills that the office received. The establishment of working hours and the flexibility therewith, along with the method and schedule of meeting the payroll was acknowledged to vary with employer but suggestions as to an efficient manner of handling these matters was put forth in the article. The article also discussed how to handle vacations and sick leave, and how to regulate the payment of bills, so that office personnel were not constantly shuffling papers, and how to account for the costs of

doing business in the payment requests that were sent to the client. F. E. Davidson declared that the practice of the industrial architect required a hierarchical organization to be successful; this organization consisted of technical experts whose efforts the architect coordinated to produce a suitable building for his client. F.E. Davidson, "The Industrial Architect of To-Day," Architecture 38 (1918): 239. The architect must have a working knowledge of each of the specialists' expertise for the satisfactory completion of the building design, for each of these specialties were a part of architecture as a whole

[205] George C. Baldwin, "The Offices of Albert Kahn, Detroit, Michigan," The Architectural Forum 29 (November 1918): 125-130.

[206] H. A. Mayne, "The Offices of Starrett and Van Vleck, Architects, New York," The Architectural Forum 29 (December 1918): 157-161. The service that any client could expect from his architect was directly related to the manner in which the architect conducted the business aspects of his practice. All correspondence pertaining to a job was directed to the individual draftsman in charge, after it had been reviewed by a principal of the firm. Inspections of the progress of construction were recorded on the "Superintendent's Diary Report" and all changes to the work were issued on a "Change Order" form.

[207] Higgins, "Architectural Office Organization for Post-War Conditions," 62-64. The Architectural Forum also published a series of articles that the editors stated would examine the office practices of American architects and give them the "acid test of business logic." C. Stanley Taylor, "The Architect of the Future, Part I," The Architectural Forum 30 (January 1919): 1-4., C. Stanley Taylor, "The Architect of the Future, Part II, Sales Organization in the Architect's Office," The Architectural Forum 30 (February 1919): 51-54., C. Stanley Taylor, "The Architect of the Future, Part III, The Client and His Problem," The Architectural Forum 30 (March 1919): 85-86., . Stanley Taylor, "The Architect of the Future, Part IV, An Advertising Policy for the Architect," The Architectural Forum 30 (May 1919): 147-148. The articles would not only disclose problems and examine developing conditions; in addition the author, C. Stanley Taylor, Project Engineer for Mann & MacNeille of New York, would provide solutions to the problems facing architects. Taylor stated that increased national interest in thrift, economy and efficiency, the most successful architectural offices were those that were organized and prepared to render service and administer the client's funds in a businesslike and efficient manner. The architect was no longer able to operate on his own; to succeed the architect needed an organization with the ability to create a project, finance it and sell it to the potential client. Taylor found the architect's office to naturally divide itself into design, engineering and construction functions and believed that when business principles were put into practice the client who judged based on business standards would be impressed by the office's functional efficiency. To succeed the architect needed to know his limitations and pursue work of which he was capable. Most importantly, the various departments of the architectural office needed to work together to create a building that combined aesthetic and utilitarian values in the proper combination to satisfy the needs of the client. Taylor emphasized the relationship with the client and stressed the importance of personal service, a well defined scope of work and detailed plan of payment. The modern client was more interested in a functional building than an aesthetic one. Any advertising should emphasize the practical facts and the quality of service and not concern itself with questions of beauty and aesthetics.

[208] A. L. Brockway, F.A.I.A., "The Department of Architecture and the State Architect of the State of New York," The American Architect 117 (January 14, 1920): 35-37. Brockway believed the Post-War committee could have saved itself time and energy by simply observing the office methods of the New York Department of Architecture. Brockway proclaimed the State Architect of New York, Lewis F. Pilcher, through his high ideal of professional service, his strong executive ability, and quality technical education embodied the architectural ideal that the committee sought. Pilcher was regarded with respect for his architectural knowledge and advice by all in the New York state government and the author believed him to be an example to the architectural community.

[209] A. L. Brockway, F.A.I.A., "Uniform Business Organization of Public Architectural Departments," The American Architect 117 (January 14, 1920): 38-41.

[210] A. L. Brockway, F.A.I.A., "State Departments of Architecture, Their Correct Organization and Efficient Functioning a Logical Solution of Many National Architectural Problems," AA 117 (January 14, 1920): 42-46. Brockway commended the efficiency of the New York State Department of Architecture and recommended that all other Architectural Departments, whether municipal, state or federal, emulate the State of New York's office management system.

[211] "Proposed General Accounting and Cost System for the Michigan Society of Architects," The Architectural Forum 30 (January 1919): 13-21. The system was reviewed by an accounting firm. Another was published in early 1919 about the cost accounting methods for a small architectural firm. Harry Leslie Walker, "A Cost System for the Small Architect's Office," Architecture 39 (1919): 75-76.

[212] Henri C. Heps, "Scientific Management of the Drafting Room," Architecture 39 (1919): 108-110.

[213] Baldwin, "The Offices of Albert Kahn, Detroit, Michigan," 125-130.

[214] "Report of the Post-War Committee on Architectural Practice to the Fifty-third Annual Convention of the American Association of Architects," The American Architect 117 (1920): 606-610, 613.

[215] Boyle, "Architectural Practice in America," 330-331.

[216] The American Architect 46 (September 22, 1909): 115.

[217] Pai, The Portfolio and the Diagram, 13.

[218] Crysler, Writing Spaces, 11.

[219] Pai, The Portfolio and the Diagram, 30.

[220] Boyle, "Architectural Practice in America," 330-331, 334.

[221] Boyle, "Architectural Practice in America," 316-319.

[222] The ideas of middle management and the sharing of information for decision making are presented by Alfred Chandler in The Visible Hand. One of the principles of scientific management developed by Frederick Taylor is the separation of planning and production. The employee not longer has control over his own production.

[223] Boyle, "Architectural Practice in America," 318.

Bibliography

Primary Sources:

"Address of President John Lawrence Mauran," Journal of the American Institute of Architects 6 (April 1918): 190-193.

Advertisement, The Architectural Forum 29 (January 1918): 12.

"Advertising the Architect," The Western Architect 27 (1918): 52.

"Architectural Schools in the United States – Columbia University," The Architectural Record 10 (July 1900): 1-21.

"Architectural Schools in the United States – University of Pennsylvania," The Architectural Record 10 (1901): 313-336.

Baldwin, George C., "The Offices of Albert Kahn, Detroit, Michigan," The Architectural Forum 29 (November 1918): 125-130

Blackall, C. H., "Architecture After the War, 1. Architectural Education," The American Architect 115 (January 1919): 7-9.

_____. "Architecture After the War, 2. Organization," The American Architect 115 (January 1919): 89-90.

_____."Architecture After the War, 3. Efficiency," The American Architect 115 (January 1919): 331-333.

Brockway, A. L., F.A.I.A., "State Departments of Architecture, Their Correct Organization and Efficient Functioning, a Logical Solution of Many National Architectural Problems," The American Architect 117 (January 14, 1920): 42-46

_____. "The Department of Architecture and the State Architect of the State of New York," The American Architect 117 (January 14, 1920): 35-38.

_____. "Uniform Business Organization of Public Architectural Departments," The American Architect 117 (January 14, 1920): 39-41.

Comstock, William Phillips, "Professional Ferment," Journal of the American Institute of Architects 6 (June 1918): 306-307.

"Critical Words from Abroad", American Architect and Building News 34 (December 26, 1891): 198.

"Criticism and Comment," Letter to the Editor from Lockwood, Greene & Co., The American Architect 115 (1919): 71-72.

Davidson, F.E., "The Industrial Architect of To-Day," Architecture 38 (1918): 239.

"Fifty-first Convention of the American Institute," The Western Architect 27 (May 1918): 35, 37-38, 41-42.

Fitzpatrick, F. W., "A Rambler," Inland Architect 27 (March 1896): 15-17.

_____. "The Business of Architecture," Inland Architect 39 (May 1902): 30-31.

Heps, Henri C., "Scientific Management of the Drafting Room," Architecture 39 (1919): 108-110.

Higgins, Daniel Paul, "Architectural Office Organization for Post War Conditions," The American Architect 115 (January, 1919): 13-16, 60-64.

Harder, Julius F., "Architects as Business Men," The Inland Architect 39 (May 1902): 32.

"Institute's Attitude on Advertising," The Western Architect 27 (May 1918): 42-44.

Israels, Charles Henry, "Socialism and the Architect," Architectural Record 17 (April 1905): 329-335.

Kilham, Walter H., "Some Phases of Modern Architectural Practice," The Western Architect 17 (June 1911): 55-57.

Kissam, H. S., "The Principles of the Business Management of Office Practice of Architects," American Architect and Building News 94 (August 1908): 45-47, 53-54.

Kohn, Robert D., "Does the Architect Function as He Should? A Resume of the Program of the Post-War Committee on Architectural Practice of the American Institute of Architects," The American Architect 115 (February 26, 1919): 292-296.

Llewellyn, Joseph C., AIA, "Democratizing the Profession of Architecture: A Review of an Address Delivered by Mr. Sidney Webb before the R.I.B.A.," Western Architect 27 (March 1918): 21-24.

Magonigle, H. Van Buren, "Some Suggestions as to the Making of Working Drawings," The Brickbuilder 22 (1913): 99-101, 147-153, 174.

Matteson, V. A., "The Construction Division of the Army," Journal of the American Institute of Architects 6 (November 1918): 525-528.

Mayne, H. A., "The Offices of Starrett and Van Vleck, Architects, New York," The Architectural Forum 29 (December 1918): 157-161.

Medary, Milton B., Jr., "An Indictment which must be Examined!," Journal of the American Institute of Architects 6 (February 1918): 79-81.

_____. "The Architect After the War," Journal of the American Institute of Architects 6 (May 1918): 227-229.

Mundie, William Bryce, "The Architect and Chicago Schools," Western Architect 4 (July 1905): 4-9.

"Office Administration, A Group of Papers by the Managers of Four Representative Architects' Offices," The Architectural Forum 29 (August 1918): 27-39.

Perkins, H.E., "System in Architects' Offices," Inland Architect 17 (February 1891): 3-4.

"Post-War Committee on Architectural Practice," Journal of the American Institute of Architects 7 (April 1919): 153-158

"Post-War Committee on Architectural Practice, Announcement of Preliminary Program for the Inquiry into the Status of the Architect," Journal of the American Institute of Architects 7 (January 1919): 6-8, 25-28, 153-158.

"Post-War Committee on Architectural Practice, Meeting, New York Chapter, February 18, 1919," Journal of the American Institute of Architects 7 (March 1919): 118

"Post-War Committee – Preliminary Outline of Programme," Journal of the American Institute of Architects 7 (January 1919): 25-28.

Proceedings of the 51st Convention of the American Institute of Architects 1918, Washington: Board of Directors of the AIA, 1918.

"Proposed General Accounting and Cost System for the Michigan Society of Architects," The Architectural Forum 30 (January 1919): 13-21.

Purdy, C. T., "The Relation of the Engineer to the Architect," American Architect and Building News 87, (1905): 43-46.

"Report of the Post-War Committee on Architectural Practice to the Fifty-third Annual Convention of the American Association of Architects," The American Architect 117 (1920): 606-610, 613.

"Report of Committee on Code of Ethics," John W. Root, ed., Proceedings of the 24th Annual Convention of the American Institute of Architects 1890, 17-18, Chicago: Inland Architect Press, 1891.

"Retrospect," American Architect and Building News 18 (December 26, 1885): 303.

Seeler, Edgar V., "The Relation of Specialists to Architects," The Western Architect 4 (March 1905): 4-5.

"Specializing," The American Architect 44 (May 10, 1911): 175.

"Studio and Office of H.H. Richardson, Architect, Brookline, Massachusetts," American Architect and Building News 16 (December 27, 1884): 304-305.

"Shadows and Straws," Journal of the American Institute of Architects 6 (May 1918): 217-218

"Standardizing Catalogs for Architects, A Concerted Manufacturers' Movement that Proves a Big Step Toward the Solution of the Catalog Problem," The Western Architect 18 (1912): 70.

"Sweets, The Book of Catalogue," Architectural Record 13 (Sept 1905): 240-242.

Taylor, C. Stanley, "The Architect of the Future, Part I," The Architectural Forum 30 (January 1919): 1-4.

_____. "The Architect of the Future, Part II, Sales Organization in the Architect's Office," The Architectural Forum 30 (February 1919): 51-54.

_____. "The Architect of the Future, Part III, The Client and His Problem," The Architectural Forum 30 (March 1919): 85-86.

_____. "The Architect of the Future, Part IV, An Advertising Policy for the Architect," The Architectural Forum 30 (May 1919): 147-149.

Taylor, Frederick Winslow, The Principles of Scientific Management New York: W. W. Norton & Co., Inc., 1911.

"The Forum – Ethics in Advertising," Journal of the American Institute of Architects 6 (February 1918): 84-85.

"The Management of an Architect's Office – I", American Architect and Building News 33 (1891): 97-99.

"The Management of an Architect's Office – II," American Architect and Building News 33 (September 5, 1891): 147-149.

"The Management of an Architect's Office – III," American Architect and Building News 33 (September 19, 1891): 178-180.

"The Management of an Architect's Office – IV," American Architect and Building News 34 (October 10, 1891): 27-29.

"The Management of an Architect's Office – V," American Architect and Building News 34 (December, 19, 1891): 181-183.

"The Washington State Chapter Suggests that the Post-War Committee Make an Exhaustive Investigation along a New Line," Journal of the American Institute of Architects 7 (April 1919): 154-155, 176

Waid, D. Everett, "How Architects Work, I. Offices of Noted Architects," The Brickbuilder 20 (1911): 249-252.

_____. "How Architects Work, II. – Offices of Noted Architects," The Brickbuilder 21 (1912): 7-10.

_____. "How Architects Work, III. – Offices of Noted Architects," The Brickbuilder 21 (1912): 35-38.

_____. "The Business Side of an Architect's Office, The Office of Mr. Donn Barber," The Brickbuilder 22 (1913): 197-200

_____. "The Business Side of an Architect's Office, Descriptions of the Offices of Messrs. Henry Bacon; Ford, Butler and Oliver; Ludlow and Peabody; H. Van Buren Magonigle and Kenneth Murchison," The Brickbuilder 22 (1913): 251-254.

_____. "The Business Side of an Architect's Office, The Office of George B. Post and Sons," The Brickbuilder 23 (1914): 47-49.

_____. "The Business Side of an Architect's Office, The Office of Messrs. Mann and MacNeille, New York," The Brickbuilder 23 (1914): 103-105.

_____. "The Business Side of an Architect's Office, The Office of Messrs. McKim, Mead and White," The Brickbuilder 22 (1913): 267-270.

_____. "The Business Side of an Architect's Office, with Description of the Architect's Building, New York," 22 The Brickbuilder (1913): 179-181.

Walker, Harry Leslie, "A Cost System for the Small Architect's Office," Architecture 39 (1919): 75-76.

"Where our Architects Work," Architectural Record 10 (1900): 77-83, 143-149, 238-244.

Willett, James R., "Glimpses of the Business Side of an Architect's Life," The Inland Architect 27 (June 1896): 43-45, 53-55.

Secondary Sources :

Balmori, Diana, "George B. Post: The Process of Design and the New American Architectural Office (1868-1913)," Journal of the Society of Architectural Historians 46 (December 1987): 342-355.

Bluestone, Daniel, Constructing Chicago, New Haven: Yale University Press, 1991.

Bledstein, Burton J., The Culture of Professionalism, the Middle Class and the Development of Higher Education in America, New York: W. W. Norton and Company, Inc., 1976.

Boyle, Bernard Michael, "Architectural Practice in America, 1865-1965 – Ideal and Reality," in The Architect, Chapters in the History of the Profession, 309-344, ed., Spiro Kostof, New York: Oxford University Press, 1977.

Brain, David, "Discipline and Style: The Ecole des Beaux-Arts and the Social Production of an American Architecture," Theory and Society, 18 (November 1989): 807-868.

Burns, Sarah, Inventing the Modern Artist, Art and Culture in Gilded Age America, New Haven: Yale University Press, 1996.

Caine, Stanley P., "The Origins of Progressivism" in The Progressive Era, 11-34, ed., Lewis Gould, Syracuse NY: Syracuse University Press, 1974

Chandler, Alfred D., "Decision Making and Modern Institutional Change", in The Essential Alfred Chandler, Essays Toward a Historical Theory of Big Business, 343-354, ed., Thomas K. McCraw Boston: Harvard Business School Press, 1988.

_____. "Introduction to The Visible Hand," in The Essential Alfred Chandler: Essays Toward a Historical Theory of Big Business, 387-397, ed., Thomas K. McCraw, Boston: Harvard Business School Press, 1988.

_____. "The Beginnings of 'Big Business' in American Industry", in The Essential Alfred Chandler, Essays Toward a Historical Theory of Big Business, 47-73, ed., Thomas K. McCraw Boston: Harvard Business School Press, 1988.

Crysler, C. Greig, Writing Spaces, Discourses of Architecture, Urbanism, and the Built Environment, 1960-2000, New York: Routledge, 2003.

Dostoglu, Sibel B., Towards Professional Legitimacy and Power: An Inquiry into the Struggle, Achievements and Dilemmas of the Architectural Profession Through an Analysis of Chicago 1871-1909, Dissertation: University of Pennsylvania, 1982.

Drexler, Arthur, ed., The Architecture of the Ecole Des Beaux-Arts, Cambridge, MA: The MIT Press, 1977.

Dunn, Arthur D., Notes on the Standardization of Paper Sizes Ottawa, Canada, 1972.

Fenske, Gail, "The Beaux Arts Architect and the Skyscraper," in The American Skyscraper, Cultural Histories, 19-37, Roberta Moundry, ed., New York: Cambridge University Press, 2005.

_____. The Skyscraper and the City: The Woolworth Building and the Making of Modern New York, Chicago: The University of Chicago Press, 2008.

Gatter, Linda Stewart, The Office: An Analysis of the Evolution of a Workplace, MA Thesis, MIT, 1982.

Gould, Lewis, "Introduction" in The Progressive Era, 1-10, ed., Lewis Gould, Syracuse, NY: Syracuse University Press, 1974.

Gregory, Daniel Platt, Magazine Modern: A Study of the American Architectural Press, 1919-1930, Dissertation: University of California, Berkeley, 1982.

Guillén, Mauro F., The Taylorized Beauty of the Mechanical, Princeton, NJ: Princeton University Press, 2006.

Gutman, Robert, Architectural Practice: A Critical View, New York, NY: Princeton Architectural Press, 1988.

Hewitt, Mark Alan, Carrère and Hastings, New York: Acanthus Press, 2006.

Hoagland, Alison K., "'The Invariable Model:' Standardization and Military Architecture in Wyoming, 1860-1900," Journal of the Society of Architectural Historians 57 (September 1998): 298-315.

Hull, Judith S., "The 'School of Upjohn': Richard Upjohn's Office," The Journal of the Society of Architectural Historians 52 (September 1993): 281-306.

Kwolek-Folland, Angel, Engendering Business, Men and Women in the Corporate Office, 1870-1930, Baltimore: The Johns Hopkins University Press, 1994.

Larson, Magali Sarfatti, George Leon, and Jay Bolick, "The Professional Supply of Design: A Descriptive Study of Architectural Firms, in Professionals and Urban Form, 251-279., eds., Judith R. Blau, Mark La Gory, and John S. Pipkin, Albany, NY: State University of New York Press, 1983

_____. "Emblem and Exception: The Historical Definition of the Architect's Professional Role," in Professionals and Urban Form, 49-85., eds., Judith R. Blau, Mark La Gory and John S. Pipkin, Albany, NY: State University of New York Press, 1983.

Lear, T. J. Jackson, No Place of Grace, Chicago: The University of Chicago Press, 1981.

Lee, Antoinette J., Architects to the Nation, The Rise and Decline of the Supervising Architect's Office, Oxford: Oxford University Press, 2000.

Lewis, Arnold, An Early Encounter with Tomorrow, Europeans, Chicago's Loop and the World's Columbian Exposition, Urbana: University of Illinois Press, 1997.

McCraw, Thomas K., "The Progressive Legacy" in The Progressive Era, ed., Lewis Gould, Syracuse, NY: Syracuse University Press, 1974.

Mott, Frank, History of American Magazines Vol. 3, Cambridge, MA: The Belknap Press of Harvard University Press, 1957.

O'Gorman, James, Three American Architects: Richardson, Sullivan and Wright, 1865-1915, Chicago: University of Chicago Press, 1991.

Pai, Hyungmin, The Portfolio and the Diagram, Architecture, Discourse and Modernity in America, Cambridge, MA: The MIT Press, 2002.

Saint, Andrew, The Image of the Architect, New Haven: Yale University Press, 1983.

Saylor, FAIA, Henry H., The A.I.A.'s First Hundred Years, Washington D.C.: The Octagon, 1957.

Shepherd, Roger, Skyscraper: The Search for American Style 1891-1941, Annotated Extracts from the First 50 Years of *Architectural Record*, New York: McGraw Hill, 2003.

Tomean, Michael Andrew, Popular and Professional American Architectural Literature in the Late Nineteenth Century, Dissertation, Cornell University, 1983.

Trachtenberg, Alan, The Incorporation of America, Culture and Society in the Gilded Age, New York: Hill and Wang, 1982.

Upton, Dell, Architecture in the United States, Oxford: Oxford University Press, 1998.

Williamson, Roxanne Kuter, American Architects and the Mechanics of Fame, Austin: University of Texas Press, 1991.

Willis, Carol, Form Follows Finance: Skyscrapers and Skylines in New York and Chicago, New York: Princeton Architectural Press, 1995.

Woods, Mary, The American Architect and Building News, 1876-1907, Dissertation, Columbia University, 1983.

_____. "The First American Architectural Journals: The Profession's Voice," Journal of the Society of Architectural Historians 48 (1989): 117-138.

_____. From Craft to Profession: The Practice of Architecture in Nineteenth-Century America, Berkeley: University of California Press, 1999.

Zunz, Olivier, Making America Corporate, 1870-1920, Chicago: The University of Chicago Press, 1990.

Table 5

Number of Professionals in Specific Occupations, 1850–1980

Occupation	1850	1860	1870	1880	1890	1900	1910	1920	1930	1940	1950	1960	1970	1980
Architects	591	1,236	2,017	3,375	8,070	10,581	16,613	17,185	22,850	21,359	25,359	30,028	56,284	90,026[a]
Civil Engineers	412	N.A.	4,703	8,261	N.A.	20,068	39,730	56,060	87,586	84,607	123,600	159,809	178,334	202,253
Lawyers and Judges	23,939	34,839	40,736	64,137	89,630	114,460	114,704	122,519	160,605	179,554	172,290	209,684	277,695	527,243
Physicians and Surgeons	40,765	55,159	62,448	85,671	104,805	132,002	151,132	150,007	159,920	170,282	184,710	234,388	280,557	432,337

Source:
Data for 1850 to 1970 inclusive are taken from Robert Gutman and Barbara Westergaard, "Architecture among the Professions," tables 1 and 1a. Data for 1980 are taken from U.S. Department of Commerce, Bureau of the Census, *Census of Population, 1980,* Subject Reports, Occupation by Industry, PC80–2–7c, table 4; and Supplementary Report PC–80–S1–15.

[a]The number given in the 1980 census, 106,386, includes 16,386 landscape architects. See *Census of Population, 1980,* Subject Reports, Occupation by Industry PC–2–7c, table 4.

Figure 1: Number of Professionals in Occupations Chart

Figure 2: Richard Upjohn, New York architect, (1802-1878)

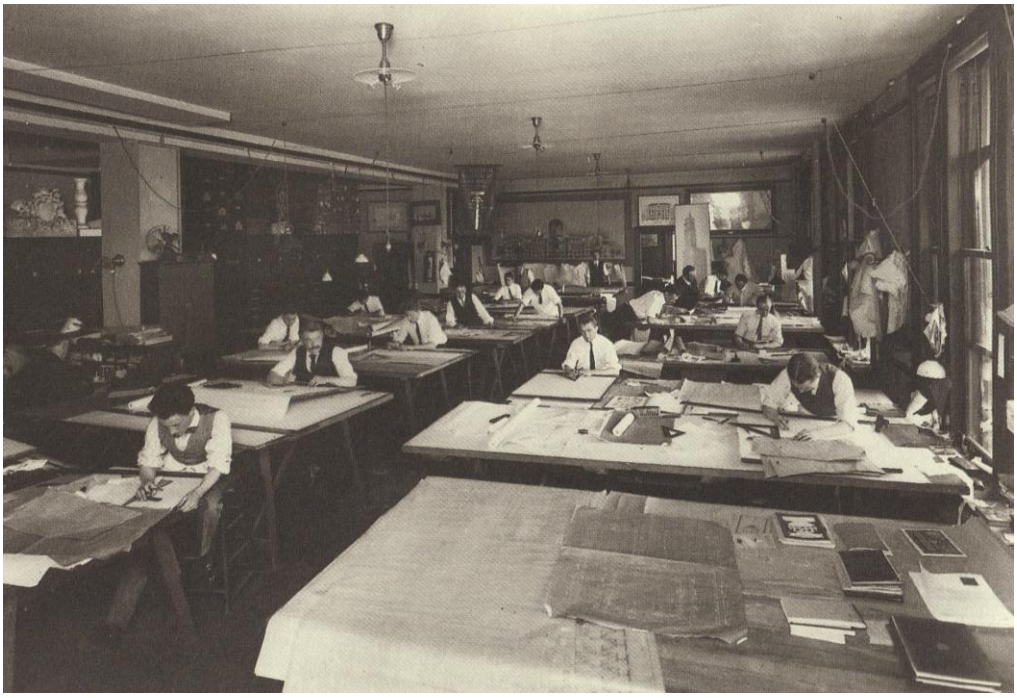


Figure 3: Cass Gilbert's Atelier during design of Woolworth Building.

Figure 4: *Atelier* of Jean-Louis Pascal at Le Ecole des Beaux Arts, Paris, 1905.

Figure 5: Richard Morris Hunt, architect, (1827-1895) as Cimabue, 1883.

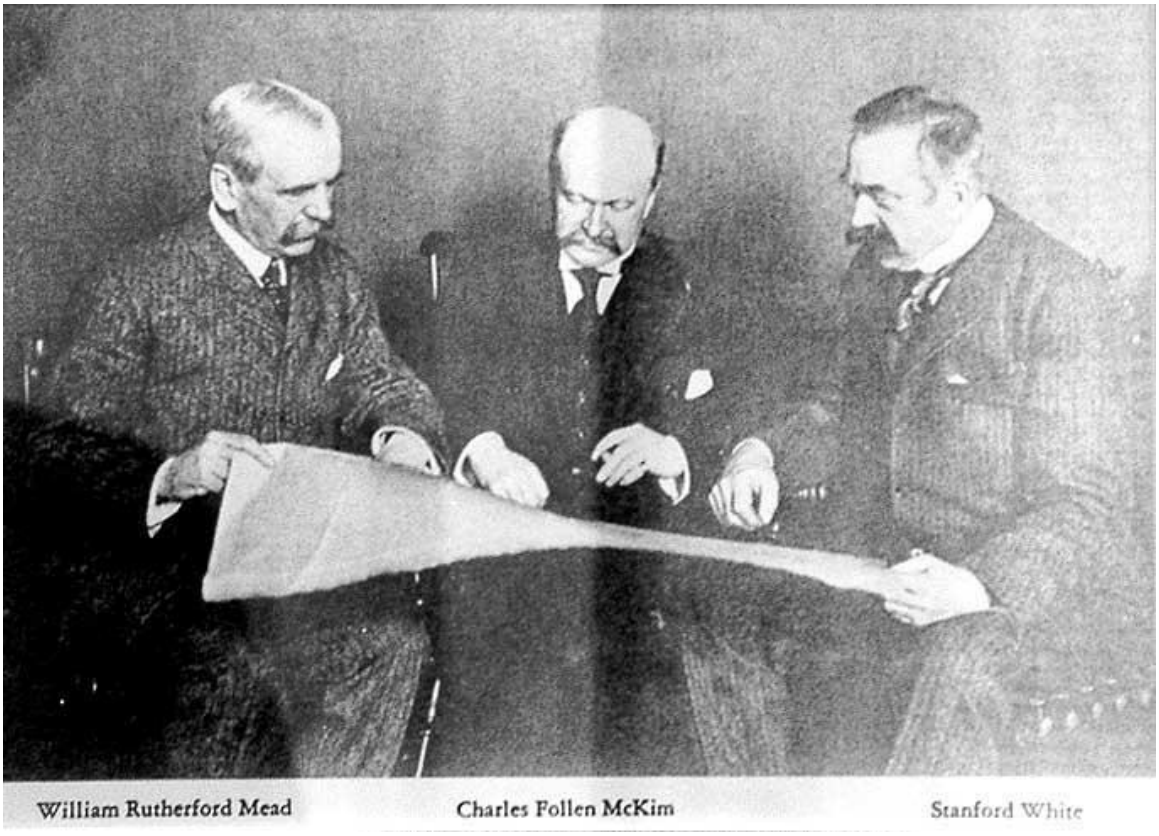


Figure 6: McKim, Mead and White, New York architects.

FIGURE 37. Burnham and Root in their office library, Rookery Building, Chicago, *Inland Architect and News Record,* September 1888, Ryerson and Burnham Libraries, The Art Institute of Chicago).

Figure 7: Daniel Burnham and John Root, Chicago architects, ca. 1888.

Figure 8: Henry Hobson Richardson, Boston architect (1838-1886) as a monk.

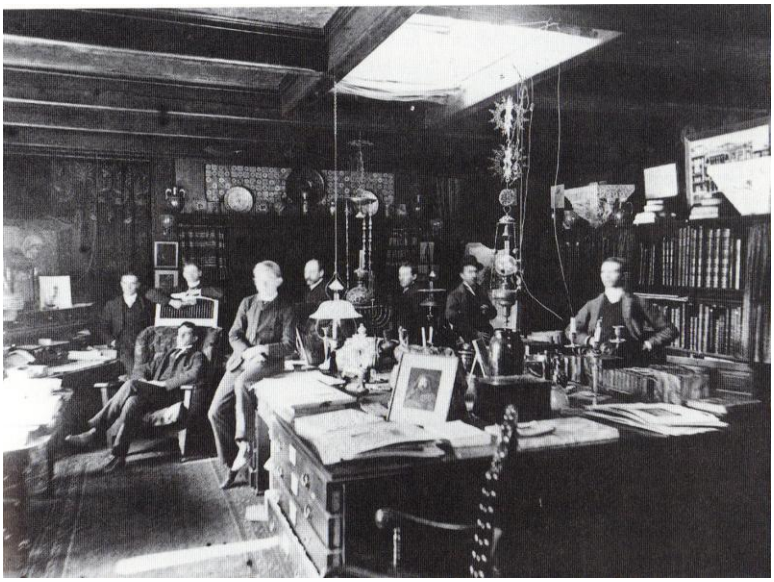
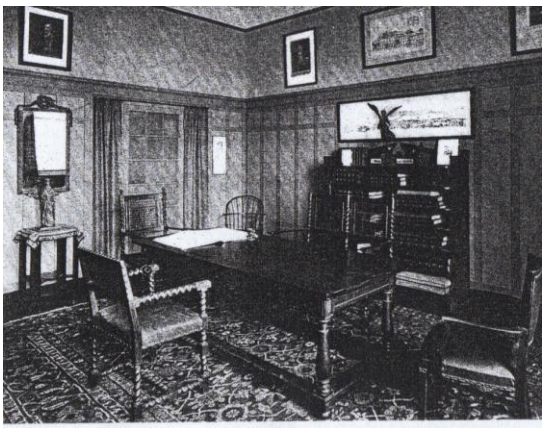


Figure 9: H. H. Richardson's *Atelier* ca. 1886.



RECEPTION ROOM.
OFFICE OF EWING & CHAPPELL.

Figure 10: Reception Rooms of Trowbridge & Livingston, Ewing & Chappell, and Carrere & Hastings, New York architects.

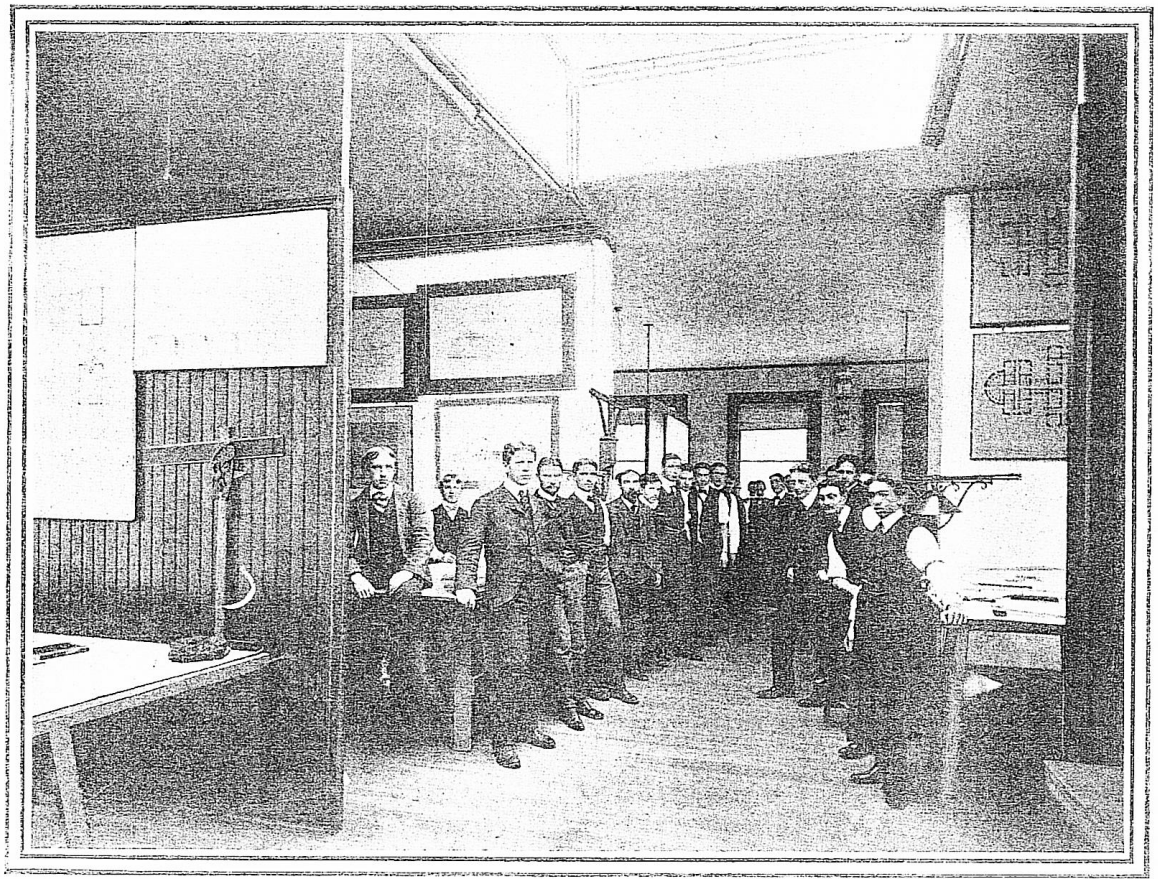


Figure 11: Ernest Flagg's Workshop ca. 1900.

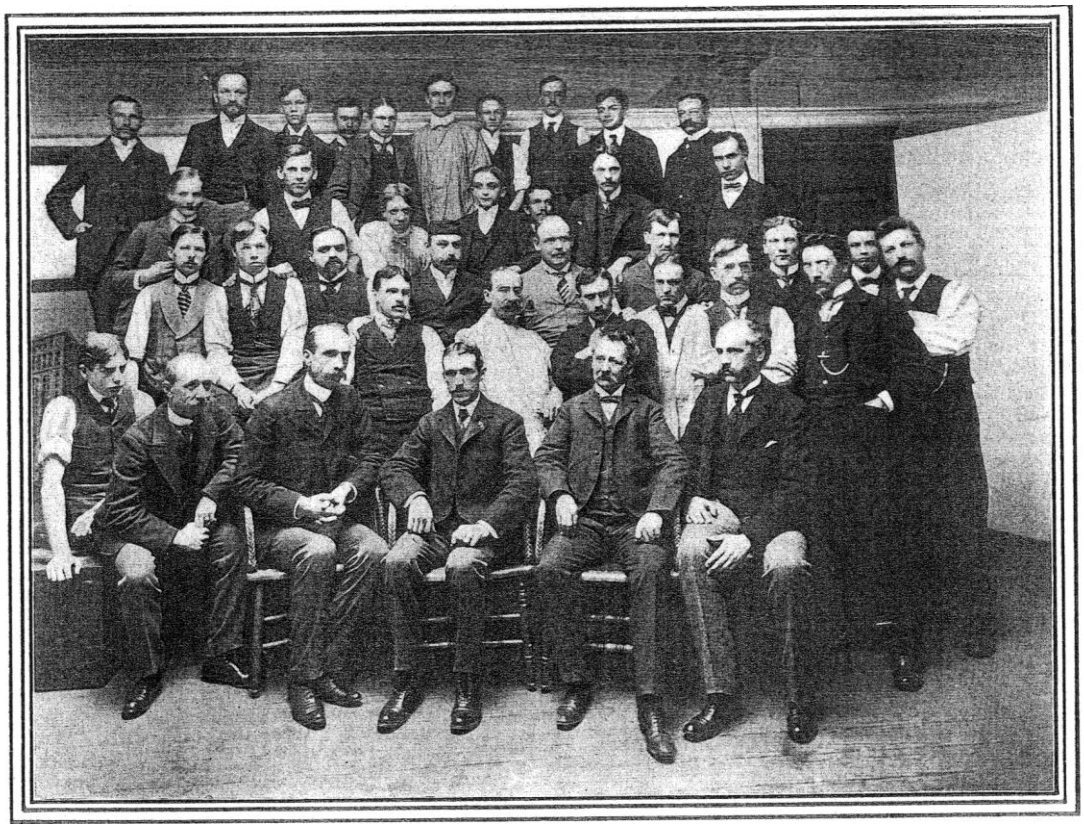


Figure 12: George B. Post's Workshop ca. 1900.

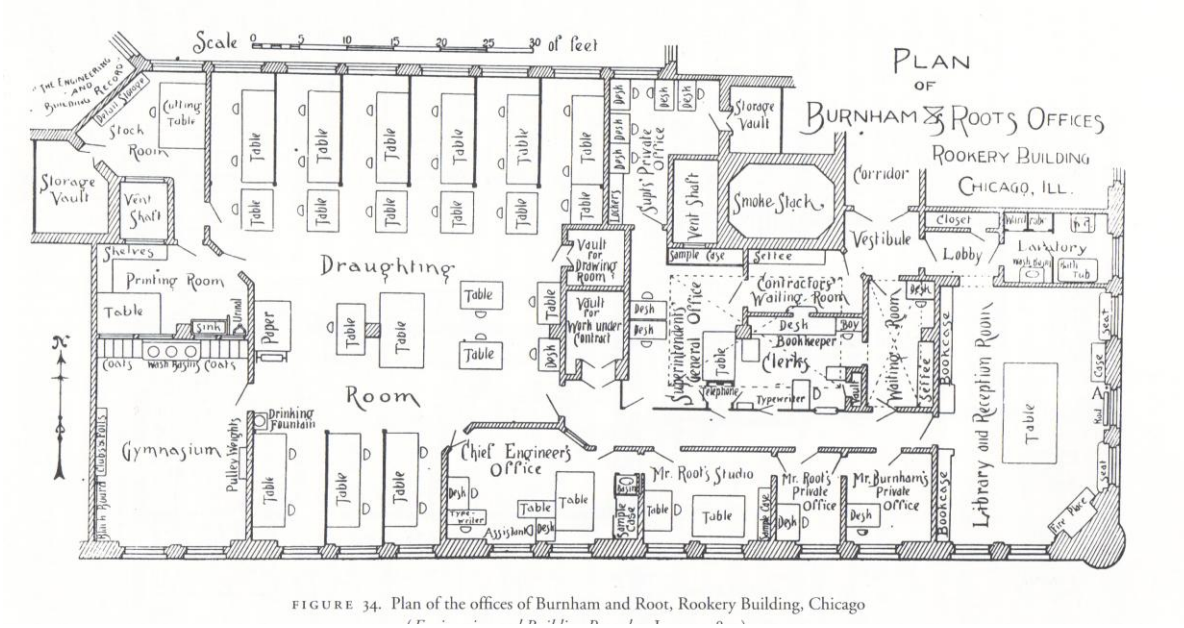
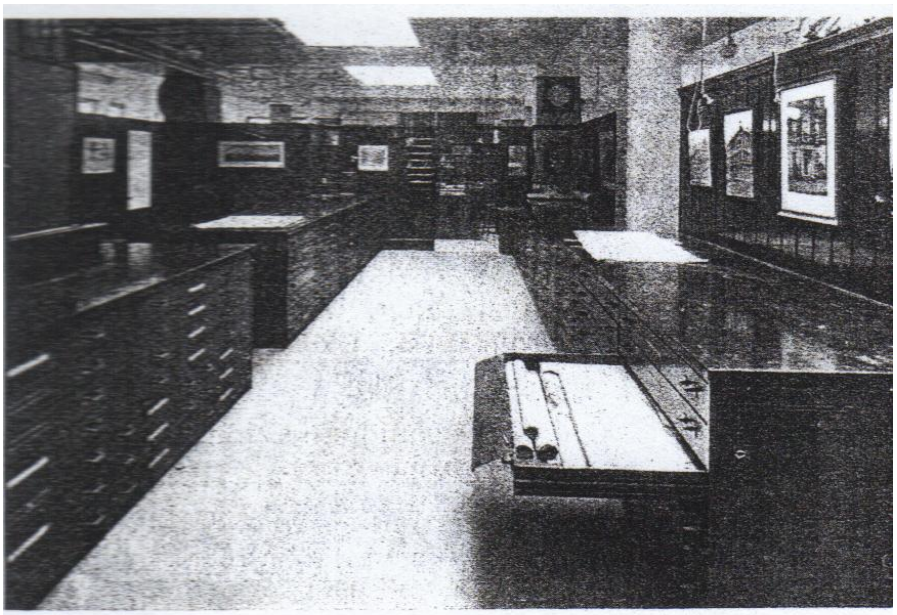


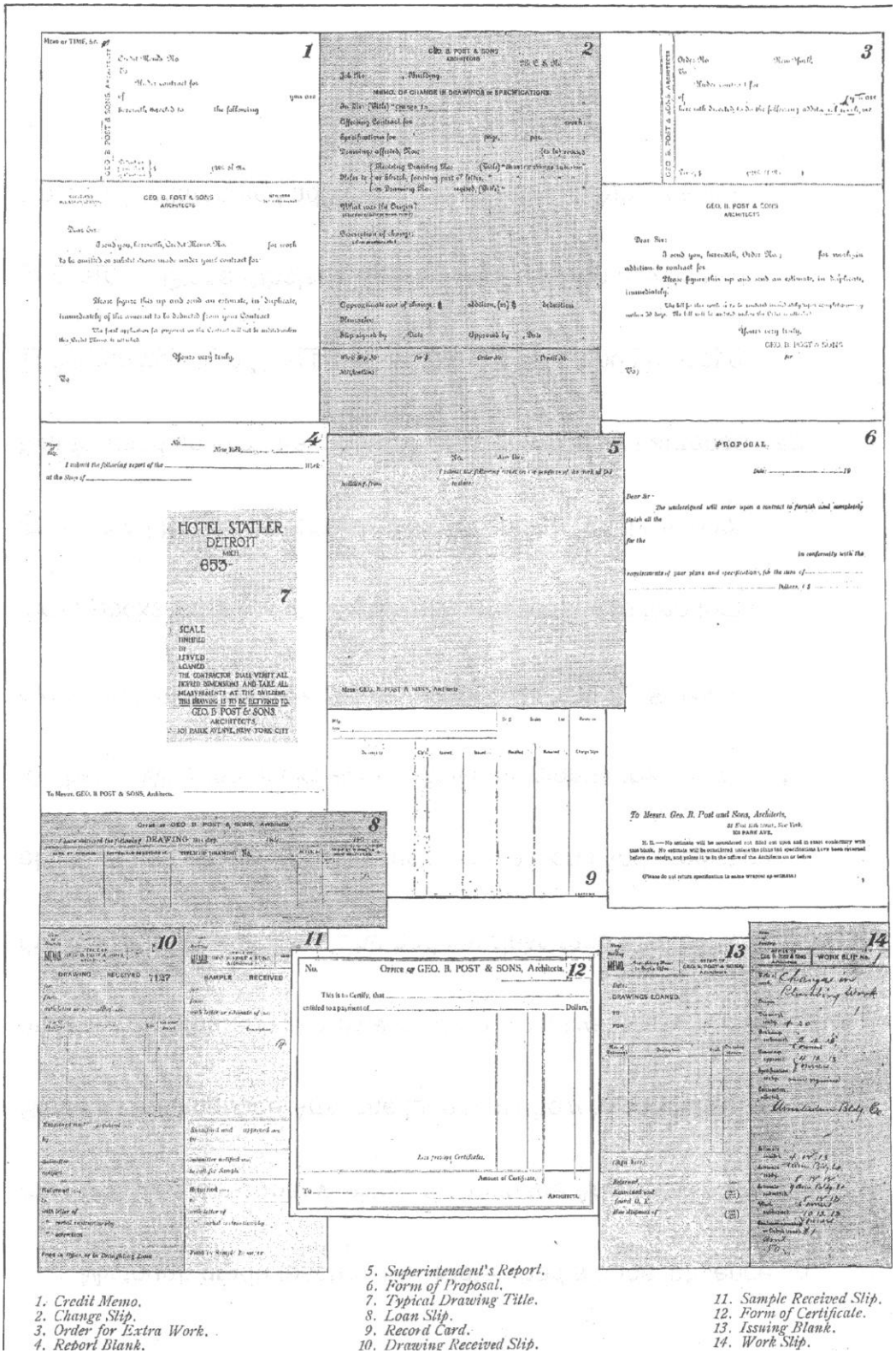
FIGURE 34. Plan of the offices of Burnham and Root, Rookery Building, Chicago

Figure 13: Office Plan of Burnham and Root in Rookery Building, ca. 1890.



FILING AND CONTRACTORS' ROOM LOOKING TOWARD DRAFTING ROOM.

Figure 14: McKim, Mead and White's Filing Room.



1. *Credit Memo.*
2. *Change Slip.*
3. *Order for Extra Work.*
4. *Report Blank.*
5. *Superintendent's Report.*
6. *Form of Proposal.*
7. *Typical Drawing Title.*
8. *Loan Slip.*
9. *Record Card.*
10. *Drawing Received Slip.*
11. *Sample Received Slip.*
12. *Form of Certificate.*
13. *Issuing Blank.*
14. *Work Slip.*

Figure 15: George B. Post & Sons Office Forms

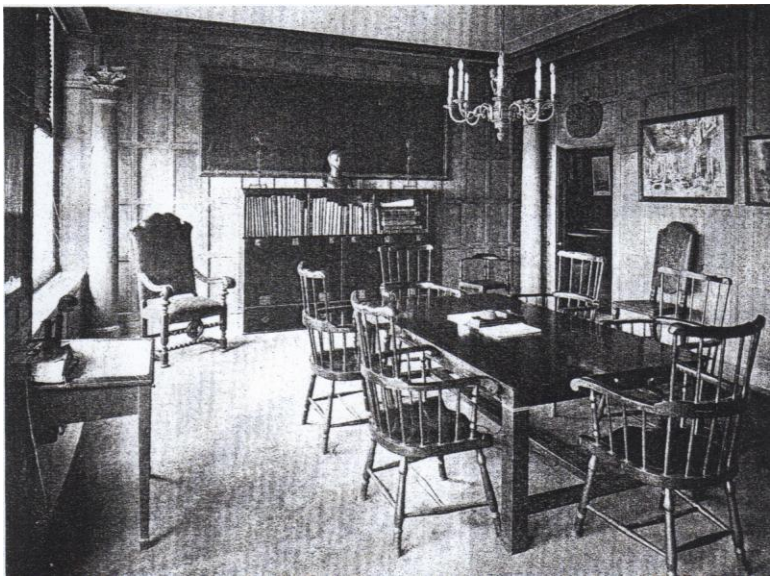


Figure 16: McKim, Mead and White's Reception Room.

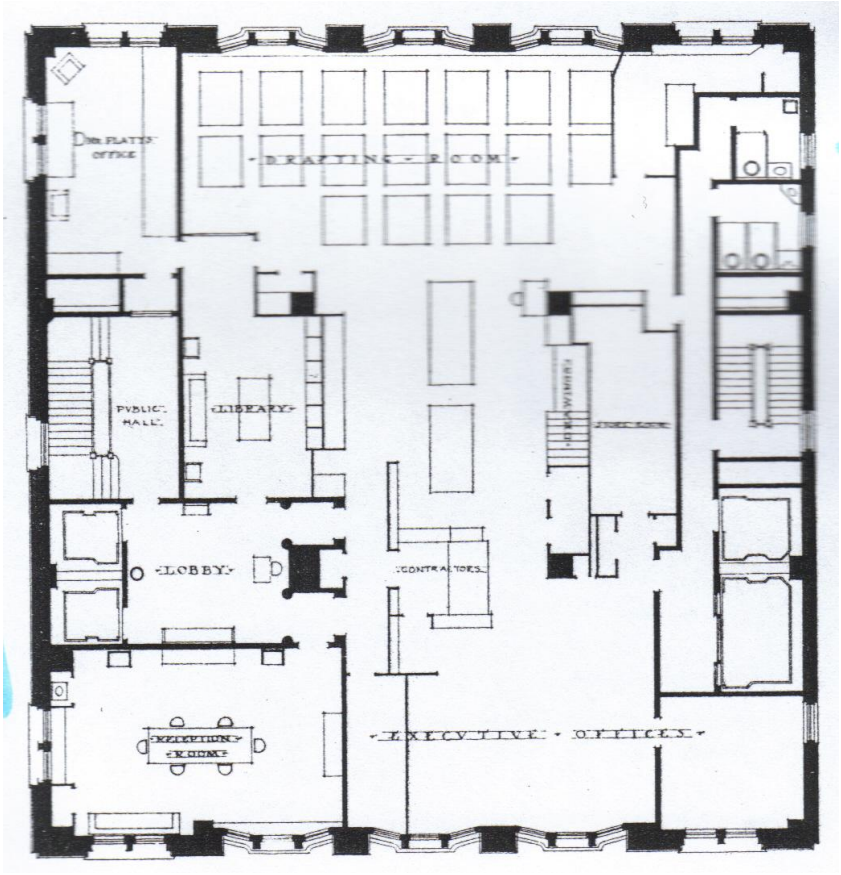


Figure 17: Office Plan of Charles A. Platt, New York architect.

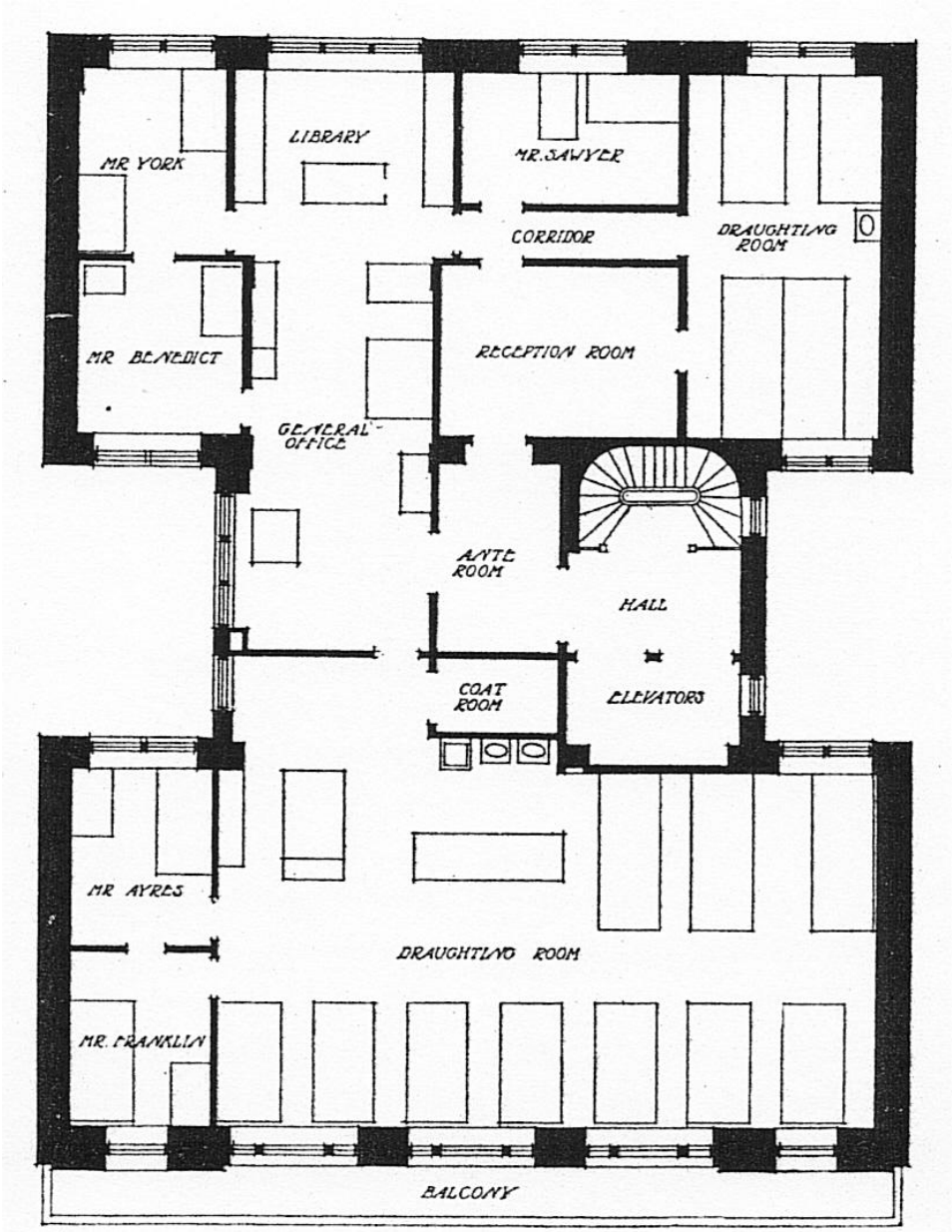


Figure 18: Office Plan of York and Sawyer, New York architects.

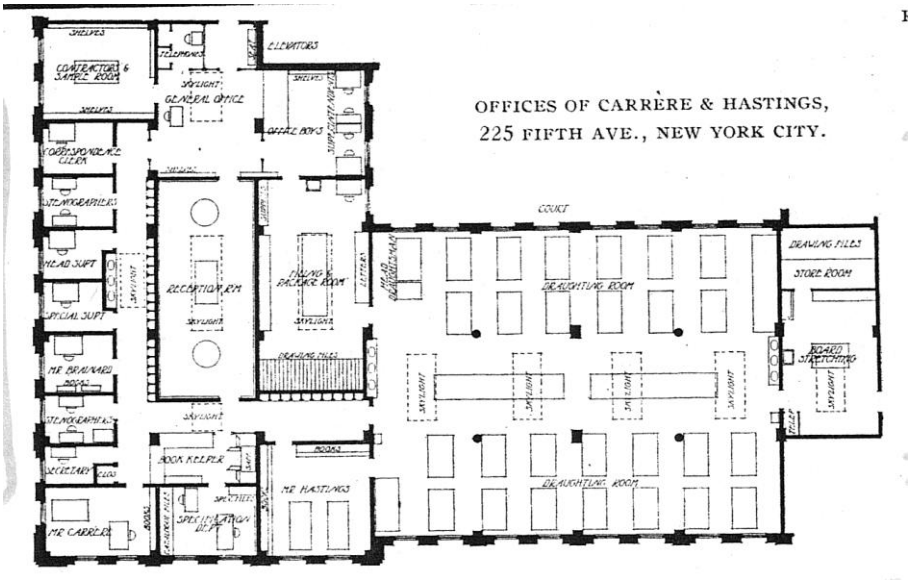
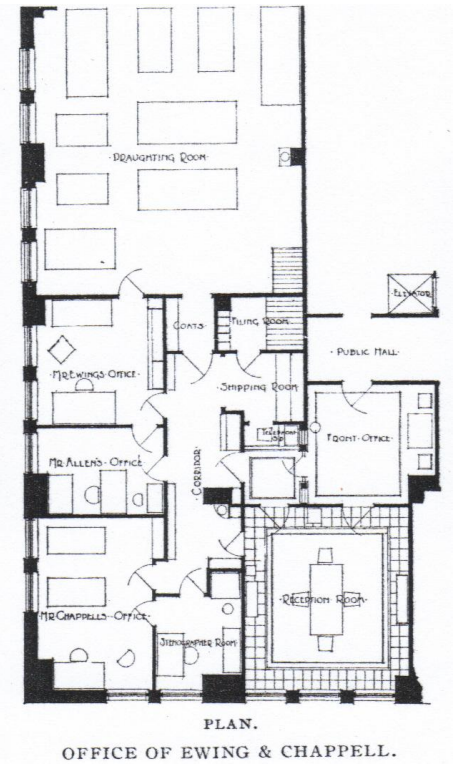


Figure 19: Office Plan of Carrere and Hastings



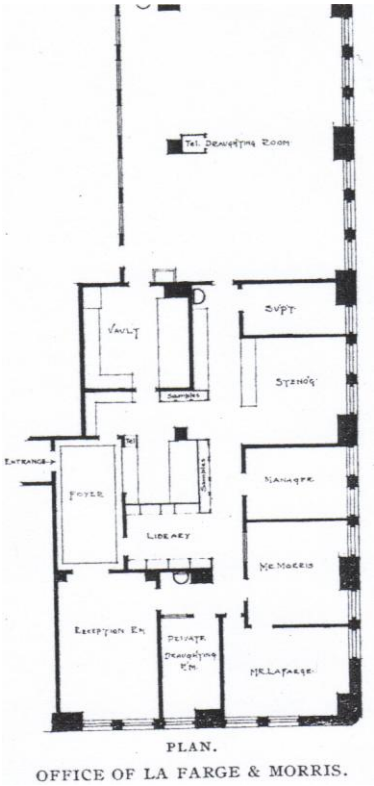
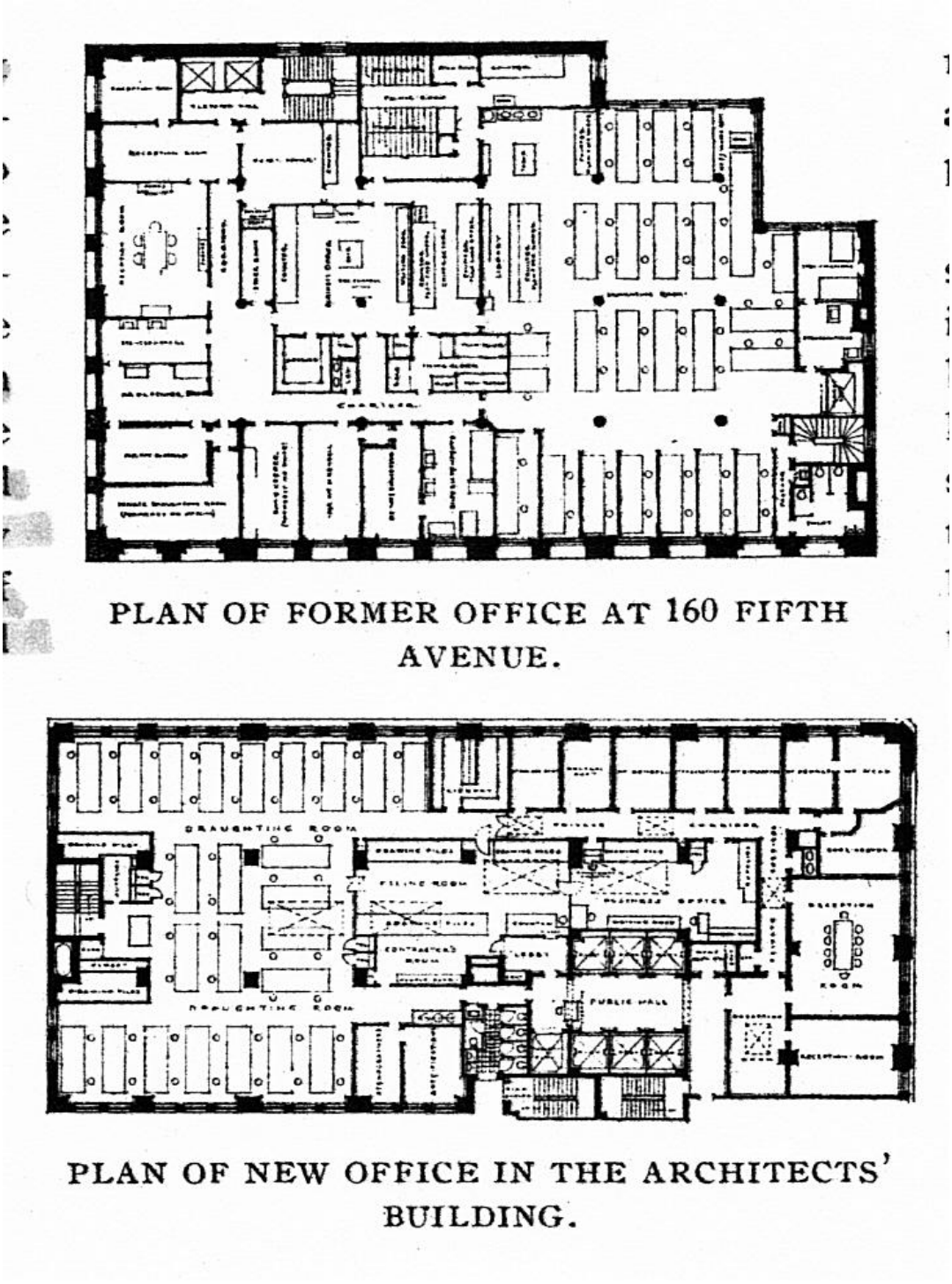


Figure 20: Office Plans – Ewing & Chappell
LaFarge & Morris



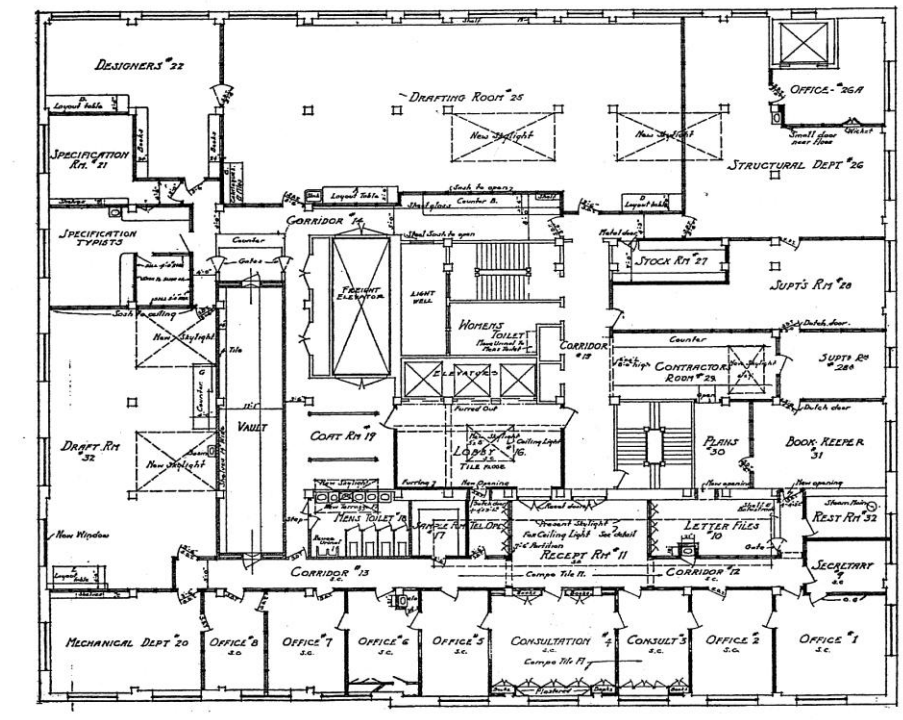
PLAN OF FORMER OFFICE AT 160 FIFTH AVENUE.

PLAN OF NEW OFFICE IN THE ARCHITECTS' BUILDING.

Figure 21: Office Plans of McKim, Mead and White, New York architects.

Figure 22: John Lawrence Mauran, St. Louis architect (1866-1933).

Figure 23: Albert Kahn, Detroit architect (1869-1942)



Floor Plan, Offices of Albert Kahn, Architect

Figure 24: Office Plan of Albert Kahn

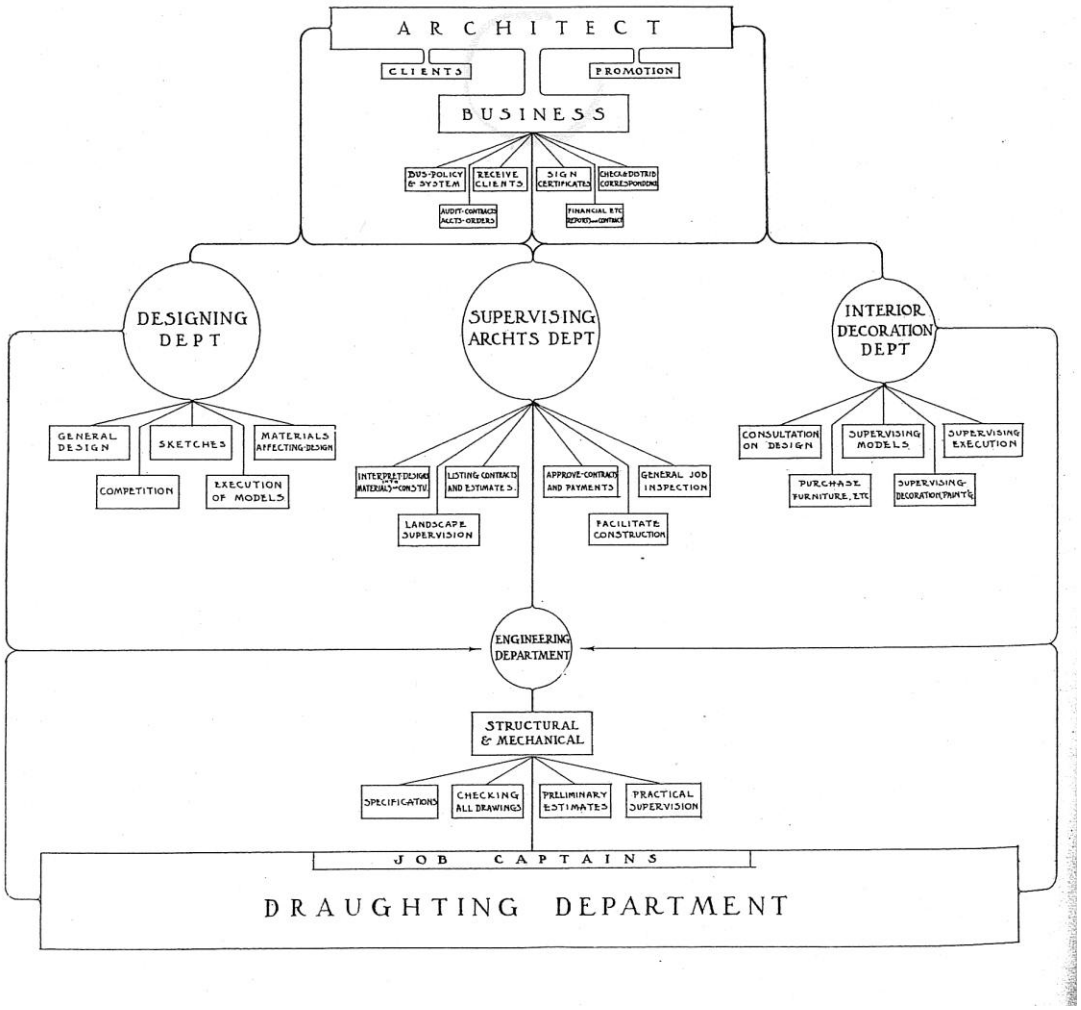
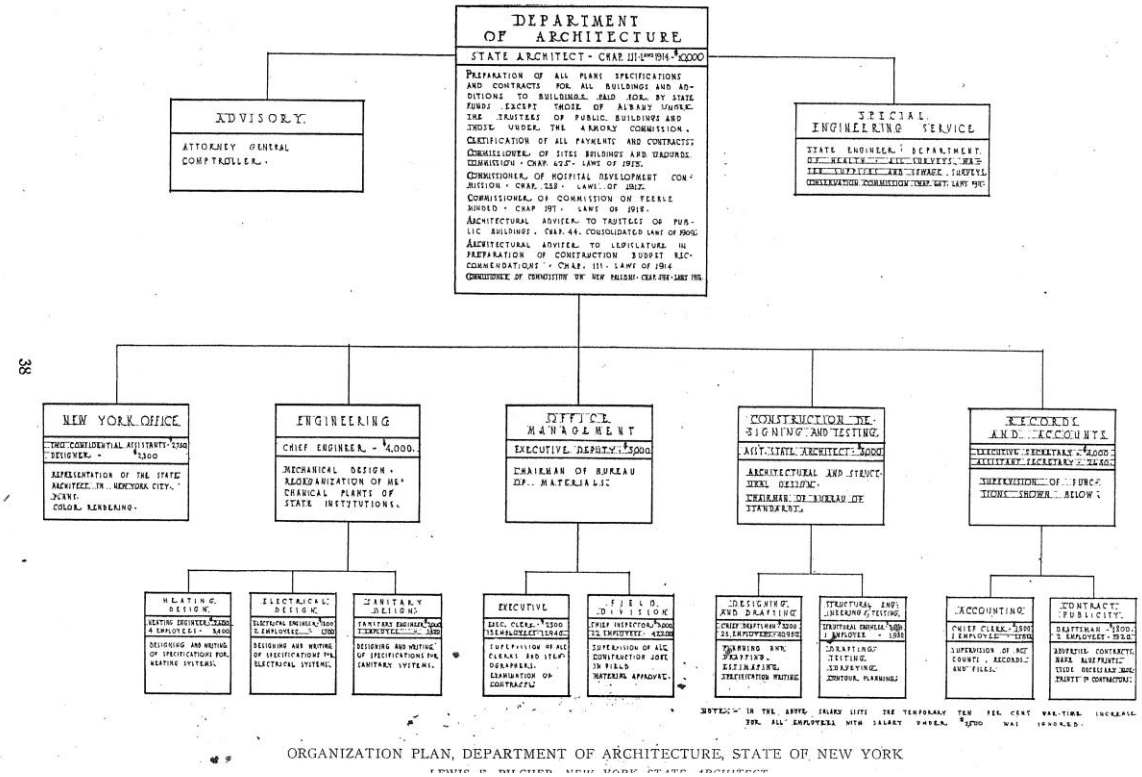


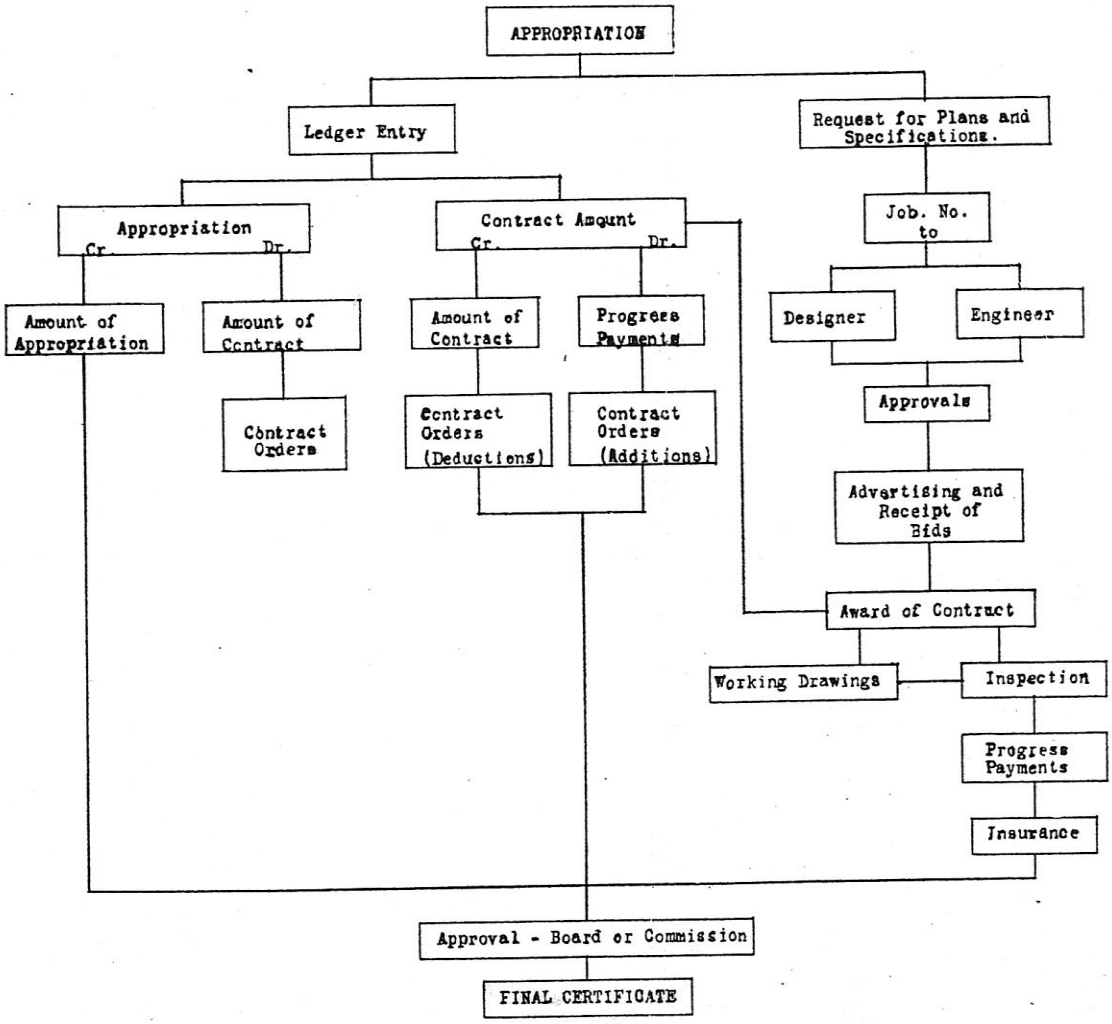
Figure 25: Architect's Office Organizational Chart



ORGANIZATION PLAN, DEPARTMENT OF ARCHITECTURE, STATE OF NEW YORK

LEWIS P. PILCHER, NEW YORK STATE ARCHITECT

Figure 26: New York State Architect Organization Chart



PROGRESS CHART, DEPARTMENT OF ARCHITECTURE, STATE OF NEW YORK
LEWIS F. PILCHER, *NEW YORK STATE ARCHITECT*

Figure 27: New York State Architect Progress Chart

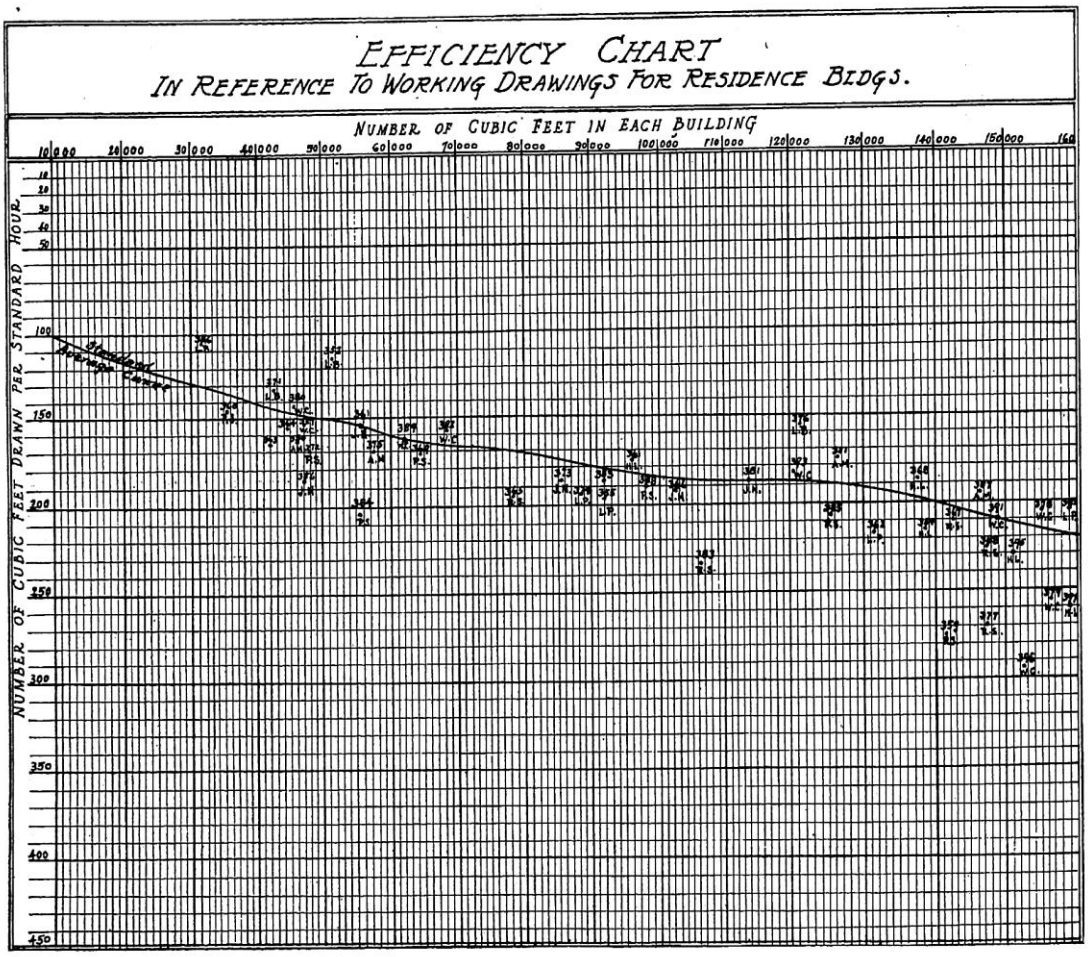


Figure 28: Draftsman Efficiency Chart

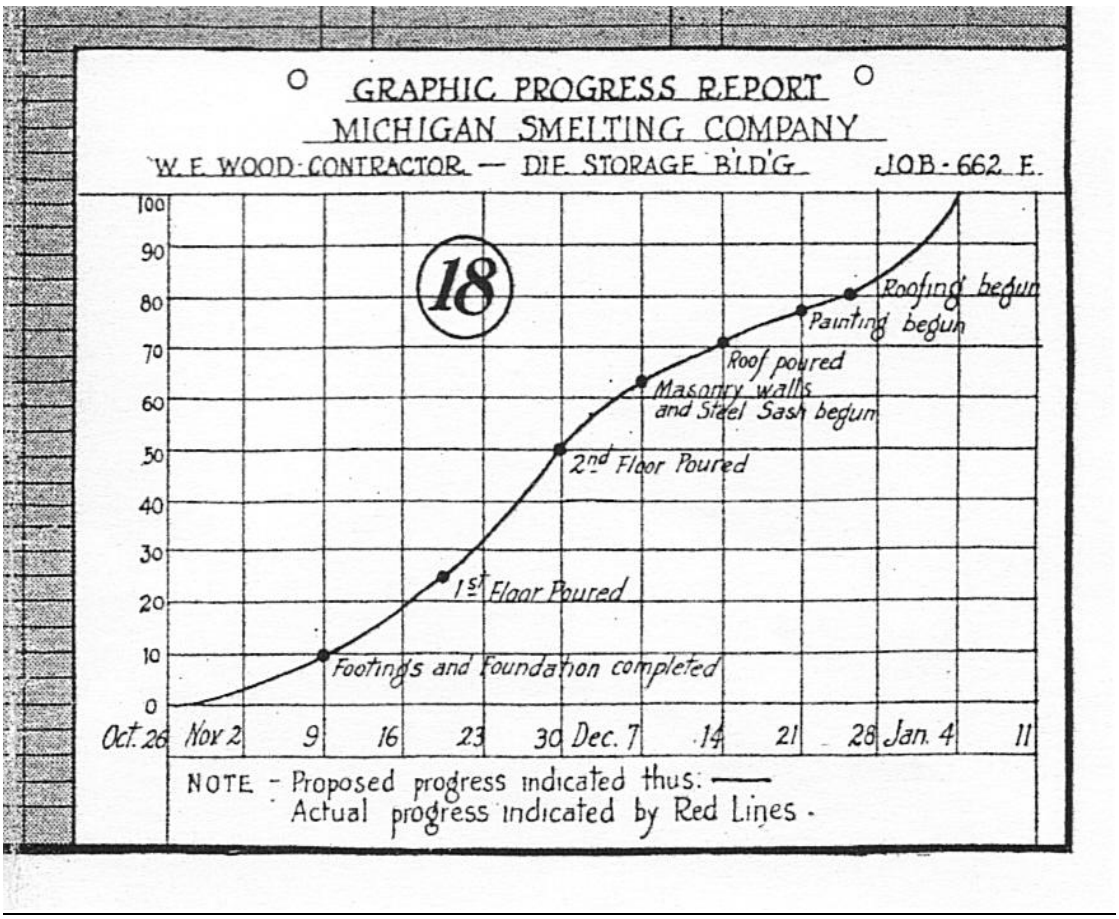


Figure 29: Albert Kahn's Graphical Progress Chart