

**From the Portfolio to the Diagram: Architectural  
Discourse and the Transformation of the Discipline of  
Architecture in America, 1918-1943**  
*Volume One*

by

Hyungmin Pai

B.S. in Arch., Seoul National University  
1983


Master of Urban Design, Graduate School of Environmental Studies  
Seoul National University  
1985

SUBMITTED TO THE DEPARTMENT OF ARCHITECTURE  
IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE DEGREE OF  
DOCTOR OF PHILOSOPHY  
IN THE FIELD OF  
ARCHITECTURE, ART AND ENVIRONMENTAL STUDIES  
AT THE  
MASSACHUSETTS INSTITUTE OF TECHNOLOGY  
JUNE 1993

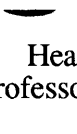
© Hyungmin Pai 1993. All rights reserved

The Author hereby grants to M.I.T. permission  
to reproduce and to distribute publicly copies  
of this thesis document in whole or in part.

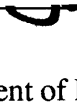
Signature of the Author \_\_\_\_\_

 Hyungmin Pai  
Department of Architecture  
April 30, 1993

Certified by \_\_\_\_\_

 Stanford Anderson  
Head, Department of Architecture  
Professor of History and Architecture  
Thesis Supervisor

Accepted by \_\_\_\_\_

 Stanford Anderson  
Chairman  
Department of History, Theory and Criticism

  
MASSACHUSETTS INSTITUTE

MAY 02 1993

LIBRARY

# **From the Portfolio to the Diagram: Architectural Discourse and the Transformation of the Discipline of Architecture in America, 1918-1943**

by

Hyungmin Pai

Submitted to the Department of Architecture on April 30, 1993 in partial fulfillment of the requirements for the Degree of Doctor of Philosophy in the field of Architecture, Art and Environmental Studies

## **ABSTRACT**

This dissertation is an historical inquiry into the concomitant transformations of architectural discourse and the discipline of architecture in America. It proceeds on the theoretical assumption that the documents produced and used in architecture not only reflect but constitute architecture as an institutional practice. The study begins with an outline of the academic discipline established, during the late nineteenth century, along the ideals of artistic autonomy and methods of the Ecole des Beaux Arts. It was an internalized discipline, centered on the self-referential discursive practice of the portfolio, and the integrated conceptual framework of composition, planning and the parti.

During the latter half of the 1910s, with the changing conditions of architectural production, the traditional status of architecture began to be cast into doubt. In the aftermath of this crisis, what had once been an efficacious disciplinary formation was fragmented into the formal concerns of composition and the concept of functional planning as a rational intervention into social institutions. By the late twenties, ideological formations that made a fundamental break with the traditional claim to autonomy had emerged. The study examines two divergent strains of rationalist ideology: first, the new editorial policies of the architectural journals which projected in different ways, a rational discipline that would be integrated with the demands of mass production and consumer society; secondly, the Veblenian strategy of Frederick Ackerman, who attempted to isolate a domain of architectural discourse uncontaminated by the exigencies of capitalism.

Two important transformations of architectural discourse that ensued during the thirties will be examined: the first was the shift in the status of the discourse of reference, constituted by the emergence of new types of reference manuals; secondly, the transformation of the architectural journal which saw the demise of the traditional status of the portfolio and its reorganization along studies of planning. At the center of these transformations was what I have called the discourse of the diagram. Through this new discursive formation, planning emerged as an integral discipline of architecture; it allowed the architect to intervene into the institutional program, while maintaining an independent method that was rational, free of formal preconceptions, and yet would produce singular results for each project. What had been a closed and tightly organized discipline was now opened and dispersed. Along with its promise of social amelioration, it carried the constant burden of formal invention.

Thesis Supervisor: Stanford Anderson

Title: Head, Department of Architecture; Professor of History and Architecture

## Acknowledgements

I would first like to thank the numerous libraries and archives for providing resources and assistance, without which this study would have been impossible: Rotch Library, Retrospective Collection, and Institute Archives, Massachusetts Institute of Technology; Avery Library and its Special Collections, Columbia University; Department of Manuscripts and University Archives and the Fine Arts Library, Cornell University; The Colonial Williamsburg Foundation Library; Widener Library, Frances Loeb Library and its Special Collections, and Schlesinger Library, Harvard University; New York City Housing Authority Archives, La Guardia Community College; Special Collections at the Van Pelt Library, University of Pennsylvania.

I wish to thank my thesis advisers: Leo Marx for his advice during the early stages of this dissertation and Mardges Bacon for her encouragement and criticism during its later stages. I am particularly grateful to Francesco Passanti and Stanford Anderson. Professor Passanti has provided careful and penetrating criticism from its inception to the final manuscript. I am indebted to Professor Anderson, not only for his critical insights into this work, but also for his guidance and patience throughout my studies at M.I.T. I would also like to acknowledge the help of Maristella Casciato, Leila Kinney, Anne Wagner, and Henry Millon for their commentaries and support in the different stages of this work. Further thanks to my friends at the Department of Architecture, especially Chae Shin Yoon, for the many hours of stimulating discussions.

I would like to express my gratitude to the Fulbright Program of the Korean-American Educational Commission, particularly to Frederick Carriere and Jae Ok Shim for their support during my lengthy stay in the United States. My sincere thanks to Michael Joroff and the former staff of the M.I.T. Laboratory of Architecture and Planning, for providing invaluable resources and a comfortable environment to pursue my work.

I wish to thank my family. My wife Myung Uhn has sustained me throughout my studies, and will always be the joy in whatever I do. My sister Hyung Il has encouraged and helped me in many different ways, but more importantly she has been a constant source of inspiration. Finally, this work is dedicated to my parents. I can only hope that I may have the same loving perseverance for my son Kyu Hyun, as they have shown to me.

## TABLE OF CONTENTS

### *Volume One*

Abstract.....	2
Acknowledgements.....	3
I. Introduction.....	6
II. The Discursive Practice of Academic Professionalism	
1) The Dichotomy of "Mass Architecture" and Academism.....	18
2) The Discursive Practice of the Portfolio.....	35
3) The Conceptual Framework of the Academic Discipline: Composition, Planning and the Parti.....	44
III. The Crisis of Academic Professionalism, 1918-1928	
1) The Crisis of the Ideology of Autonomy.....	61
2) "Architecture as Business" and the Emergence of Functional Planning.....	72
3) The Fragmentation of Academic Discourse in the 1920s.....	87
IV. Competing Ideologies of the Architectural Discipline	
1) The New Editorial Policies of Architectural Journals I: The Consumerist Project of <u>American Architect</u> .....	107
2) The New Editorial Policies of Architectural Journals II: <u>Architectural Record</u> and the Rationalist Project of the "Technical News and Research" Department.....	116
3) Frederick Ackerman and the Logic of Regressive Rationality.....	133
V. The Formation of the Discourse of the Diagram	
1) Scientific Management, the Body and the Development of the Diagram.....	160
2) The Architectural Discourse of the Diagram.....	172

VI. The Reconfiguration of Architectural Discourse, 1928-1943	
1) <u>Architectural Graphic Standards</u>	
and the Development of the Modern Reference Manual.....	192
2) The Reorganization of the Architectural Journal	
and the Demise of the Portfolio.....	210
VII. Conclusion.....	224

*Volume Two*

Appendix.....	236
Bibliography.....	241
Illustrations.....	263
Tables.....	377

## I. Introduction

*Article II. The objects of this Institute are, to unite in fellowship the Architects of this continent, and to combine their efforts so as to promote the artistic, scientific and practical efficiency of the profession.*

*Article III. The means of accomplishing this end shall be: regular meetings of the members, for the discussion of subjects of professional importance; the reading of essays; lectures upon topics of general interest; a school of education of Architects; exhibitions of architectural drawings; a library; a collection of designs and models; and any other means calculated to promote the objectives of the institute.*

*Constitution of The American Institute of Architects as ammended 1867*

A fundamental characteristic of the institution of architecture is that it is constituted by discourse. As the 1867 charter of the American Institute of Architects ( A.I.A. ) succinctly illustrates, a wide range of discourses was essential in the formation of the institutional settings and practices that made up what society, and in this case, what the A.I.A. considered to be architecture. Architecture's status in society-- what it does, how it functions and the way it is perceived-- is delineated by the various drawings, historical and theoretical texts, manuals, specifications and contracts that are produced within the architectural community. Needless to say, the most important part of its participation in social production, the act of architectural design itself, involves the reading and production of documents. Without inflating discourse to the point where it encompasses all aspects of architecture, it is possible to characterize the institution of architecture as a discursive practice. It is a proposition that architecture's status in society, and the disciplinary skills and knowledge of the architect, are conditioned and mediated by a specific set of discourses. Based on this constitutive relation between discourse and institution, the notion of a "discursive formation" of the architectural profession and

discipline can be defined.<sup>1</sup> To inquire into discourse is, by definition, to examine it in its social and productive relations.

This dissertation is a study of the changes in the discursive formation of the architectural discipline in America. While taking as its broader period the half century between the World Columbian Exposition and the early 1940s, it focuses on the two decades between the World Wars. It was in these inter-War years that a discipline based on the ideals and methods of academism, specifically adopted from the French Ecole des Beaux-Arts, was disrupted, transformed and eventually dissolved. A wide range of architects and critics concurred that this "crisis" was caused by the encroachment of industrial and consumer capitalism into the mechanisms of architectural production. Rather than distancing architecture from these realities, as was the strategy of academism, a new discipline engaged in the problems and opportunities of modern society, yet formulated as part of the legitimate function of the architect, had to be cultivated. The new discipline was to be a rational construct whose "promise" was that through the professional architect's design of say a school or a housing project, the proper institutional function of the buildings would be realized. This study examines the transformations of architectural discourse entailed in this shift from a profession and

---

<sup>1</sup> My use of the term "discursive formation" is related to but differs from the concept elaborated by Michel Foucault in the *Archeology of Knowledge*, 1969, translated New York; Pantheon, 1971, in that the latter is not limited by the disciplinary boundaries established by society. The larger Foucauldian project attempts to discover "regularities" among a wide range of social institutions: "Whenever one can describe, between a number of statements, such a system of dispersion, whenever, between objects, types of statements, concepts, or thematic choices, one can define a regularity ( an order, correlations, positions and functionings, transformations ) we will say, for the sake of convenience, that we are dealing with a *discursive formation*" ( p. 38 ). Later in his book, Foucault goes on to link this analysis of discursive formations with the notion of the episteme, which he describes as being "something like a world-view, a slice of history common to all branches of knowledge, which imposes on each one the same norms and postulates, a general stage of reason, a certain structure of thought that the men of a particular period cannot escape" ( p. 191 ). My project is much smaller in scale. It is concerned with the way certain forms of discourse, within specific historical conditions are grouped, stabilized and encoded into architectural practice and thus become a convention through which society and the discipline identifies its role in society. Though this formation of architectural discourse may constitute a larger discursive formation that is dispersed throughout various disciplines, it is not my intention to search for these larger regularities. The focus throughout the study, is on the way *architecture* is constituted.

discipline that was based on its autonomy from society to one defined by its ameliorative intervention into its institutions.

The two key words that shape the theoretical basis of this study, readily evident in its subtitle, are *discipline* and *discourse*. The concept of the discipline of architecture, in conjunction with that of the profession, form a framework which identifies two distinct aspects of the institution.<sup>2</sup> In approaching architecture as an institution, this work is concerned, on the one hand, with its relation with other social institutions, and on the other, with architecture as a conventional system of knowledge and practices. The profession, then refers primarily to the former. It denotes the historic organization of experts developed during the nineteenth century, and more importantly, refers to those aspects of the institution that make it possible for individuals to participate in architecture as a recognizable and legitimate social practice. As much as architects are enabled by their participation within a larger social construct, they are also constrained by these external relations. The discipline, on the other hand, is also formed within its social boundaries and resources, but sustains a *relatively* autonomous field of practice. It is the body of knowledge and skills, to borrow professor Stanford Anderson's definition, that "cannot be reduced to the constructs of other fields." It is constituted by the drawings, writings, and buildings that are identified as products of architecture. At the same time, the discipline "can be known without tracing every work realized by the profession" and is the "possession of a wider set of actors than is the profession."<sup>3</sup> This is a definition that I believe is consistent with Michel Foucault's argument that disciplines are organized in opposition to the notion of individual authorship. According to Foucault, "disciplines are defined by groups of objects, methods, their corpus of propositions considered to be

---

<sup>2</sup> My distinction between the discipline and profession of architecture is indebted to Stanford Anderson, "On Criticism," *Places* 4, No. 1, 1987. Though there are slight differences in the way each category is defined, what is commonly underscored is the semi-autonomous nature of the architectural discipline.

<sup>3</sup> *Ibid.*, p. 7.



true, the interplay of rules and definitions, of techniques and tools," which constitute an "anonymous system."<sup>4</sup> The history of the discipline is then to be approached as a history of epistemological systems, of modes of knowledge. It should be emphasized, however, that I am not advocating the pursuit of either a purely external history of the profession or an internal one of the discipline; even though they may be tenable, both approaches would be severely limited. The history of the profession and discipline do not run parallel, but are interlocked in the construction of the architectural institution. Even when the focus is on the discipline, as is the case of this study, the limits and possibilities provided by the profession should be, and inevitably are part of the inquiry.

There are, of course, other ways to frame the institutional domains of architecture. First of all, there are the different kinds of institutional spaces in which architectural practice occurs: the architect's office, publishing houses, architectural libraries, the studio or atelier, the construction site, etc. Another way of framing the institution is to examine the nature of architectural patronage and the kinds of projects that are involved. A third category is the drawings, texts, and buildings that are used and produced in these institutional sites. It is in this last category of material objects that discourse, the second concept operative throughout the study, belongs. Discourse, simply put, is language and signs in use. I have chosen it instead of other possible terms such as representation or image, because of the social and productive use of signs necessarily entailed in architectural documents. One of the limitations of past studies of architectural representation is that the concept has generally been confined to the questions of communication and symbolization in drawings or the building itself. ( The prime examples of this can be found in writings concerned with architectural semiology, which had drawn much attention during the 1970s. ) Within the productive relations of architecture and its adjacent institutions, documents are not only read, but are acted upon

---

<sup>4</sup> Foucault, "Discourse on Language," in Archeology of Knowledge, p. 222.

as material artifacts, often involving transformations from one mode of representation to another. To approach architectural representations as discourse is to examine them not only as reflections of consciousness or objective conditions but to inquire into their functions within specific institutional relations. The study of discourse thus encompasses the concerns of a sociology of texts as well as the study into their internal construction.

In basing my study on the integral relation between discourse and institution, I have employed a few terms that require explanation. The first is the idea of a *discursive field* of architecture. It is a kind of bibliography which prescribes the content and boundary of knowledge considered proper to the profession and discipline; an abstract compilation of texts from the libraries of architects, their offices and the schools of architecture. The boundary of a discursive field is always difficult to delineate, particularly in a discipline that regards a wide range of texts produced outside of the profession to be part of its intellectual make-up. Since the field is usually larger than what the architectural discipline considers its products, it is clearly not a homogeneous array of texts. For example, in order to be accepted in certain social circles or to attain some kind of patronage, the architect may feel the need to be acquainted with a certain set of texts, which in fact may not be essential to his disciplinary skills. On the other hand, there may be a certain body of knowledge basic to his competence which, at the same time, is regarded as external to the formation of the discipline, and thus marginal to his social definition. It would then seem that a hierarchy within the field, on which to base a loose distinction between core and marginal texts could be established. Within the discursive field, I use the term *genre* to distinguish the different types of texts that are used. Genre is of course a term widely used in art and literature. I believe it is a fruitful application because first of all, it establishes a sense of hierarchy, and secondly, it is a category defined by its internal logic as well as a set of intersecting social conventions. A genre is distinguished by its organizing concepts and by its *mode of discourse*-- the system of verbal and pictorial

representations through which discourses are materially organized. For example, in the following chapters, I will discuss the portfolio as a genre characterized by a particular mode of representation-- the full page architectural plate-- and a specific function in architectural production-- a document to be studied, emulated and transformed in the design process. The portfolio then denotes both a genre and mode of discourse. The formation of a genre, however, like the discursive field, is not necessarily self sustaining and coherent. Certain concepts, objects and modes of discourse may characterize a genre but may not be exclusive to it. Furthermore, the historical development of the discursive modes may not be consistent with the original intentions and conceptual foundations. Though the development of new genres, the explicit and implicit ideological formulations of architecture, and the new modes of discourse do not form a neat correspondence, the possibility of knowledge and practice lies in the architect's assumption that there is some coherence among these categories. The central point is that the configuration of the discursive field is always historical. The discursive field, consciously and unconsciously, forms an institutional site for the intervention of authors who are in this case mostly architects; working within or developing new genres, organizing concepts and objects into theories, and bringing certain modes of discourse into play. The discursive formation of the discipline is then formulated within the complex relations of the discursive field, the genres, its concepts, and modes of discourse.

This study focuses on three genres. The first, as I have just mentioned, is the portfolio. The second is rather a set of genres that may be grouped under the notion of *reference*, namely catalogues and manuals concerned with construction and planning. The third genre, and the primary source in my inquiry, is the architectural periodical. The professional journal is a particularly interesting genre because in most cases it brings several modes of discourse, that may constitute a separate genre such as the portfolio or reference manual, into a single bounded text. In addition, because of its serial nature, the

larger transformations of the discursive field can often be read in the periodical.

Admittedly, the study does not deal with the discursive field as a whole. There is a large portion of books and publications that are extremely important to the discursive formation of architecture that I have excluded. Furthermore, the technical systems involved in the construction of buildings, another essential institutional field in architecture, have also been left out. Like the discursive field, the changing systems of construction and materials of a given historical period provide alternatives, resources and limitations to the interventions of the architect.

The dissertation is then just one study, of many that are needed to construct a "field of regularity for various positions of subjectivity" in modern architecture.<sup>5</sup> It is a kind of history that Michel Foucault has called the study of "practical systems":

Here we are taking as a homogeneous domain of reference not the representations that men give of themselves, not the conditions that determine them without their knowledge, but rather what they do and the way they do it. That is, the forms of rationality that organize their ways of doing things ( this might be called the technological aspect ) and the freedom with which they act within these practical systems, reacting to what others do, modifying the rules of the game, up to a certain point ( this might be called the strategic side of these practices ). The homogeneity of these historico-critical analyses is thus ensured by this realm of practices, with their technological side and their strategic side.<sup>6</sup>

The dissertation, however, does not claim to have identified or adopted some Foucauldian methodology, nor do I believe it can be characterized as Foucauldian. Nevertheless, there are two suppositions of this study, for which Foucault was recently the most eloquent theorist. The first is the acceptance of the objective nature of

---

<sup>5</sup> Foucault, *Archeology of Knowledge*, p. 55.

<sup>6</sup> "What is Enlightenment," in Paul Rabinow, ed., *The Foucault Reader*, New York; Pantheon, 1984, p. 48. ( An unpublished paper by Foucault )

discourse, which effectively shifts the production of knowledge away from subjective foundations. This is not a position, as it has often been misunderstood, that does away with the problems of intention, ideology and individual interventions. Rather, it involves the constant inquiry into the role of subjectivity, or to use Foucault's expression, the "function of the author," as much as it seeks to define the role of texts, in the constitution of knowledge.<sup>7</sup> The second supposition is that institutions, viewed in long durations, are fundamentally unstable. Foucault's work challenges the kind of analysis of institutions which views them either as a continuous development of reason, exemplified by histories of a progressively enlightened practice based on scientific knowledge and humanitarian impulses, or determined by an insoluble and totalizing crisis, often aligned with a Marxist placement of the advent of capitalism as the "end of the golden age."<sup>8</sup> It is a proposition that denies the naturalness of architecture, of some absolute realm on which architecture bases its existence.

The nature of a history of discursive regularities may be clarified by contrasting it with what may be called "developmental" histories particularly evident in the histories of modern architecture.<sup>9</sup> By the latter I mean a history of selected architects, monuments

---

<sup>7</sup> Foucault's notion of author as a function of discourse is best elaborated in "What is an Author," in Donald F. Bouchard, ed., Language, Counter-Memory, Practice, Ithaca; Cornell Univ. Press, 1977. Another instance of this approach is Karl Popper's category of "world three objects": "objective structures which are the products, not necessarily intentional, of minds...but which once produced, exist independently of them." As Popper points out, this is not a position that eliminates subjectivity: "The first ( world of material things ) and third world cannot interact save through the intervention of the second world, the world of subjective and personal experiences," and that, "it is possible to accept the reality or ( as it may be called ) the autonomy of the third world, as at the same time to admit that the third world originates as a product of human activity. " ( Objective Knowledge, Oxford; Clarendon Press, 1982, pp. 153-90. ) See Robert D'Amico, "What is Discourse?," Humanities in Society 5, Summer & Fall 1982, and Historicism and Knowledge, London; Routledge, Chapman & Hall, 1989, pp. 96-118, for a comparison between Foucault's concept of discourse and Popper's objective structures.

<sup>8</sup> Among Foucault's own work, I have in mind Discipline and Punish, in which he describes the birth of the prison as neither a benevolent transformation of the penal system based on an enlightened understanding of criminal behavior, merely part of the totalizing logic of the capitalist mode of production.

<sup>9</sup> Foucault uses the term *devenir* which Alan Sheridan has translated as "development," to denote the kind of analysis that makes history a "discourse of the continuous" and human consciousness "the original subject of all historical development." ( Archeology of Knowledge, pp. 3-17. )

and texts that is programmatically woven together and driven by a prefigured "necessity." An extreme example of a positive form of this teleology is Nikolaus Pevsner's Pioneers of the Modern Movement ( 1936 ). The modern for Pevsner, is the result of an evolution towards a congruence between the subject and the objective condition of modernity, which he identifies as a mechanistic civilization. This synthesis results in those monuments that are the genuine reflection of the age.<sup>10</sup> The reverse of Pevsner's narrative can be seen in the "negative dialectics" of Manfredo Tafuri's Architecture and Utopia. In the latter text, the trajectory of capitalism drives architecture to a series of projects, which cannot but be compensations for the loss of "those tasks which capitalist development has taken away from architecture."<sup>11</sup> In both cases, the notion of

---

<sup>10</sup> For a similar view of Pevsner's historiography, see Stanford Anderson's review of Pevsner's The Sources of Modern Architecture and Design, Art Bulletin 53, June 1971: "In this as in most of his other writings, Pevsner seeks to identify what he calls 'A Style for the Age.' For Pevsner, the Age is at times the hard reality which man must comprehend. As it happens, the Age called 'modern' is not only a quite intractable given which is itself, according to Pevsner, a hard, mechanistic mass civilization resulting from the full development of the Industrial Revolution. As incontrovertible as Pevsner feels that hard civilizational structure to be, man can, nevertheless, ameliorate the rawness of that situation. The job of the artist is to discover the style of the age. The will of even this hard, uncompromising time must be given its form." ( p. 274 )

<sup>11</sup> Manfredo Tafuri, Architecture and Utopia. Design and Capitalist Development, 1973, translated Cambridge, MA; MIT Press, 1976, p. ix. Admittedly, in the context of the present study, I am unable to do justice to Pevsner's and Tafuri's important texts, particularly to the latter, whose complexities often defy categorization. There are however, two disturbing aspects of Tafuri's early projects such as Theories and Histories of Architecture and Architecture and Utopia, which should be pointed out. First of all, we must consider Tafuri's claims that his subject is the institution of architecture. Tafuri thus seems to share Peter Bürger's thesis in the Theory of the Avant Garde that modernism and the avant-garde is a formation that has to be understood vis-a-vis institutional formations. The way that he provides the reader with an understanding of the institution, is to expand from subjective interventions towards larger institutional regularities. For Tafuri, it would seem that the practice of the avant-garde penetrates and reveals the larger formations of architectural practice. Unfortunately, the larger institutional framework within which these self-proclaimed agents of radical change operate, remains unexplicated. Secondly, Tafuri seems to project some quintessence, that is Architecture with a capital "A," as a foil to his thesis of architecture's ( that is the institution's ) uselessness in capitalist society. In the paragraph that follows the passage that I quoted from Architecture in Utopia, Tafuri goes on to say that "Paradoxically, the new tasks given to *architecture* are something besides or beyond *architecture*. In recognizing this situation, which I mean to corroborate historically, I am expressing no regret, because when the role of a discipline ceases to exist, to try to stop the course of things is only regressive utopia, and of the worst kind. No prophecy, because the process is actually taking place daily before our eyes. And for those wishing striking proof, it is enough to observe the percentage of architects *really* exercising that profession." ( p. ix- x, my emphases ) In the first sentence of this passage, there are two ways in which Tafuri uses the term "architecture." In the first instance it is employed to denote the institution, while in the latter it is a kind of universal formation, an idealized pre-capitalist formation of architecture. The nature of the latter,

contradiction becomes the basis of a history of resolutions. For Pevsner the resolution is manifested in the stylistic coherence of buildings. For Tafuri, all attempts at resolutions, as much as they reflect a certain truth of capitalist society, are ultimately false; he thus formulates his history as an ideological critique of those attempts at negation and synthesis. The primary material in this kind of narrative are the buildings, projects and drawings, seen as *representations*; in the case of Pevsner, of resolutions in cultural forms, or in the case of Tafuri, false resolutions at the level of ideology. As Frederic Jameson points out in his comment on the latter, a key feature of dialectical historiography is "the restructuring of the history of an art in terms of a series of situations, dilemmas, contradictions, in terms of which *individual* works, styles, and form can be seen as so many responses or determinate symbolic acts."<sup>12</sup> One of the unfortunate effects of developmental history is the concentration on those kinds of architectural representations that are produced specifically for their symbolic function-- on polemical drawings and avant-garde gestures-- rather than documents produced in the regular processes of architectural practice. More significantly, in selecting the documents that form the predetermined line of development, this narrative must distinguish between genuine and false representations of consciousness, experience and objective conditions. The modern is then sewn together by the threads of those representations that are deemed true to its conditions; true, in Tafuri's case, because they represent false consciousness.

Within the framework of developmental historiography, as a concept and a period, modernism in American architecture during the 1920s and thirties has presented an enigma to historians. The absence of an identifiable avant-garde, of buildings that conform to established formal canons, and the apparent paucity of critical and polemical

---

however, is never clarified for the reader. This causes much confusion in understanding what I regard as his more pertinent analysis of the "ineffectiveness of ideology" in architectural production.

<sup>12</sup> Frederic Jameson, "Architecture and the Critique of Ideology," in Joan Ockman, et al., eds., Architecture, Criticism, Ideology, Princeton; Princeton Architectural Press, 1985, p. 59.

literature have contributed to the difficulty in writing the story of modern architecture in America. As Henry-Russell Hitchcock wrote, "the story is not an easy one to tell because it seems-- at least to most scholars in the 1960s-- to lack plot."<sup>13</sup> The heroic plot of modernism in Europe could not be scripted for America; it was supposedly *transplanted* over the Atlantic during the 1930s. The twenties, in particular, becomes a dark age in the development of modern architecture.

For American architecture, then, the '20s were timorous, not turbulent; elephantine, not elegant; prosperous, not perceptive. American architectural genius had burned for a moment in Sullivan and Richardson; it was kept alive in Wright; after these years of complacency, stimulated by a small wave of great immigrants, it grew on the power of American technology and the expanding American need. But for all this, the '20s were not, save in the technological sense, even a preparation, unless a time of reaction and lassitude, of smugness and mediocrity, is needed by a national culture as a kind of sleep in preparation for a vigorous effort on the morrow.<sup>14</sup>

As this passage from John Burchard and Albert Bush-Brown's survey of American architecture illustrates, in the absence of the modernist and heroic subject, the authors turn to an objective "preparation" of technical development. On the one hand, there is the history based on the architect as the authorial subject of modern architecture, a history of the victors and the losers. On the other hand, there is the image of America as the locus of "modernization without modernism"-- a "naive" modernity of grain elevators, engineers and Fords.<sup>15</sup> In an attempt to rectify the exclusive nature of this subjective and

---

<sup>13</sup> Henry-Russell Hitchcock, Architecture: Nineteenth and Twentieth Centuries, London; Harmondsworth, 1968, p. 393.

<sup>14</sup> John Burchard and Albert Bush-Brown, The Architecture of America: A Social and Cultural History, Boston, 1961, p. 302.

<sup>15</sup> One of the more complex examples of this mode of viewing America is the section on "The American Development" in Sigfried Giedion, Space, Time and Architecture, Cambridge, MA; Harvard Univ., 1968 ( 5th ed. ), pp. 336-368.



developmental framework, to rescue some viable notion of modernism, one may begin to add and distinguish different forms of modernisms by bringing in a plurality of actors as modernist subjects who would be inserted into the stream of architectural history. One may also widen the sphere of the objects of experience, such as that of mass culture or some notion of the vernacular. The discussion, however, often remains within the framework of either a transcendent subject or an autonomous unfolding of the architectural object. If one is to accept the historicity of both the subject and object seriously, this would entail a departure from the representational basis of developmental history. In other words, the duality of appearance and reality, of true and false representations must be rejected. Representation includes, not only the reflected image on the mirror, but the mirror itself.

The present study attempts neither to recover some hidden avant-garde, nor to present modernity as a purely objective condition. It constitutes some first steps towards understanding the formation of modern architecture in America as a regularized institutional and discursive practice. I propose that modernity in architecture is not just a set of monuments, ideas, and modes of expression, but an institutionally delineated field which participates in the larger social and material structures of society. In this narrative of modernity as regularity, modernism loses its privileged position. The seemingly clear distinction between modernism and modernity assumed in much of the histories of our recent past, I believe, should be suspended and reexamined. I would argue that to understand modernism, or even begin to formulate a notion of an architectural avant-garde, there must first be an understanding of the field of institutional regularity that is the discipline and profession of architecture.

## **II. The Discursive Practice of Academic Professionalism**

### **1) The Dichotomy of "Mass Architecture" and Academism**

The development of the institution of architecture, unlike pre-industrial craft organizations, is fundamentally linked with discourse. During the late nineteenth century, as the profession of architecture emerged in America as an entity separate from older trades such as carpentry and land surveying, a variety of discourses began to proliferate. Drawings became increasingly complex and voluminous, and there was the growth of historical and theoretical writings. Furthermore, the social and productive relations among the architect, client, contractor and the building trades were codified into discursive forms such as contracts and specifications. In the United States, the historical formation of architectural discourse was particularly complex because the social and material conditions in which the profession was trying to form its identity, were themselves undergoing radical changes. During the mid-nineteenth century, coinciding with the development of new materials and changes in the organization of the building industry, there was a fundamental change in the way printed matter was produced and distributed. New mechanical processes, the building of a vast railroad network, and favorable legislation on postal rates provided the basis for an explosion of printed matter which was to be absorbed by a mass reading audience. This new audience, an educated urban middle class eager for cultural identity, formed the consumers of these mass circulation discourses whose concerns, in many cases, overlapped with those of the architect. Thus, from the beginning of its development, the adolescent profession had to struggle to define its *raison d'etre* and the identity of its discipline within and against a flood of competing discourses on architecture, building, decoration, and domestic issues.

After initial difficulties during the early decades of the nineteenth century, the identity of the architectural profession was consolidated during the post-Bellum period and crystalized in the World's Columbian Exposition of 1893. The movement towards professionalization was led by architects trained at the Ecoles des Beaux-Arts and at schools in the United States under its influence. The establishment of an educational system, architectural journals and licensing laws had all been led by Beaux-Arts trained architects. And perhaps most importantly, their training at a prestigious European institution brought the aura of cultivated professionalism to the architect. One of the central characteristics of American architecture between 1890 and 1920 was the identification of the discipline of architecture with its pedagogical methods and philosophy. Through individual activities and agencies such as the American Academy in Rome and the Beaux-Arts Society of Architects, later renamed the Beaux-Arts Institute of Design, an inseperable link was formed between professional practice and architectural education. By the turn of the century, the Ecoles des Beaux-Arts came to signify a clearly defined philosophy and method of architectural design. In 1901, an English observer could look back at the two decades of American architecture and attribute its "Renaissance" to the "influence of a definite system by which all the young architects [were] trained."<sup>16</sup> It is in this sense that the institutional formation that defined the social status, knowledge, and skills of architecture, during this period and until the early decades of this century, may be called "academic professionalism."

This chapter is a broad survey which examines, on the one hand, the emergence and transformation of a mass culture of architecture, and on the other, a professional ideology and discipline that was formed in part as an antithesis to this form of mass culture. By claiming "mass architecture" as a topic of my study, I realize that I have

---

<sup>16</sup> C.H. Reilly, "The Modern Renaissance in American Architecture," Journal of the Royal Institute of British Architects ( 3rd Series ), June 25, 1901, p. 630.

entered an area that has not been clearly charted. The new building types of the nineteenth century, such as department stores and railroad stations, introduced new modes of architectural and social experiences that constituted what may rightly be called mass culture. A study conceived along these lines would entail an inquiry into divergent class experiences and their relations within a highly developed capitalist and industrial society. Though this is an important line of inquiry, it would be concerned with the experience, within a mass society, of buildings produced essentially within the domain of "high" architectural practice. Subsequently, granted that consciousness is always imbedded within material conditions and concrete experiences, this kind of study will properly aim at understanding transformations of subjectivity. My interest in mass architecture in this dissertation does not lie with subjective experience, but with a specific type of building institution that emerged in dialectic relation with other systems of cultural production. It is characterized by its internal disciplinary logic, its mode of appropriation within society, and its specific audience; which are all functions of the particular historical conditions of mass industrial society.<sup>17</sup> My specific focus will be on the antithetical relation between the discursive formations of mass architecture and academic professionalism; a dichotomy that would be maintained until its disruption in the 1910s and 1920s.

During the mid-nineteenth century, the emergence of a mass culture of architecture in America was marked by the wide circulation of a new set of books, magazines and catalogues, whose concerns included a variety of domestic and architectural matters. These discourses were not confined to the internal use of the building industry but drew

---

<sup>17</sup> While the buildings produced by the profession constitute an important part of the modern environment ( one may in fact argue, as Walter Benjamin has, that architecture has always been an object of mass experience ), an inquiry into the subjective experience of the social body would require a wholly different method of inquiry. Though my theoretical observations have not been fully pursued here, I believe such conceptual distinctions in the formulation of a concept of mass architecture is necessary, and will ultimately be fruitful in our understanding of modernism and modernity in architecture.

their audience from a growing middle class. The discursive form of this mass architecture followed two distinct nineteenth century genres. The first genre was the "advice" book. This genre consisted of books and magazines aimed at educating a primarily female audience on a wide range of literary, scientific, and artistic subjects.<sup>18</sup> Topics related to architecture-- ranging from household management, interior decoration, gardening, to problems of sanitation and plumbing-- were central to the advice book which cultivated middle class conceptions of the ideal domestic environment [ fig. 1 ]. Within this genre, the House Pattern Book was the most "architectural" among the advice books, addressing architects and builders as well as lay audiences.<sup>19</sup>

The second genre was the catalogue. In the mid-nineteenth century, industrial and commercial catalogues were already being widely used as a medium for advertising and distributing mass produced goods. The catalogue, along with advertisements, were by then the dominant discursive modes of a nascent consumer society-- the critical links between industrialized production and mass consumption. The standardization of building components had also become commonplace and the industrial catalogue was

---

<sup>18</sup> There is an abundance of material on the subject. See David P. Handlin, The American Home, Architecture and Society, 1815-1915, New York; Little, Brown, 1979; Gwendolyn Wright, Moralism and the Model Home. Domestic Architecture and Cultural Conflict in Chicago, 1873-1913, Chicago; Chicago Univ. Press, 1980; Clifford Edward Clark, The American Family Home, 1800-1960, Chapel Hill, Univ. Of North Carolina, 1986; and Marilyn F. Motz and Pat Browne, Making the American Home, Middle-Class Women and Domestic Material Culture, 1840-1940, Bowling Green; Bowling Green State Univ. Popular Press, 1988. I have also referred to following articles: Martha C. McClaugherty, "Household Art, Creating the Artistic Home, 1868-1893," Winterthur Portfolio 18, Spring 1983; Judith Fryer, "Women and Space: The Flowering of Desire," Prospects 9, 1984; and Simon J. Bronner, "Manner Books and Suburban Houses, The Structure of Tradition and Aesthetics," Winterthur Portfolio 18, Spring 1984.

<sup>19</sup> The best discussions of Pattern Books can be found in Dell Upton, "Pattern Books and Professionalism, Aspects of the Transformation of Domestic Architecture in America, 1800-1860," Winterthur Portfolio 19, Summer/Autumn, 1984; Vincent Scully, The Stick Style and the Shingle Style, New Haven; Yale Univ. Press, 1971; and Michael A. Tomlan, "Popular and Professional American Architectural Literature in the Late Nineteenth Century," Ph.D Dissertation, Cornell Univ., 1983. See also William B. O'Neal, "Pattern Books in American Architecture, 1730-1930," in Mario di Valmarana, ed., Building by the Book, ( 3 vols ) Charlottesville; Univ. Press of Virginia, 1986; Henry Russell Hitchcock, American Architectural Books: A List of Books, Portfolios, and Pamphlets on Architecture and Related Subjects Published in America before 1895, 3rd ed., Minneapolis; Univ. of Minnesota, 1962; and Gwendolyn Wright, *Ibid.*

used by architects, builders, and in many cases, directly by owners, to select and specify materials and components [ fig. 2 ].<sup>20</sup> These catalogues dealt mainly with building parts: prefabricated ornaments, structural elements of buildings such as columns, or mechanical devices and standardized industrial components. During the late 1870s, however, another form of catalogue architecture appeared with the "Plan Books" of Palliser, Palliser and Company and Robert Shoppell.<sup>21</sup> This marked the beginning of what is called the "stock-plan" or "mail-order architecture" business in America. This was a system where the prospective house owner would first acquire a catalogue-- typically illustrated with standard plans, perspectives and elevations-- at a very low price ( 25 cents for a copy of Shoppell's Modern Houses in 1887 ). The owner would select one or several design items and order them through mail; whereupon a full set of construction blueprints, specifications and contracts would be delivered at a price that was often lower than one-fifth of an architect's fee for the design of a comparable house [ fig. 3 ]. The Plan Book could also function as advice genre, as discussions of architectural styles, renovation and furnishing often accompanied the main catalogue of plans and building elements [ fig. 4 ].

It has generally been accepted that the catalogue and Pattern Book superseded the Builder's Guide which had been widely consulted during the first half of the nineteenth century.<sup>22</sup> In the Builder's Guide, the main graphic material consisted of plates of the classical orders and other structural and ornamental details: there were few plans and

---

<sup>20</sup> There is very little secondary literature on the building catalogues of the nineteenth century. A helpful study of several manufacturing firms that published catalogues is Diana S. Waite, Architectural Elements, Princeton, Pyne Press, 1972.

<sup>21</sup> See James L. Garvin, "Mail Order House Plans and American Victorian Architecture," Winterthur Portfolio 16, Winter 1981; and Chapter VI, "George Palliser and the Development of Mail-Order Architecture," in Michael A. Tomlan, *Ibid.* for a history of Palliser and Shoppell. Though not a scholarly essay, Patricia Poore, "Pattern Book Architecture," Old House Journal 12, Dec. 1980 is also helpful.

<sup>22</sup> The most popular Builder's Guides were authored by Asher Benjamin and Minard Lafever. See Dell Upton, *Ibid.*; Vincent Scully, *Ibid.*; and Henry Russell Hitchcock, *Ibid.*, for similar views.

elevations, and even less verbal text [ fig. 5 ]. The Pattern Book, on the other hand, like most advice books, was mostly verbal text with accompanying plans and perspectival views of detached houses in a rural setting [ fig. 6 ]. The transition from the Builder's Guide to the Pattern Book has been viewed by architectural historians as not only a parallel phenomenon of the decline of the Greek Revival and the rise of the picturesque styles, but additionally, as a basic reorientation of architectural thinking.<sup>23</sup> The Builder's Guides and Pattern Books have thus been studied within the framework of a continuum of changing architectural tastes. There is, however, a fundamental break between the discursive practices of the Builder's Guide and the Pattern Book. The former was primarily a pre-industrial form of building discourse used during a period when the carpenter, housewright and architect were often interchangeable concepts. It assumed that the carpenter or architect would be an independent designer, builder and supervisor of a unified process.

The emergence of the Pattern Book and catalogue signaled a basic reorganization of the building process towards a more complex and fragmented industry. Most Pattern Book houses built after the civil war were based on balloon frame construction embellished with pre-fabricated details from catalogues. This building process allowed a division of unskilled labour into what was increasingly part of a speculative project. The decline of the local carpenter's role as planner and organizer paralleled the emergence of and competition between the architect, mass builder/speculator, and in certain cases the engineer.<sup>24</sup> For the prospective middle class consumer, a cultural and economic medium of architectural patronage was provided by the Pattern Book and catalogue. On the one

---

<sup>23</sup> Vincent Scully, *Ibid.*, p.xxv-lix; Hitchcock, *Ibid.*, p. iii. See also Talbot Hamlin, *The Greek Revival Architecture in America*, New York; Oxford Univ. Press, 1944, for an opposite evaluation of the picturesque within the same framework of stylistic change.

<sup>24</sup> See Bob Reckman, "Carpentry: The Craft and Trade" in Andrew Zimbalist, ed., *Case Studies on the Labor Process*, New York; Monthly Review Press, 1979; and also Robert A. Christie, *Empire in Wood. A History of the Carpenter's Union*, Ithaca; Cornell Univ., 1956.

hand the Pattern Book, as with most advice books, provided and enucleated the middle class with an authoritative cultural and architectural program. In its infinite and repetitive varieties, the Victorian idea of moral and social reform, within the uncertainties and decadence of industrial capitalism, was the thematic constant of these discourses. The Pattern Book participated fully in the cultivation of this moral program, emphasizing the physical environment as a medium of reform. On the other hand, the catalogue provided a mode of architectural service, realized through the act of consumption. In the catalogue, which Daniel Boorstin has called a "characteristically American kind of book,"<sup>25</sup> a form of mass architectural patronage, coherent with populist notions of an industrial democracy was achieved. Thus the mail-order stock plan business, which had been considered a logical development of the Pattern Book, successfully exploited two sets of contradictory practices and ideologies; first of all, the passive and contemplative mode of reading of the advice books was joined with the catalogue, a visual medium that required a participatory act of consumption; secondly, a pre-figured and authoritative social program of domesticity was combined with a democratic logic of choice and assemblage imbedded in the discursive mode of the catalogue. Simply put, the advice genre, in particular the Pattern Book, provided the Plan Book with a built-in moral and aesthetic program. The advice book and catalogue were thus interdependent and inextricably linked in forming a mass culture of architecture.

Following nineteenth century ideals of professionalism, "autonomy" was the basic ideology in the profession's definition of its relation to a mass industrial society. According to the historian Burton J. Bledstein, the Mid-Victorian professional identified himself as a "self-governing individual exercising his trained judgment in an open society" and thus "strove to achieve a level of autonomous individualism, a position of

---

<sup>25</sup> Daniel Boorstin, The Americans: The Democratic Experience, New York; Vintage, 1974, p. 128.



unchallenged authority heretofore unknown in American life."<sup>26</sup> The ideology of autonomy operated at various inter-related levels. And at each level, a body of discourses developed in tandem with the institutionalization of the social relations of architecture.<sup>27</sup>

The first was at the level of professional jurisdiction. As the movement to professionalize architecture intensified during the 1860s, the strategy of academic professionalism was to present architecture as a cultural production that was detached from the complex of political and economical relations in capitalist society. Accordingly, the profession rejected mass architecture as the "other" within this modern society. Architects claimed superiority over popular builders in their ethics, skill and credentials of artistic culture, and argued for exclusive jurisdiction over the building process. The new mass builders and the older building trades attacked the academic profession for their elitism while still claiming the title of architect. Thus, during much of the nineteenth century, the term architect was problematic and unstable. It could be and was used to gain authority in various activities such as land surveying, speculative building, carpentry, design, and of course, the production of cultural texts. The title was important for authors of Pattern Books and Plan Books because, despite their appeal to populist democracy, these mass discourses also relied on cultural authority. This created great controversy and consternation, and the architectural profession promptly disclaimed Pattern Book writers as popular builders unfit to hold the title of architect. For several decades, the proper substance and boundary of the activities of the architect was involved

---

<sup>26</sup> Burton J. Bledstein, The Culture of Professionalism, The Middle Class and the Development of Higher Education in America, New York; W.W. Norton, 1976, p.87-88.

<sup>27</sup> The term "ideology of autonomy" can also be found, though used differently, in Sibel B. Dostoglu, "Lincoln Cathedral Versus the Bicycle Shed," Journal of Architectural Education 36, Summer 1983. The author used the term in conjunction with the notion of "cultural capital, or the sum of knowledge, theory, skills, languages...[which] constitute the basis for the claims to the superiority of professional expertise" in defining what she argues were the "tools of legitimation" in the professionalization of architecture. This is an adoption of Alvin Gouldner's studies on the emergence of the professional intellectual in modern society. I prefer not to use the term cultural capital because this concept tends to ignore the semi-autonomous nature of the architectural discipline.

in intensely competing cultural programs.<sup>28</sup> It was therefore necessary for the academic profession to distinguish architecture's role from the traditional trades as well as from the new mass builders, and furthermore, establish an exclusive and legal jurisdiction over the boundaries of the terms "architecture" and "architect." In the first standard contract developed by the A.I.A. in 1868, it was taken for granted that the architect would oversee construction, or the job of "superintendance." By 1884, a revised contract began to distinguish superintendance from supervision and architects have, until very recently, been forbidden from engaging directly in construction.<sup>29</sup> Another document that gained wide usage during the same years was the specification. Though the history of its development is unclear, the specification seems to have gained wide usage as the scale of commercial and industrial buildings and the complexity of the technology involved began to grow.<sup>30</sup> The specification, along with the contract, defined the jurisdiction of the architect over the tradesman in the field, and in part, marked the transformation of the latter into a construction labourer. With the instigation of architectural licensing laws, first passed in 1897 in Illinois, many of the jurisdictional disputes with the builder, craftsman, engineer, and contractor, found a legal compromise. A basic effect of the licensing law was the delineation of the specific domain of the term "architect." One of the key functions of these discourses was to distance the architect from the material

---

<sup>28</sup> George Palliser and Robert Shoppell had presented themselves as architects. In the case of Shoppell, he freely admitted that his business catered to a public reluctant to pay architects' fees. He would, however, add carefully that to the extent that his business cultivated public taste, it would create more frequent employment for the architect. The controversy over the professional identity of Pattern Book writers is best dealt in Gwendolyn Wright, *Ibid.*, pp.46-55. See also Chapter 3 of Clifford Edward Clark, *Ibid.* for further discussions that expand on Wright's theme.

<sup>29</sup> The change in the standard contracts was brought to my attention by Richard Michael Levy, "The Professionalization of American Architects and Civil Engineers, 1865-1917," Ph.D Dissertation, Univ. of California, Berkeley, 1980. The "design-build system" in which the architectural office assumes responsibility for both design and construction was allowed by the AIA on a temporary and experimental basis in 1978. The design-build system continues to be a controversial issue within the profession and in its relation with contractors and the building industry. See American Institute of Architects, Design-Build/Contracting Monitoring Task Force Report, Washington D.C.; AIA, May 1981.

<sup>30</sup> See David B. Emerson, "The Growth of the Specification," Pencil Points 11, February 1930, pp. 149-151

process of building and thereby assign a cultural value to his role in society. This implied a detachment from class and business interests and demonstrated the ethical superiority of professionalism.

The second level at which the ideology of autonomy operated concerned the status of the architectural object and its relation with society. Academic professionalism defined architecture's role in terms of a mode of representation that expressed the social aspirations and aesthetic ideals of America. The academic profession understood that they were practicing in an industrial society of varied classes, tastes and culture. It further assumed that this diversity was not a permanent diffusion of social values and that a clear cultural hierarchy could still be established. The role of the architect was not to present the plurality and materiality of everyday life, but rather to transcend the divisions and antagonisms of American society. It was in antithesis to the mundane and often squalid realities enmeshed in capitalist society that architecture's role of social and cultural representation was defined. I have named this mode of architectural representation, for the purposes of my argument, that of "transcendant representation." More specifically, this was the idea that architects could bring a historical, yet ideal and constant value to building.

For the moment, an example of this elevated notion of architectural representation should be briefly examined. The most conspicuous monuments of academic architecture, though certainly not the most successful, can be found in the numerous expositions of the late nineteenth century: from the Philadelphia Centennial, through the World's Columbian Exposition of 1893, to the Panama-Pacific Exposition of 1915. The Columbian Exposition is particularly significant as an exemplary cultural text that marked what Lawrence Levine has characterized as the emergence of cultural hierarchy in America. The physical and social structure of the Exposition-- the division between the classical Grand Basin and the carnival atmosphere of the Midway Plaisance-- can be seen as an

emblem of the representational logic of academic professionalism and its placement of mass architecture as its antithesis [ figs. 7 & 8 ]. As Alan Trachtenberg observed, the physical structure of the exposition was a proclamation that "reality must be sought in the ideality of high art. The Court of Honor provided the center around which the rest of White City was organized in hierarchical degree."<sup>31</sup> The culture of academic professionalism that realized the center, with its unified language, was reaffirmed by the Midway Plaisance; the space of overt consumption and eclectic pavilions decorated in the many styles of the world. The stylistic reproductions of the Midway were symbolic of a horizontal and undisciplined use of historical images, characteristic of mass architecture. In contrast, the uniqueness of the Basin's architecture was derived from a layered and vertical continuity of the classical tradition, requiring the interpretive practice of the architect. The unified style provided an element of constant experience for the new types of functions that were housed within the central Basin; a principle that could be extended to other institutions of modern society such as the public library or railroad station. Thus the center represented what America should be; its realization possible only through the disciplined intervention of architecture. Henry van Brunt, fully cognizant of his role in the Fair, commented before the opening that "the high function of architecture is not only to adorn this triumph of materialism, but to condone, explain and supplement it."<sup>32</sup> This "high function" of adorned, supplemented and transcendent representation found further patronage in the City Beautiful movement that was so profoundly influenced by the image

---

<sup>31</sup> Alan Trachtenberg, The Incorporation of America, New York; Hill & Wang, 1982, p. 213. My interpretation of the Columbian Exposition as a physical realization of the dichotomy between academic professionalism and mass architecture is indebted to professor Trachtenberg's study and to Lawrence Levine, Highbrow/Lowbrow. The Emergence of Cultural Hierarchy in America, Cambridge, MA; Harvard Univ. Press, 1988. See also Edward Wolner, "The Court of Honor at the 1893 World's Fair: An Architecture of Pathos," Central. Papers on Architecture, Winter, 1987, which situates the Court of Honor at the divide between "Jeffersonian, agrarian and entrepreneurial" age and an emerging era which was "Hamiltonian, urban and monopolistic." ( p. 60 )

<sup>32</sup> Henry van Brunt, "Architecture at the World's Columbian Exposition," The Century Magazine 44, 1892 reprinted in Coles and Reed, eds., Architecture in America: A Battle of Styles, New York; Appleton-Century-Crofts, 1961, p. 158.

of the White City. The worldly aspirations of an imperial America and the search for an internal civic order provided the perfect political and cultural context for the values held by architects to be projected into the reform of the city. In other words, the pursuit of beauty and an unified architectural style matched the ideological need of American businessmen, politicians and the professional middle class. According to Charles Moore, the biographer of both Daniel Burnham and Charles Follen McKim, architects had found receptive clients who no longer thought that they "spoke a foreign language."<sup>33</sup> The ability of architects to provide major civic institutions such as museums and libraries with ennobling forms, and furthermore, envision and create images of a unified urban culture was what separated high architecture from the unmediated representations of mass builders. It is then not surprising that in the two decades between the Columbian Exposition and the beginning of the First World War, architecture reached the height of its prestige. As Elihu Root, Secretary of State in Theodore Roosevelt's cabinet remarked in 1905, "the architects now for the first time are beginning to have the nation with them."<sup>34</sup>

The third level, which is the main concern of the dissertation, is the body of knowledge and skills through which the discipline of architecture is formulated. The boundary and substance of the discipline, however, is always difficult to delineate. This is particularly true for nineteenth century architecture when, on the one hand, the jurisdiction of the "architect" covered a large and shifting field of practice, and on the other, a wide range of texts were considered to be part of his intellectual make-up. Nevertheless, at the risk of over-simplification, a rough sample of genres that constituted the discursive field of architecture during the late nineteenth to early twentieth century can

---

<sup>33</sup> Charles Moore, Daniel Burnham, Architect, Planner of Cities, Vol II , Boston; Houghton Mifflin, 1921, p. 90.

<sup>34</sup> Quoted from Root's speech given Jan. 11, 1905 in Washington on the occasion of the 39th Convention of the AIA, in Henry Saylor, The AIA's First Hundred Years, Washington D.C.; The Octagon, 1956, p. 136.

be drawn. The list contains history texts, pre-nineteenth century treatises, encyclopedias and dictionaries, the journal, the sketch book, Builder's Guides, construction manuals, the specification, and the industrial catalogue.<sup>35</sup> Within this discursive field, a system of exclusion and differentiation was necessary in distinguishing the center and boundary of professional knowledge. Thus, in formulating a viable definition of academic professionalism, a system of hierarchies and a distinction between core, marginal and antithetical texts was established. An example of a marginal genre would be the construction manual; the most widely used example during the late nineteenth century being Frank E. Kidder's Architect's and Builder's Pocket-book. This manual was also used by a wide range of groups that included carpenters, mechanics, civil engineers and other lay persons and thus, despite its great popularity among architects and students, it was not considered essential to the profession's self-definition. In addition, these manuals came in duodecimo or smaller formats. They were specifically designed for easy reference; to be used intermittently during the design process or carried in the pocket of someone working on site. For the academic profession to distance itself from the construction process, it was quite logical that these manuals were placed at the outer fringes of architectural knowledge.

Another marginal genre was the building trades catalogue. Even towards the end of the nineteenth century, when the architectural profession relied heavily on standardized building components, the catalogue was not considered integral to the discipline. As architects began to grapple with what was called the "catalogue problem," it was regarded

---

<sup>35</sup> The list was generated from the analysis of the following: "The Best Twenty Books for an Architect's Library," American Architect 21, Feb. 12, 1887; Edward R. Smith, "A List of Standard Architectural Books for Offices and Public Libraries," Brickbuilder 17, July, Aug., Sept., 1909; "The Current Index of Architectural Literature," JAIA 3, Jan., 1915; Lawrence Kocher, "The Architect's Library," Architectural Record 56 & 57, 1924 & 1925; Charles B. Wood, III, "A Survey and Bibliography of Writings on English and American Books Published before 1895," Winterthur Portfolio 2, 1965; and by the same author, "The Architectural Book in Nineteenth Century America," in Mario di Valmarana, ed., *Ibid.*; Michael J. Crosbie, "From Cookbooks to Menus: The Transformation of Architecture Books in Nineteenth Century America," Material Culture 17, Spring 1985; and Henry-Russell Hitchcock, *Ibid.*

as merely a means that did not affect the integrity of architectural design. The profession's position concerning the catalogue can be found in "Sweet's" Indexed Catalogue of Building Construction, a compilation of trade catalogues by Architectural Record begun in 1906 [ fig. 9 ]. The trade catalogues that were sent to the architect's office came in various sizes and formats; from pocket size to folios, and leaflets to hard cover books often several hundred pages thick. The "catalogue problem" as it was defined at the time, was the sheer quantity and variation of information that was often unwanted and disorganized. As a "logical way of escape from this muddle," the guiding principle of Sweet's was to be the "reference idea." In the introduction to the first edition of Sweet's, Thomas Nolan, at the time professor of architecture at the University of Pennsylvania, repeatedly emphasized that the catalogue was not "reading material" but information for *reference*, belonging in the "same category of the dictionary, or the telephone book." In other words, though the information in the catalogue is necessary to architectural design, the content itself is not regarded as a constitutive part of the discipline. The issue is then one of organizing the information in a "concise and systematic way."<sup>36</sup> There was no indication that this proliferation of catalogues could somehow affect the nature of architectural practice. Instead, the notion of a "scientific standard catalogue and index of building materials" was established to reinforce the ethical dimensions of professional practice. From the producer's stand point, the catalogue was a form of advertising. Based on this perception, it was made clear that architects would not be susceptible to the manufacturer's advertising techniques and would follow ethical and strictly architectural standards in the selection of materials and components. In spite of its indispensable role in the architectural process, architects did not feel it necessary to rethink the nature of their discipline within this industrialized

---

<sup>36</sup> Thomas Nolan, "Introduction," "Sweet's" Indexed Catalogue of Building Construction, New York; The Architectural Record Co., 1906 edition.

system of production. In the first decade of this century, there was little doubt among architects that they were the subjects of a design process guided by an internal discipline, clearly distinguishable from a body of knowledge classified under the category of reference.

For academic professionalism, the Pattern book and the Plan Books were discourses antithetical to its discipline. As I have already mentioned, for Pattern Books, and for other types of advice books, the physical environment was important primarily as a *medium* of social reform. The internal principles of architecture were not the central concern; or rather in the case of Downing, the principles of architectural design should not be sought internally but in architecture's relation with social and natural conditions. It is true that historians such as Vincent Scully have convincingly demonstrated the relevance and depth of the architectural thinking contained in the Pattern Books of Alexander Jackson Downing and his followers.<sup>37</sup> However, authors like Downing and Calvert Vaux were exceptions in their attempt to formulate new principles of design. In the catalogue and Plan Books, architecture retained its value as a commodity for consumption. This ran against a central concept of nineteenth century professionalism shared by architects; that the practice and product of the profession existed outside the capitalist market. For academic professionalism, neither culture nor architecture could be perceived as a commodity. "Architecture," claimed Barr Ferree in the first issue of Architectural Record, "is not an article of manufacture that can be produced on demand. It is one of the things not affected by supply and demand."<sup>38</sup> Therefore, despite the legitimate observation by Vincent Scully that Downing's Pattern Books were origins of an important line of architectural thinking that flowered in the work of Frank Lloyd

---

<sup>37</sup> I am of course referring to his ground breaking study, The Shingle Style and the Stick Style, which had the subtitle of "Architectural Theory and Design from Downing to the Origins of Wright," first published in 1955.

<sup>38</sup> Barr Ferree, "An 'American Style' of Architecture," Architectural Record 1, July-Sept., 1891, p. 39.



Wright, the Pattern Book and Plan Book as genres and discursive forms were never an integral part of the discursive field of a profession dominated by academic principles. The commodification of architecture, and the logic of choice, assemblage, and a pre-figured program clearly ran against the professional and disciplinary ideals of academic professionalism. The undisciplined use of historical styles based on crude mechanical reproductions, and the fragmented nature of the designs as well as building process were rejected as an antithesis to the unified discipline represented by the principles of the Ecole des Beaux-Arts. A central pedagogical goal of the Beaux-Arts, as it was formulated in the latter half of the nineteenth century, was to train students in devising a design that fit and integrated the complex programs of modern building types into a unified composition. The essence of Beaux-Arts teaching, so aptly summarized by A.D.F. Hamlin, was in "thinking of the building as an artistic unity...an object of artistic design in plan, composition and detail." <sup>39</sup>

In terms of defining architecture as an autonomous discipline, the core of the discursive field was comprised of large format folios, the historical and theoretical genres, and the professional journals. In particular, the emergence of the architectural journal, a crucial medium in formulating the nature of the discipline, paralleled the stabilization of the architectural profession.<sup>40</sup> Unlike builder's magazines that flourished throughout most of the nineteenth century, an architectural periodical that aspired to the elevated notions of professionalism was financially difficult to maintain. By the turn of the century, however, through the intervention of large publishers, a few journals were established: American Architect and Building News, Architectural Record, Architectural

---

<sup>39</sup> A.D.F. Hamlin, "The Influence of the Ecole des Beaux Arts on Our Architectural Education," Architectural Record 23, April, 1908, pp. 241-247. It should also be noted that in the same article Hamlin, an early graduate of the Ecole, expressed concern that the design methods of the Beaux Arts were not able to adapt to new building types and technologies.

<sup>40</sup> See Mary Woods, "The First American Architectural Journals: The Profession's Voice," JSAH 48, June 1989 for an overview of early journals and particularly the role of the American Architect and Building News and its relation to the stabilization of the architectural profession.

Review, Brickbuilder in the north-east, and Inland Architect in the mid-west. These journals became the major source through which the profession could familiarize itself with the most recent buildings and architectural issues. Before the establishment of the journals, the availability of architectural books had been sparse and irregular. The absence of institutional control over the access and distribution of discourse made it difficult to form a community of shared knowledge and interests. One of the most important tasks in forming a viable educational system was the establishment of an architectural library replete with the proper books and journals that contained portfolios of historical and contemporary monuments. The small community of trained architects were well aware that the establishment of a professional journal would be crucial in the formation of the discipline. The profession was in agreement with Charles Follen McKim, entrusted with editing H.H. Richardson's New York Sketch Book of Architecture, in his belief that the journal's role would be one of supplying "brother professionals" with the "means of keeping themselves and each other informed in regard to what is going on in their special world."<sup>41</sup>

---

<sup>41</sup> "Editorial," New York Sketchbook of Architecture 1, Jan. 1874. reprinted in Leland Roth, ed., America Builds, New York; Harper Row, 1983, p. 232. New York Sketch Book of Architecture (1874-1876 ) and the Boston based Architectural Sketch Book (1873-1876 ) existed primarily as vehicles for publishing illustrations of contemporary work. The plates for the latter were selected and supplied by a group of Boston architects and draftsmen who formed the "Portfolio Club" which met on a regular basis for mutual criticism. See Eileen M. Michels, "A Developmental Study of the Drawings Published in American Architect and in Inland Architect through 1895," Ph.D Dissertation, Univ. of Minnesota, 1971. and Mary Woods, *Ibid*.

## 2) The Discursive Practice of the Portfolio

Unlike the disjunct and fragmented display of architectural elements in the catalogue, the modern portfolio, mostly utilizing gravure or collotype techniques, displayed beautifully illustrated full page or double page reproductions of buildings. As I just mentioned in the previous section, the portfolio was an essential part of the architectural journal. In fact, certain periodicals such as the short lived Architectural Reprint and Brickbuilder, which would later become Architectural Forum, were specifically intended to function almost entirely as a portfolio. Architectural Reprint, which was first published out of Washington, D.C. in 1901, provided edited versions of foreign books, selecting "such material as will be of especial use in the drafting room."

The Reprint gives its subscribers rare and expensive books at nominal cost. The text, excepting where necessary to explain plates, will be eliminated. When the work of The Architectural Reprint is complete it will constitute at a nominal cost a full library of the world's best architectural books.<sup>42</sup>

In most cases, the portfolio was part of a well ordered format, in which there were generally three distinct sections in each issue: the portfolio, letter press and advertising. It was an organization characterized by the clear separation between different modes of discourse. In the case of American Architect, the journal began with the letter press, containing articles on topics ranging from aesthetic issues to more practical matters of construction and planning [ fig. 10 ]. The portfolio was almost always placed in a separate section from the letter press, or in certain cases inserted between articles which had no connection with the illustrated building or detail [ figs. 11 ]. Whether the reproduction was a drawing or a photograph, each plate had to stand for itself without the aid of verbal text, through its quality as a designed artifact and a reproduction. The

---

<sup>42</sup> "Announcement," Architectural Reprint 2, April 1902.

accompanying verbal description of the illustration was kept to a minimum and often grouped into a separate section. Advertising was not regarded to be part of the main text, and was therefore grouped together and paged separately. In its January 1884 issue, American Architect began a separate section for advertising, organizing its format and providing an advertisers listing. Advertisements were generally presented in two kinds of format: the full page illustration, in which the object was usually presented as part of a complete environment, and the classified format [ figs. 12 & 13 ]. The former would occasionally be placed within the main text, blending into the magazine in part by emulating the format of the portfolio, while the latter was placed either in the first pages of the issue, before the table of contents, or at the end of the journal.<sup>43</sup> This "segregated" organization of the journal would be the dominant format of the architectural periodical until the end of the 1920s [ tables 1 & 2 ].

The ability to use the portfolio in the analysis and production of design was a key part of academic training. Though not all reproductions were meant to be used in an analytical fashion, the "plates" in many folios and periodicals were intended to be separated from the binding and filed separately to be studied. The codified problems of the *analytique*, *esquisse* and *projet rendu*, developed within the Beaux-Arts system and adopted in its variant forms into American schools, required the ability to analyse and transcribe architectural drawings. Hence, drawing and draftsmanship constituted a crucial part of the academic discipline, particularly in the developmental stages of design. In the United States, the term used to denote the graphic and visual skills required in "training the eye and hand," was "indication."<sup>44</sup> Indication was the skill of drawing at different levels of abstraction, whether the object to be analysed or designed was the scale of a sculptural column, an elevation, or the plan of a large building [ figs. 14 to 17 ].

---

<sup>43</sup> The strict division between advertising and main text as a general practice in publications is discussed in Robert Craig, "Ideological Aspects of Publication design," Design Issues 6, Spring 1990.

<sup>44</sup> David Varon, Indication in Architectural Design, New York; William T. Comstock, 1916, p. 19.

Cultivating the ability to move from simple lines to detailed form, a process that may be called "figuration," and the complementary skill of drawing simple lines with a generative idea in mind, the ability of "abstraction," were essential to academic pedagogy. Drawing was an intricate discipline of seeing and interpreting. One had to be able to *read into* and *draw out* architectural ideas. A line could be "sensitive, even tentative, feeling its way and clinging on to the idea, as it were, in order to suggest it in all its multifarious complexity."<sup>45</sup>

Figs. 14 and 17 were selected from an American text published in 1916 titled Indication in Architectural Design. The book, written and illustrated by David Varon, a former student in Julien Guadet's atelier in Paris, was devoted entirely to the discussion and demonstration of indication. In the case of a plan, such as fig. 17, an effective drawing revealed its basic idea-- the *parti*-- while at the same time facilitating and stimulating the further development of sections, elevations and details. It shows the various levels in which the plan of the Bath of Caracalla could be indicated. Following Guadet's suggestion that its plan be carefully studied, Varon, using his own sketches of its plan, carefully demonstrated the process of indication; a process essential to what he called the "natural method of studying architectural design."

The nature of this method may best be understood by following Varon's own description of the process. The lengthy passage below is an example of the practice of indication through which the Palazzo Farnese was analyzed by the author ( fig. 18 is Plate XXIV referred to by Varon ).

Naturally the start must be made with the plan. In order the better to understand the grouping of the masses, and their relation, the student must disregard small details and, no matter how elaborate the plans he consults may be, his first sketch will be like Figure 1, Plate XXIV, which shows what is

---

<sup>45</sup> Reginald Blomfield, Architectural Drawing and Draughtsmen, New York; Cassell and Co., 1912, p. 8.

called the block plan, where only the courts and circulations are indicated in white, while the rest is hatched. He will observe that the rear parts are thicker than the sides; and that the circulations vestibules are likewise more generous in the former than in the latter. He can easily read the plan at least in so far as concerns the relationship of the parts to one another and to the whole. He remarks at a glance the thickness of the front wing, which with its monumental access constitutes the most important part of the structure, involving the reception halls and galleries, while the sides are assigned to functions of comparatively lesser importance. He also notes that the circulations on either side are proportionate to the thickness of the structure.

The next step for our analytical student is to consider the same plan more in detail. The first story being the most important, he sketches it, ( Figure 2 ) still on a rather small scale, where he can not do more than indicate the component parts, yet, thanks to the delicate sense of touch which has developed, he can present a fair idea of this plan in spite of the simplification and the smallness of the scale. For instance, the piers of the court are merely indicated by dots which, however, are heavier than those representing the columns of the front vestibule. The student, being struck by these interesting piers, sketches the plan of one in detail, as in Figure G. The same process of detailing is used in case of all parts offering a peculiar interest...The advantages of this process over that of *tracing from the reference book* is manifest, and should not have to be insisted upon. It is the best means of discovering the principal qualities of a plan, and also of acquiring in a measure through one's own efforts the science of composition. For though there be general principles of design, these can not be grasped thoroughly unless their actual exemplifications have been studied.<sup>46</sup>

Here one sees the emphasis on the difference between merely tracing an architectural plate, or "cribbing," as it was called at the time, and the process of reading and transcribing. This simultaneously analytic and synthetic procedure could be applied to all stages of design, and was a practice essential to the progressive development of a project.

---

<sup>46</sup> Varon, *Ibid.*, pp. 27-28. ( my emphasis )

There were basically two ways in which reading and transcribing was practiced. The first, as demonstrated in figs. 14 to 18, was in the layers of precedent formed through careful studies of the plans and elements of similar projects. The second method of application was in the associations of the plan with different aspects of the design: its construction, spatial enclosure, and the facade. The academic *dessin* techniques of *entourage*, *poche* and *mosaique* were intended as graphic methods integral to making the plan more legible to an architectural audience [ fig. 19 ].

By the French teaching, the plan is an assemblage of symbolic indications, and when rendered in accordance with their rules of shades, tones, values, etc., is as perfectly understood by their judges as would be a musical score to the leader of an orchestra, and establishes between them and the student a perfect medium of *communication*. The student, if he is a master of the art, can at will suggest to the judges gayness, sadness, light and air, or the absence of both-- a beautiful view or a dense forest.<sup>47</sup>

Like the notational system of music, architectural representation was based on the acceptance of a set of conventions: the interpretations of a building's "character," the thickness of the sections ( irrespective of whether or not the masonry was structural ), and the stylistic norms of classicism. It is thus not surprising that a contemporary review of Varon's book, which was essentially a manual on architectural representation, could consider it a "practical treatise in the theory of architecture."<sup>48</sup>

---

<sup>47</sup> J. Stewart Barney, "The Ecole des Beaux Arts, Its Influence on Our Architecture," Architectural Record 22, Nov. 1907, p. 337. ( my emphasis ) For similar notions of the Beaux-Arts plan, see Alan Colquhoun, "The Beaux-Arts Plan," in Essays in Architectural Criticism, Cambridge, MA; MIT Press, 1981. and Richard A. Moore, "The Beaux-Arts Tradition and American Architecture," Catalogue of Exhibition by the National Institute for Architectural Education, New York, 1975. Another interesting article is the account of Joseph Esherick's experience as a student at the University of Pennsylvania in "Architectural Education in the Thirties and Seventies: A Personal View," in Spiro Kostof, ed., The Architect, New York; Oxford Univ. Press, 1977. Esherick writes that the "intensive study of the plan as essentially a diagram of spaces was important, and I still tend to 'read' a building from the plan and in my mind construct from it a conception of the spaces." ( p. 263 )

<sup>48</sup> Richard F. Bach, "Three Books for Draftsmen," Architectural Record 42, Dec. 1917, p. 584.

It was often stated, with both derogatory and positive intentions, that the student of the Ecole des Beaux-Arts was taught to plan with his "eyes."<sup>49</sup> Architectural design was perceived as a visual practice, in which the plan and sections were the central representations of an overlapping process of hermeneutics and transcription. A good plan then could be characterized as having the dual qualities of depth and transparency. Julien Guadet has provided one of the most eloquent statements concerning the nature of the Beaux-Arts plan:

Yes, there are beautiful plans and I find this a legitimate expression-- but in the sense that good books are good because we read them or a musical score is good because of its content and not because of the arabesque look of the calligraphy with which it is written.<sup>50</sup>

In this passage, Guadet compares the architectural plan with the musical score, an analogy already encountered in the previous quotation on the communicative function of the Beaux-Arts plan. Indeed, architectural documents are, to use Nelson Goodman's term, allographic.<sup>51</sup> In architectural discourse, however, a distinction can be made between documents such as contracts, specifications and working drawings, on the one hand, and the portfolio, on the other. While the former work within representational conventions shared with the building industry, the latter is not intended for a

---

<sup>49</sup> One of the most interesting debates concerning the merits of the Beaux-Arts system can be found in a series of articles by J. Stewart Barney, A.D.F. Hamlin and Paul Philippe Cret in Architectural Record 22, 1907.

<sup>50</sup> The quote is from Chapter Three of Volume I of Elements et theorie de l'architecture, Paris; Lib. de la Construction Moderne, 1901-1904. I have used the English translation from Leland Roth, ed., America Builds, New York; Harper and Row, 1983, p. 332.

<sup>51</sup> In his Languages of Art, Indianapolis; Hackett, 1976, Goodman introduces the distinction between autographic and allographic works of art. A work of art is autographic "if and only if the distinction between forgery and of it is significant; or better, if and only if even the most exact duplication of it does not thereby count as genuine." ( p. 113 ) Painting is autographic, while musical composition and architecture are considered allographic, in that all performances that comply with the notation can be considered genuine. Presentation drawings for the client and the modern phenomena of the architectural exhibition and publication intended for a lay audience introduce another set of complicated issues that are beyond the scope of this study.



"performance" in a different medium. It functions as a productive agent of essentially the same medium of two-dimensional drawings which circulate within the architectural profession. The drawings in academic design were intended as a self-referential and productive system of representations. At the center of this system were the plan and section: to use an axiomatic phrase by Paul Philippe Cret, "the sections are the diagram of the whole composition and should be its sources."<sup>52</sup>

In the portfolio, orthographic systems of drawing were clearly the privileged mode of representation. Even after photography began to be widely used in the late 1880s, it aspired to the conditions of veracity and correspondence. H  l  ne Lipstadt has correctly pointed out in her study of Cesar Daly's Revue G  n  rale de l'Architecture, that modern reproduction in fact did not deprecate the aura of architecture, but rather had the power to imbue buildings with artistic qualities identifiable by the professional as well as layman.<sup>53</sup> The portfolio's function had been intensified, rather than diffused, by its mechanical reproduction. To quote from a widely used portfolio, its basic purpose was "by means of photographs and measured drawings to place before Architects an absolutely reliable and correct reproduction of all that pertains to the practice of Architecture, so that an Architect, or for that matter anyone, could *reproduce* a given subject from a chimney-stack to a door knob."<sup>54</sup> As part of the portfolio then, photography functioned and continued the representational modes of architectural drawings [ fig. 20 ]. The architectural plates, whether they were photographs or drawings, thus framed its object in a way that it was identifiable as an element of architecture ( the classical orders, entrance ways, vestibules, etc. ), which included the

---

<sup>52</sup> Paul P. Cret, "Design," in Book of the School, Department of Architecture, University of Pennsylvania, 1874-1934, Philadelphia; Univ. of Pennsylvania, 1934, p. 29.

<sup>53</sup> H  l  ne Lipstadt, "The Building and the Book in Cesar Daly's Revue G  n  rale de l'Architecture," in Beatriz Colomina, ed., Architectureproduction, New Jersey; Princeton Univ. Press, 1988, p. 25.

<sup>54</sup> Marvyn E. Macartney, The Practical Exemplar of Architecture being Measured Drawings and Photographs of Examples of Architectural Details, London; The Architectural Review, 1907, p. 2.

largest single element, the building as a whole.<sup>55</sup> For an architectural illustration to be used in the transcribing process, this self-referential system was clearly a privileged, if not a necessary mode of architectural illustration. It was important and a common practice for the portfolio section of a periodical to provide accurately scaled and measured drawings, which naturally tended to be orthographic.

If contracts, construction documents, and presentation drawings defined architecture in relation to the exterior world, the discursive forms of the essay and portfolio structured the internal epistemology of the "special world" of architecture, i.e. a body of knowledge exclusive to the discipline of architecture. The specific institutional site of this internalized world of academism would be the atelier and the library. Though the spirit of the nineteenth century atelier may still be found, in diffused form, in the architectural studio, the role of the library seems radically altered. As the following account of architectural training at Columbia University during the turn of century reveals, the discursive practice of the portfolio had formed an inseparable link between design and the architectural library.

[T]he most engrossing part of the freehand course consists in the tracing, copying, analysing and designing incidental to the study of architectural history. This work continues throughout the four years, with a parallel course in ornament under Professor Hamlin. The thoroughness of the attention given to it and the magnificent library equipment that makes this thoroughness possible, may, we think, be designated as the chief characteristic of the school. If draughtsmanship be the portal, so to speak, to the Temple of Architecture, then the library for historical research may be considered as the inner cella or holy of holies.<sup>56</sup>

---

<sup>55</sup> For a similar interpretation of the representational strategies of architectural photography during its early development in America, see Cervin Robinson and Joel Herschman, Architecture Transformed. A History of the Photography of Buildings from 1839 to the Present, Cambridge, MA; MIT Press, 1987, p. 58.

<sup>56</sup> Percy C. Stuart, "Architectural Schools in the United States--Columbia University," Architectural Record 10, July 1900, p. 6. The article also gives an interesting account of how popular portfolios had

As fig. 21 of the atelier and library at the Massachusetts Institute of Technology during the 1880s show, the two were literally interlocked in forming the institutional site of academic education. Thus, in the portfolio and its repository, the library, an autonomous, constant and internal history of architectural monuments was formed. Needless to say, the historical essay and the numerous treatises on classical architecture continued to be studied, transformed and referred to. Along with the portfolio, they constituted the core of a discursive field in which architecture was understood and operative in its own internal history. As one architectural historian of the nineteenth century has noted, "the monument was regarded as a recollection of the past and a reminder of the future; and in that sense it was also the residuum of the historical continuity of architectural meaning."<sup>57</sup> The portfolio, as the repository of past monuments and the source of future designs to be sketched along its pages, reproduced this continuity.

---

to be separated from the book and reserved in the library when a design project required reference to certain building types.

<sup>57</sup> This is from Goerd Peschken's study of Karl Friedrich Schinkel and was quoted by Dalibor Vesely, "Architecture and the Conflict of Representation", *AA Files* 8, Jan. 1985, p. 30.

### 3) The Conceptual Framework of the Academic Discipline: Composition, Planning and the Parti

By the turn of the century, to American architects, the Ecole des Beaux-Arts represented a specific method and philosophy of architectural design. Increasingly large numbers went to Paris to study the "modern French methods" and returned eager to apply and spread what was perceived as the essential lesson of the Beaux-Arts system: the discipline of architectural design. In the vocabulary of American academism, a distinction between two basic concerns of design-- that of composition and planning-- could be made.<sup>58</sup>

While planning received little critical attention, pedagogical texts concerning composition authored by American architects appeared frequently. In 1898 John Beverly Robinson contributed a series of articles on composition in Architectural Record, published a year later as Principles of Architectural Composition. The book was used in Robinson's lectures at Columbia University, and in 1908, was published again in revised form. In 1903, John Van Pelt published A Discussion of Composition which was based on his lectures at Cornell University.<sup>59</sup> Robinson and Van Pelt, who had both attended the

---

<sup>58</sup> The literature on academic design often refers to design as "composition and planning." Furthermore, architectural schools like Columbia and Berkeley could offer separate courses on composition and planning. At Columbia, William Boring taught separate courses on the "Principles of Composition" and "Principles of Planning." Composition could also refer to a drawing skill as in "composition and rendering," an elective course at MIT. See "Massachusetts Institute of Technology, Department of Architecture Course of Instruction," Architectural Record 21, June 1907, p. 444, and "The Course in Architecture," Technology Architectural Record 1, May 1907, pp. 3-5, for an annotated list of course offerings at MIT.

<sup>59</sup> Both Robinson's and Van Pelt's books were revised and published respectively under the titles Architectural Composition ( 1908 ) and The Essentials of Composition as Applied to Art ( 1913 ). Along with books on composition, various text books on drawing, construction, and style were produced during the turn of the century. One of the most widely used American text books was William Robert Ware's American Vignola published in 1902. Before American Vignola, students had to rely on a French edition of Vignola, Traite elementaire pratique d'architecture, which was not as readily accessible as Ware's text book. It provided a specific and simplified explication of the design rules of classical architecture and quickly became the standard school text through which the orders were studied during the first year.

Ecole in Paris, thus began a line of discourse on composition that would extend into the 1930s in America and England.<sup>60</sup>

In the French academic tradition, *composition* had a much longer and complex history of shifting connotations. According to David Van Zanten, during the latter half of the nineteenth century, *distribution* and *disposition* were subsumed by *composition*. It was thus an extremely inclusive term which came to signify "the essential act of architectural design."<sup>61</sup> *Composition* denoted a process, as well as the final design of the building, in which aesthetic, historical and practical issues were drawn together. The literary culmination of the discipline of *composition* is widely considered to be Julien Guadet's Eléments et théorie de l'architecture, the four volume compilation of his lectures published between 1901 and 1904. Guadet's Eléments can be understood, on the one hand, as a study of what was regarded as the basic elements of architecture--walls, porticoes, orders and columns, vaults, vestibules, stairways etc.-- and on the other hand, a discussion of the practical and historical aspects of building types. Guadet had thus identified the two basic components of academic discipline-- the individual architectural

---

<sup>60</sup> The proliferation of composition books written in English was first brought to my attention by Colin Rowe, "Character and Composition; or Some Vicissitudes of Architectural Vocabulary in the Nineteenth Century," Oppositions 2 1974, reprinted in The Mathematics of the Ideal Villa and Other Essays, Cambridge, MA; MIT Press, 1976. David Van Zanten and Richard A. Moore have also noted the numerous composition books published in America and England during the first three decades of this century, but do not discuss them in any depth. Among the numerous books related to the issue of composition, the only one that attempted to adopt the format of Julien Guadet's Eléments et théorie de l'architecture, is Robert Atkinson and Hope Bagenal's Theory and Elements of Architecture published in 1926.

<sup>61</sup> David Van Zanten, "Architectural Composition at the Ecole des Beaux-Arts from Charles Percier to Charles Garnier," in Arthur Drexler, The Architecture of the Ecole des Beaux-Arts, Cambridge, MA; 1977, p.112. Therefore in the terminology of the Ecole, what Americans called design would be more closely translated as *composition* rather than *dessin*, which denoted a theory of art and a body of representational methods. French academic theory in the nineteenth century constitutes an extremely complex and dense field that cannot possibly be dealt with in any specific manner in this study. I have thus relied heavily on professor Van Zanten's views of the historical changes in the theories and practice of the Ecole des Beaux Arts. I would like to note that in spite of the rapidly changing conditions of building in the latter half of the nineteenth century, academic theory in France proved to be extremely resilient, much more so than in the United States. This is due in part to what many historians believe to be the inclusive and pragmatic nature of the process of *composition*. As its complex history demonstrates, French academic theory had the ability to absorb the criticism of its opponents and reintegrate them into its system, all the while maintaining an ideology of unity in architectural design.

element and the building type. Though Guadet stressed the importance of *composition*, he did not engage in an extensive discussion of the term. Terse statements of principles were scattered in what was essentially a study of specific and practical problems of the construction and organization of buildings. ( Just three short chapters of Book Two in Volume One are devoted to a general discussion of *composition* and architectural principles. ) Van Zanten has accurately pointed out that Guadet's Eléments was more a book on building types, than a theory of composition:

Architectural composition was merely a way of checking and refining these types; a way of phrasing them architecturally with clarity and elegance. Architectural composition's task was not primarily to generate new types out of nothing. Thus knowledge of the type was far more important than knowledge of the technique.<sup>62</sup>

For Guadet, *composition* denoted less a theory than the practice of design; something that "cannot be taught; one learns it through multiple trials, by example, through advice, and by one's own experience building on that of others."<sup>63</sup>

Like Guadet's Eléments et théorie de l'architecture, the American texts on composition had the dual function of theoretical treatise and pedagogical text. However, as the subtitle to Robinson's book--"An Attempt to Order and Phrase Ideas which hitherto have been only Felt by the Instinctive Taste of Designers"-- suggests, Van Pelt and Robinson sought to make explicit the basic ideas of architectural design, particularly the notion of composition [ fig. 22 ]. Contrary to the perception that the American discussion of composition was uniquely a reflection of Beaux-Arts conceptions,

---

<sup>62</sup> David Van Zanten, "Le System des Beaux Arts," Architectural Design 48, Nov./Dec., 1978. Volumes II and III were devoted entirely to the examination of building types, beginning from habitations, through various public institutions, and finally religious buildings, to which the whole of Volume III was dedicated.

<sup>63</sup> Guadet, Eléments, in Leland Roth, ed., America Builds, p. 327.

Robinson and Van Pelt's writings indicate an assemblage of influences. The vague but nonetheless powerful ethic of Ruskin pervaded both texts, in particular A Discussion of Composition. Van Pelt distinguished two levels of "laws" that govern the arts, one "artistic" and the other "technical." Relying heavily on The Seven Lamps of Architecture, Van Pelt elaborated the first laws-- sincerity and truth, character, frankness and decisiveness, simplicity and finally, carefulness and thoughtfulness-- which made composition an artistic endeavor. The technical principles of composition-- balance, contrast, character, style, color and scale-- were merely the means through which the loftier purposes of art were to be achieved.<sup>64</sup> In the case of Robinson, there was an attempt to assimilate certain picturesque elements of Victorian architecture into a more formal idea of composition. Robinson was engaged specifically in a debate between the notion of architecture as a "representative art," akin to painting and literature, and as a "pure art," which would align architecture with music. Robinson was decidedly on the side of the latter.

As music is the art of sound, so architecture is the art of form. Not representative form, not garlands and metopes and inhabited niches, but walls and roofs and columns...We must therefore think of true architecture, not as the development of economic planning, not as the expression of construction, not as adherence to historic or contemporary precedent, but as the fundamental art of inventing and constructing objects that please by their intrinsic form and color, addressing itself to buildings in the largest sense of the word, whether inhabited or built only to be looked at, as triumphal arches, mausoleums, domes, towers and spires.<sup>65</sup>

---

<sup>64</sup> John Van Pelt, A Discussion of Composition, New York; Macmillan Co., 1902, pp. 1-39.

<sup>65</sup> John B. Robinson, Architectural Composition, New York; D. Van Nostrand, 1908, pp. 12-14. On the opposite spectrum of the debate were representational theories of architecture exemplified by the series on comparative aesthetics by George L. Raymond, particular the last volume Painting, Sculpture and Architecture as Representative Arts, New York; Knickerbocker Press, 1895 ( 2nd ed., 1909 ). Typical of Raymond's position would be the statement that architectural form "represent[ed] both the material method of the construction and the mental purpose of the design." ( p. 320 )

Van Pelt, on the other hand, brings in the contemporary theories of Titchener and Helmholtz in an effort to provide an optical and psychological, as opposed to what the author called a judgmental basis of architectural composition. Van Pelt gave examples of illusionistic effects illustrated in Helmholtz's Die Physiologischen Optik, to argue for certain adjustments in the indication of architectural elements such as balustrades and designs where triple divisions occur [ fig. 23 ]. Though these applications of perceptual theories were at best tenuous, the direction in which he wished to take the discussion on composition was clear.<sup>66</sup>

The principle here involved is a wide-reaching one, and we should do wrong not to recognize, master and turn to account so important a factor in design. In so doing-- in making our lines crooked, perhaps, that they may appear straight-- although a deception is involved, we are really more honest than we know. For we are thus asserting the great truth, namely, what is needful in art is that which will satisfy human perceptions, not mathematically determined conglomerations of lines or forms.<sup>67</sup>

One of the "tricks" that Van Pelt suggested in grasping the basic composition of a design was to put one's eyes out of focus when viewing an architectural object; the "blurred shapes" would then be the "fundamental elements" that had to be composed.<sup>68</sup> For Van Pelt, composition as an artistic achievement had to be based on composition as a visual experience, through which "all the faculties of the observer" were brought into play.<sup>69</sup>

Within this tiered conception of composition, style was considered more a technical and secondary matter which did not appeal directly to the achievement of art. However, as a constitutive part of the elements of architecture, it formed a set of essential

---

<sup>66</sup> See particularly chapter on "Optical Effects" in Van Pelt, *Ibid.*, pp. 120-153.

<sup>67</sup> *Ibid.*, p. 120.

<sup>68</sup> *Ibid.*, p. 71-72.

<sup>69</sup> *Ibid.*, p. 97.



conventions. William Robert Ware's American Vignola, a standard textbook published in two volumes in 1902 and 1906, demonstrates the way in which the classical style was employed as a controlling element in design, rather than one of several alternative conventions of ornamentation [ fig. 24 ]. One of the best characterizations of the constitutive role of style was provided by Ware's associate at Columbia University, A.D.F. Hamlin-- another central figure in the promotion of the Beaux-Arts curriculum in American schools.

Design in architecture, is a form of expression. It is a language, of which the words and letters are the structural and decorative features and details; the thoughts to be expressed are the ideas and conceptions in the designer's mind...But in order to express these he must have suitable means of expression. He cannot invent a new language out of hand any more than he can invent a new language or a new alphabet. Even if he could, the new language or alphabet could never serve his purpose as the old ones can, not only because no one but he could understand it, but also because it takes long periods to perfect a language as a means of expression...The historic styles are the perfected languages of architectural expression, the forms and details of these styles its words and letters. To master one such style thoroughly, so that the designer can think his architectural thoughts out freely in terms of that style is a valuable achievement.<sup>70</sup>

It is clear, however, that the academic discipline centered on the architectural plan. Even the harshest critics of the Ecole, such as Ralph Adams Cram, admitted to the strength of this aspect of the discipline, which "lay not in its theory of style, but in its logical planning and its insistence on unity and integrity in every architectural scheme."<sup>71</sup> In Hamlin's article just quoted, he went on to stress, in the same vein as Van Pelt and

---

<sup>70</sup> A.D.F. Hamlin, "American Schools of Architecture. 1. Columbia University," Architectural Record 21, May 1907, p. 328-329.

<sup>71</sup> Ralph Adams Cram, My Life in Architecture, Boston; Little, Brown and Company, 1936, p. 37.

Robinson, that the "fundamentals of design [were] independent of the historic styles." In terms of the exterior these fundamentals were "proportion, massing, fenestration, distribution of light and shade, scale, expression." In line with the characteristic perception of academic design around the turn of the century, Hamlin concluded that the "foundation of all design" consists of planning.<sup>72</sup>

The key word for both Cram and Hamlin is planning. In their statements just quoted, it was employed in a synthetic manner, close to the connotations of the French *composition*. Planning, however, was primarily an Anglo-saxon term that began to gain wide usage in architectural discourse in America during the late nineteenth century. There was another more restricted sense of the term, associated primarily with the practical matters of the program. In this restricted usage, planning was considered to be based less on general principles than a practice contingent upon the varying requirements of each building type.<sup>73</sup> It is in fact difficult to find a French equivalent. *Étude* seems to be the closest term that had the connotation of planning as a passive acquisition of information concerning the program. Thus in a chapter on planning at the end of Van Pelt's A Discussion of Composition, the short text of forty pages was divided into sections that discussed different building types. Van Pelt claimed that it was based in large part on the teachings of Guadet, and accordingly followed the sequence of Volumes II and III of Eléments. Already in the early years of this century, however, Guadet's discussion of building types were considered by many to be irrelevant to American conditions. In 1907, A.D.F. Hamlin wrote:

---

<sup>72</sup> Hamlin, "American Schools of Architecture," p. 329.

<sup>73</sup> One of the few books in which planning was discussed in terms of its general principles was Percy L. Marks, The Principles of Planning. An Analytical Treatise for the Use of Architects and Others, London; B.T. Batsford, 1901. One of the interesting consequences of placing planning at the center of discussion is the use of the term design "in the limited significance of the art qualities displayed in the elevations." ( p. 92. )

[ Guadet's ] discourses on the fundamental principles are stimulating and suggestive; but for American students what he has to say of the planning of theatres and libraries, hospitals and schools and churches, is either so far removed from American ideas and practice or so far behind them as to be a detriment rather than an advantage to the American.<sup>74</sup>

This passage reflects the widely held belief that the complexities and scale of American building required a different type of discourse on planning that dealt with its technical and organizational problems.

I have labeled the books which responded to the technical and practical problems of large scale building "planning manuals." These began to proliferate in America during the same period that the discussion on composition emerged. Such manuals were usually organized along institutional building types such as schools, offices and hospitals, and were published for both architects as well as institutional practitioners. They were generally concerned with technical problems and matters of institutional organization, and excluded discussions on the historical development of the building type, so central to Guadet's Eléments.<sup>75</sup> Here, planning was vaguely allied to a process in which the practical requirements of design were resolved. The process itself, however, was never

---

<sup>74</sup> A.D.F. Hamlin, "The Influence of the Ecole des Beaux-Arts on our Architectural Education," Architectural Record 23, April 1908, p. 245. There are other numerous accounts that indicate that Guadet's discussion of building types was incompatible with the American situation. Joan Draper reports of John Galen Howard's lectures on Guadet's Eléments at Berkeley where Howard "could never quite twist the French building types to fit American patterns, thus limiting the value of Guadet's principles for American students." See Joan Draper, "The Ecole des Beaux-Arts and the Architectural Profession in the United States: The Case of John Galen Howard," in Spiro Kostof, The Architect, New York; Oxford University Press, 1977, p. 233.

<sup>75</sup> Two examples published during the turn of the century were William H. Birkmire, The Planning and Construction of High Office Buildings, New York; John Wiley and Sons, 1898, and The Planning and Construction of American Theatres, New York; John Wiley and Sons, 1896. Examples of manuals on hospitals published before the end of World War I include Albert Ochsner and Meyer Sturm, The Organization, Construction and Management of Hospitals, Chicago; Cleveland Press, 1907; John Hornsby and Richard Schmidt, The Modern Hospital. Its Inspiration: Its Architecture: Its Equipment: Its Operation, Philadelphia, W.B. Saunders, 1913; and Edward F. Stevens, The American Hospital of the Twentieth Century, New York; Architectural Record Pub. Co., 1918. An institutional journal, The Modern Hospital, published by the American Hospital Association, was widely referred to as a source of information on hospital planning.

made explicit. In the context of the manuals, planning involved a specialized form of knowledge: the acoustics of a theatre, the provision of sunlight and sanitation in a hospital, the ventilation of schools, the mechanical systems and structural engineering of tall buildings, etc. An architect could be involved in a manual but its principal author was generally an engineer, an experienced practitioner within the institution, or the emergent "management expert." In addition to the manuals, information concerning planning could be culled from various publications of institutional societies, such as the American Association of Museums and the American Hospital Association. In the case of the hospital, the secondary role of the architect was particularly evident because of the uncertain nature of pathology and theories of disease transmission.<sup>76</sup> Planning was contingent upon a progressive accumulation of knowledge in disciplines external to architecture. Planning manuals were therefore regarded as books for *reference*. As far as planning knowledge was concerned, the important matter for the architect was less its epistemological structure, organized by engineering disciplines or the institution to be planned, but knowledge as pieces of information, as data.

Peter Collins has pointed out that it was with the French *Prix de Rome* competitions during the mid-eighteenth century that the idea of the program, as a list of design requirements, was first evolved. Whatever the historical accuracy of this observation, it is clear that the academic system had institutionalized a specific form of discourse into the design process.<sup>77</sup> The typical Beaux-Arts program was extremely

---

<sup>76</sup> During the nineteenth century and until the early years of this century, plans for hospitals were basically drawn up by physicians with some aid from experienced architects. Until the first years of the twentieth century, Hospital Plans, published in 1875 by Johns Hopkins, along with Henry Burdett's Hospitals and Asylums of the World were the main texts of reference. By the 1920s, the periodicals and manuals on hospitals listed in the above note could be consulted. New concepts of spatial organization and the invention of new building type were attributed to the institutional profession rather than to architects. See John D. Thompson and Grace Goldin, The Hospital: A Social and Architectural History, New Haven; Yale Univ. Press, 1975, and Paul Starr, The Social Transformation of American Medicine, New York; Basic Books, 1982.

<sup>77</sup> Peter Collins, Changing Ideals in Modern Architecture, Kingston; McGill-Queens Univ. Press,

vague in its indication of size and required facilities. Though programs provided in American schools tended to be less grandiose, the discursive form was basically identical to that of the Ecole. As in the program for the first Paris Prize, drawn up by the Beaux-Arts Institute of Design in 1904, the only quantified requirement provided were the dimensions of the imaginary site and the seating capacity of a "large" lecture room, leaving the appropriate size of the adjectives, "large," "small" and "ample" to the interpretation of the student and the jury [ table 1 ]. Emphasis was placed on suggestive phrases of the building's character and its physical organization; such as the opening passage that described the purpose of the "colonial institute" and the statement that the institute "consist of three distinct groups of buildings, not necessarily disconnected." In the development of the American Beaux-Arts system, planning as the act of interpreting and satisfying the requirements of the program had always been a basic part of the architect's education. This brief glimpse at the Beaux-Arts program indicates that the academic concept of planning required more than meeting the quantitative and technical aspects of the program, which were, in the first place, its secondary components. This, nevertheless, did not mean that the program was within the jurisdiction of the architect. Guadet, for instance, wrote that the architect should be a consultant to the client, but also stressed that he was "the servant of a programme which does not emanate from him."<sup>78</sup> Throughout most of the early twentieth century, even though the modern programs were considered to be more complex, requiring careful study, the academic approach to the program was basically passive.

Planning thus had an extremely wide range of connotations in academic discourse. It could be used to denote the act of design, as encountered in the statements of A.D.F.

---

pp. 219-220. Collins argues that the background to the French *programme* was the emergence of new building types such as hospitals and administrative halls in the eighteenth century, and in the next century, banks, offices, hotels, and railway stations.

<sup>78</sup> Quoted in Collins, *Ibid.*, p. 229. See Chapter on "Les devoirs de l'architecte," in Volume IV of Eléments.

Hamlin and Cram, as well as the acquisition of technical knowledge associated with reference texts. In either case, planning was almost never defined in the manner that composition was in academic discourse. One of the more specific uses of planning involved the notion of the manipulation of the architectural plan discussed in the previous section. It approached the French terms *distribuer*, "to apportion between several" and *disposer*, "to arrange, to put things in a certain order." In the academic discipline, underlying this act of dividing and arranging was the basic plan shape, or "parti type" and "plan type," as it was often referred to by American architects. It was in the parti that the aesthetic and visual concerns of composition, on the one hand, and the practical problems of the program, on the other, were synthesized. It was thus a concept that could not be subsumed in either composition or planning. According to Ernest Flagg, the parti was "the logical solution of the problem, and as every true architect must have two natures, the practical and the artistic, the parti must be the logical solution of the problem from his dual standpoint as constructor and artist."<sup>79</sup>

There were two inter-related components of academic pedagogy central in cultivating this discipline. The first was the mastery of the basic elements of architecture. This stage of training was referred to as the "analytique": an exercise in designing a small architectural element, either constituting part of a building, as in the case of a door, balcony or loggia, or a structure by itself, such as a small pavilion or ceremonial arch [ figs. 15 & 16 ]. As I have already mentioned, within the design process, the problem of style was part of the larger issue of the study of elements, and their proper combination [ *disposition* ] into an overall design. The second was the ability to produce the initial sketch for the parti-- the *esquisse*-- for the analytique or the larger, so-called Class B and A problems. The *esquisse* had to be produced in a very short time, without

---

<sup>79</sup> Ernest Flagg, "The Ecole des Beaux-Arts, Third Paper," Architectural Record 4, July-Sept. 1894, p. 39.

reference to portfolio documents and in seclusion from other students [ fig. 25 ]. Most importantly, the student was not allowed to depart from the sketch, working with the original parti, and in the case of larger projects, developing it into a rendered design that satisfied the requirements of the program. In the French *concours* system, departing from the original sketch would make the design *hors de concours*, with no credit toward advancement. It was difficult to produce an *esquisse* that could be submitted to the *concours*, but even more arduous a task to produce one that could be worked out in a rendered project. Most American schools did not follow the competition method of accruing credits towards a diploma and maintained programs with a fixed design curriculum. Nevertheless, the discipline of committing oneself to the original parti was maintained within the framework of the design course. Furthermore, compensating for the absence of competitions within the curriculum, most schools participated in the competitions sponsored by the Beaux-Arts Institute of Design, which adhered strictly to the Ecole's *concours* system [ fig. 26 ]. This commitment to the *esquisse* was considered the key "mental discipline" of the design process.<sup>80</sup> The ability to produce the *esquisse* was based on a long and meticulous training, but the moment of creation was to be short and intuitive. According to Guadet, the creation of the parti consisted not of "a deliberate piling-up of logically derived elements" but through a "bold and fleeting idea":

[this idea] will be a synthesis, springing suddenly complete in your mind. This mode of creation, contradicting the methods and theories of traditional logic, denying Bacon and Descartes, is *intuition*-- the very genesis of artistic ideas.<sup>81</sup>

---

<sup>80</sup> "The value of the *esquisse* from the point of view of mental discipline is very great. The discipline of working on a problem on which one is tied down to the *esquisse* is as strong and as persistent a corrective as there can be against vague and loose thinking." John Harbeson, The Study of Architectural Design, New York; Pencil Points Press, 1927, p. 8.

<sup>81</sup> "le plus souvent elle sera synthétique, surgissant entière à votre esprit; ce mode de création, qui dérouté les théories et les méthodes de la logique traditionnelle, qui dément Bacon et Descartes, c'est *l'intuition*, la vraie genèse de l'idée artistique." Guadet, *ibid.* Vol I., pp. 100-101 ( Guadet's emphasis ).

And if the idea was well "found" [ *trouvé* ], the progression from the whole to the parts would come with ease and be consistent.

Once again David Varon's Indication in Architectural Design provides an explicit elaboration of the academic design process. In a separate chapter on planning, Varon first stressed the importance of "studying famous structures...before the student may start composing plans." Through this process of reading and transcribing the student familiarized himself with the manner in which the character of certain monuments are formulated and more specifically, the "rational arrangement of elements" that constituted basic plan shapes [ fig. 27 ]. Having studied the program, the student must then be able to acquire the skill of "thinking in blocks,":

This does not mean that one must necessarily adopt a typical shape, such as an H or a T or any of the combined forms of plans. The student at first is likely to memorize such schemes and to apply them on the first occasion offered to him. It is natural for a beginner to do so, as it provides him with an opportunity the better to analyze the advantages of such a type of plan-- and then it is supposed that *the program to some extent favors such a selection*. But in the more advanced stages the student will combine different shapes for himself, to suit both the program and his own ideal. This combination will have to be very distinct even in a sketch.<sup>82</sup>

As this passage implies, the basic shape of the plan had a quasi-dependent relation with the program. A specific program may "favor" a certain type of scheme, but ultimately it is a matter of "selection," of making a decision on a parti. ( The term parti derives from the phrase *prendre parti*, to take a side or make a decision. )

In academic discourse then, discussions of parti took precedence over the specific requirements of a building type. For example, in an article on hospital planning by

---

<sup>82</sup> Varon, Indication, pp. 38-39 ( my emphasis ).



Ernest Flagg, discussion centered on the merits and problems of a parti type that he had devised for the design of St. Luke's Hospital [ fig. 28 ].<sup>83</sup> It was after the parti had been specified as a diagrammatic plan, which already embodied a general idea of how the program would be resolved, that the technical and organizational issues were engaged. Flagg also compared different types of plans on a hypothetical site, which he analyzed for their economy and advantages in ventilation [ fig. 29 ]. In this instance, planning involved the knowledge of the sanitary requirements of the hospital, and at the same time, signified the actual process of filling in and dividing the initial parti. In academic discourse, planning could thus be characterized as "small scale sketching from any good composition."<sup>84</sup>

As the following account of Stanford White's approach to design work in McKim, Mead and White's office indicates, this system of design worked well in a hierarchically organized architectural office.

White's designs were conceived spontaneously; and he was little bothered by precedent or formulas. In directing his draughtsmen he expressed his thought always with a pencil rather than discussion. After covering, often times, yards of tracing paper with alternative solutions for work under consideration, he would eliminate all but two or three of the most pleasing and turn these over to his draughtsmen to "do something"-- which he would either reject at sight or ( if this "something" was found favorable ) use as the basis of future study.<sup>85</sup>

It was Stanford White's responsibility and capacity in producing the sketch of the parti that distinguished the principal from the draftsmen who simply worked out his basic schemes. Another revealing statement concerning the status of the parti was provided by

---

<sup>83</sup> Ernest Flagg, "The Planning of Hospitals," Brickbuilder 12, June 1903, pp. 113-116.

<sup>84</sup> Varon, Indication, pp. 37-38.

<sup>85</sup> The account is that of Albert Randolph Ross, quoted in Charles C. Baldwin, Stanford White, 1931 reprinted New York; Da Capo, 1976, pp. 262-263.

Montgomery Schuyler in his eulogy to George B. Post. He stated that Post had fulfilled his function as an architect as "the maker of the 'parti,' or the 'layout' which he devised with a view not only to convenience but also to dignity and impressiveness." For Schuyler it was essentially the discipline of the parti that defined the architect: "the man who does that, call him what you will, is an architect, even though he should leave all his buildings in the rough."<sup>86</sup>

One of the most succinct comments concerning the Beaux-Arts system was provided by Louis Sullivan, the great mythological victim of American academism. In a recollection of his brief experience at the Ecole des Beaux-Arts in Paris, Sullivan wrote:

He familiarized himself thoroughly with the theory of the School, which, in his mind, settled down to *a theory of plan*, yielding results of extraordinary brilliancy, but which, after all, was not the reality he sought, but an abstraction, a method, a state of mind, that was local and specific; not universal. Intellectual and aesthetic, it beautifully set forth a sense of order, of function, of highly skilled manipulation.<sup>87</sup>

To an advocate of the Beaux-Arts system, the only objection to this statement would be that its method was not "local and specific" but indeed "universal." It was widely believed that at the core of the discipline, there was a "method of attacking and studying any problem in architectural design."<sup>88</sup> A fundamental assumption of the system was that there could be more than one solution to a particular program. Architectural form did not emanate from the program; rather design sought to find different ways in which the program could be staged. There were certainly good and bad designs, and to use a mathematical analogy, one solution could be more elegant than the other. However, the

---

<sup>86</sup> Quoted in Steven Bedford, et al., Between Traditions and Modernism, New York; National Academy of Design, 1980, p. 18.

<sup>87</sup> Louis Sullivan, Autobiography of an Idea, 1924, reprinted New York; Dover, 1956, p. 240. ( my emphasis )

<sup>88</sup> Harbeson, The Study of Architectural Design, p. 1.

notion that there was one best solution was incompatible with the system. The goal of architectural training, according to Paul Philippe Cret, was "not to arrive at the best solution of any particular problem, but to learn how to study any problem."<sup>89</sup> Based on this conviction of the universality of the Beaux-Arts system, it was often called the "science" of design. The discipline was centered not on the solution of the problem but on the method and manner it was solved.

The nature of academic professionalism was thus something quite different from the science-based professions that emerged in America during the same years. The historian Burton J. Bledstein has argued that Victorian professionalism had been based on two principles; first on "a special power over worldly experience"; and secondly, "a command over the profundities of a discipline." In the case of the sciences, medicine and engineering, the professions could claim a natural world, constant and exterior, that only the discipline could "excavate..for its principles and theoretical rules."<sup>90</sup> The "world" to which academic professionalism sought to find its disciplinary principles was not a natural and external world, but an artificial system of design and an internal history of its own past, i.e., a history *of and in* architecture. To its proponents, it was exactly the "artificiality" that Sullivan rejected which constituted the kernel of the system.<sup>91</sup> As he stated, the academic system centered on a "theory of plan" rather than a theory of planning. The theory could be regarded as one of formal manipulation, as the plan was a privileged type of architectural form. It was therefore not only possible but appropriate to say that one "composed a plan" or "planned a composition." As an enclosed and artificial system based on institutional conventions, there is almost an element of faith involved in

---

<sup>89</sup> Quoted in Theo.B. White, ed., Paul Philippe Cret, Architect and Teacher, Philadelphia; Art Alliance Press, 1973, p. 27

<sup>90</sup> Bledstein, The Culture of Professionalism, pp. 88-90.

<sup>91</sup> Sullivan's opposition to the idea of composition has been well documented and may be summarized in his famous statement that "Man invented a process called 'composition': Nature has always brought forth organizations." See Narciso Menocal, Architecture as Nature: The Trancendentalist Idea of Louis Sullivan, Madison; Univ. Of Wisconsin, 1981.

its acceptance. It is thus not surprising that its harshest critics were those who had gone through the system and rejected it as absurdly arbitrary. In summary, academic professionalism can be characterized as being organized along an internalized body of theories and values. Whatever the vagaries of modern society, the discipline assumed a set of ideals that would not change, much as the cultural value of a classic text seemed eternal.

### III. The Crisis of Academic Professionalism, 1918-1928

#### 1) The Crisis of the Ideology of Autonomy<sup>92</sup>

*We know what he was before the war: an idealist, an individual whose mission was to make over the world in what he considered the most beautiful guise, a man entrusted with large opportunities coming in often faster than he could master them and striving his best to keep up with the tremendous increase in the requirements and the possibilities of modern construction, a dreamer and strictly a professional man. It was a splendid ideal and all honor to those who strove so nobly to uphold this exalted plane, but that the architect of after the war is a different man is evident on every hand. The point of view is changed not only because of the war but because it was in process of changing before.*

*C.H. Blackall, "What is an Architect?," 1919<sup>93</sup>*

In the three decades prior to World War I, American society was willing to accept, and indeed eager to promote the notion of the architect as an elevated artist. Even as the most representative offices of academic architecture, such as those of McKim, Mead and White and Daniel Burnham, grew into large business organizations, the rhetoric of beauty, vision and scale continued to shape the ideology of their practice. Ironically, during the same period in which the architectural profession reached the height of its prestige, the building industry was going through a transition which would begin to undermine the

---

<sup>92</sup> For a more extensive and detailed study on the topics that I discuss in this section, particularly the reorganization of the building industry and the reforms of the AIA, see Paul Bentel, "Idealism and Enterprise: Modernism and Professionalism in American Modern Architecture, 1919-1933," Ph.D. Dissertation, MIT, 1992. This section, however, was completed before I could incorporate the many relevant points that this study has brought to light. Though a thorough analysis would be needed to locate specific differences and common points, I believe that there is a basic agreement between the present dissertation and Paul Bentel's study concerning the interpretation of this crucial period in American architecture. Furthermore, the two dissertations are complementary in the sense that while I focus on the changes in the discipline, Paul Bentel's study deals more with the profession.

<sup>93</sup> C.H. Blackall, "Architecture After the War. IV-- What is an Architect?," American Architect 115, April 2, 1919, p. 481.

status of the architect. Based on the new technologies of production and distribution, the nature of housing and commercial building changed radically during the last decade of the nineteenth century. Speculative builders, large general contractors and construction companies, and emerging real estate developers designed, engineered, financed, and sold whole urban environments. By the 1910s, large scale construction-contractor firms such as the Thompson Starrett Company, George A. Fuller Company, and Todd, Robertson and Todd, where the in-house architect was often a minute part of a complex organization, were established. Large scale land owners, developers and real estate brokers became organized into interest groups such as the National Association of Building Owners and Managers and the National Association of Real Estate Boards. Supported by large capital, utilizing new materials and construction methods, and imbued with the ideology and techniques of efficient management, these companies were concrete manifestations of the notion of architecture as business. Within the complex structure of this modernizing industry, the architect could barely claim his autonomous position or remain impervious to what had been previously perceived as exigencies of architectural design.

The nature of mass architecture was also changing. The stock-plan business of selling and distributing documents continued to flourish and develop more efficient and profitable systems. Around the turn of century, companies that not only provided architectural documents but also supplied basic building material in packages, were established. Furthermore, with the establishment of the Aladdin Company of Michigan in 1904, and the entry of Sears, Roebuck and Company into the business a few years later, the scale of the mail-order house market moved into a different level [ fig. 30 ].<sup>94</sup>

---

<sup>94</sup> There is an abundance of material on the history of Sears, Roebuck and Company. See Boris Emmet and John E. Jeuck, Catalogues and Counters, A History of Sears, Roebuck and Company, Chicago; Univ. of Chicago, 1950. Katherine Cole Stevenson and H. Ward Jandl, Houses by Mail, A Guide to Houses from Sears, Roebuck and Company, Washington, D.C.; The Preservation Press, 1986 deals specifically with the history of the Modern Homes Department. A helpful but misguided history of

Sears, along with Montgomery Ward, was one of the first companies to sell nation-wide through catalogues. Adding to their already successful mail-order business, Sears began the "Modern Homes Department" which provided standard plans and specifications, and eventually became directly involved in construction and financing. Using pre-cut systems of factory-made components, Sears was able to engage in large scale projects such as the construction of company towns in Illinois, Pennsylvania, and Ohio. Through its book department, Sears also published its own builder's manual, Radford's Practical Carpentry. With Sears, Roebuck and Company, the architectural and building process-- from the provision of plans, drawings, manuals and documents to construction and finance-- was subsumed within the commercial mail-order catalogue: a whole architectural institution, which was a commodity circulating in a system of mass production and distribution, had been formed [ fig. 31 ]. Thus it was with good reason that Sears, the "vendor of stock plans based upon catalogs" as one architect called it, was considered a threat to the architectural profession.<sup>95</sup>

Along with the growing complexity of the building industry, changes in city planning and the social milieu of the World War I years further undermined the ideology of autonomy. During the 1910s, in contrast to the exalted role of the architect in the City Beautiful movement, architects began to be criticized as unrealistic "dreamers." By 1916, with the instigation of the first comprehensive zoning law in New York, issues of controlling the city through municipal police power became the central planning issue. During these years, with the emergence of the concept of the "city functional," the ability of the architect to project a visual image of an ordered city became incommensurable with

---

Alladin and Sears, which romanticizes these business ventures as a form of democratic vernacular architecture for the "common man", can be found in Alan Gowans, The Comfortable House. North American Suburban Architecture, 1890-1930, Cambridge, MA; MIT Press, 1986.

<sup>95</sup> Albert L. Brockway, "Results Justify Affiliation of Bureau with AIA," American Architect 141, Feb. 1932, p. 17. By 1925 the yearly sale of the Modern Homes Department reached 30,000 houses and nearly 50,000 by 1930.

the idea of making city planning an exact science. The key concepts of the City Beautiful-- the vague but nevertheless central ideas of style, beauty and civic art-- no longer served as valid criteria in the projection of urban order. As George B. Ford pointed out, the word "beauty" had become taboo in planning circles, and moreover, zoning based on aesthetic considerations would now be considered an "unconstitutional and an improper exercise of police power."<sup>96</sup> In 1931, Henry Wright, looking back at the changing relation between architecture and city planning, summarized the situation of the mid-teens:

The period from 1912 to 1917 was one in which new problems arose in the city so quickly that men concerned with the municipal machinery had a difficult time to keep abreast of the immediate developments. It was not surprising that the fundamental meaning of city planning was temporarily clouded or that these men turned to those who offered the most immediate practical results. Without question, our cities had been grossly bungled by the haphazard street plans of a quarter century added to the inadequate cow paths of older origin. The architect who insisted upon better form as well as movement was either ignored or considered an idealist. To add the weight of public pressure to the heavy program of corrective measures, it became popular to disparage previous planning activity by referring to it as the "City Beautiful Period" of city planning...Thus city planning, as practiced today, has acquired a definite technique in which architectural expression is of incidental importance.<sup>97</sup>

In this hostile environment for the traditional architect, coupled with the inflationary economy and the War in Europe, a sense of crisis was triggered during the late 1910s. With President Wilson's moratorium of May 1918 on all building construction not related to the war-effort, the opportunities for conventional architectural practice were all but

---

<sup>96</sup> George B. Ford, "Beauty Snubbed by City Planners," *JAIA* 4, July 1916, p. 296.

<sup>97</sup> Henry Wright, "The Architect, The Plan, and the City," *Architectural Forum* 54, Feb. 1931, p. 219.



eliminated. In a nation which had heretofore constantly expanded its need for the services of the architect, the total number of architects suddenly declined. There was serious doubt as to whether the profession, as it had been organized and understood, could survive. To borrow the expression of Albert Kahn,

The war has acted like an electrical storm in clearing the atmosphere surrounding the practice of architecture, and in revealing the architect's position in the commonwealth. That it is not altogether what it should be is very evident, and that remedies to correct the situation must be found is equally apparent.<sup>98</sup>

The War in Europe had then revealed the discrepancy between the values of American society and the disciplinary logic of academic professionalism. Architects had difficulty obtaining employment and supposedly had to present themselves as construction experts or structural engineers in order to work in war-related building.<sup>99</sup> It became clear to many architects that the traditional strategy of autonomy was ineffectual within a social agenda of maximizing efficiency and production. With the exception of War housing, very few architects had contracts for war related construction, which usually involved industrial building. Moreover, the offices which did have substantial contracts, most notably those of Albert Kahn and William Starrett, were considered "progressive" because they had already reorganized and presented their practices as efficient business operations. William A. Starrett, who served as a Colonel and chaired the Committee on Emergency Construction, devised a plan to make the services of the A.I.A. available to

---

<sup>98</sup> Albert Kahn, "Organization for Service in Industrial Building," Journal of the Proceedings of the 51st Annual Convention of the AIA, 1918, p. 96.

<sup>99</sup> C. Stanley Taylor, "The Architect of the Future, Part 1," Architectural Forum 30, Jan. 1919, p. 2.

the War Department. The A.I.A. proposal was rejected, though similar programs involving engineering societies had been welcomed by the War Department.<sup>100</sup>

Even the one area in which architects were directly involved, the design of federally funded War housing villages, the result of their work was criticized as a failure. Studies on War Housing have argued that it was "the first attempt on any significant scale to apply the emerging doctrine of 'scientific planning' to worker's housing."<sup>101</sup> Ironically the designs were considered "fancy" and of "unnecessary excellence" by its contemporary critics. In December of 1919, the Senate Committee on Public Buildings and Grounds submitted a widely publicized report concerning the War-Housing work of the United States Housing Corporation.<sup>102</sup> The report criticized architects on various matters such as delays, the high cost of construction, and methods of remuneration. The central indictment, however, was that rather than following the government policy of providing minimum and temporary shelter that could be erected quickly and inexpensively, architects were concerned with perpetuating their own values of beauty and the "model home." Statements such as "[The houses] are excellent in specifications, and ...are beautiful beyond words" were intended as criticism rather than praise. The War thus reinforced the notion that architects were impractical and rehashed stereotypical comparisons between the efficient engineer and the aesthetic-minded architect.

During the War years, divergent ideological groups began to voice the idea that changes in both the profession and discipline had to be made. The primary reason for this institutional crisis was placed on the rapidly changing social and economic conditions

---

<sup>100</sup> See Richard Michael Levy, "The Professionalization of American Architects," for a general discussion of the War and the architectural profession's position.

<sup>101</sup> Christian Topalov, "Scientific Urban Planning and the Ordering of Daily Life. The First 'War Housing' Experiment in the United States, 1917-1919," *Journal of Urban History* 17, Nov. 1990, p. 15. Also see Roy Lubove, "Homes and 'A Few Well Placed Fruit Trees': An Object Lesson in Federal Housing," *Social Research* 27, 1960, pp. 469-486.

<sup>102</sup> Portions of this Report dealing with the employment and services of architects were published in the Supplement to the *JAIA*, Jan. 1920, pp. 1-8.

that were undermining the traditional formations of architecture. In 1920, Richard Tudor, following Thorstein Veblen's analysis of the encroachment of capitalism on all aspects of society, sounded the alarm that "the larger and more aggressive business organizations are taking over not only the operation of financing and constructing but also are performing the architectural services involved." A "sacred area" previously marked off by the architectural profession was now being seized by the forces of industrial capitalism.<sup>103</sup> These sentiments were not peculiar to Tudor's Veblenian worldview and reflected the concerns of many architects during this time. For Arts and Crafts ideologues such as Arthur J. Penty and the Gothic revivalist Ralph Adams Cram, the crisis was something that they had foreseen for several decades. Anxieties over the future of the profession were now shared by the architectural community as a whole.

Emblematic of this sense of crisis during the late teens were the changes that occurred in the organization and policies of the A.I.A.<sup>104</sup> The official organ of the profession acknowledged that the position and role of the architect had to be redefined in America's new system of production and consumption. One of the most interesting activities that the A.I.A. initiated was the establishment of the "Post-War Committee on Architectural Practice" in 1918. The basic objective of the Committee, which regarded its work to be "the most important movement ever started by architects in this country," was to re-examine the status of the architect in an industrial society.<sup>105</sup> The epistemological basis of academic professionalism was unremorsefully acknowledged to be ineffectual in tackling the problems of modern society. After two years of research on a wide range of issues, the Post-War Committee recommended extensive reorganization of the A.I.A, the

---

<sup>103</sup> Richard W. Tudor, "The Architectural Profession in the Present Day," *JAIA* 8, Mar., 1920, pp. 125-127.

<sup>104</sup> For an extensive discussion of the reforms of the AIA during the late teens, see Chapter Two, "Redefining and Instituting the Conventions of Professional 'Service', 1919-1925," in Paul Bentel, *Ibid.*

<sup>105</sup> "Post-War Committee on Architectural Practice, Announcement of Preliminary Program for the Inquiry into the Status of the Architect," *JAIA* 7, Jan. 1919, p. 7.

profession, and the educational system. The sub-committee on education, led by Frederick Ackerman, made it clear that the Beaux-Arts system had to be opened to the "reality" of a rapidly changing society.

The almost universal practice of teaching design without any contact whatever with the world of reality, and of imposing purely academic judgements upon the work accompanied by the student, develops a set of utterly false values with respect to architecture and the function of the profession in the community. The majority of problems do not even represent genuine situations, they are not related to actual experiences; and the student thus engaged is never afforded the opportunity of actually testing his ideas by application, in order to determine for himself their validity. Responsibility of thinking is thus completely suppressed by these false and artificial methods of rating or appraisal...In general, what is known as 'subject matter' used in the problems represents situations which are remote from any immediate social interest of the student. Thus architecture is made to appeal to the student as an arrangement of forms rather than an expression, in form, of a dynamic society having social aims and purposes. Is it not reasonable to assume that this condition in education shows largely why, in practice, the architectural profession seems somewhat isolated?<sup>106</sup>

As a way of overcoming this isolation, the Committee proposed that the A.I.A. "set up machinery for the establishment of definite affiliations between all national organizations in the building industry."<sup>107</sup> This position stood in stark contrast to the nineteenth century idea that "painters, carvers, carpenters and others whose pursuits [were] connected with the art of architecture," should not be given any kind of membership to the A.I.A. on the grounds that "it would amount to a confession that the Institute members were in need of the information supposed to be imparted by the technicians and

---

<sup>106</sup> Frederick Ackerman, "Post-War Committee Program on Education," Proceedings of the 52nd Annual Convention of the AIA, 1919, pp. 80-81.

<sup>107</sup> "Report of the Post-War Committee on Architectural Practice," JAIA 8, July, 1920, pp. 20-23.

craftsmen."<sup>108</sup> As William Haber observed in a study of the building industry published just a decade after these changes, "the [A.I.A.] began to realize that it was but a part of a larger industry." Thus "its structure was made more flexible and its program broadened," establishing a "policy of cooperation with other elements of the [building] industry."<sup>109</sup> A new organization within the A.I.A. called the Structural Service Department was established for the purpose of maintaining close contact with engineers, technicians and manufacturers. In 1923 a section of this department was reorganized as the Producers' Council, "an organization of manufacturers and associations of manufacturers of materials and appliances used in building construction."<sup>110</sup> By the end of the twenties close to seventy private companies and trade associations became affiliated with the Council, and cooperation with the organization became part of the A.I.A.'s official policy.

The A.I.A. also endorsed a stock-plan service called the Architect's Small House Service Bureau (A.S.H.S.B.). The A.S.H.S.B. was the most extensive and significant attempt by the architectural profession to assimilate the discursive practice of the stock-plan [ figs. 32 & 33 ]. Unlike most individual architects who worked in cooperation with a large manufacturer of building materials, the A.S.H.S.B. was an independent stock-plan service organized by licensed architects as a response to the commercial mail-order business; or in the words of one of its sponsors, it was established "in self defense" of the profession.<sup>111</sup> First begun in 1919, the A.S.H.S.B. was expanded into a national

---

<sup>108</sup> Quoted from Henry Saylor's account of R.G. Hatfield's response to Calvert Vaux's proposal in 1864 that the AIA discuss the "Propriety of introducing a new order of membership that should include painters, carvers, carpenters and others whose pursuits are connected with the art of architecture." See The AIA's First Hundred Years, Washington D.C.; The Octagon, 1956, p. 32.

<sup>109</sup> William Haber, Industrial Relations in the Building Industry, Cambridge, MA; Harvard Univ. Press, 1930, p. 532n.

<sup>110</sup> "The Organization and Aims of the Producer's Council, Incorporated," in Annuary of the Producers Council, 1929-1930, p. 2.

<sup>111</sup> Thomas Holden, "Outside Business Factors as Competitors of the Architect, The Architects' Small House Bureau as an Answer," JAIA 13, Aug. 1925, p. 310.

organization and officially endorsed at the annual convention of A.I.A. the following year.<sup>112</sup> The A.I.A.'s endorsement of the A.S.H.S.B. was emblematic of the profession's departure from earlier attitudes to the problem of the "small house." The advocates of the A.S.H.S.B. reversed the traditionally oppositional stance toward the stock-plan, claiming that Sears, Roebuck and Company's long involvement in the small house was an "invasion" of what had always been the architect's jurisdiction.<sup>113</sup>

It was, however, extremely difficult for the Bureau to distinguish its "service" from the "merchandising proposition" of commercial mail-order firms. Proponents of the A.S.H.S.B. argued that unlike the commercial builder that combined the functions of the architect and the builder, the Bureau provided only design documents. According to the Bureau, design and construction were two functions that should be properly separated to insure an economical and ethical practice: "the interests of an owner and an architect must be identical, whereas the relation of an owner and a contractor are those of buyer and seller"<sup>114</sup> The A.S.H.S.B. was, however, constantly a point of controversy, primarily centered on the logic of the stock-plan. As I have already mentioned, the commodification of architectural documents, and the stock-plan logic of choice, assemblage, and the pre-figured program, were clearly antithetical to academic professionalism. This was not lost on the many architects who opposed the Bureau and its sponsorship by the A.I.A. To a 1926 challenge of A.I.A. endorsement, Robert T. Jones, technical director of the A.S.H.S.B., responded: "The Bureau does not cater to popular taste in the design of its houses. If it had been willing to design houses to meet popular taste, it should have sold many, many more plans. Its main endeavor is to

---

<sup>112</sup> The ASHSB can be understood as part of the movement for individual home ownership that began during these years. In addition to the endorsement of the AIA, it received the support of Herbert Hoover's Department of Commerce in 1921. For a brief history of the ASHSB, see Thomas Harvey, "Mail Order Architecture in the Twenties," *Landscape* 25, No. 3, 1981.

<sup>113</sup> Albert L. Brockway, *Ibid.*, p. 85.

<sup>114</sup> "Introduction", *Your Future Home*, Architects Small House Service Bureau, St. Paul, Minn.; Weyerhaeuser Forest Products, 1923, p. 7.

educate the public to desire for better designed houses."<sup>115</sup> The Bureau thus fell back on the ethical argument of the superiority of architects over builders based on their detachment from the construction process. The ideology of autonomy, rather than being enmeshed in and constituting part of mass culture, was retained as the function of the Bureau. In 1932 a nationwide referendum was taken by the American Architect and an overwhelming majority of registered architects polled disapproved of the official endorsement of the A.I.A.<sup>116</sup> Two years later the A.I.A. withdrew its endorsement and the A.S.H.S.B. was dissolved in 1942.

As the conflicts of the A.S.H.S.B. demonstrate, this "official" opening of the profession to an industrial and mass society after World War I was not without its vicissitudes. In fact, when the building industry began to surge in the autumn of 1919, the general sense of crisis dissipated very quickly. No doubt, crisis theories of the profession always tend to dominate in times of economic hardship and disappear in boom years of building activity. The Post-War Committee noted that while it had so much support during the difficult years, it was forgotten immediately after the building industry began to recover. Nevertheless, the Committee believed that it had placed its finger on a fundamental crisis of the profession. It was not merely one of temporary unemployment, but a fundamental disruption of the discipline brought on by the new social, economic and cultural conditions of industrial production and mass consumption. The events of the late teens marked the turning point where the ideology of autonomy and the dichotomy

---

<sup>115</sup> Quoted in Thomas Harvey, *Ibid.*, p. 5. In another article Jones wrote: "The Bureau has endeavored also to eliminate from its service all those types which the architect looks upon as ephemeral. The Bureau could no doubt sell a vastly larger number of working drawings if they were designed to meet popular taste, but there is no tendency on its part to waste its opportunity to advance the cause of the architect for the sake of making money. The houses are intended to be sound from every architectural point of view." ("The Architect's Small House Service Bureau," Architectural Forum 44, March 1926, p. 204.)

<sup>116</sup> The referendum was submitted to 11,500 architects, of whom 2,512 answered. Of these 2,009 voted against and 503 for continued AIA endorsement. The results were published with commentary in American Architect 141, June 1932, pp. 18-19

between mass architecture and academic professionalism began to be blurred, compromised, and in certain cases fundamentally rejected.

## 2) "Architecture as Business" and the Emergence of Functional Planning

The depression has made many architects think with a new seriousness about their professional position and its relation to the whole sociological and economic present. During boom years, architects, particularly in the larger offices, became imbued with the psychology of their clients. All the Hooverian dogmas of individualism, salesmanship, profit-making, were swallowed unquestioningly. Architectural magazines were full of articles on the money making side of the profession; the architect was often a promoter and a businessman rather than a designer. As he became immersed in financial schemes and details, his professional position was weakened; the architect was merely a cog in the machine of corporate and individual profit chasing.<sup>117</sup>

The observation is that of Talbot Hamlin, as he reflected on the discourse of "architecture as business" that emerged during the decade preceding the Depression. In contrast to Hamlin's critical observations, architecture's immersion into "financial schemes" was viewed in large part by the profession as a way of strengthening its position in the building process. The discourse on business was in fact a response to the crisis of the ideology of autonomy discussed in the previous section. Among the professional journals, Architectural Forum was the first to embrace the notion of architecture as business. In 1917, Forum changed its format from its predecessor, Brickbuilder, a

---

<sup>117</sup> Talbot Hamlin, "The Architect and the Depression," The Nation 137, Aug. 1933, p. 153



portfolio-oriented journal published in a 10<sup>3</sup>/<sub>4</sub> by 13<sup>3</sup>/<sub>4</sub> inch format.<sup>118</sup> The editors of Forum felt that the previous title did not reflect its broader concerns which included "the presentation of data, in the form of articles and illustrations, that shall record progress made in plan, design, construction, materials, and business administration."<sup>119</sup> In the July issue of 1917, the page size was reduced to 9 by 12 inches, "approximat[ing] the limits recommended for the standardizing of all class publications."<sup>120</sup> Though the portfolio continued to be an essential part of the journal, the letter press gained equal prominence.

In this new format, Forum immediately became an active participant in the debate on the professional crisis of the late teens. Throughout 1918 and 1919, Forum solicited and published articles and letters concerning the changing nature of the profession and the architect's future role in the building industry. In 1918 it ran a series of responses from architects to the question "In What Manner and By What Means Can the Practice of Architecture be Developed in Order to Win a Larger Recognition?" The responses were followed a year later by commentaries on the issues that had been raised by the Post-War Committee on Architectural Practice.<sup>121</sup> The letters contained the sentiment of professional crisis just discussed. Architecture could no longer be a viable profession unless its scope of services was broadened to incorporate a wide range of commercial and industrial building activities, projects which had begun to receive attention during the War years. Furthermore, in order to function in these modern building operations, the architect had to broaden his knowledge to include matters outside its traditional domain:

---

<sup>118</sup> Brickbuilder, based in Boston, had been in publication since 1892. As its title indicates it had the specific editorial policy of showing "what [had] been done in past ages with clay as a building material, by publishing measured drawings and sketches of old work; articles of a historical nature, and essays, letters, etc." Brickbuilder 1, Jan. 1892, p. 1.

<sup>119</sup> "Editorial Comment and Notes for the Month," Architectural Forum 26, Jan. 1917, p. 26.

<sup>120</sup> "Editorial Comment," Architectural Forum 27, July 1917, p. 30.

<sup>121</sup> Replies to the questionaire "In What Manner and By What Means Can the Practice of Architecture..." were published in Architectural Forum 28, March and May, 1918. See Architectural Forum 31, July and October, 1919, for letters on the Post-War Committee.

"he must provide a service greater than designing buildings; he must be aware of the sociological questions influencing our civilization; he must recognize the economic conditions of the present and devote his energy to securing the most efficient use of labor and material."<sup>122</sup>

Responding to the call to expand the scope of architectural discourse, Architectural Forum initiated a series of changes in its letter press. In its June 1919 issue, it began a separate section called the "Department of Architectural and Building Economics," projected as "a department devoted to the determination of factors of efficiency and economy in building construction and civic development as affected by architectural design."<sup>123</sup> This was followed the next month by the inauguration of a "Department of Engineering and Construction." In 1921 the journal formed what was called the "Forum Consultation Committee" of experts on subjects ranging from building finance and management to electrical and safety engineering.<sup>124</sup> The Committee consisted of engineers, building managers, and financial controllers who contributed regularly to the journal throughout the 1920s. The main contributor to the new installments in the journal was C. Stanley Taylor, an engineer in a design and construction firm in New York. As an associate editor of Forum, he was in charge of both the real estate section of the Consultation Committee and the Department of Building Economics. According to Taylor, the Department was instituted

to meet a growing demand for practical information regarding the business factors which are exercising an increasing influence on the practice of architecture. In this department there will be presented academic and

---

<sup>122</sup> "The Post-War Committee on Architectural Practice," Architectural Forum 31, July 1919, p. 17.

<sup>123</sup> C. Stanley Taylor, "Architectural and Building Economics," Architectural Forum 30, June 1919, p. 181.

<sup>124</sup> The list of subjects considered under the Committee were Finance, Co-operative Financing, Building Management, Safety Engineering, Electrical Science, Real Estate, Hotel Design and Equipment, Automotive Buildings, Fire Protection Engineering, Farm Science, and Legal Questions.

expository articles dealing with various instructive phases of building and civic finance: promotion of building operations, maintenance, insurance engineering, efficiency of design from the business point of view, and similar subjects of constructive value in assisting the architect to meet the demands of modern business conditions and the competition of encroaching interests.<sup>125</sup>

From Taylor's "business point of view," buildings were regarded as "the tools of industry and commerce"; in order to maximize profit, their design must follow a financial program, thus creating a physical environment that promoted efficiencies of production.

During the twenties, as a corollary to the discourse of business, a new framework of architectural design began to take shape. As the following passage from an advertising brochure of a prominent design and engineering firm indicates, investment and profit were linked directly with a rational and instrumental concept of planning.

Service buildings-- industrial and institutional-- are different from speculative and investment types in that such building space is created for specific use-- not for sale. Because of this fact the problem of the service building is greatly complicated. Not only must economies of original investment cost and maintenance be considered, but the building must be *planned as a machine* which will function with the highest degree of efficiency for a specific purpose.<sup>126</sup>

The metaphor of the building as a machine, abundant throughout the decade, was an argument for the application of engineering principles to the design of the physical environment. The notion of planning as a scientific intervention into the social and physical organization of the workplace, had its roots in the discourse on management and

---

<sup>125</sup> Stanley Taylor, "Architectural and Building Economics, A Department Devoted to the Determination of factors of Efficiency and Economy in Building Construction and Civic Development as Affected by Architectural Design," *Architectural Forum* 30, June 1919, p. 181.

<sup>126</sup> The Ballinger Company, *Buildings for Commerce and Industry*, Philadelphia, 1924, p. 3 ( my emphasis ). The Ballinger Company was a large architectural and engineering firm based in Philadelphia and New York that specialized in commercial and industrial buildings.

engineering that had developed during the first decades of the century. The historian Samuel Haber has pointed out that engineers were the first people in industry to apply systematically the intellectual methods of science and engineering to questions of business management.<sup>127</sup> Though Frederick Winslow Taylor's *Scientific Management* was the most widely known, it was just one of many organized attempts-- such as "human engineering," the "industrial betterment" movement and the "systemizers"-- to place industrial organization under the control of scientifically based principles, i.e. to perceive it as an object of engineering.<sup>128</sup> Though the specifics of each program differed, their ideology was often aligned with Progressivism, sharing the view that social reform was essentially a problem of control and regulation.

In the development of the discourse of modern management, planning emerged as the key concept; one that Taylor used to specify the work of the management expert. Taylor's fundamental assumption was that, facilitated by the authority of scientific knowledge, the management of the factory should be based on a radical separation of thinking and doing, planning and implementation. The power of institutional control would be posited in a new center of the work place-- "the planning department." The department was to be established as a "repository of the science of production," whereby the authority of control would be shifted away from the self-interested owner, employer and worker to the industrial engineer.<sup>129</sup> With the purpose of procuring maximum efficiencies of production, planning was defined as the act of providing and executing a

---

<sup>127</sup> Samuel Haber, *Efficiency and Uplift. Scientific Management in the Progressive Era, 1890-1920*, Chicago; Chicago Univ. Press, 1964, p. 54. I have relied heavily on Haber's study which is still the best general account of Scientific Management.

<sup>128</sup> " [The engineer] has applied the laws of physics to produce efficient machines...He must now step in...not as a welfare worker, not as a sociologist, but as an engineer...to help labor find its place in the production scheme. Cannot scientific analysis resolve the causes of maladjustment which threaten the life of our institutions? Cannot the engineering mind reorganize the human elements of production as it has already done with mechanical and material elements to secure efficiency?" Henry D. Hammond, "Americanization as a Problem in Human Engineering," *Engineering News-Record*, 1918, p. 1116.

<sup>129</sup> Frederick Winslow Taylor, "Shop Management", *Transactions of the ASME*, 1902-1903, pp. 1386-1406 and *Principles of Scientific Management*, New York; Harper and Row, 1911.

*program* of the social and physical organization of the factory. The rational program in scientific management was a body of documents that controlled the work and function of the organization: "a plan for doing work, the plan which the planning department lays out and hands over for the performers, or the workers, to do."<sup>130</sup> Taylorism thus crystallized the sentiment for social control into a concept of planning.<sup>131</sup>

The physical design of the workplace could then come under the jurisdiction of management. For instance, in the organization of the factory, "control of plans for new construction as relating to ventilation, plumbing, heating, lighting, lavatories and dressing rooms, lunch rooms, rest and recreation rooms, and hospital facilities, medical care of employees during work hours" was placed under a department of human engineering.<sup>132</sup> College courses in industrial engineering included subjects such as the "construction of industrial buildings, the layout of buildings, installation and arrangements of facilities and equipment, etc."<sup>133</sup> As the following passage from a manual on factory management indicates, these problems of rational planning were not regarded as tasks properly handled by the architect.

The employment of an architect usually provides for the preparation of plans and specifications, the letting of contracts, and the supervision of construction. In this way much of the responsibility is delegated to qualified men. Strictly speaking, however, the design of factories has little relation to architecture. To handle the task requires a thorough knowledge of the production processes to be cared for, and an understanding of factory management and production control, including an appreciation of the reaction of the workers to the

---

<sup>130</sup> Lillian Gilbreth, The Psychology of Management, New York; Sturgis and Walton, 1914, p. 192.

<sup>131</sup> For example, Frederick A. Cleveland, the technical director of the Bureau of Municipal Research in New York claimed in one of the first conferences on scientific management that "the full meaning of Scientific Management is comprehended in the word 'planning' and in the phrase 'the execution of plans.'" Addresses and Discussion at the Conference on Scientific Management, Dartmouth College, 1912, quoted in Haber, *Ibid.*, p. 167.

<sup>132</sup> Winthrop Talbot, "A Study in Human Engineering," Human Engineering 1, Jan. 1911, p. 4.

<sup>133</sup> The list was taken from an introduction to courses in industrial engineering published in Douglas Fryer, Vocational Self-guidance, Philadelphia; J.B. Lippincott, 1925, p. 300.

equipment and facilities provided. The *human factor* is the biggest single factor in production and must be considered accordingly. These subjects are foreign to the training of the typical architect. It is scarcely possible that he will look upon the task as that of fitting a housing scheme to a production machine-- which he has also designed or at least analysed and checked carefully-- so that it will function as a part of the machine itself. This is a decidedly prosaic, utilitarian, dollars-and-cents balancing job, calling for a wide range of engineering and production talent, and an understanding of the psychology and needs of labor. *Architectural design will prove to be a minor feature.*<sup>134</sup>

The architect was disqualified not for his lack of knowledge concerning the structural and construction aspects of the building, the traditional area of conflict between the engineer and architect, but his ignorance of the commercial aspects, institutional processes, and the "human factor" of the project. The management manuals did in fact introduce a new set of subject matter and different modes of discourse from the traditional planning manuals discussed in the previous chapter.

Before the War, these ideas and methods were disseminated by texts concerned primarily with the efficiency of the factory and the home. On the one hand, there were manuals related to factory management and Home Economics, or so called "Domestic Engineering," and on the other, periodicals concerned specifically with industrial production: such as the Bulletin of the Taylor Society, System, Management Engineering, Factory, and Industrial Management. During the twenties, the "cult of efficiency," became a national phenomenon, spreading into virtually all established institutions of American society-- to offices, schools, retail stores, and even the church.<sup>135</sup> Architecture was certainly not immune to the influence of scientific

---

<sup>134</sup> Arthur G. Anderson, Industrial Engineering and Factory Management, New York; Ronald Press, 1928, p. 93. ( my emphases )

<sup>135</sup> Examples of such manuals are so numerous that they cannot all be listed. For example, manuals concerned with rationalizing the organization of office and clerical work published in the late teens and

management. My inquiry into architecture's appropriation of the discourse of management is divided into two phases. In both stages, I will focus on the transformations of the concept of the program, planning, and consequently the nature of the architectural discipline itself. The latter phase, in which a specific discursive formation developed in scientific management-- what I call the "discourse of the diagram"-- was appropriated into architectural discourse, will be discussed in Chapter V. In this section, I shall examine the initial transformations of the 1920s, which centered on the program and its relation to the architectural plan.

My discussion begins with a 1928 manual called *Hotel Planning and Outfitting*, co-edited by Vincent R. Bliss and the aforementioned C. Stanley Taylor. In addition to his duties at Architectural Forum, Taylor was on the editorial board of Hotel Management and considered an expert on hotel planning.<sup>136</sup> In his elaboration of what he called the "functional plan," Taylor outlined one of the most explicit and detailed definitions of the process of planning for efficiency and profit. The first step in the planning process was the "scientific study of community needs and possibilities"; a survey that was to be conducted by consulting services offered by the American Hotel Association, hotel accounting firms, or financial organizations. Based on the study, the site was selected and a profitable financial plan established.<sup>137</sup> The next step was to formulate a "schedule

---

early twenties include, Mary Cahill and Agnes Ruggeri, Office Practice, New York; Macmillan, 1917; William H. Leffingwell, Scientific Office Management, Chicago; A.W. Shaw, 1917; C.C. Parsons, Office Organization and Management, La Salle Extension Univ., 1917; Lee Galloway, Office Managment. Its Principles and Practice, New York; Ronald Press, 1918; Geoffrey S. Childs, et al., Office Management, New York; Alexander Hamilton Institute, 1919; J.W. Schultz, Office Administration, New York; McGraw-Hill, 1919; and William H. Leffingwell, Office Management. Principles and Practice, Chicago; A.W. Shaw, 1925.

<sup>136</sup> C. Stanley Taylor and Vincent R. Bliss, eds., Hotel Planning and Outfitting, Chicago; Albert Pick-Barth Co., 1928. The reason for the attribution of the term "functional plan" to Stanley Taylor is that in an editorial for the January 1928 issue of Architectural Forum, Taylor provided an initial definition of what he called the functional plan. The plan had two components; the first was comprised of an "exact determination of space requirements carried out in detailed space units," and the second, a financial and operational schedule. See C. Stanley Taylor, "Architectural Service from the Business Point of View," Architectural Forum 48, Jan. 1928, p. 113.

<sup>137</sup> Taylor and Bliss, eds., *Ibid.*, pp. 13-23.

of space functions." In the case of the commercial hotel, six general divisions -- public, concession, sub-rental, food service, guest room, general service-- were made.

The first step in planning should be the listing under each of these divisions of the actual functions or purposes for which each space unit will be required in the specific project. The next step should be to assign approximate sizes, numbers of spaces required, and general plan data on each. In this manner the architect is really provided with a mixed group of space units, which if put together intelligently under the established requirements, should provide a satisfactory and successful plan. Of course, as the plan develops under this system, there will be adjustments, new suggestions, and changes in the functional plan to meet the limitations of the physical plan, but at the same time the first draft of floor plans developed in this manner will quite clearly interpret the business requirements of the project.<sup>138</sup>

What Taylor called the functional plan, as table 2 and 3 taken from Hotel Planning illustrates, was in fact a systematic formulation of the architectural program. In the specificity of the divisions of space and their dimensions, and in the exclusion of all qualitative statements of the building's function and character, there was a clear break with the Beaux-Arts program in table 1. Taylor's functional plan also departed from conventional formulations of the architectural program and building requirements during the early decades of this century. Even for large commercial projects, it does not seem that the program was provided in such a systematic and detailed manner.<sup>139</sup>

Granted that these comparisons are not totally justified because more detailed requirements would eventually be formed during the course of a project, the functional plan manifested a different conception of the design process from that of the academic

---

<sup>138</sup> Ibid., p. 26.

<sup>139</sup> Much more research into actual projects would be needed to have a more definitive understanding of the way programs for commercial buildings were written during the late nineteenth and early decades of this century. An example of the relatively simple formulation of requirements in general practice can be found in a program for the Larkin Building, written in December 1902, published in full as an appendix in Jack Quinan, Frank Lloyd Wright's Larkin Building, Cambridge, M.A.; MIT Press, 1987, p. 129.



system. First of all, the unit of manipulation was no longer defined as a combination of architectural elements, but as divisions of "space functions"; each charged with a specific square or cubic footage of area. The product of this "method of allotting space from a functional viewpoint" was a series of "space units or plan units," which the architect had to place in "proper inter-relationship."<sup>140</sup> Secondly, unlike the academic assumption that there may be different solutions to one program, the notion that there was a necessary relation between the program and architectural plan was established. In the following passage, quoted from a Forum article concerning the so-called "Statler Idea of hotel planning," the idea of one to one congruence between program and plan was clearly stated.

Too much stress cannot be laid upon the vital importance of planning and equipment, and upon the fact that the architectural treatment of the facade and interior is of secondary importance in a problem which is essentially one of service. Any able architect can evolve at least half a dozen radically different yet entirely satisfactory schemes of facade; yet there may be, and usually is, but one adequate scheme of plan.<sup>141</sup>

The architectural plan was now ideally an end-product of a self-sustaining procedure. A process that Stanley Taylor called "scientific pre-determination," in which the functional plan "gradually unravel[ed] itself" into the physical plan. For Taylor, establishing a systematic program as the basis of design was clearly superior to traditional methods that started with "hazy ideas as to a general plan," which then had to work "backward in a maze of alterations."<sup>142</sup> In this framework, the architectural procedure was defined as a linear sequence of separate stages.

---

<sup>140</sup> Taylor and Bliss, eds., Hotel Planning and Outfitting, p. 23.

<sup>141</sup> Sydney Wagner, "The Statler Idea in Hotel Planning and Equipment," Architectural Forum 27, Nov. 1917, p. 118. The article, by an architect in the office of George B. Post and Sons, centered on the idea of planning for service attributed to Ellsworth Statler, an owner of a chain of major hotels.

<sup>142</sup> Taylor and Bliss, eds., Ibid., p. 23.

Research must precede planning as planning must precede design before design drawings can be prosecuted efficiently. Systematic and well directed research prosecuted by those equipped for the task will result in substantial office economies, as against methods-- too often in evidence-- where attempt is made to carry on research, planning and design coincidentally.<sup>143</sup>

This is not to say that the new conception of planning was a programmatic attempt to supersede the whole discursive formation of academic design. This is evident from the way Architectural Forum formulated its new editorial policy and the numerous planning articles that appeared during the 1920s. In the passage on Statler hotels just cited, the author immediately qualified his strong statement by adding that "as a matter of course...any scheme of plan, to be really adequate, must, in addition to meeting service requirements, conform to the established principles of good design."<sup>144</sup> The twenties was clearly a transitional period. The discourse of efficiency had disrupted the discursive formation of the academic discipline, but at the same time, some of its key ideological and conceptual elements remained intact. First of all, the discourse of business and efficiency did not create a separate institutional ideology that conflicted and competed with traditional conceptions concerning the role of architectural practice. According to Stanley Taylor, the expansion of the services of the architect, did not mean that art had to be sacrificed to commerce:

The aesthetic interests of the community are to be maintained on a scale never before known. There will be no deviation from the sound principles and traditions of an honored profession; but a broadening of service consistent with modern progress.<sup>145</sup>

---

<sup>143</sup> George R. Wadsworth, "Planning Methods for Large Institutions," Pencil Points 8, Mar. 1927, p. 155.

<sup>144</sup> Sydney Wagner, *Ibid.*, p. 118.

<sup>145</sup> Taylor, "Architectural and Building Economics," p. 181.

Furthermore, the formulation of the functional plan, i.e. the architectural program, was itself not regarded as the province of the architect. By the early twenties, the consultation services that Taylor referred to for what is now called "programming," was offered not by architects but organizations involved in building management. For example, in 1923, the National Association of Building Owners and Managers created the "Building Planning Service Committee," whose role was to aid building owners and architects in planning office buildings to obtain maximum "efficiency and economy." The Association's journal Skyscraper Management and similar journals such as Hotel Management and Building and Building Management were the key media through which the concept of planning gained wide usage. To reiterate an earlier point, though the concerns of the architect had to extend to the pre-design stages of research and planning, it was generally accepted that the practice of institutional planning was itself under the jurisdiction of the industrial engineer and the management expert.

Planning the kitchen with accessories, the laundry, as well as power units for a metropolitan hotel, in the main are industrial rather than architectural problems. Institutional planning, the modern hospital, the sanitarium, reformatory and welfare groups, call for study and analysis by the industrial engineer who sees in the institution a plant for processing material. He evolves determinations for planning fundamental to architectural design.<sup>146</sup>

Planning was considered part of the architect's disciplinary domain only in those aspects where the requirements developed by the management expert had to be translated into some form of schematic design and once again handed down to the draftsmen: "Planning involves the preparation of tentative scale designs, from grouping to details, concise in

---

<sup>146</sup> Wadsworth, "Planning Methods for Large Institutions," p. 155. This series was the first instance in which this Beaux-Arts oriented journal had published articles concerned with functional planning. It was presented as a description of the methods used by the office of Sullivan W. Jones, New York State Architect, for the design of State Hospitals for the Insane. The author was the Director of the Division of Operating and Planning Research for the New York State Department of Architecture.

substance and compact in form, with necessary explanatory notes and schedules which shall direct the draftsman in no uncertain manner." The architect "should be occupied with pencil and scale," not with the formulation of the program.<sup>147</sup>

Secondly, the discursive mode of the planning manuals and articles on planning in the journals remained much the same during the twenties. Let us examine, for instance, a 1923 Forum article on bank planning by the architect Philip Sawyer. Sawyer began the article by outlining the need for a systematic program. In the same vein as Stanley Taylor, he insisted that the most important work was that which was done "before the bank is planned"; in other words, the institutional program must be established first. He further suggested that the "working organization" of the building could be clarified by diagrams that defined the inter-relations of departments. Sawyer argued that even if the requirements thus stated did not fit the specific conditions of the project, it would still "tend to be better than they would have been had the building been planned first and the organization packed in it afterward, simply because the diagrams show the best solutions that can be evolved, and every move is toward that rather than being an attempt to install as nearly as possible a development of the existing arrangement."<sup>148</sup> Sawyer, however, was not concerned with the program. The organizational diagrams that Sawyer mentioned never appeared, and the article followed the traditional format of the planning manual in which the verbal text was accompanied by small perspective drawings and plans [ fig. 34 ]. In general, planning articles during the twenties provided very little quantified data, and in this particular case, none was given. The following passage is an example of the typical form of narrative in Sawyer's article:

Next in proximity to the vault door should be the smaller coupon booths for individuals, since they are the most frequently used. Other rooms should be

---

<sup>147</sup> Ibid., p. 155

<sup>148</sup> Philip Sawyer, "The Planning of Banks," Architectural Forum 38, June 1923, pp. 263-264.

large enough for two or more people, and a few larger rooms which will accomodate a business or trustees' meeting should be provided. In one New York bank, such a room is constantly used as an office for the transaction of business by a depositor who prefers this location to any other.<sup>149</sup>

While the requirements of the bank were narrated as if one were describing an actual design or building, there was a very loose relation between verbal text and illustrations. The New York bank Sawyer mentioned in this quote was not illustrated, and the perspective sketches and a plan of two banks designed by the the author's firm that were shown, were not discussed or even referred to in the text. There were also six "typical plans," one of which can be seen in fig. 34, and two plates of diagrammatic plans and sections which compared the size of banking rooms [ fig. 35 ]. They had the same function as Ernest Flagg's parti types in figs. 28 and 29. Sawyer's plan types were in fact identical to those illustrated in an earlier article on bank planning he had written for Architectural Review in 1905 [ fig. 36 ]. The format of the 1923 text, remained basically the same as the article written two decades before.<sup>150</sup>

Another observation that can be drawn from this article is that the plan type was not considered incommensurable with the idea of a linear and deterministic design process. This was particularly evident in building types such as the museum, which was affected by the rationalist approach to planning and the program, but at the same time retained many elements of academic design. According to Laurence Coleman's study of American museums, "buildings realistically planned for the whole organism known as the present-day museum" appeared around the time of World War I, specifically with the studies for the Cleveland Museum of Art.<sup>151</sup> Yet a few years later in 1924, Charles Platt

---

<sup>149</sup> Ibid., p. 265.

<sup>150</sup> See Philip Sawyer, "The Planning of Bank Buildings," Architectural Review 12, Feb. 1905, pp. 25-31.

<sup>151</sup> See Laurence V. Coleman, Museum Buildings, Washington, D.C.; The American Association of Museums, 1950, p. 3.

would conduct one of the most extensive comparative studies into existing plan types of museums for the National Gallery of Art [ fig. 37 ].<sup>152</sup> This co-existence of functional planning and the plan type could also be seen in articles by Benjamin Ives Gilman, the secretary of the Museum of Fine Arts in Boston. Published during the teens, they appeared in a variety of magazines; in Scientific Monthly and Architectural Record as well as in institutional journals within the museum field. They were later published under the title Museum Ideals of Purpose and Method in 1918 and in a second edition in 1923, becoming the most important reference text for museum design. Gilman was able to incorporate what were perceived as scientific approaches to the concerns of minimizing "museum fatigue," circulation, and lighting, all within a set of codified plan types [ figs. 38 to 40 ]. Despite the emergence of the concept of functional planning, and a new type of architectural program, as we have seen in Sawyer and Gilman's respective articles on banks and museums, the discursive mode of architectural planning remained much the same as that prior to World War I.

---

<sup>152</sup> In 1924, Platt traveled through major European cities, compiling comparative information on various museums. Platt's museum studies are in the Charles A. Platt Collection, Avery Library, Columbia University. See Keith N. Morgan, Charles A. Platt, The Artist as Architect, Cambridge, M.A.; MIT Press, 1985, p. 170.

### 3) The Fragmentation of Academic Discourse in the 1920s

It would then seem that the emerging discourse of business, efficiency and functional planning did not immediately supersede the academic discipline. In fact, a review of the new texts on architectural design published during the twenties reveals a resurgence of Beaux-Arts influence and historicist design. During the early 1920s, following a tendency already evident in David Varon's Indication in Architectural Design, texts that codified the plan type into a catalogue of ready-made forms began to appear [ fig. 41 ].<sup>153</sup> There was also a new wave of books concerning the academic design process as well as classical detailing that extended into the 1930s.<sup>154</sup> Between 1921 and 1924, John Harbeson wrote an extensive series of articles on the methods of Beaux-Arts Institute of Design for Pencil Points. They were published as a book entitled The Study of Architectural Design in 1926 with a revised edition the following year.<sup>155</sup> Even more than David Varon's Indication in Architectural Design, Harbeson's series in Pencil Points was a meticulous step-by-step explanation of academic design. It was organized along the codified sequence of the pedagogical system established at the Ecole des Beaux-Arts;

---

<sup>153</sup> In this category of texts were John Haneman, A Manual of Architectural Compositions: 70 Plates with 1,880 Examples, New York; Architectural Book Publishing Co., 1923; Arthur Stratton, Elements of Form and Design in Classic Architecture. Shown in Exterior & Interior Motives collated from Fine Buildings of all Time on One Hundred Plates, New York; Charles Scribner's, 1925; and to some degree, David Varon's second book, Architectural Composition, New York; William Helburn, 1923.

<sup>154</sup> See William Wirt Turner, Fundamentals of Architectural Design, A Textbook for beginning College Students and ready reference for Architects, New York; McGraw Hill, 1930; Frank Brown, et al., Study of the Orders, A Comprehensive Treatise on the Five Classic Orders of Architecture, Chicago; American Technical Society, 1928 ( republication of a 1906 and 1913 text for the American School of Correspondence ); A. Benton Greene, Elements of Architecture, New York; Harmo Press, 1931. Texts that emphasized drawing techniques include Henry McGoodwin, Architectural Shades and Shadows, New York, 1922; Henry Van Buren Margonigle, Architectural Rendering in Wash, New York, 1921; Wooster B. Field and Thomas E. French, Architectural Drawing, New York, 1922; and H. Ritlow and F. Brown, Architectural Design and Lettering, New York, 1928. Pencil Points also ran a series on perspective drawing and drafting techniques of classical details by Ernest I. Freese beginning in January 1929.

<sup>155</sup> John Harbeson, The Study of Architectural Design. With Special Reference to the Program of the Beaux-Arts Institute of Design, New York; Pencil Points Press, 1926. The author had studied under Paul Philippe Cret at the University of Pennsylvania, and at the time was assistant professor at his alma mater.

the architectural problems becoming incrementally more complex from the analytique to the Class A Problem. Nathaniel Curtis's Architectural Composition ( 1923 ) and Theory and Elements of Architecture ( 1926 ) by Robert Atkinson and Hope Bagenal were also pedagogical texts, following and at the same time simplifying the structure of Guadet's Elements. Pencil Points, which started publication in 1920, was itself part of the revival of Beaux-Arts influence. In just a few years, it quickly became one of the largest circulating journals in the country.<sup>156</sup> It served as the medium for Harbeson's exposition on academic design, summary translations of Guadet's Eléments and Viollet-le-Duc's Dictionnaire, and articles such as Raymond Hood's series on "A Vocabulary of Atelier French."<sup>157</sup>

There seem to be two reasons for the proliferation of these codified and formulaic texts. The first was the continuing expansion of formal architectural education. After the first architectural schools of the late nineteenth century, nineteen new schools were established in the years between 1912 and 1922. Consequently by 1930, despite the fluctuations of the economy and the disruptive interlude of the War, the number of enrolled students had tripled that of 1912.<sup>158</sup> The second reason was the resurgence of

---

<sup>156</sup> By 1923, its circulation reached 9,731, second only to Architectural Record, which had a circulation of just over 10,000. ( source: N. W. Ayer & Son's Newspaper Annual and Directory, 1923 ) One reason for the immediate success of Pencil Points could be that from its inception in 1920, it was intended for a wider audience of "draftsmen, designers and specification writers" in the architectural office in contrast to the focus on the architect than other architectural journals. ( "Introductory", Pencil Points 1, June 1920, p. 5. ) It did not neglect the practical problems of drafting and specification writing in the office. At the same time, its primary subject matter was portfolios of historical details, translations of important theoretical texts, and instructional articles concerning the design methods of the Ecoles des Beaux-Arts; all of which were in demand during the resurgence of eclecticism during the 1920s. Pencil Points thus catered to the direct concerns of the architectural office as a whole and was from its inception a more "practical" journal compared to a literary journal such as Record.

<sup>157</sup> Beginning with Pencil Points 7, Nov. 1926, under a series titled "The Ricker Manuscript Translations," Thomas E. O'Donnell, professor at the University of Illinois provided summaries of both Guadet and Viollet-le-Duc's key texts. The "Vocabulary" series took the form of an alphabetical dictionary and ran between April and October in Pencil Points 3, 1922.

<sup>158</sup> The most notable were the University of Minnesota ( 1912 ), Yale ( 1913 ), Princeton ( 1920 ), University of Cincinnati ( 1922 ). See Arthur C. Weatherhead, "The History of Collegiate Education in the United States," Los Angeles, 1941; Frank H. Bosworth and Roy C. Jones, A Study of Architectural Schools, New York; Charles Scribner's Sons, 1932; and James P. Noffsinger, The Influence of the Ecole



eclecticism, in particular the colonial revival. From the so called "period houses" to commercial and civic buildings, the expansive building of the twenties created a second boom of pattern books and building manuals, as well as the more academic discourses of architectural theory.

The theoretical discussions of composition, however, began to reject programmatically the authority and validity of the classical elements and the use of historical styles. The formalist conception of composition, already evident in Van Pelt and Robinson's expositions, began to be presented as an architectural theory antithetical to the idea of architecture as a combination of elements. The key Anglo-American text that advanced a full blown theory of architectural formalism, though the term composition itself was not used, was Geoffrey Scott's The Architecture of Humanism, published in 1914. John Harbeson, for instance, recommended the book as a "very sane exposition of the underlying principles of architectural composition, and a keen assaying of architectural criticism."<sup>159</sup> In terms of its overall organization, The Architecture of Humanism was a survey and critique of the "fallacies" of various architectural theories, beginning with the Renaissance and ending with "academic theory." Though Scott placed high value on the "academic tradition" allied to the Renaissance, he believed academic *theory* to be "at all times barren." According to Scott, the latter consisted of the view that "because certain forms were used in the past they must therefore be used without alteration in the future." He insisted that the true elements of architecture did not lie in a "canon of form," meaning "the meticulous observation of 'pure styles,'" but in mass, space and line.<sup>160</sup> Adopting Theodor Lipps's theory of empathy, Scott argued that through the perception of these basic formal qualities of buildings-- as *appearances*

---

des Beaux-Arts on the Architects of the United States, Catholic University of America; Washington, D.C., 1955.

<sup>159</sup> Harbeson, The Study of Architectural Design, p. 299.

<sup>160</sup> Geoffrey Scott, The Architecture of Humanism, 1914, reprinted New York; W.W. Norton, 1974, p. 153.

that are related to basic human functions-- man transcribed himself into terms of architecture. This was his notion of "humanistic" architecture. The "tendency to project the image of functions into concrete forms" was what he believed to be the basis of creative design; of "an architecture which by Mass, Space and Line responds to human physical delight, and by Coherence answers to our thought."<sup>161</sup> Scott's formalism had the effect of debunking historical style as a constituent element of architectural theory. Yet it was not intended as a justification of stylistic innovation. The book's purpose was to reorient the validity of classical architecture, in particular Greek and Renaissance architecture, away from the framework of stylistic continuity; providing it with an a-historical basis of human perception and psychology. Widely read on both sides of the Atlantic, it provided an exemplary logic that could be employed to reconcile the academic discipline with the emerging debates concerning composition, eclecticism and modernism.

The second edition of The Architecture of Humanism came out in 1924, the same year that Howard Robertson's The Principles of Architectural Composition was first published. For Robertson, like Van Pelt and Robinson, composition in architecture was something that could be analysed. One could extract a set of "principles of composition," or what Colin Rowe referred to as a "formal common denominator" of past, present and future monuments.<sup>162</sup> Robertson's book was one of several Anglo-American texts during the twenties which set out to elaborate these architectural principles.<sup>163</sup> Though

---

<sup>161</sup> Ibid., pp. 157-183.

<sup>162</sup> Colin Rowe, "Composition and Character," p. 60.

<sup>163</sup> Howard Robertson ( 1888-1963 ) trained at the Architectural Association ( AA ) School and the Ecole des Beaux-Arts and at the time the book was published, was principal of the AA School, a post he held between 1920 and 29 ( he was director of education, 1929-35 ). Robertson was extremely interested in the modern architecture of the continent and a key figure in introducing it to the Anglo-American audience. There is a short biographical article by Reyner Banham in Architectural Review 114, 1953, pp. 160-168. Robertson specifically acknowledged Trystan Edwards' Things which are Seen and Claude Bragdon's Beautiful Necessity as its sources. Other expositions of compositional principles include William R. Greeley, The Essence of Architecture, New York; D.Van Nostrand, 1927 and David Varon's Architectural Composition, 1923.

the specific terms differed from author to author, they were invariably considered to be universal and permanent. The list of principles were similar to those offered by Van Pelt and Robinson-- typically comprised of contrast, proportion, scale, balance, rhythm, massing, surface, etc. [ fig. 42 ]. The status of these principles in architectural design was explained by Robert Atkinson in his foreword to Robertson's Principles:

Composition is the keystone of architectural design. Whilst primarily the plan of a building dominates its external expression, yet devoid of a sense of 'Composition' the external effect may be dull and uninteresting despite a good plan; and with a proper appreciation of contrasts and values of mass the same work may be masterly. Detail is secondary, and may be bad or entirely omitted, on a building the mass of which is effective and even spectacular.<sup>164</sup>

With the exception of the comment that detailed ornament could be completely excluded, The Principles of Architectural Composition would seem to continue the arguments of the turn of the century. Like Van Pelt and Robinson, the compositional principles of contrast and mass were formulated as separate entities from the plan and style of the building. Furthermore, for Robertson, the plan was still within the realm of architectural form and subject to the control of formal principles: it was an "image on paper which shows the scheme as a pattern of walls, rooms, corridors, etc., all laid out flat as are the figures on a painting, and therefore, regarded as the elements of a piece of design, affecting each other according to the laws of abstract composition."<sup>165</sup>

Robertson, however, was careful to distinguish his treatise from Guadet's Eléments, as well as the American texts by Robinson, Van Pelt and Curtis. While these texts had dealt with composition from a "functional" point of view, Robertson claimed

---

<sup>164</sup> Robert Atkinson, "Foreword," in Howard Robertson, The Principles of Architectural Composition, Westminster; The Architectural Press, 1924, pp. v-vi. Atkinson was director of education during Robertson's tenure as principal of the AA School. Colin Rowe also used this quote as a typical proposition of the composition books.

<sup>165</sup> Robertson, *Ibid.*, pp. 102-105.

that his study considered it from the "abstract standpoint."<sup>166</sup> He in fact began his exposition on composition by distinguishing two different "points of view" concerning "the theory of architecture":

that which regards the question of design in the abstract and considers the aesthetic effect of a building without special regard to its function and structure; and that which deals with the practical requirements of purpose, the elements which go to form the complete building, the methods of construction utilized, all matters which are related to what we may call, for the sake of brevity, functional design.

Robertson went on to argue that it was only through a "comprehension of the laws of composition, through knowledge of the grammar of design" that functional design could be "satisfactorily translated into an architectural creation."<sup>167</sup> The phrase "grammar of design" was adopted from The Things which are Seen, by Trystan Edwards, another widely read architect and critic. This general treatise on aesthetics had laid out three formal principles-- the canons of number, punctuation, and inflection-- which supposedly formed the basis of beauty in both natural and artificial objects. The author later applied these principles to architecture in Architectural Style published in 1926 [ fig. 43 ]. In the same vein as Robertson, who had stated that good architecture was "entirely independent of so-called 'styles,'" Edwards insisted that style was "expressional" and secondary to

---

<sup>166</sup> Ibid., p. 155. The composition books of the twenties, though inspired by Guadet, were aligned more with the post-World War I teachings of Georges Gromort. Gromort taught at the Ecole during the inter-War years and his lectures were published in 1941 as Essai sur la theorie de l'architecture. See Lawrence B. Anderson, "Rereading Gromort," Journal of Architectural Education 33, Nov. 1979. Richard Becherer, in his study of Cesar Daly, has noted that Guadet's Eléments represented the last moments of an ideology of architectural design as a synthetic process. He argues that "almost as soon as Guadet made his culminating statement, the formal and ideological synthesis began to falter. The products of the Guadet/Laloux atelier increasingly sought to separate rather than interweave the ideological influences present in the Ecole's official doctrine." See Science Plus Sentiment. Cesar Daly's Formula for Modern Architecture, Ann Arbor, M.I.; UMI Press, 1984, p. 251.

<sup>167</sup> Robertson, Ibid., p. 1

the compositional rules of architecture, likened to the grammar of language.<sup>168</sup> As Alan Colquhoun has correctly observed in his analysis of Robertson's The Principles of Architectural Composition, the search for permanence in formal principles was a corollary to the "collapse of 'stylistic conviction.'"<sup>169</sup>

Another common aspect of Edwards's and Robertson's theories was the complete separation between planning and composition:

The practical requirements of buildings, systems of planning designed to satisfy the conditions of particular architectural 'programmes,' even the expressional function of architecture, so far as this is manifested in the character and status of a building, or in the disposition of parts in accordance with utilitarian needs, has nothing to do with the present theme, which is the language of architecture.<sup>170</sup>

The corollary to the exclusion of practical matters from the composition books was the planning manual's proposition that formal and stylistic issues were not part of its subject matter. As Edward F. Stevens stated in his manual on hospitals,

While many exterior designs are here shown, no attempt has been made to discuss architectural style, forms of construction or building material, since these may not differ from those of other classes of buildings. While the presence of beauty, either in architectural forms of decoration or sculpture,

---

<sup>168</sup> Trystan Edwards, Architectural Style, London; Faber and Gwyer, 1926, p. 17.

<sup>169</sup> Alan Colquhoun, "Composition versus the Project," Casabella 50, Jan./Feb. 1986, reprinted in Modernity and the Classical Tradition, Cambridge, MA; MIT Press, 1989, pp. 39-45. Colquhoun offers a perceptive analysis of The Principles of Architectural Composition, commenting that "the message of Robertson's first book is that there are fundamental rules of composition in architecture that are independent of style. Styles have relative value: they depend on the revolution of taste. The values of architecture, on the contrary, are permanent." However, Colquhoun's main concern of the article, that of understanding the relation between the European avant-garde and the composition books, is somewhat confused. While arguing that the idea of composition was directly inherited by the twentieth century avant-garde, he simultaneously views the composition books as examples of "how avant-garde ideas and attitudes filtered down to the more conservative ranks of the profession." If Colquhoun is implying a dialectic between academism and the avant-garde, this otherwise interesting proposition is left unclear and unformulated. ( pp. 39-45 )

<sup>170</sup> Trystan Edwards, *Ibid.*, p. 20.

has its psychological effect upon the patient, the arrangement of the plan is really of prime importance in meeting the hospital problem.<sup>171</sup>

The earlier more implicit distinction between planning and composition had now become the basic point of departure.

The most striking difference of the discourse of composition during the twenties from that of the turn of the century was the complete separation of composition from the architectural elements. The supplementary relation between the elements and composition, a view that was retained throughout the twenties by Van Pelt, was no longer recognized. In 1921, Van Pelt wrote:

An analysis of requirements for the production of good detail necessarily takes us into the whole field of architectural composition. The qualities of a building are those of its parts.<sup>172</sup>

In contrast to Van Pelt's position, Robertson placed the architectural elements under the category of "functional design." He emphasized that the proper point of departure in understanding architecture was through the "analysis of principles rather than of the elements of building."<sup>173</sup> He thus separated abstract composition from the study of the "elements" relegating the latter to a secondary position in the design process. His concept of "abstract composition" thus explicitly detached itself from the productive process of design and was defined, on the one hand, as a set of visual effects to be achieved, and on the other, as a list of analytic categories.

By the early thirties, the elements were programmatically rejected within the academic discipline. This was evident in one of the last texts in the genealogy of the

---

<sup>171</sup> Edward F. Stevens, "Foreword," The American Hospital of the Twentieth Century, New York; F.W. Dodge, 1928 ( 2nd edition ), p. iv.

<sup>172</sup> John Van Pelt, "Architectural Detail. Part I," Pencil Points 2, May 1921, p. 21.

<sup>173</sup> Robertson, *Ibid.*, p. viii.

pedagogical composition book-- Ernest Pickering's Architectural Design, first published in 1933 and followed by a second edition in 1942. According to Pickering, the purpose of the book was "to aid in bringing the study of architectural design into harmony with the twentieth century." As part of this program, the study of architectural elements were to be discarded from the design process.

For years, books on architectural design and composition have presented the "elements" of architecture-- orders, windows, walls, columns, stairs, pediments, and the like-- as though they were the fundamentals out of which designs are "composed" in much the way that we put words together to form sentences in our lingual expression. This approach was perhaps all very well in a world of fixed categories where it appeared that most of the "words" and "grammar" of architecture had been perfected by our predecessors and that about the best we could do was to recompose these "elements" to meet the demands of the day.<sup>174</sup>

This position stands in clear contrast with another foreword which appeared in John Harbeson's exposition on academic design written just over a decade before. Lloyd Warren, who was the first American to receive a diploma at the Ecole, wrote that the purpose of the analytique, i.e. the study of architectural elements, was to insure "that a student, before he enters the veritable study of architecture, has at his command a certain knowledge of things necessary to express acceptably a proposed edifice."<sup>175</sup>

In 1930, under the aegis of the Association of Collegiate Schools of Architecture, a survey and analysis of architectural schools was conducted by Frank H. Bosworth and Roy C. Jones, published two years later as A Study of Architectural Schools. The report clearly reveals the transformations of the academic system of design. The authors were

---

<sup>174</sup> Rexford Newcomb, "Foreword," in Ernest Pickering, Architectural Design, New York; John Wiley and Sons, 1933, p. ix.

<sup>175</sup> Lloyd Warren, "Foreword," in John Harbeson, The Study of Architectural Design, p. 5.

particularly critical of beginning design education with the analytique as it was practiced in the schools.

[ The analytique ] as a device to inculcate a realization by the student of three-dimensional architectural forms, this type of work and the usual instruction that goes with it would in the great majority of cases seem very questionable. Perhaps that is not its objective. What its real purpose is, beyond the facility in pictorial representation, no school was prepared to say with any great conviction or definition.<sup>176</sup>

Bosworth and Jones pointed to a growing number of schools that began to forego the analytique and the study of elements, approaching the first stages of architectural education with problems that "involve the totality of architecture in simplified form rather than artificially amputated parts of a complex whole."

The essential difference between the two methods involves a difference in point of view as to the fundamental nature of architecture. The common method has stressed the external and decorative phases of architecture by centering the student's attention on them in his formative stages. The new one stresses the primary concern of architecture with the *grouping and proportioning of enclosed spaces for human need*. The movement has a significance far greater than is implied in its bare mention as an educational experiment. It is a direct reflection of a new tendency in architecture which has been strongly evidenced in recent years,-- so strongly evidenced, indeed, that many people hail it as not merely a tendency, but a revolution, whereby sentimental subservience to stylistic formulae bequeathed by the past is to give place to an enthusiastic acceptance of the realities of present-day materials and needs.<sup>177</sup>

---

<sup>176</sup> Frank H. Bosworth and Roy C. Jones, A Study of Architectural Schools, p. 41.

<sup>177</sup> *Ibid.*, p. 45. The authors name Princeton, Yale, Cornell, Southern California, and the University of Kansas as schools in which the beginner is immediately started with the design of a building. At Cincinnati and Florida, the student is begun with exercises in "abstract design," thereby getting the student to understand what design is before he applies it to architecture. In the framework of this dissertation, it would be impossible to delve into the specifics of the changes in the different schools. An



The analytique and the study of details were now to be conducted in the latter stages of the curriculum. In addition, with the collapse of the architectural element as a basic unit of design, style became associated solely with ornament.

Despite the collapse of the analytique, the *esquisse*, which was a task predicated on the study of the elements, was retained within the schools. This can also be seen in Pickering's Architectural Design which retained the codified Beaux-Arts method of beginning a project with the sketch problem. The units to be manipulated were now what Bosworth and Jones called the "enclosed spaces for human need," a concept clearly compatible with the pre-determined "space units" that comprised Stanley Taylor's scheme of the functional plan. By the early 1930s then, the tightly knit academic system based on the "theory of the plan" was fragmented into separate discursive units. Planning, composition, and style were regarded as epistemologically exclusive categories, constituting separate stages in the design process. There was an absence of a dialectic because each claimed a different set of concepts and objects and conceived unity at different levels. While planning was regarded strictly as a function of the program,

---

inquiry into the transformations of the pedagogical system would require another set of research. Unfortunately, most published studies of architectural education in America are vague and so general in nature that the complexities of the transformations are not brought out. The best study of the changes in an architectural school in America is Richard Oliver, ed., The Making of an Architect. 1881-1981. Columbia University in the City of New York, New York; Rizzoli, 1981. An interesting episode in the school's history, pertinent to my present argument is a list of student grievances that were presented to Boring in 1923. The central complaint was that they needed more time for "design work," and in order to secure this time, the students made the following suggestions:

- (a) Condense history of ancient ornament;
- (b) eliminate the requirement for ornamental plates;
- (c) eliminate the requirement for plates in the decorative arts;
- (d) eliminate historical research as a course and make it an elective;
- (e) drop stereotomy;
- (f) condense work covered in shades and shadows, descriptive geometry, and stereotomy to one course;
- (g) condense graphics.

These suggestions indicate the separation of design from the discursive practice of the portfolio, central to the early stages of architectural training. This abstract conception of design seems to have been introduced by William Boring who was appointed Director of the School of Architecture in 1919. Boring believed that architecture was "pure invention," advocating that the "biggest way of attempting to solve a problem is to solve it in masses." William Boring's lecture notes are in the Central Files and the Graduate School of Architecture and Planning Archives, Columbia University. The list of student grievances were recorded in a letter from William Henry Carpenter to Nicholas Butler, dated Feb. 13 1923, William Henry Carpenter Papers, Butler Library, Columbia University. I am indebted to Susan M. Strauss, "History III 1912-1933," in Oliver, *Ibid.*, which led me to these sources.

composition sustained its own set of internalized rules. Though the notion of "unity" was universally claimed as a principle of composition, it was a concept internal to the formal categories of the system: "if a structure has unity, it must have contrast, rhythm, and scale"<sup>178</sup> Abstract composition denoted less a process than a set of analytical categories and effects, and thus did not conflict with a rationalized conception of planning.

One of the most interesting manifestations of the fragmentation of academic discourse-- the split between formal composition and functional planning, and the collapse of stylistic conviction-- can be found in the debate on modernism. During the twenties, the debate was formulated as an opposition between the "modernists" and the "traditionalists" who were both essentially within the circle of Beaux-Arts trained architects. The modernists, particularly during the late twenties, were identified with the architects of the New York skyscrapers: namely Raymond Hood, Ely Jacques Kahn, Ralph Walker and Harvey Wiley Corbett. They represented that peculiar 1920s figure, the Beaux-Arts commercial architect, who retained the aura of the academic tradition while enthusiastically espousing the notion of architecture as a business.<sup>179</sup> Corbett, the most vocal of the group, persistently attempted to bring notions of business, art and modernism together. The following comments taken from his article on Raymond Hood's Radiator Building present a typical Corbettian proposition:

There is no reason why the term 'commercialism' should ever be considered as opposed to art. Perhaps a new type of commercial architecture will be developed. Perhaps architecture will make a great forward step in interpreting

---

<sup>178</sup> Pickering, *Ibid.*, p. 170.

<sup>179</sup> During the 1920s, the successful commercial offices of New York became the most powerful figures of the profession and in particular the Architectural League of New York; so much so that Hood, Kahn and Walker were referred to as the "three little Napoleons of architecture." See Walter H. Kilham Jr., Raymond Hood, Architect, New York; Architectural Book Publishing Co., 1973, p. 81. For a general discussion of Kahn, Hood and Walker see the Chapter, "Three Modern Masters" in Robert A.M. Stern, et al., New York 1930, New York; Rizzoli, 1987.

commercialism in its new and higher relation to human welfare...  
Commercialism in its present significance spells gradual freedom and liberty  
for the average man.<sup>180</sup>

The traditionalists, on the other hand, were less defined as a group, but were comprised of architects such as William Adams Delano and John Russell Pope, who were steadfast in their loyalty to the classical tradition. Both Edwards and Robertson were themselves extremely conscious of the stylistic inventions of modernism that came to the attention of the academic profession particularly after the Paris Exposition of 1925. By presenting a-stylar principles as the fundamentals of design, it was possible to straddle both sides of the debate on the appropriate style for the modern age. Indeed, Trystan Edwards proclaimed that his grammar of design provided a "resolution of the conflict between tradition and modernity."<sup>181</sup>

The discursive strategies of the modernism debate revolved around two basic conceptual formations of the composition books just discussed. The first, as many contemporary observers recognized, was the common assumption of the multiplicity of period styles. Louise La Beaume, an active participant in the debate, remarked that the difference of the twenties debate from previous stylistic battles was that the traditionalists were defending a variety of historical styles.<sup>182</sup> The so-called traditionalists argued that

---

<sup>180</sup> Harvey Wiley Corbett, "The American Radiator Building, New York City, Raymond Hood, Architect", Architectural Record 55, May 1924, pp. 473-477.

<sup>181</sup> "Anyone who accepts the 'Grammar of Design' will be able to define very clearly his attitude towards the disputants who take part in the controversy concerning the respective claims of tradition and modernity. To those who have an undue reverence for the architecture of the past, he will say that this architecture only possesses merit in so far as it complies with the formal canons. As the Grammar provides logical justification for the respect accorded to many famous buildings of the past, he will do his utmost to preserve these masterpieces, protecting them from that ignorant depreciation of works of art which always precedes acts of vandalism. But the Grammar also relieves him from the necessity of paying uncritical homage to buildings simply because they are old. And his attitude towards the architecture of his own day will be determined in the same manner. New buildings will not be praised for their beauty just because they express a reaction to the past, but only if they exemplify the principles of Number, Punctuation and Inflection. An illimitable range of new forms can be created subject to this condition." ( Trystan Edwards, *Ibid.*, 171-172. )

<sup>182</sup> Louise La Beaume, "Crabbed Age and Youth," JAIA 16, Nov. 1928, p. 417.

the crux of the issue was not the *replication* of historic styles per se, but that the historical must be the authoritative point of departure.<sup>183</sup> The corollary to this was the modernist tenet, which consisted not of a positive projection of a particular style, but an opposition to the use of historical motifs. The modern was then seen as one alternative among numerous available styles; to quote Henry- Russell Hitchcock, "contemporary design, whether as 'style,' or 'styles,' is admitted on a par with the 'style' of the past."<sup>184</sup>

The second involved the distinction that Howard Robertson had made between two basic approaches to architectural theory-- the "abstract" and the "functional." Either could be used to defend the modernist or traditionalist position. According to the abstract, formalist position, buildings were to be judged not by style but by the formal qualities of mass, colour, and line. In the case of Edwards, this formalism provided the rationale for his eclectic position. For him, all styles-- Classic, Gothic, Oriental-- could conform to the "Grammar of Design" [ fig. 44 ].<sup>185</sup> On the other hand, Robertson was an advocate of modernism. He was a key figure in introducing the continental images of modern architecture to an English speaking audience, and already in The Principles of Architectural Composition, there were signs of a predilection towards "simple shapes" and "geometrical figures" [ fig. 45 ].<sup>186</sup>

---

<sup>183</sup> Leslie W. Devereux, "The Condition of Modern Architecture," Architecture 45, Feb. 1922, p. 42. See also David Gebhard, "The American Colonial Revival in the 1930s," Winterthur Portfolio 22, Summer/Autumn 1987, p. 110 for a similar interpretation.

<sup>184</sup> Henry-Russell Hitchcock, "Architectural Education Again," Architectural Record 67, May 1930, p. 445.

<sup>185</sup> Trystan Edwards, *Ibid.*, p. 172.

<sup>186</sup> "In order that a sense of composition may be developed, it is advisable to practise the production of satisfactory arrangements of simple shapes, either light and dark geometrical figures, or architectural masses shaded in different depths of tone." ( Robertson, *Ibid.*, pp. 23-25. ) In 1932, Robertson wrote Modern Architectural Design, London; Architectural Press, which complemented his earlier book on composition. He also co-authored several pictorial reviews of modern architecture. See Howard Robertson and F.R. Yerbury, Examples of Modern French Architecture, London; Benn, 1928, and "A Pictorial Review of Modern Architecture in Europe," Architecture 58 & 63, pp. 295-302 & pp. 357-360.

According to the "functional" argument, the essential task of architecture in modern society was incorporating the most up-to-date methods of construction and solving the complex programs of modern institutions. Modernists such as Raymond Hood and Ely Jacques Kahn took the position that

The modern movement does not concern itself with looks at all. It does not care whether we abandon or follow precedent, nor is it interested as to whether the new rules of art are derived from the machine, nor even whether there are to be any rules at all...The artist or critic who tells you that tempo, rhythm, dynamic symmetry, color discordance, motion, pattern, or the inspiration of the machine are the basic qualities of the new art, is passing out the same old hypocrisies that the new art is trying to overcome. These qualities may occur in modern art, but they are incidental and not essential to it. Modern involves a sincere attempt to be honest.<sup>187</sup>

For the Beaux-Arts modernists in the functionalist camp, "honesty" meant the explicit acknowledgement of architecture's immersion in the commercial structures of modern society. For Hood, unlike Corbett, there was no need to elevate commercialism into a discourse of form and representation.

By the same token, traditionalists could also appropriate the functionalist position. They argued that by incorporating modern methods of construction and dealing successfully with complex building programs, they more than met the needs of modern society and were as up-to-date as those who would willy-nilly apply untested forms of decoration.<sup>188</sup>

---

<sup>187</sup> Raymond Hood, "The Spirit of Modern Art," Architectural Forum 51, Nov. 1929, pp. 445-448. For a similar argument see Ely Jacques Kahn, "On What is Modern," in Ely Jacques Kahn, New York; McGraw Hill, 1931.

<sup>188</sup> Dwight James Baum used the term "Modern Traditionalism" to characterize this position: "Our buildings are modern of necessity, modern that they may meet present day practical requirements and may be built by the methods and of the materials that are most suitable and economical. But this does not mean that they need to be devoid of everything that recalls the past, and be factory-like or ornamented with zig-zags." ("Modern Traditionalism," T-Square Club Journal 1, April 1931, p. 14. )

Architects can, by working with a vocabulary based on our classical heritage, surpass the architecture of earlier years, if they first solve the function of the building. This is in part the argument of the functionalist or modernist, but it is equally true of modern architecture based on the cultural traditions of the past. In other words, one should not copy an old existing building and adapt life to that building, but, with a vocabulary that study gives, should envisage the contemporary problem and clothe it in traditional architecture. This will in turn demand modification and transition as the problems change and as life gives new character to architecture.<sup>189</sup>

The negative logic of the traditionalists converges with Karl Popper's characterization of "conventional traditionalism...as the belief that, in the absence of an objective and discernible truth we are faced with the choice between accepting the authority of tradition, and chaos."<sup>190</sup> This logic denied any rational system in which the use of historical style could be justified, thus making style, for the traditionalist, a province of convention, and to the modernist, a matter of arbitrary taste.

One of the most interesting uses of this dichotomy between form and function, between the aesthetic and practical, occurred around the topic of the "new" skyscraper of the 1920s. A key issue concerning the skyscraper, since its emergence into the theoretical discourse of architecture, concerned the notion of the expression of structure. By the mid-twenties, however, it came to be regarded as an exhausted issue. Representative of this view was Fiske Kimball's American Architecture published in 1928.<sup>191</sup> In a chapter titled "What is Modern Architecture?," Kimball identified two

---

<sup>189</sup> Jens Frederick Larson and Archie MacInnes Palmer, Architectural Planning of the American College, New York; McGraw Hill for the Association of American Colleges, 1933, p. 27.

<sup>190</sup> Karl Popper, "On the Sources of Knowledge and of Ignorance," in Conjectures and Refutations, London; Routledge and Kegan Paul, 1963, p. 6. I am indebted to Stanford Anderson, "Architecture and Tradition that isn't 'Trad, Dad'," in Marcus Whiffen, ed., The History, Theory and Criticism of Architecture, Cambridge, MA; MIT Press, 1970. which called my attention to Popper's insight.

<sup>191</sup> Another historian-critic on the traditionalist camp, George Edgell, wrote in The American Architecture of To-day, New York; Charles Scribner's & Sons, 1928: "Greater familiarity with steel

poles of modernism: on the one hand, the functional, scientific and objective, and on the other, the formal, aesthetic and abstract.<sup>192</sup> The first was regarded as essentially a nineteenth century phenomenon of Pugin, Viollet-le-Duc and Semper, culminating in the American work of Louis Sullivan. The second was a reaction to this functionalism, best exemplified in the work of McKim, Mead and White, who provided "an interpretation of architecture, as they tacitly conceived it, in terms of mass and space, instead of structure."<sup>193</sup> For Kimball, it was in the underlying formalism of this overtly classical architecture, that true modernism would be found. Accordingly, he believed that "the struggle to express the steel frame, so burning in the nineties," had become a "dead issue." "The vital and really 'modern' movement in American architecture," he concluded, "is the effort to organize form irrespective of structure."<sup>194</sup> Though Kimball's sympathies were with a simplified form of classicism, he could write that "we are all together on what Harvey Corbett said to me the other day: 'I have only one God, beauty of form.'"<sup>195</sup>

---

construction means less necessity for expressing it in design. If a wall were an envelope, incapable even of supporting its weight, such a fact should be advertised on the exterior of the building. As we become more accustomed to the construction, however, we realize that the very mass and height of the building proclaims its construction. Little thought is required to convince us that a masonry wall thirty-five to fifty stories high is not self-supporting. Familiar with the fact, we become less insistent in design upon the proclamation of the obvious. The problem is much broader than that of a mere expression of structure." ( pp. 75-76 )

<sup>192</sup> Fiske Kimball, American Architecture, Indianapolis; Bobs-Merrill, 1928, pp. 147-168. I am indebted to Deborah Pokinski's discussion of Kimball and George Edgell in her The Development of the American Modern Style, Ann Arbor, MI; UMI Press, 1984, which brought my attention to Kimball's formalist approach.

<sup>193</sup> Kimball, *Ibid.*, p. 163. For a similar interpretation of Kimball, see Lauren Weiss Bricker, "The Writings of Fiske Kimball: A Synthesis of Architectural History and Practice," in Elisabeth Blair MacDougall, ed., The Architectural Historian in America, National Gallery of Art, 1990, and David Brownlee, Building the City Beautiful: The Benjamin Franklin Parkway and the Philadelphia Museum of Art, Exhibition Catalogue, Philadelphia Museum of Art, 1989, who note Kimball's use of Roger Fry's formalist language in equating the classical designs of McKim, Mead and White with the paintings of Cezanne, based on their employment of an abstract art of form and color.

<sup>194</sup> Fiske Kimball to Paul Cret, dated May 8, 1925 published in Architectural Record 65, May 1929, p. 431.

<sup>195</sup> Letter from Fiske Kimball to Walter Pach, dated May 8, 1925, published in Architectural Record 65, May 1928, p. 433. The quote is also used by Kimball in American Architecture, p. 205.

For Kimball and the formalists, the set-back skyscraper that developed after New York's comprehensive zoning ordinance of 1916, was the prime example of a modern architecture based on formal principles. More precisely, "mass" was appropriated as the central concept in the aesthetics of this new skyscraper. Talbot Hamlin, for instance, regarded Ralph Walker's Barclay-Vesey building, built between 1923 and 26, as an exemplar of this formal principle.

Here at last traditional design has been forgotten; masses, carefully studied, and emphasized vertical lines have been left to tell their own story and create their own beauty...The whole building is destined to be a monument of American progress in architecture.<sup>196</sup>

Ernest Pickering, in Architectural Design, went further, designating mass as the primary aesthetic principle of modern architecture.

More and more does modern architecture depend upon mass, rather than detail, for its effect. However, the mass of a structure must follow the rules of composition-- just to have a conspicuous mass or volume is not sufficient. Mass can be vigorous or weak; it can have vitality and strength, or it may be indecisive and faltering. If it is correctly composed in an arresting manner, mass alone will arouse a definite emotional reaction. It will stimulate the observer with the sense of its completeness. Many of the tall buildings of our cities, with their properly related masses, are examples of the use of sheer weight and bulk with little detail. ( See Fig. 133 A. )...In Fig. 131I an important vertical unit grows out of a series of minor masses arranged in the form of set-backs, which are typical of the pattern established by the zoning laws of New York City and copied in other communities.<sup>197</sup> ( Fig. 131 and Fig. 133 referred to by Pickering are figs. 46 & 47 in this dissertation )

---

<sup>196</sup> Talbot Hamlin, "Architecture," International Yearbook, 1926, p. 59.

<sup>197</sup> Ernest Pickering, Architectural Design, pp. 130-132.



In fact, Howard Robertson used Hugh Ferriss' sketches of the developmental stages of set-back design as an example of how "simple geometrical shapes form the basis of the finished architectural conception" [ figs. 48 & 49 ].<sup>198</sup> Ferriss, along with Harvey Wiley Corbett, were the chief ideologues who appropriated the restrictions of zoning into spectacular images of a new architecture and visions of the future.<sup>199</sup> For them, the set-back skyscraper represented the coming of a distinct American "style."

What we are getting now is something utterly new and distinctive. And its effect will be felt on the architecture of the whole world. The setback style will go down in history along with the Gothic, the Classic and the Renaissance.<sup>200</sup>

Here was an instance where conditions external to the architectural discipline virtually determined the basic design of the building. The pursuit of maximum floor space, the new zoning regulations, plus the New York grid, had de facto fixed the mass of the skyscraper. Rather than viewing this phenomenon as a loss of architectural autonomy, Corbett and other Beaux Arts architects who were engaged in high-rise buildings, regarded the zoning regulations as an inspiration to pursue a modern American style based on the formalist principles of mass. By the late 1920s, "the moulding of the conception of architectural design to meet the exigencies of zoning laws, building codes and the like" could be considered a form of modern architecture.<sup>201</sup> The setback skyscraper was thus transfigured into a formalist and aesthetic discourse of "mass."

---

<sup>198</sup> Robertson, The Principles of Architectural Composition, p. 24.

<sup>199</sup> Ferriss' sketches were first published in Corbett's article, "Zoning and the Envelope of the Building," Pencil Points 4, April 1923. They were later republished with his utopian plans in Metropolis of Tommorrow, New York; Ives Washburn, 1929. See Carol Willis, *Ibid.*, for a discussion of Corbett's Ideas.

<sup>200</sup> Corbett, "The Coming City of Setback Skyscrapers," New York Times, April 29, 1923, quoted in Carol Willis, "Zoning and Zeitgeist: The Skyscraper City in the 1920s," JSAH 45, Mar. 1986, p. 55.

<sup>201</sup> Rayne Adams, "Thoughts on Modern, and Other, Ornament," Pencil Points 9, Jan. 1929, p. 7.

During the 1920s, it was becoming clear that the autonomy and disciplinary unity of academic professionalism could not be maintained. The phenomenon of set-back aesthetics and the Architect's Small House Service Bureau, discussed in the first section of this chapter, were examples of the compromise and dissolution of the ideological unity between the profession and discipline; the former revising its professional ideology but maintaining traditional representational strategies; the latter retaining the rhetoric of professional autonomy, while appropriating the logic of mass discourses. These strategies were not one of detachment but rather what Manfredo Tafuri has called the bourgeois tactic of warding off "anguish by understanding and absorbing the causes."<sup>202</sup> By the end of the decade, discursive formations that attempted to make a radical break from the ruins of academic discourse began to emerge. The fragmentation of the academic discipline into opposing concepts of formal composition and functional planning prepared the way for the development of new concepts, discursive modes and genres of architectural discourse which the following chapters will examine. These discourses departed from the idea of autonomy and transcendent representation, and delineated a new discipline that was to be coherent with the needs and values of modern American society.

---

<sup>202</sup> Manfredo Tafuri, *Architecture and Utopia. Design and Capitalist Development*, 1973, translated Cambridge, MA; MIT Press, 1976, p. 1.

## IV. Competing Ideologies of the Architectural Discipline

### 1) The New Editorial Policies of Architectural Journals: The Consumerist Project of American Architect

During the late twenties, the beginning of an important shift in architectural discourse was signaled by a series of editorial announcements in three major architectural journals.

With the exception of the changes in Architectural Forum in the late teens, the format of the journals had remained relatively stable. During the War period, articles on housing appeared regularly, and in the following years, issues concerning the building industry and planning did receive more attention. However, as I have already noted in the previous chapter, the ideological and discursive formation of the periodicals during the 1920s remained essentially the same as that of pre-World War I. Within a period of twenty months, and before the stock market crash in October 1929, three of the five periodicals with the largest circulation in the United States-- American Architect, Architectural Forum and Architectural Record-- changed their editorial policy and format.<sup>203</sup> The first announcement came in the January 1928 issue of Forum.

According to its editor, Parker Morse Hooper, there were "three major divisions" in the architectural profession: "Design as its base, joined on the one side by Engineering, and on the other by Business." Following this triangular organization of architecture, there

---

<sup>203</sup> The exceptions were Architecture and Pencil Points, which were journals strongly influenced by academism. Architecture remained relatively faithful to academic design until it was absorbed by Architectural Record in 1938. Changes in Pencil Points came about in a more subtle manner, and it was only in the mid-thirties that it began to embrace new elements into its pages. The new editorial policies announced in the late twenties have surprisingly gone unnoticed by historians of American architecture. The transformations of Architectural Record, which I will discuss shortly, were briefly noted by Robert A. M. Stern, in "Relevance of the Decade," a talk given to the Modern Architecture Symposium: The Decade 1929-1939 in 1964 and published in the Journal of the Society of Architectural Historians 24, March 1965, p. 9. The only other study that I have discovered that discusses the changes of Record at any length is Robert Benson, "Douglas Putnam Haskell ( 1899-1979 ): The Early Critical Writings," Ph.D Dissertation, Univ. of Michigan, 1987.

would be a "natural physical division" of Forum into two separate sections-- "Architectural Design" and "Engineering and Business."<sup>204</sup> The portfolio and essays on architecture and art were grouped into the design section, while the latter was comprised of articles concerned with engineering and business. In this bifold format, the conceptual dichotomy between the practical and the aesthetic had taken the form of a physical division within the journal. There was no change in the editorial staff as Forum had in effect continued and reaffirmed its policies of the twenties. It was after Kenneth K. Stowell replaced Hooper as chief editor in the autumn of 1930, and the purchase of Forum two years later by Time, Incorporated, that another set of changes were brought into the journal.<sup>205</sup> In 1933, the journal once again adopted a new format which will be examined in Chapter VI.

The most abrupt change in editorial policy occurred with American Architect. In the summer of 1929, it was purchased by William Randolph Hearst's International Publications.<sup>206</sup> The journal thus became part of a conglomerate of mass circulation magazines, which included Good Housekeeping, House Beautiful, Cosmopolitan, Harpers Bazaar, etc. Though the intentions behind the purchase remain unclear, American Architect seems to have been projected by International Publications as the

---

<sup>204</sup> Parker Morse Hooper, "The Editor's Announcement," Architectural Forum 48, Jan. 1928.

<sup>205</sup> Kenneth K. Stowell ( 1894-1969 ) received his architectural training at Harvard, and in 1927, joined the editorial staff of the Forum where he remained till he became editor of the American Architect in 1935. Between 1936 and 1942, Stowell served as editor for House Beautiful, also of International Publications. Though I have not been able to research Stowell's activities as Forum's editor, he seems to have had a significant role in opening the journal to European modernism, much the way that Lawrence Kocher had done at Architectural Record.

<sup>206</sup> The purchase of American Architect can be seen in the context of the growing monopolization of business during the 1920s. The small scale of architectural publishing made it particularly vulnerable to corporate mergers. Even in the early decades of this century when the profession had been firmly established, it was financially difficult for architectural journals to stay afloat. It was thus not uncommon that a prominent journal would absorb other journals in financial trouble, or be part of a larger publishing company. American Architect absorbed Inland Architect in 1909, and Architectural Review in 1921. Architecture was published by Scribners, and the F.W. Dodge Company, which owned Architectural Record and several other magazines related to the building industry, was incorporated in 1923. It would seem, however, that no other journal was so directly influenced by its merger into a large conglomerate as American Architect in 1929.

professional component in a network of magazines concerning homemaking, interior decoration, architecture and other domestic topics. Its new editorial policy was announced in September followed by a radical change in format the next month. Under the slogan of "architecture as business," the journal announced a policy which would concentrate on the practical and business aspects of the profession. The new publishers claimed that based on their thorough investigation of architectural publications, they discovered that architectural publications concentrated on only one phase of the architectural work, the completed building. This type of architectural publication was deemed insufficient for the "business minded" architect who "must be more than merely the designer of a building." As a response to this reality, the journal concluded that it would "widen its scope and include subjects other than design...economics, real estate values, rental problems, remodeling problems and methods, the character of materials and their possibilities, the contacting of clients, the handling of employees," etc.<sup>207</sup>

This new policy did repeat many of the themes introduced by Forum a decade before. However, the ensuing changes in American Architect entailed a radical reorganization of the journal. The most important departure from previous discourses of business and efficiency, was that professional service was now linked directly with a programmatic shift away from issues of representation. The journal presented its new format in direct contrast to the final presentation of the building in "pictures."

True some one does take a picture, and the picture is of interest to other architects, but what interests them more is how the architect solved all the problems from the day he "contacted the client" until the building was ready to be photographed, because, if these problems were poorly worked out the

---

<sup>207</sup> "The 'New Architecture' and the New 'American Architect'," American Architect 136, Nov. 1929, p. 20.

design is relatively unimportant. These problems are the field in which THE AMERICAN ARCHITECT is serving.<sup>208</sup>

In effect, American Architect attempted to identify the discipline, not with its material products, i.e. the architectural drawings and documents, but as an institutional process. In contrast to the essential role that draftsmanship was given in the academic discipline, a radically different attitude toward drawing began to emerge during the 1930s. For instance, in a Record article called "Draftsmanship is not Architecture," the author, W.R.B. Wilcox, claimed that "the architect's real work is not primarily the business of 'making drawings,' but the conceiving, illustrating, and directing the execution, of buildings--the mental image of which he alone first beheld." For Wilcox, the attack on draftsmanship was in effect, a direct criticism of a profession mired in artistic pretenses that weakened his status in modern building operations. The metaphor of the architect as pencil had become a symbol of the architect's denigrated position in the building process.<sup>209</sup> It is in this attempt to shift the architectural discipline away from the productive processes of architectural representation that the most radical change in the format of American Architect can be understood: namely, the complete elimination of the portfolio in its October issue of 1929. For the moment, however, I shall focus on the ideological formation of the new policies and defer my discussion of this and other systematic transformations of the discursive mode of the journal to Chapter VI.

Until the mid-thirties, American Architect aggressively pushed this new policy, claiming that it was "the one magazine in the architectural field whose editorial thought

---

<sup>208</sup> Ray W. Sherman, "More than a Designer," American Architect 137, June 1930, p. 19.

<sup>209</sup> "The public accepted this criterion, that an architect was one who made 'pretty pictures' of buildings, but added a corollary that he was not 'practical.' With what result? That the services of an architect were a luxury? That buildings could be built without the services an architect was supposed to render? That an architect 'sold drawings' on a commission basis, instead of performing professional services for a professional fee?" ( W.R.B. Willcox, "Draftsmanship is not Architecture," Architectural Record 77, April 1935, pp. 255-257. ) See also Henry S. Churchill, "Are We Architects or Merely Pencils?," American Architect 137, Feb. 1930, for a similar position.

[was] premised on the fact that Architecture [had] become a Business as well as an art."<sup>210</sup> The journal was in fact a key participant of an intensified discourse of consumerism and business that pervaded the architectural profession during the late twenties and early years of the Depression. Many of the issues raised during the late teens re-emerged in its pages in a decidedly more aggressive manner. It was generally accepted that the economic problems of the building industry was caused by an imbalance between supply and demand, and the inability to control building costs. During the early years of the Depression, many in the building industry, including the architectural profession, anticipated a general recovery of business. It was thought that the maladjustments of previous years would be corrected and building would emerge as an efficient and industrialized part of a healthy economy. The notion of building economics as a rational basis of controlling production, prevalent during the twenties, was thus endorsed with continued fervor. Not surprisingly, the deterministic role of economics in the design process was a constant topic of architectural journals after the stock market crash. One of the more extreme examples of this position can be found in an article in American Architect titled "Economics-- The New Basis of Architectural Practice." Its central argument was that in the rationalized building industry that would emerge after the economic recovery, the status of the architect would depend on "how well he grasps the underlying factors and how well disposed he is to relinquish past conceptions of the profession."

---

<sup>210</sup> American Architect 137, Sept. 1930, p. 112. American Architect, however, could never completely attain the character or distribution of the popular magazines in Hearst's line up and was eventually merged with Architectural Record in 1937. Even its peak circulation of 8,913 in 1935 was less than half of Town and Country and Motor Boating which had the next smallest circulation among the Hearst magazines. That same year Good Housekeeping, and Pictorial Review each recorded circulation figures of 1,915,676 and 2,061,736. These figures are taken from Oliver Carlson and Ernest S. Bates, Hearst, Lord of San Simeon, New York; Viking Press, 1936, pp. 302-303. See also Fremont Older, William Randolph Hearst American, New York; D. Appleton, 1936.

Architecture as a fine art has limped along without being anchored to any base. Regardless of the type of building to be designed the prime objective in the architect's mind was beauty. And yet, when we survey the cumulative results of these efforts to make beautiful buildings, an honest analysis shows but a small proportion of creditable productions, a larger proportion of lifeless reproductions or adaptations that were not worth the money and effort expended on them and a predominance of hybrid buildings-- most of them speculative projects-- that have had little or serious study...Architectural standards for the United States cannot be set by the corporation that throws excess profits into monumental building nor by the wealthy man who builds a vast country estate. These are exceptions in the money and profit economy. Opportunities to maintain architecture as a fine art alone-- so far as wealth is concerned-- are steadily becoming fewer.<sup>211</sup>

In contrast to Forum's position during the late teens, which had accommodated the aesthetic prerogatives of the architectural discipline, this article, and many like it, directly challenged the traditional ideological framework of the architectural profession. The "standards" of architecture were now determined by a larger market. A radical revision of professional ideology and disciplinary concepts was deemed necessary if architecture were to solve "the problems that have hitherto fallen in the main to the speculative builder."<sup>212</sup>

In fact, American Architect advocated a policy of expanding the architectural market, and with it, a more aggressive program of professional advertising, of "selling architecture to the man on the street." This consciously ran against the position of the A.I.A. which condemned advertising. The A.I.A., in its official Circular of Advice

---

<sup>211</sup> Elmer Roswell Coburn, "Economics-- The New Basis of Architectural Practice," American Architect 143, Sept. 1933, p. 53. Other articles along this line include Arthur T. North, "Architects Must Study Building Economics," American Architect 136, Nov. 1929, and E.D. Pierre, "We Must Become Part of the Building Industry," American Architect 139, May 1931. After the Depression, similar articles began to appear in the Record. See Lionel M. Lebharr, "Architect or Building Economist?," Architectural Record 72, Dec. 1932, and a special section of Architectural Record 73, May 1933, titled "How Can Architects Develop Business?"

<sup>212</sup> Coburn, "Economics-- The New Basis of Architectural Practice", p. 53.



Relative to the Principles of Professional Practice, had clearly stated that "advertising tends to lower the dignity of the profession, and is therefore condemned." One specific market that American Architect targeted was the suburban middle class, in particular the housewife, who emerged during the twenties as the principal decision maker in domestic consumption, including the purchase of homes. Its sister magazines in the Hearst line up, such as House Beautiful and Good Housekeeping, also provided a forum for the "institutional advertising" that American Architect aggressively pursued. The journal, however, was opposed to "supplying" architecture through the merchandising of stock plans. What was to be sold was not material documents but architectural *service*. This position was stated clearly in an editorial titled "The 'Stock Plan' House Can Never Have a Soul."

Architects perform a public service to the individual and the community that is impossible for the sellers of mass production plans to give. It is fact and not theory that environment has an important bearing on individuals and their personalities. The house is the foundation of American home life, American independence, happiness and liberty. Environment conducive to this, must be kept intact for the individual and the community at large. The architectural profession can and is contributing to this public service...It is only through personal contact and study of the individual family that a house suited to its needs can be built to serve it. It can never be sold as a part of a "stock plan."<sup>213</sup>

The task of the profession was "to convince the public of the value of [ the architect's ] service...and to make it possible for the average American family to obtain the benefit of architectural talent."<sup>214</sup>

---

<sup>213</sup> Benjamin F. Betts, "The 'Stock Plan' House Can Never Have a Soul," American Architect 136, Oct. 1929, p. 19.

<sup>214</sup> Benjamin F. Betts, "Can We Sell Architecture to the Small House Buyer?," American Architect 139, March 1931, p. 21.

The definition of the disciplinary core of architecture as a "service" was of course not something new, and had emerged as a key issue of the late teens, and in particular, in the work of the Post-War Committee. This emphasis on professional service continued throughout the twenties, and after the Depression, was also evident even in a conservative journal such as Pencil Points. With the sudden collapse of architectural work after the Depression, Pencil Points perceived the situation as an opportunity to clarify the role and value of the architectural profession. In the January issue of 1930, it announced an active policy of "educating business men, and others planning to build as soon as conditions are right, concerning the nature and value of expert architectural service."<sup>215</sup> A few months later, it ran a special article called "The Value of the Architect's Service," where the following definition of the architect was provided.

The architect is, like the lawyer or the physician, a professional man. That means that he has nothing to sell you other than disinterested personal service. His knowledge of the art of designing buildings and of supervising their construction-- knowledge acquired by years of study and apprenticeship-- makes him an expert in his field and makes his assistance of value to you, who may know little or nothing of such matters. His ability to make knowledge effective in your service is his sole "stock in trade." He is not, as some people erroneously suppose, a dealer in blueprints or in plans and specifications, any more than a physician is a dealer in prescriptions. These things are simply instruments of service.<sup>216</sup>

This definition of the architect's function was once again formulated in antithesis to both the stock-plan and architectural drawing, centering it on the concept of service. It was

---

<sup>215</sup> "The Architect, The Draftsman and 1930!," Pencil Points 11, Jan. 1930, p. 1. As was the case of most businesses during the early months of the Depression, the architectural profession and the building industry perceived the fundamental economic crisis begun in 1929 as a temporary downward cycle in business, a "financial disturbance" that would be "exactly reversed" within a year. (Ibid.)

<sup>216</sup> "The Value of the Architect's Service," Pencil Points 11, July 1930, p. 569. The passage came under a section titled "What is an Architect?"

not the plan as a material document, but the customized process of *planning* that solved the "particular problem" of the client. Architectural documents were instruments and products, albeit important ones, of a general process in which *knowledge* was the productive and transformative agent. The locus of the discipline was shifted away from the material document, acknowledged as a commodified entity, towards a process made explicit to the client and to society in large. It was now the architect's specialized knowledge and his ability to make it "effective" that defined his discipline.<sup>217</sup> For architecture to enter into the consumer market, it had to relinquish the traditional ideology of autonomy, but at the same time, it was also necessary to identify a service that was distinctly part of the architect's jurisdiction.

---

<sup>217</sup> Ibid., p. 571. The pamphlet is itself a document that reveals the complexity of the ideological and discursive transformations of American architecture during the inter-War years. In a section that listed the services that were rendered by the profession, the architect's "ability as a planner" came first and was described in the following manner: "In the architect's training great stress is laid on the matter of planning efficiently. By studying the needs of all types of buildings and considering the ways in which they are used by the people occupying them, he gains specialized knowledge on this subject beyond that possessed by any other group of men. The architect knows how best to *apportion* the available space in a building between different parts so that each division or room will be adequate in size and convenient in shape. He knows how to *arrange* the different parts so that they can be used most easily and effectively and so that each occupies the most advantageous part of the entire scheme in relation to the others. The building he designs is easy to get around in and those use it do so with a minimum of wasted effort...Looking at it from the point of economy, this matter of planning is of the utmost importance. In the architect's plan every square foot of floor area is used to greatest advantage. His plan, prepared to solve your particular problem, will give you the maximum accomodation in a given total area, or, expressing it in another way, he can provide the required accomodations in a minimum of total floor space. Since every square foot unnecessarily added to a plan costs you money for which you get no return, is it not profitable for you to employ this man who is of all men most likely to know how to eliminate waste space?" (emphases are mine)

This passage is notable for the fact that a concept of planning that adopts the criteria of efficiency is presented as the primary function of the architect by the conservative journal. At the same time, it still retains the notion of planning as a manipulation of physical elements, i.e. as disposition and distribution, as arranging and apportioning. The rest of the list is as follows: 2) His knowledge of the materials and methods of construction, 3) His consideration for the aesthetic element in buildings and his buildings and his ability to introduce beauty into their design, 4) His knowledge of the legal requirements, etc., for buildings, 5) His knowledge of building contractors. The ability to make beautiful designs was considered the key difference between the architect and the engineer or the builder. However, beauty is justified as a commercial value; "there is no question but that the element of beauty in buildings has a commercial value over and above that of the more tangible so-called practical factors of convenience and structural integrity." (p. 574)

## 2) The New Editorial Policies of Architectural Journals II: Architectural Record and the Rationalist Project of the "Technical News and Research" Department

Since its inception in 1891, Architectural Record projected its role as a literary medium for cultivating an American tradition of architectural criticism; in the words of its inaugural editorial, to "build up 'a pile of better thoughts'" concerning architecture.<sup>218</sup> Record focused on essays concerning architectural history, criticism, and education, and unlike most periodicals of the time, was published in the smaller 7 by 9<sup>3</sup>/<sub>4</sub> inch book format. During the twenties, with the expansion and intensification of the activities of other publications within the F. W. Dodge Corporation, articles concerning housing and the building industry did appear more frequently. Record, however, maintained its traditional format and content until A. Lawrence Kocher ( 1885-1969 ) became the managing editor in 1928.

Kocher had been a contributing editor since August 1926 and a year later was hired as a full time member of the editorial staff. Since 1926, Kocher had served as head of the School of Architecture at the University of Virginia and was known primarily for his work in historical architecture. After his Beaux-Arts training at M.I.T., Kocher taught at Pennsylvania State College, where he began extensive studies of colonial architecture. In fact his series called "Early Architecture of Pennsylvania" was published in Record between 1920 and 22. In 1925, he was appointed Chairman of the Committee on

---

<sup>218</sup> Harry W. Desmond, "By Way of Introduction," Architectural Record 1, July-Sept. 1891, p. 6. Architectural Record was founded by the clothing manufacturer Clinton Sweet with the aid of the journalist David Croly, father of Herbert Croly. Sweet had begun his publishing career in 1868 with the weekly Real Estate Record and Builder's Guide. Harry W. Desmond ( 1863-1913 ), who had been a staff writer for Real Estate Record, was the first editor for Record. Desmond brought a literary thrust to the journal that would remain for several decades. In fact, one of his own novels, Raymond Lee appeared in several installments in Record. With Record's association with prominent writers such as Montgomery Schuyler, Russell Sturgis, A.D.F. Hamlin, and Herbert Croly, the journal was instrumental in forming an American tradition of critical discourse in architecture.

Historical Monuments and Scenery of the A.I.A. and eventually became a key figure in the restoration of Colonial Williamsburg. The circumstances of his employment at Record and the coinciding dedication to modern architecture is difficult to assess. Kocher's own recollections of the situation at Record are unclear, as he stated vaguely that "change was in the air."<sup>219</sup> At the time, Michael A. Mikkelson ( 1866-1941 ), who succeeded Herbert Croly in 1914, was still the chief editor. Mikkelson had already demonstrated his broad-mindedness by offering an unprecedented sum of \$ 10,000 for Frank Lloyd Wright's series "In the Cause of Architecture" in 1927.<sup>220</sup> By the following year, however, Kocher had clearly become the driving force of the journal. During his tenure as the managing editor of Record, which extended until 1938 when he returned to teaching, Kocher became a central figure in the development of modern architecture in the United States. By 1929, and certainly throughout the thirties, Architectural Record was

---

<sup>219</sup> Letter to Henry Chang, a student at Yale University, dated April 21, 1964. Colonial Williamsburg Foundation Library, A. Lawrence Kocher Collection, Box 1, Series 1. Kocher also does not give any credit to Davison or Lönberg-Holm. Though Kocher is unspecific about the role that Mikkelson played, correspondence indicates that Kocher had high regard for his predecessor who did not have any architectural training. He also writes in the same letter that "If I had an impelling part in the shift of architectural design away from tradition and toward the meeting of needs it was first in evidence in 1928 when I introduced a change in the subject matter in Architectural Record. I discarded the usual showing of buildings currently being erected by architects of America, accompanied by superficial description, along with praise, often supplied by a member of the drafting force of the architect's office." Philip Johnson pointed to Knud Lönberg-Holm rather than Robert L. Davison as the key figure, along with Kocher, in the transformation of Record. ( "Rejected Architects," Creative Arts 8, June 1931, p. 435. ) My own assessment is that Johnson overemphasized the role of the European Lönberg-Holm, who was known primarily for his entry to the Chicago Tribune Competition, which was praised by Henry Russell Hitchcock in his Modern Architecture in 1929. It is clear however, that Davison, recruited to head the Technical News and Research department, was senior to the rest of the young staff, and, with the exception of Kocher, had the most influence. Letters in Davison and Douglas Haskell's archives indicate that the Davison and Haskell became close friends during their brief stay at Record, while Lönberg-Holm and Theodore Larson, another young member of the staff recruited in 1929, often worked together in articles and groups such as Buckminster Fuller's Structural Studies Associates. It would seem that Lawrence Kocher, with the backing of Mikkelson, led a group of young foreign born and American architects, planners, and critics-- Robert L. Davison, Knud Lönberg-Holm, Theodore Larson, Douglas Haskell, Henry Russell Hitchcock and his partner in practice Albert Frey-- in transforming Record into a dynamic center in the development of modern architecture.

<sup>220</sup> Letter from Lawrence Kocher to Judd Payne, Publications Director of Architectural Record ( April 10, 1959. Kocher Collection, Box 1, Series 1. ). The Record articles were part of a revival of Frank Lloyd Wright's career during the late twenties and thirties, which has recently been studied in Donald Leslie Johnson, Frank Lloyd Wright versus America, The 1930s, Cambridge, MA; MIT Press, 1990.

acknowledged as the forerunner among the major periodicals in its advocacy of modernism.<sup>221</sup> Kocher maintained a practice with European emigres; with Gerhard Ziegler between 1929 and 30, and for several years, with Albert Frey, a Swiss architect who had worked with Le Corbusier in Paris. Though the work of his small office was limited, some startling works of modern architecture were produced.<sup>222</sup>

The changes in Record were introduced in a series of editorials, which appeared in January 1928, and in the January and November issues of 1929. They are, in my estimation, seminal texts in understanding the development of modern architecture in America. The first editorial coincided with a change in Record's page size to the standard 8 1/2 by 11 inch format. If Architectural Forum had reduced its page size to meet the requirements of standardization, Record had to enlarge it. In addition, the journal was provided with a simplified layout and typographical design by the eminent Frederic W. Goudy. In elaborating the rationale for the new format, an important architectural theme that would run throughout Record during the thirties was first intimated-- namely the problems of standardization and mass production.

---

<sup>221</sup> One of the most revealing documents that indicates the degree to which Record became identified with modern architecture is a lengthy letter from Douglas Haskell to Lawrence Kocher, when the former was attempting to land a position in Record ( March 23, 1929, Haskell Papers, Avery Library Special Collections ). At the time, Haskell was a staff editor of Creative Art, and had written several articles on modern architecture, the most notable being a review of Le Corbusier's Towards a New Architecture and an evaluation of Frank Lloyd Wright. In a later recollection, Haskell wrote to Kocher that Lewis Mumford had suggested that he look into Record ( August 26, 1958, Kocher Collection, Box 1, Series 1. ). The letter of March 23, 1929 was a summary of Haskell's modernist positions on various issues of housing, urban planning, and construction. As I have already mentioned, the role of Architectural Record has received little attention. Kocher and Haskell, in their latter years, justifiably bemoaned the lack of recognition of their role in the development of modern architecture in the United States.

<sup>222</sup> A short biography of Kocher can be found in Lawrence Wodehouse, "Kocher at Black Mountain." JSAH 41, Dec. 1982, as well as in his introduction to Cynthia Z. Stiverson Architecture and the Decorative Arts. The A. Lawrence Kocher Collection of Books at the Colonial Williamsburg Foundation, West Cornwall, CT; Locust Hill Press, 1989. His best known work, designed in collaboration with Albert Frey, was the Aluminaire house, which is extensively documented in Joseph Rosa, Albert Frey, Architect, New York; Rizzoli, 1990, and "The Aluminaire House, 1930-31," Assemblage 12, April 1990.

The page-size is plainly a concession to the universal demand for standardization. Having determined to accept the unit measure commonly employed in the professions and industries ( paper making, the manufacture of filing cabinets and many others ) which react upon the publishing business, we ask no one to admire the dimensions of the page. Our problem was in a modest way similar to that of the architect who undertakes to design specific character and distinction in a building which is really an assemblage of standardized materials and fixtures. It may well be-- has indeed been argued-- that the proper aim of the movement toward modern expression in architecture is to invest buildings assembled from trade catalogues with a feeling of coherence, individually and collectively.<sup>223</sup>

Mikkelson went on to remind his readers of the parallel between the founding of Record and the opening of a period in which a "rich and copious architectural convention" was established by luminaries such as Sullivan and McKim, Mead and White. According to Mikkelson, this period had come to a close with World War I. Albeit in an unsure tone, he affirmed that American architecture was about to venture into a "new chapter."

There will probably be something about ferro-concrete, about architectural polychromy, about a more effective direction and use of the allied arts and crafts. Possibly the impulse originated by Sullivan, developed by Frank Lloyd Wright and amplified abroad will bring repercussions from Europe. No doubt standardized shapes and machine-made surfaces will find their logical place in design. That there will be movement, enterprise, new feeling is clear from the evidence we-- more particularly, my colleague A. Lawrence Kocher-- have taken pains to bring together in the present number.<sup>224</sup>

Beginning with the January 1928 issue, emphasis was indeed placed on modern architecture. In January, Henry-Russell Hitchcock began his reviews of books and foreign periodicals on modern European architecture. In addition, a series of three

---

<sup>223</sup> Michael A. Mikkelson, "A Word about the New Format," Architectural Record 65, Jan. 1928, p.1.

<sup>224</sup> *Ibid.*, p. 2.

articles on modern architecture, later integrated into his Modern Architecture: Romanticism and Reintegration, were also published in 1928. Frank Lloyd Wright continued his series called "In the Cause of Architecture" begun in 1927, with another set of nine articles in 1928; under the same title but more elaborately illustrated in the larger size format.

In spite of these changes, Mikkelson had made no claim to a break in content in his 1928 editorial, stating that "the new form implies development rather than change of editorial aim." In the following year, however, a programmatic formulation of a new editorial policy integrated with an explicit modernist stance was put forth. Like the editorial of 1928, these texts were also signed by Mikkelson. However, in contrast to the tentative tone of the first editorial, "Two Problems of Architecture," which appeared in January 1929, and the follow-up editorial in November, "Expansion of the Architectural Record for 1930," read almost like modernist manifestos ( See Appendix A for the complete text of "Two Problems of Architecture." ). In addition, when one considers the ensuing transformations of the journal, and Kocher's later recollections, it would seem that these editorials were not written solely by Mikkelson. Though it is difficult to confirm, I would attribute the authorship of the latter two texts to the editorial staff, in particular to Kocher and Robert L. Davison, who had just been hired to the editorial staff.

As its title indicates, "Two Problems of Architecture" began by identifying what Record believed to be the two fundamental issues that contemporary architecture faced:

(1) how to adjust design to the conditions created by mass production and (2) how to adjust the general practice of architecture to the conditions created by modern technics in the useful arts, including commerce and industry, which tend to segregate architects into groups of specialists-- hospital architects, school architects, bank architects and so on.<sup>225</sup>

---

<sup>225</sup> Mikkelson, "Two Problems of Architecture," Architectural Record 66, Jan. 1929, p. 65.



Record thus placed in the forefront two issues-- mass production and institutional planning-- that were traditionally at the margins of architectural discourse. They were now identified as an unavoidable set of conditions that could disrupt the unity of the architectural discipline. Underlying these new conditions of architectural practice, however, was a *positive* force that extended to virtually all institutions of society.

Both problems derive from the same cause, which is the distinguishing and governing fact of modern life, namely the extension of the research method of science-- observation, hypothesis, deduction, experimental verification-- to the useful arts from education and medicine to commerce and industry.<sup>226</sup>

The "two problems" of mass production and specialization were thus disruptive forces of the traditional framework of architectural knowledge, yet at the same time, fundamental aspects of modernity. As a "procedure for the discovery of principles," the research method provided the basis for adjusting architecture to the conditions of mass production and specialization. For Record then, the solutions to these potentially disruptive problems were to be found in the nature of the problems themselves.

After this initial statement of the problematic, the editorial moved on to discuss each problem separately. The issue of mass production came first, and was introduced under the sub-title of "Modern Design." Thus from the outset, the integration of mass production, the so-called research method, and architectural modernism was presented as a central theme. In other words, modern architecture was to be sought out through the principles of scientific procedure outlined at the beginning of the editorial. "Illogical design," on the other hand, was considered a result of "capricious hypothesis," and "abstract beauty" merely a mythological element in art. The language of the editorial was strikingly positivistic. It insisted that design should move away from the "immaterial

---

<sup>226</sup> Ibid., p. 65.

world of archetypes" and be "based exclusively upon observed facts-- upon phenomena evident to the senses."<sup>227</sup> Yet it would be inaccurate to read "Two Problems of Architecture," as Robert Benson has, as "something close to the *neue Sachlichkeit* of European modernism, the new objectivity of functionalism which emerged as a by-product of the reaction against romanticism and eclectic style."<sup>228</sup> The editorial was an extremely inclusive proposition which attempted to incorporate the formalist concepts of composition discussed in the previous chapter. Observe, for example, the following description of how this supposedly scientific procedure would work in architecture.

A hypothesis in this connection is any supposition made in order to deduce from it principles of design that will accord with the facts of standardized fabricated materials and manufactured equipment and with the trade operations of assembling and putting them together in the construction of buildings. Experimental verification of the principles deduced consists in applying them to designs for buildings. If the buildings receive general approbation from informed critics, say, architects, the principles have been practically verified, and you have modern design or modern architecture...The purpose of mass production is economy; hence design, in order not to defeat this purpose, should achieve beauty through mass, grouping, proportion, and other fundamentals of composition. Or, fabricated materials have beauty of color and texture; therefore, adapt design to the decorative qualities of materials.<sup>229</sup>

These propositions illustrate Record's attempt to reintegrate the abstract formal principles with the functional considerations of economy, construction and building material. The

---

<sup>227</sup> Ibid., p. 65.

<sup>228</sup> Robert Benson, "Douglas Putnam Haskell," p. 143.

<sup>229</sup> Mikkelson, Ibid., p. 66. This attempt to reformulate the formalist principles into a rationalist framework was reiterated in Michael A. Mikkelson, "Expansion of the Architectural Record for 1930", Architectural Record 66, Nov. 1929: "Not a partizan of any single school of experimenters, The Record nevertheless assumes that the keynote of modern design is to be found in all those experiments which frankly employ the artistic qualities inherent in machine-made units, and achieve their effect through an economy of line, form and color. An interest in modern design thus soundly based is not incompatible with continued respect for principles of composition established and embodied in the past." ( p. 502. )

ambivalence of the editorial is not surprising when one considers the diverse personnel of Record's editorial staff.

However unconvincing the arguments of the editorial may seem, Record retained a sense of having made a radical break in design. The November 1929 issue carried another editorial that reaffirmed its earlier position, claiming that

Today's transition in design is not merely the customary rejection by a new generation of the authority of the old. It is a radical departure occasioned by profound industrial and social adjustments.<sup>230</sup>

Indeed, the discussion on mass production marked one of the first programmatic statements in American architecture that conceived the discipline in direct relation to industrial standardization. In contrast to the 1906 edition of Sweet's, which had characterized the "catalogue problem" as one of simply organizing textual material, standardization was now considered a central architectural issue. Record had in effect provided a definition of modernism that shifted it away from the conventionalist framework of the previous decade.

Modernism, in so far as it is vital, is an attitude of mind-- the scientific attitude, which declines to accept facts statements that cannot be verified by the senses and which uses a certain method of investigation-- observation, hypothesis, deduction, experimental verification.<sup>231</sup>

The central task of the architect in becoming modern was defined not as the conscious development of an appropriate style, but as the acquisition of a rational outlook on which to base architectural design. While accepting the formalism of the 1920s, the editorials hoped to provide a kind of material necessity to its principles. By linking architectural

---

<sup>230</sup> Mikkelson, "Expansion of The Architectural Record for 1930," p. 502.

<sup>231</sup> Mikkelson, "Two Problems in Architecture," p. 66.

form with what were perceived as fundamental aspects of modernity, Record attempted to negate the conventionalism of the traditionalists and the arbitrary fashions of the modernists.

The discussion on the second problem concerning the "specialization of practice" was more straightforward. Record believed that because of the "complexity of functional planning" in modern buildings, the profession was being segmented according to the specialized knowledge required of each building type. In response to this specialization, and "acting upon the supposition ( hypothesis ) that progress in architecture depends upon a more extensive and accurate knowledge of modern planning and construction," Record inaugurated a separate department called "Technical News and Research ( T.N.R. )."<sup>232</sup> The department, which was inaugurated in the first issue of 1929, was devoted entirely to issues of planning and construction. Robert L. Davison was hired as "technical director" to head this separate section, and in the following months, Theodore Larson, Knud Lönberg-Holm and Douglas Haskell were added as research staff. In the November 1929 editorial, the role of the T.N.R. was reiterated.

In the case of any new building proposed, there are two groups of technical, economic and functional considerations governed by applied sciences that require study, namely, those common to the type of building and those peculiar to the individual building. The first group it seems clearly the duty of the architectural press to investigate searchingly and continuously for the benefit of the majority of architects who are not in a position to specialize.<sup>233</sup>

Record projected the new department as a fundamental departure from traditional architectural discourse, the kernel of an "entirely new editorial policy for an architectural

---

<sup>232</sup> Ibid., p. 66.

<sup>233</sup> Mikkelson, "Expansion of The Architectural Record for 1930," p. 501.

magazine."<sup>234</sup> T.N.R.'s articles would not just publish data adopted from scientific developments outside of the profession but be involved in "original research." It would cultivate the "research method" common to the specialized knowledge required in the design of modern buildings, thereby constructing a rational foundation for the discipline. The isolation of rationality, of an explicit method, was considered a way of reintegrating the architectural profession with the needs and values of society. This was possible because original research presupposed a rational conception of the "underlying economic and social factors in architecture and building."<sup>235</sup> In other words, the industrial and institutional structures of capitalism were considered to have a rational epistemological base.

T.N.R. was thus presented as the centerpiece of the new Record. The department "symbolize[d]" its modernist policy and provided a concrete solution to the issues raised at the beginning of "Two Problems in Architecture": "How to adjust design to machine technics, in our opinion, is not a problem of disembodied, abstract art, but a problem inseparable from and conditioned by modern planning and construction."<sup>236</sup> The early articles in the T.N.R. were under the editorial supervision of Robert L. Davison, who also contributed numerous articles until his departure in June 1931 to become director of the John B. Pierce Foundation. From the T.N.R.'s first installment on swimming pools in the January 1929 issue, it sounded off a new approach to architectural design.<sup>237</sup> The foundation of architectural design was to depart from precedent, not only in the sense of

---

<sup>234</sup> "Research Applied to Architecture: A New Editorial Policy," second page. Unpublished manuscript submitted by Architectural Record to the competition for the ABP medal for outstanding editorial service. Harvard University, Loeb Library Special Collections.

<sup>235</sup> *Ibid.*, second page.

<sup>236</sup> Mikkelson, "Two Problems in Architecture," p. 66.

<sup>237</sup> As the director of the John B. Pierce Foundation, Davison concentrated on problems of housing and particularly pre-fabrication. Davison's papers were in the Loeb Library Special Collections, Harvard University, but have been missing since the summer of 1992.

the style and appearance of the buildings, but more importantly, as a source of knowledge on planning.

At this time, there is a distinct opportunity for creative thinking by architects who, in the design of swimming pools, have followed precedent too closely. This study attempts to approach an architectural problem by the determination of what is desirable practice in contrast with what is common practice.<sup>238</sup>

Architectural precedent, which had been a generator of new solutions in the academic discipline, was now seen as hampering invention and creativity.<sup>239</sup> For instance, in a discussion of prisons, Davison argued that design innovations were obstructed because both prison authorities and architects relied on pre-conceived and outdated plans. The design process should thus begin with purely verbal statements of requirements "presented not in terms of definite plans and materials, but in terms of performance":

Let [prison authorities] state not that they want a cell block within a building, but that they want a sleeping surface from which escape is practically impossible; not that there shall be mechanical ventilation, but that there shall be good air for every prisoner. Then let the solution be worked out.<sup>240</sup>

The concept of "performance" is of course a mechanical analogy between architectural design and the design of tools and machines. In the ideal process of mechanical design, the engineer begins by formulating the functional requirements of the machine, i.e. its

---

<sup>238</sup> A. Lawrence Kocher and Robert L. Davison, "Swimming Pools," Architectural Record 65, Jan. 1929, p. 68.

<sup>239</sup> Similar sentiments can be found in the planning articles of Architectural Forum throughout the thirties: "The blind following of a precedent without a thorough analysis of its pertinence to the particular problem to be solved has all too frequently caused a perpetuation of stereotyped planning rather than progress toward more efficient solutions of the problem." ("The Planning of Public Buildings," Architectural Forum 59, Sept. 1933, p. 164. )

<sup>240</sup> Robert L. Davison, "Prison Architecture," The Annals of the American Academy of Political and Social Science 157, 1931, p. 34.

"standard of performance."<sup>241</sup> Likewise, the T.N.R.'s project was to provide "*Standards for Design and Construction*"-- a general, if not universal, level of architectural knowledge.

Following the claim that the T.N.R. would "*systematize* the latest accredited technical, economic and functional building-type information," its articles were methodically organized.<sup>242</sup> Unlike the continuous essay-like narrative of the planning articles of the twenties, T.N.R. articles were carefully divided into several categories. A typical study would be comprised of the following:

- 1) a combined checking and specification list, (2) a compilation of functional data originating in varied fields-- e.g., medicine, athletics, education, (3) a study of current practice in structural and other branches of engineering, (4) an analysis of material and equipment, (5) an analysis of costs and (6) a selected bibliography.<sup>243</sup>

Particularly notable is the way in which the second category of "functional data" was presented. First of all, the T.N.R. was very deliberate in specifying its references ( usually recompiled in the bibliography ) and contributors, who were usually engineers, management experts, and specialists associated with the building type being studied. This stands in contrast to the pre-1930 planning manual or article, which rarely provided reference sources for their prescriptions. Secondly, an essential part of the data was specified as a general systems of relations, often taking the form of charts and equations.

---

<sup>241</sup> John Gaillard, *Industrial Standardization, Its Principles and Application*, New York; H.W. Wilson Co., 1934, p. 12. According to this manual, one of numerous expositions on industrial standardization published during the early decades of this century, "the design of a product of the mechanical industry" could be divided into "functional design" and "production design.": "Functional design is concerned solely with the manner in which the product is expected to comply with its performance requirements. Consequently, the type of standard most important in functional design is the performance standards which specifies the limiting conditions of the service the product is expected to give in actual use." ( p. 93 )

<sup>242</sup> Mikkelson, "Expansion of *The Architectural Record* for 1930," p. 501. ( my emphasis )

<sup>243</sup> *Ibid.*, pp. 501-502.

For example, the second T.N.R. installment on garages presented a formula for calculating the relation between land costs and the "minimum number of stories for reasonable profit," followed by chart for conducting a "garage survey" [ tables 6 & 7 ]. The survey was considered to be specifically an "architectural problem," and had to be conducted by the architect

in order to determine those economic factors that govern garage design in a specific locality. This study should determine the type of building, number of stories, and character of design.<sup>244</sup>

What was essential to garage planning, was less the empirical data specific to each kind of project, than its rules and methods applicable to different situations. If it was previously enough for manuals to specify prescriptive requirements in the form of an imperative sentence and quantified dimensions-- such as "The stairs in a hospital must be at least 3 ft. 8 in. wide in the clear and have large landings to afford better passage for a hand stretcher."<sup>245</sup>-- it was now necessary to discuss systematic rules, laws and formulae concerning the proper design of stairways.<sup>246</sup>

It was then within the jurisdiction of the architect to intervene into the program by transforming a merely quantitative and a formally biased discourse into a narrative of general institutional and technical knowledge. This did not mean that the program should be authored by the architect. Davison stated quite clearly, to use the instance of prison

---

<sup>244</sup> "Garages," Architectural Record 65, Feb. 1929, p. 179.

<sup>245</sup> Eugene Clute, The Practical Requirements of Modern Buildings, New York; Pencil Points Press, 1928, p. 15.

<sup>246</sup> See, for example, George E. Eichenlaub, "40% of Fall in Houses Occur on Stairways. Old Rules Should be Discarded for Comfort and Safety," American Architect 137, Jan. 1930, whose recommendations were disputed a few months later in H. Weaver Mowery, "Material and Proportions are Both Factors in Stair Safety," American Architect 137, July 1930. Another set of design standards were provided by Ernest I. Freese, "Correct Proportioning of Stair Treads and Risers," American Architect 143, July 1933, and "Walkways, Stairways, Climbways," American Architect 144-145, March 1934. Lawrence Kocher and Albert Frey also published an article on stairway design in "Stairways, Ramps, Escalators," Architectural Record 69, July 1931.



design once again, that the architect could "scarcely be expected to be a penal expert."

The architect's role was clearly one of *translating* the program:

Let the ends to be achieved be clearly stated in terms of what the penologist wishes to accomplish with the human material at hand. Then let the architect translate these purposes into buildings.<sup>247</sup>

This may seem to approximate the academic conception of the architectural program, exemplified by Julien Guadet's statement that the architect was the "servant of a programme which does not emanate from him; for it is the legislature, preceded by the moralist, who says what a prison must be." However, as Peter Collins has noted, Guadet's program was based more on the common sense of the client rather than any notion of scientific research.<sup>248</sup> Davison's interest, on the other hand, was exactly with research-- with what the Record editorials had called the "research method." The kernel of architectural design centered on the "method of approach": "the method of working out rationally an architectural problem, once the performance requirements have been clearly stated."<sup>249</sup> Davison claimed that, unlike commercial and industrial projects which provided the architect with a complete program, there was a lack of consensus among penologists on the fundamental purpose of prisons. In this situation the architect, "rather than merely visiting a great number of prison buildings," should be thoroughly acquainted with "modern thought" in penology and, furthermore, insist on starting from a scientifically based program that was unbiased by existing types of architectural solutions. Davison characterized this as the "functional" or "rational approach" to

---

<sup>247</sup> Robert L. Davison, "Prison Architecture," Architectural Record 67, Jan. 1930, p. 35.

<sup>248</sup> Guadet's statement was quoted by Peter Collins in Changing Ideals in Modern Architecture, Kingston; McGill-Queen's Univ. Press, 1965, p. 228-229.

<sup>249</sup> Davison, "Prison Architecture," p. 70.

architectural design.<sup>250</sup> Thus we see in Davison's articles a form of rationality in design, to use Bill Hillier and Adrian Leaman's expression, which was "virtually equated with purging the mind of preconceptions, to make way for a problem solving method which linked procedure to *a field of information*."<sup>251</sup>

It should be stressed that Davison's brand of functionalism did not consist of the belief that architectural form should be determined by the social and technological program; nor did it advocate any particular style or the elimination of ornament. He regarded issues of form and style to be primarily within the client's province of taste. For instance, in the design of a country house, in comparison to a commercial project, it is the client's ideas that must receive first consideration.

When building a commercial structure the client really desires a building which will give the greatest economic return on the money invested either directly or through the advertising value of the design; he thinks he knows how this may be accomplished, but it is up to the architect to develop an efficient plan and its best architectural expression. With the country house generally quite the reverse is true-- the client should be encouraged to express himself.

In contrast to the design of prisons, the client was invited to study magazine illustrations, "to discover his own taste and wants prior to the ultimate time for such decisions."<sup>252</sup> Among the specific tasks for the architect in this kind of project, he must analyze the correlation between the factors involved in determining the cost of the whole project and the size of the house; a technique called the "cubic foot price method" which Davison

---

<sup>250</sup> Ibid., p. 70. The terms "functional approach" and "rational approach" itself appear in the Annals of the AAPS 157, 1931, p. 35 & 39.

<sup>251</sup> Bill Hillier and Adrian Leaman, "How is Design Possible?," Architectural Research and Teaching 3, 1974, p. 4. ( my emphasis )

<sup>252</sup> Davison, "Problems of Country House Design and Construction," Architectural Record 66, Nov. 1929, p. 486.

credits Frederick Ackerman in helping him develop.<sup>253</sup> In an article titled "Effect of Style on Cost," an award winning house was used to analyse the estimated cost of the same house plan executed in five different styles-- from the English Cottage Type ( \$30,000 ) to the Colonial Type ( \$24,000 ) [ fig. 50 ].<sup>254</sup> Based on this study of the cost limitations and plan requirements outlined by the client, the architect is able to "give the final decision on the size [of the house] that is possible within the price limit as well as the style."<sup>255</sup> In effect, Davison brought the break down of stylistic conventions in architecture to one of its logical conclusions. Style was stripped of cultural association, and was treated as something that the client would decide on his or her financial situation and desires. The traditional role of the architect as cultural authority was relinquished as Davison accepted, without remorse, the complete commodification of style.

Davison's functionalism thus maintained a complementary relation with the demands of consumerism. Yet at the same time, rationality was isolated from its instrumental relation with commerce and formulated as a self-sustaining force of modernity. In this framework of architecture as a scientifically based discipline, there is a necessary shift away from the notion of architecture as a formal discipline. For Davison, within a sequential process of design, there was a clear epistemological break located in the plan. Planning could not be part of a visual experience super-imposed with formal rules; it was essentially a social, economic and technical discipline. Formal issues such as style were then a *residue* of functional planning that linked architecture with the arbitrary tastes of the consumer market. This programmatic attempt to base the architectural discipline on a rationalist epistemology that was detached from, and yet complicit with the interests of business, linked Record with the more explicitly consumerist projects of American Architect and Architectural Forum. The rationalist

---

<sup>253</sup> Ibid., pp. 486-489.

<sup>254</sup> Davison, "Effect of Style on Cost," Architectural Record 65, April 1929, pp. 402-409.

<sup>255</sup> Ibid., p. 402.

project of Davison and Record's T.N.R. shared with the proponents of the ideology of "architecture as business," the burden of defining a distinct body of knowledge, skills and professional service within the logic of the consumer market. These projects constituted a fundamental rejection of the formulation of the architectural discipline as an autonomous system in relation to the economic and political conditions of modern society. They attempted to shift the "world" of architecture away from its internal and historicist nature, while retaining the unity of a discipline unmediated by notions of architectural representation. Architecture was to participate directly in modern society, which was perceived, in contrast to the ideological formations of academic professionalism, to have an underlying rational structure.

The Record editorials were thus confronting the issue of the institutional definition of architecture itself. The description of the problematic situation in many ways followed the crisis theories of the late 1910s. The diagnosis and prescription, however, were different from the strategies of the 1920s already discussed. Record's departure from previous attitudes towards industrialization and planning was that they were no longer considered external conditions. They were problems *internal* to the discipline, factors that permeated the process of design. In the linear sequence of the design process established during the twenties, planning was considered a function of research and the program. It was part of the architectural discipline, in so far as the programmatic requirements set up by management experts have to be fulfilled in the latter design stages. However, when planning acquires its own corpus of techniques and objects, it takes on the character of a method independent of the individual architectural program, a method integral to the discipline of architecture. In effect, the architectural program and its relation to the design process becomes an object of systematic inquiry. Planning involves not only the acquisition of knowledge and the process of fulfilling the program, but is an intervention into the program; the program not in the sense of individual requirements of

a specific project, but as the locus of a system of architectural knowledge. This formulation maintained the individuality of each project while opening the discipline to a new domain of architectural knowledge. As Record had claimed, this constituted a form of modernism, a way of becoming the subjects of the modern process of architectural production.

### **3) Frederick Ackerman and the Logic of Regressive Rationality**

If the rationalist project of Davison and the T.N.R. confirmed the conditions of capitalist production and consumption, this section deals with another form of rationality that involved a radical critique of capitalism. I will examine the architectural thinking of the architect Frederick Ackerman ( 1878-1950 ), who produced a significant body of writing and research after World War I that was profoundly influenced by Thorstein Veblen. Like Veblen, who is considered to have pioneered an institutional framework of economic analysis, Ackerman's work contributed to an institutional critique of architecture. In spite of his substantial body of writing on architecture, housing, city planning and economics ( see separate section on Ackerman in Bibliography ), he has received little attention by historians, due in part to the conventional nature of his architectural designs. Ackerman is best known as a member of the Regional Planning Association of America ( R.P.A.A. ) and the principal collaborator of Clarence Stein and Henry Wright in the design of Sunnyside and Radburn. The architects of the R.P.A.A. consisted of Stein, Wright, Charles Harris Whitaker, Robert D. Kohn and Ackerman. Along with Lewis Mumford and Catherine Bauer, they constituted what may loosely be

called the "architectural" members of this informal group formed in 1924. Ackerman is invariably mentioned by commentators of the R.P.A.A. as a disciple of Thorstein Veblen and the most radical thinker among the architects; however, little has been provided beyond these remarks. Despite the fact that the R.P.A.A. did present a coherent group ideology, Ackerman developed a body of thinking that cannot be subsumed within this conceptual framework. There were significant differences in the thinking of each member, and it would be erroneous to portray Lewis Mumford, being its most vocal member, as representative of the R.P.A.A.'s architectural concerns.<sup>256</sup> I do not intend, nor is it possible in the present context, to provide an extensive overview of each individual's position. With the exception of a brief comparison with certain aspects of Mumford's writings, the focus will be on Ackerman's Veblenian thesis of architecture. I shall examine it in terms of how it addressed the issue of architecture's changing role in society.<sup>257</sup>

By the mid-1910s, well before his involvement with the R.P.A.A., Ackerman was an established and respected architect in New York. After graduating from Cornell and two years study at the Ecole des Beaux-Arts, he entered into a partnership with Alexander Trowbridge in 1906. The latter, also a graduate of the Ecole, was a prominent architect and professor who had been dean of the College of Architecture at Cornell and would later become the president of the Architectural League of New York. Though his tenure seems to have been limited, Ackerman was appointed lecturer in the "Principles of Architecture" at Columbia in 1915.<sup>258</sup> During this same period, he began to be

---

<sup>256</sup> Roy Lubove, Community Planning in the 1920s. The Contribution of the Regional Planning Association of America, Pittsburgh; Univ. of Pittsburgh, 1963, pp. 42-43, and Francesco Dal Co, "From Parks to the Region: Progressive Ideology and the Reform of the American City," in Giorgio Ciucci, et al., The American City. From the Civil War to the New Deal, 1973 translated Cambridge, MA; MIT Press, 1979, p. 236.

<sup>257</sup> I have avoided the phrase "theory of architecture" because Ackerman uses "theory" in a specific manner that will be clarified later in the section.

<sup>258</sup> The appointment is reported in Susan M. Strauss, "History III, 1912-1933," in Richard Oliver, ed., The Making of an Architect. 1881-1981. Columbia University in the City of New York, p. 91.

increasingly concerned with city planning, housing and social issues related to architecture. His writings on architectural education and city planning during the mid-teens were imbued with the Progressive ideals of civic responsibility and democracy. An admirer of John Dewey and Walter Weyl, Ackerman hoped to bring architecture, planning and housing in harmony with the larger goals of social reform. His involvement with city planning laws, War housing, and the reforms of the A.I.A., in particular the work of the committee on education of the Post-War Committee, can all be understood within this progressivist framework.

Ackerman had already begun to shape his critical view of the Beaux-Arts system several years before the crisis of the War period. Directly inspired by John Dewey's notion that art involved "an idea, a thought, a spiritual rendering of things," Ackerman pursued the issues of education and practice in terms of the expression of ideals, of architecture as a "spiritual structure."<sup>259</sup> In this respect, he maintained the academic ideal of architecture's role of transcendent representation. However, for Ackerman, it was not aesthetic values such as beauty that had to be expressed, but the whole culture of the community. He rejected the notion that the expression of society's ideals was achieved by distancing the discipline from its realities. As we have already encountered in a passage from his report to the Post-War Committee ( see above p. 68 ), he centered his often harsh criticism of the academic system on its isolation from the economic, physical and political conditions of society. According to Ackerman, the aspiring architect just out of school finds out that in office practice, "the entire set of values by which he was taught does not apply."

---

<sup>259</sup> Frederick Ackerman, "The Architect's Part in the World's Work," *Architectural Record* 37, Feb. 1915, p. 150. The article was a talk given to the students and faculty of his alma mater, Cornell, and is filled with exhortations to civic service and democratic ideals. The phrase "the World's Work" was in all likelihood adopted from the reformist magazine of the same title, edited by Walter Hines Page.

In the new problems, the "conditions" are to him restrictions; there is even a sort of arrogance about him when he attacks a real problem. In it he sees not the possibilities, but the hampering conditions. His inspiration is to be found in the past, and there he goes for his material; and his endeavor is to warp the conditions of the problem into standard forms and arrangements...*I assert without hesitation that [ students of architecture ] do not look to the conditions of the present for their inspiration; they do not recognize these as the actuating forces in architecture.*<sup>260</sup>

The problem of architecture's isolation from society lay in the nature of the program and its relation to the design process. Thus, instead of presenting to students, programs that were "rigidly set and unrelated to life and existing conditions," he proposed that they be required to participate in its creation: "*Focus his attention upon the social ideal of the program, rather than upon a physical compromise established by tradition.*"<sup>261</sup>

Specifically, this meant the widening of the concerns of the program to include problems of transportation, sanitation, housing and the natural landscape. Within the educational curriculum it meant that architecture and art be taught as "elements of town planning." It should be stressed, however, that Ackerman's criticism of academic education at this time was not a rejection of the system as a whole. In fact he did not hesitate to praise it as a "splendid system of logical thought in regard to the subject of plan."<sup>262</sup> His criticism was thus limited to that aspect of the system which provided the link to society's goals and values.

Ackerman's idealism of the teens would then seem consistent with the program of the R.P.A.A. The architects in the group, who were a generation older than Mumford, shared a set of common experiences and goals in housing and city planning during the

---

<sup>260</sup> Ackerman, "The Relation of Art to Education. II. Architectural Schools," *JAIA* 4, June 1916, p. 235. ( Ackerman's emphasis )

<sup>261</sup> *Ibid.*, p. 237. ( Ackerman's emphasis )

<sup>262</sup> Ackerman, "The Battle with Chaos," *JAIA* 3, Oct. 1915, p. 446.



1910s and twenties. During this time, their efforts often coalesced into organizational activities, the R.P.A.A. being one of the more informal of several institutional settings. Ackerman, together with Kohn and Whitaker, were active in the reforms of the A.I.A. during the late teens. All three were on the executive council of the Post-War Committee, and in the case of Ackerman, served as chairman of its Committee on Education. Kohn, Ackerman, Stein, and Wright were also key participants of the War Housing, while Whitaker, as the editor of the Journal of the A.I.A., was influential in formulating its design and planning principles.<sup>263</sup> Their concerns for housing and city planning were developed further through the A.I.A.'s Committee on Community Planning ( C.C.P. ) formed in 1919. Roy Lubove has correctly pointed out that the C.C.P. and R.P.A.A. were linked by ideology and personnel, the latter carrying out the programs outlined in the C.C.P. through limited dividend housing projects.<sup>264</sup> The C.C.P. reports during the twenties, to quote Lubove, outlined a "new institutional framework for city building, enlarging the role of the architect, planner and welfare expert in determining urban physical structure and social organization."<sup>265</sup> The architect was projected as part of a body of "community planners" which would place the whole environment "into the province of social design and control."<sup>266</sup> Ackerman and the architectural wing of the

---

<sup>263</sup> The housing department of the U.S. Shipping Board's Emergency Fleet Corporation ( EFC ) was officially called the Department of Passenger Transportation and Housing, with A. Merritt Taylor as its Director, and Robert D. Kohn as Chief of the Production Division. Ackerman was Chief of the Design Branch of the department, while Wright worked primarily as a planner in the EFC. It was Kohn, already professionally associated with Stein, who brought Wright and Stein together. Though Stein and Whitaker did not participate directly in the design of War villages their intellectual in-put was clearly present. In particular, Journal of the AIA, under Whitaker's editorship, provided a forum for an intense debate on housing and urban issues during the late teens and early twenties. Under the auspices of the Journal, Ackerman conducted a study in England of its war housing, which resulted in a series of articles in the Journal that was later published under the title The Housing Problem in War and Peace, Washington, D.C., 1918.

<sup>264</sup> Lubove, Community Planning in the 1920s, pp. 38-39.

<sup>265</sup> *Ibid.*, p. 44. The most important document of the CCP was the Report of the Committee on Community Planning, Proceedings of the 58th Annual Convention of the AIA, 1925, which combined the reports of the previous year and was reprinted in pamphlet. See also the Committee's report for 1927 at the 60th convention.

<sup>266</sup> Ackerman, "Where Goes the City Planning Movement? V. Drifting," JAIA 8, Oct. 1920, p. 353.

R.P.A.A. thus became aligned with the political and economic thought of the "social intellectuals"-- a label that the historian Donald Stabile placed on the new post-War intelligentsia who believed that the "appropriate policy for the nation as a whole was to consider carefully the benefits gained by continuing the wartime organization of the economy into peacetime society."<sup>267</sup> Accordingly, Ackerman took the position that a centrally planned economy and society was the only way in which the problems of city planning and housing could be solved.

Around the end of the 1910s, Ackerman's thinking began to move away from the ideas that he himself was instrumental in forming. As an era of reform came to a close, he could no longer retain the hope that the institutions of centralized control established during the War would be extended to society as a whole. After the War, he studied with Veblen at the New School of Social Research and quickly became one of his most loyal followers and a leading theorist of the technocratic movement. In terms of Veblen's political goals, he was convinced that capitalism, or what he called the "price system" as it was based on an artificial monetary system, would ultimately be abolished. Like Marx, Veblen formed an understanding of modern economic society in which its internal contradictions would eventually bring about its own downfall. However, *if* a revolution were ever to come about in America, he believed it would occur through the agency of a "Soviet of Technicians."<sup>268</sup> Accordingly, Ackerman's vision of the architect began to approximate Veblen's notion of the technician who has "learned to think in the terms in

---

<sup>267</sup> Donald Stabile, Prophets of Order: The Rise of the New Class, Technocracy and Socialism in America, Boston; Southend Press, 1984, p. 89.

<sup>268</sup> Just before arriving at the New School of Social Research, Veblen's views were outlined in a series of essays in Dial that were later published in 1921 as The Engineers and the Price System. Veblen's articles in Dial were begun in April 1919 as a series titled "Contemporary Problems in Reconstruction." The basic outline of Veblen's program was first, the voluntary abdication of all absentee owners of business, the "Guardians of Vested Interests," and their replacement by technicians and workers; and secondly, the creation of a national directorate which supervised the allocation of resources on a scientific basis. By liberating the machine and the nation's industry from an irrational and wasteful system, Veblen believed that America's industrial output would increase three to twelve times.

which technological processes act."<sup>269</sup> Furthermore, the role of this architect-technician within the problematic conditions of the price system became the central theme of his organizational activities. Once again with Kohn and Whitaker, Ackerman became involved with an organization centered at the New School of Social Research called the Technical Alliance.<sup>270</sup> It was formed at the end of 1919 when Veblen had just been appointed to the School. Coinciding with the formation of the Technical Alliance, an organization called "The Inter-Professional Conference" was formed. Its goal was "To Discover How to Liberate the Professions from the Domination of Selfish Interests. Both Within and Without the Professions, to Devise Ways and Means of Better Utilizing the Professional Heritage of Knowledge and Skills for the Benefit of Society, and to Create Relations between the Professions Leading to this End."<sup>271</sup> A conference, chaired by Kohn, who served as treasurer of the organization, was held in late November of 1919, in which the A.I.A. participated as part of the activities of the Post-War Committee. If the central theme of the Veblen circle was "The Social Function of the Engineer" ( the title of another set of meetings directed by Guido Marx in 1920 ), Ackerman was concerned with the social function of the architect-technician. Veblen thus provided a body of theory on which Ackerman could reorient and reconstruct the many social concerns he had been engaged in for several years.

---

<sup>269</sup> Thorstein Veblen, The Instinct of Workmanship, New York; Macmillan, 1914, p. 328.

<sup>270</sup> Other members of the RPAA who were also part of the Technical Alliance were Benton Mackaye and the economist Stuart Chase. In addition, Ackerman and Whitaker served on its executive committee. There is, however, very little information on the activities of this short lived organization. See Henry Elsner Jr., The Technocrats. Prophets of Automation, Syracuse; Syracuse Univ., 1967, and William E. Akin, Technocracy and the American Dream. The Technocrat Movement, 1900-1941, Berkeley; Univ. of California, 1977.

<sup>271</sup> The passage is from a letter by Guido Marx, professor of mechanical engineering at Stanford and close associate of Veblen, quoted in Joseph Dorfman, "New Light on Veblen," in Thorstein Veblen. Essays, Reviews and Reports, Clifton, N.J.; Augustus M. Kelley, 1973, p. 84. The conference was held in Detroit and attended by 14 professions. The architectural contingent was organized by the Committee on Professional Relations of the Post-War Committee, chaired by Thomas R. Kimball.

His Veblenian analysis of architecture hinged on two key concepts. The first was Veblen's notion of the "instinct of workmanship": an inborn human propensity for constructive and efficient work.<sup>272</sup> To understand Veblen's concept of instinct is to grasp the basic premise of his overall project. As Wesley C. Mitchell has pointed out, unlike most orthodox economic philosophy based on the premise of the rational man, Veblen assumed that man was a creature of instinct and habit. It was then quite logical for the economist to be concerned with "the evolution of mind," which on Veblen's lines, "is controlled primarily by what men do."<sup>273</sup> The second concept was that of the machine, for which he provided one of its classic definitions:

In its bearing on modern life and modern business, the "machine process" means something more comprehensive and less external than a mere aggregate of mechanical appliances for the mediation of human labor. It means that, but it means something more than that...Wherever manual dexterity, the rule of thumb, and the fortuitous conjunctures of the seasons have been supplanted by a reasoned procedure on the basis of a systematic knowledge of the forces employed, there the mechanical industry is to be found, even in the absence of intricate mechanical contrivances. It is a question of the character of the process rather than a question of the complexity of the contrivances employed.<sup>274</sup>

---

<sup>272</sup> Definitions of "the instinct of workmanship" are scattered in his many writings as well as in the 1914 book under the same title. It was however, a concept that was already well defined in his Theory of the Leisure Class, 1899 reprinted New York; Mentor, 1953: "As a matter of selective necessity, man is an agent. He is an agent seeking in every act the accomplishment of some concrete, objective, impersonal end. By force of his being such an agent he is possessed of a taste for effective work, and a distaste for futile effort. He has a sense of the merit of serviceability or efficiency and of the demerit of futility, waste, or incapacity. This aptitude or propensity may be called the instinct of workmanship." (p. 29) In contrast to the substantial literature on Veblen's economic thought, there is not an abundance of critical writing concerning Veblen's cultural theories. For biographical information on Veblen I have relied on Joseph Dorfman, Thorstein Veblen and his America, New York; Viking Press, 1934, and "New Light on Veblen," 1973.

<sup>273</sup> Wesley C. Mitchell, Types of Economic Theory. From Mercantilism to Institutionalism ( edited by Joseph Dorfman ), New York; Augustus M. Kelley, 1969, p. 603-623.

<sup>274</sup> Veblen, The Theory of Business Enterprise, New York; Charles Scribner's Sons, 1904, p. 9-10.

Like the concept of the instinct of workmanship, Veblen conceived the machine in terms of a history of the mind. He believed that though human nature was not suited to the machine process, the latter compelled, to quote David Riesman, "an orientation to the external environment, impersonal as nature itself, capable of creating in men a 'second nature' entirely methodical and workmanlike."<sup>275</sup> The kernel of the Veblenian definition of the machine consisted of a "matter-of-fact" outlook, instrumental habits and methods of work, and the formation of impersonal social relations. The machine therefore came into conflict with the institutional and mental processes developed along the instinct of workmanship, and became a destructive force of feudal elements in society. The machine, however, did accommodate a central aspect of the instinct of workmanship, the human predilection for productive work.

Coinciding with the advent of the machine, another historical break in the institutional character of economic distribution had occurred-- the introduction of credit economy and the rise of absentee ownership. Veblen warned that because of their simultaneous appearance, one should not think that there was a necessary connection between the two. According to the Veblenian scheme, it was a matter of pure coincidence that the machine became enmeshed in the capitalist system. As Ackerman wrote,

It was by historical accident that the machine came into the case during that short interval of time when the workman was losing control of his tools through the operation of the new institutional factors referred to. The upshot of this conjuncture of events was the utilization of the machine from the very outset under the guidance of "business principles" rather than under the guidance of the instinct of workmanship.<sup>276</sup>

---

<sup>275</sup> David Riesman, Thorstein Veblen, A Critical Interpretation, New York; Charles Scribners, 1953, p. 59.

<sup>276</sup> JAI 12, Dec. 1924, pp. 538-539. The article was a review of Mumford's Sticks and Stones, published in 1924.

The advent of capitalism then disrupted what would have been a logical development towards a civilization based on the machine. At this point in history, a disjuncture between cultural and material evolution occurred. What seemed on the surface as progress were in fact symptoms of a retrograde civilization separated from the deeper currents of human development that have been stalled. This was of course the central point of The Theory of the Leisure Class. One of the most perceptive analyses of his notion of a retarded and incoherent development of history was provided by Theodor Adorno.

According to Veblen the very feature which seem to prove that modernity has escaped the principle of unvarnished necessity and become humane are relics of historical epochs long past. For him, emancipation from the realm of utility is nothing but the index of a purposelessness arising from the fact that cultural 'institutions' and anthropological characteristics do not change simultaneously and in harmony with the means of production but rather lag behind them and at times come into open contradiction with them.<sup>277</sup>

Within this historiography, modernity was defined as a condition of conflict between the inborn human instinct of workmanship, a rational world view and productive system spawned by the machine, and the pecuniary institutions of capitalism.

It was in this inherent discordance of modern civilization that Ackerman sought to define the institutional role of architecture. Following Veblen's view that the emergence of the machine provided the single great schism in the history of civilization, Ackerman designated the Georgian as the "final paragraph of a long chapter of history that ran back into a dim and remote past during which the processes of handicraft had served to shape the approach to every problem of design, to condition and establish the entire range of criteria by which performance was judged and to give direction and character to secular

---

<sup>277</sup> Theodor Adorno, "Veblen's Attack on Culture," Studies in Philosophy and Social Science 9, 1941, reprinted in Prisms, Cambridge, MA; MIT Press, 1981, p. 75.

events."<sup>278</sup> Prior to the advent of the machine, all architectural production was "characterized by the technique of handicraft, the apprehension of phenomena in terms of workmanship, and deliberate action."<sup>279</sup> Because of his place in this long tradition, the architect was in a much more complex situation than the engineer. The latter was a direct product of the "modern point of view and of scientific method," and thus had "no vocational forebears." To the engineer "trained in the scientific method, thinking always in terms of the machine process and machine production, the forms and techniques of handicraft, that is to say, the architectural forms of the past are almost as meaningless as the hieroglyphics of the Egyptian tombs." The architect, on the other hand, was a "direct lineal descendant of the master builder and the craftsmen."<sup>280</sup> Consequently, he carried a baggage of the past, of knowledge and practices based on handicraft, which he relied on, despite the fact that craft-based production was no longer tenable.

The material embodiment of his concept and his effort is expressed in terms which, by inheritance, are associated with the art of handicraftsmen and artists; but the intellectual processes involved derive their character from business rather than workmanship and their quality from the outlook of engineering and science rather than the ideology of the artist.<sup>281</sup>

What Ackerman is saying in his idiosyncratic language is that the machine and the price system destroyed the unity between material reality and ideology in the handicraft mode of production. Ackerman's distinction between "character" and "quality" was in fact a basic Veblenian distinction between institution and mind. While character denotes the institutional framework in which the mental processes find their effect, quality is the

---

<sup>278</sup> Ackerman, "Georgian Architecture," Tuileries Brochures, March 1930, p. 115.

<sup>279</sup> Ackerman, "Dissertations in Aesthetics IV," JAIA 14, Feb. 1926, p. 49.

<sup>280</sup> Ackerman, "Architecture," in Douglas Fryer, ed., Vocational Self-Guidance, New York; J.B. Lippincott, 1925, p. 303.

<sup>281</sup> Ackerman, "Modern Architecture," JAIA 16, Nov. 1928, p. 414.

substratum of biological characteristics, the fundamental level of instincts. At this substantive level, "appraisal of things architectural waits upon the conclusion of 'scientific' analysis and the calculations of engineering." However, at the institutional level, the social effects of architectural production were controlled by business and pecuniary criteria. For Ackerman, "an event of architectural creation" was thus viewed as a "synthesis of a wide range of conflicting aims and purposes"; an uneasy confluence of the instinct of workmanship, the machine and the price system.<sup>282</sup>

Within this Veblenian scheme, Ackerman continued his criticism of the Beaux-Arts system, but unlike his earlier stance, academic theory was rejected in toto. The development of academic methods was now viewed as a corollary to the collapse of a handicraft based system of training; while "competence was derived from experience" in the handicraft system, academic methods were "drawn upon to lay the foundation and provide what [was] no longer to be gained through employment under a master." Once again, the program was the target of his attack.

Under the academic view of architecture the point of departure ordinarily assumed in Design is a formulated Program. The expression of the Program in appropriate color and form constitutes what is referred to as the "Problem." The academic program consists ordinarily of a simplified statement of aims with respect to use or function accompanied by sufficient detailed information to enable the designer to proceed without further inquiry into the subject. In other words, the Program, it is assumed contains all that the designer needs by way of information and stimulation. The Subject of Design, under the academic point of view, may or may not have reference to reality. The essential point is that the purpose or aim expressed in the Program shall be consistent with the stated requirements as to matters of detail...The Program, no matter how derived, constitutes the point of departure in design and it is not ordinarily deemed the function of the architect to look behind the stated

---

<sup>282</sup> Ibid., p. 414.



terms of his programs or to question their relevancy, adequacy or validity as factors which should control the design of the elements which in total constitute our architectural environment. And it is ordinarily assumed that the ends of architectural design are served when a logical expression of the Program is achieved. A brilliant performance in design is often, in final analysis, nothing more than a clever expression or dramatization of a socially undesirable event.<sup>283</sup>

During the teens, Ackerman had criticized academic design because its programs had no connection to social realities. According to his Veblenian logic, the program came to be regarded as a direct expression of a society driven by the price system. What has changed here is less Ackerman's conception of the program than how social reality was understood. The factual reality that Ackerman pursued was now hidden under the institutional mechanisms of capitalism; the program was thus determined by "financial exigencies" rather than "competent rules of economic planning."

Architecture that is derived from the acceptance of any and all "conditions" that surround a problem as constituting an adequate program holds but a meager claim to be so rated: it is merely an *expression*-- its creators, tools. For the architectural environment, derived from such a point of view guiding practitioners, would expose merely the meager, tentative, shifting grounds of compromises established from time to time as between the conflicting interests within the community.<sup>284</sup>

Ackerman found in the work of the Beaux-Arts commercial architects, the prime examples of the subservient nature of the academic system.<sup>285</sup> In fact, the clearest

---

<sup>283</sup> Ibid., p. 414-415.

<sup>284</sup> Ackerman, "The Function of Architectural Criticism," *JAIA* 16, April 1928, p. 145.  
( my emphasis )

<sup>285</sup> Though Ackerman did not indicate the individuals in the modernist camp, the brunt of his criticism was aimed at the Beaux-Arts architects that were discussed in Chapter III. It is interesting to note that, though there would have been just a few months in which their stay overlapped, both Ackerman and Raymond Hood were at the Ecole des Beaux-Arts during the latter months of 1905. It is well known that

expositions of his Veblenian thesis on architecture were published in the context of a debate on modernism in the Journal of the A.I.A. For Ackerman, the claim that modernism involved "the discovery of new forms and new arrangements of color that would expose the industrial processes and express the functions involved in modern building" was symptomatic of architecture's immersion in the pecuniary values of capitalism.<sup>286</sup> First of all, modernism's purported formal inventions were part and parcel of the profit-enducing logic of "fashion." Secondly, their alleged "functionalism" and commitment to modern technology were merely the architectural adjunct to the speculative logic of obsolescence: "This new theory of architecture which postulates the need for stimulating the rate of obsolescence and replacement is merely a rationalization of the necessity, as viewed by financial business, of providing an outlet for an excess industrial capacity which had been created under the guidance of the same speculative urge that gave rise to an excess of commercial structures, hotels, multi-family habitations, land subdivisions, and others."<sup>287</sup> Thus for Ackerman, the celebrated "functionalist" buildings of the time "express[ed] more accurately than [had] heretofore been expressed the aggressive character of modern competitive selling."<sup>288</sup> The pavilions of the Century of Progress expositions and the Rockefeller Center were examples of "the makings of a perfectly servile art."<sup>289</sup>

The basic problematic for Ackerman then was how to practice architecture within a dominant capitalist system that was to be rejected and somehow transformed. The answer was once again sought in the program. First of all, in terms of criticism and

---

Ely Jacques Kahn was close friends with Clarence Stein. In addition to being classmates at Columbia, both attended the Ecole a few years later.

<sup>286</sup> Ackerman, "Modern Architecture," p. 415.

<sup>287</sup> Ackerman, "Forces that Influence the Profession's Future," American Architect 141, May 1932, p. 31.

<sup>288</sup> Ackerman, "The Modern Movement. I. A Point of Theory," JAIA 16, Dec. 1928, p. 465.

<sup>289</sup> Letter from Ackerman to Mumford, dated March 10, 1931, Van Pelt Library, U. Penn. Special Collections.

research, the program had to become the primary concern of the architect. The "conditions" of a program, he argued, should be the legitimate domain of architectural criticism. As an example, he cited Mumford's treatment of the Barclay-Vesey Building in his Sticks and Stones. Like Mumford, the architectural critic should provide insight into the external conditions of building: to the configuration and location of the plot, the surrounding street system, building laws that determined set-back planes and density, and the larger financial exigencies of the project. "It would be distinctly within the scope of architectural criticism," Ackerman insisted, "to question the intrinsic value and relevancy of facts that constitute a given program and to treat them as causal factors in the architectural outcome, and hence due to be brought under the same critical handling as the effort of the architect."<sup>290</sup>

In terms of research, it was the task of the architect to develop scientific data as stepping blocks toward the construction of a rational program. Accordingly, Ackerman and his office were actively involved in the development of data on planning and design. He provided assistance in numerous articles in architectural journals, and it was through the work of his office that Architectural Graphic Standards, which I will examine in detail in Chapter VI, was put together and published in 1932.<sup>291</sup> In 1934, when the New York Housing Authority was established, he was appointed its Technical Director, and produced some of the most significant research in housing during the 1930s. Ackerman, however, perceived this work not in terms of scientific progress but as an excavation of isolated facts that remained uncontaminated by pecuniary goals. The formulation of scientific data did not build up to an holistic body of architectural theory. A fully rational program could not be formulated, because under the price system, there was only a

---

<sup>290</sup> Ackerman, "The Function of Architectural Criticism," p. 144.

<sup>291</sup> See Robert L. Davison, "Problems of Country House Design and Construction", Architectural Record 66 Nov. 1929, "Gymnasium Planning", Architectural Record 69, Jan. 1931, and a special issue on university planning Architectural Forum 54, June 1931.

limited area in which the "Technician under the procedures of science" could bring to the program. For instance, in the design and planning of housing, it consisted of "the determination of what types of three dimensional site patterns yield, in respect to light value in rooms, sunlight exposures, acknowledgement in disposition of rooms of the direction prevailing breezes, vistas, etc.--these are purely technical problems subject to metrical analysis."<sup>292</sup> Hence, Ackerman, unlike other members of the R.P.A.A., regarded planning as a utopian activity, impossible under the conditions of the price system.

Under our economy, actual planning under the guidance of the methods of the science is confined to the unimportant factors of design. Sovereignty over geographical location, quantity, quality, and relation of units to families is exercised under the rights of ownership in the interest of shortage, price and profit. This is not appreciated by sponsors of Planning and hence they assume responsibility for results in a domain in which they have neither authority nor the remotest chance of gaining it...Still Planners continue to live in the hope that their plans may be turned directly to account of greater utility, rather than to the extension of control through the rights of absentee ownership.<sup>293</sup>

No proper theory of architecture or planning, which he used in the sense of a "scientific" theory constituted by "facts, data and criteria," could be developed until the total overturn of the price system. For Ackerman, technique could be developed but not applied.

In the absence of any theory of architecture, Ackerman believed that there was no basis for judging issues of form and aesthetics. Historically, this had not always been the case. There had been valid criteria of taste in which the beauty of forms, the various "expressions" of past architectural periods, from Egyptian to the Renaissance, could be

---

<sup>292</sup> Frederick Ackerman and William Ballaria, "A Note on the Problems of Site and Unit Planning," New York Housing Authority, 1937, p. 5.

<sup>293</sup> *Ibid.*, p. 8.

recognized. This was possible because the biological foundation of all the various cultural forms-- the factor of handicraft and workmanship-- formed a coherent relation with artistic ideology.<sup>294</sup> As already noted, he was convinced that these constant factors were broken by the advent of the machine and the price system, creating a fundamental confusion in our aesthetic sensibilities. He was, therefore, extremely hesitant to imbue formal and aesthetic relevance to the machine.

We are now and again made conscious of the satisfaction, the sense of exhilaration, the thrill which accompanies the attainment of a hoped-for goal that seemingly lies entirely within the realm of this new technology and scientific point of view. And while we may not acknowledge that such activities and accomplishments bear any relation to aesthetics, it does not follow that they are of an altogether alien order. For it may be that what we now treat as the gratification of aesthetic interest is, at bottom, no more than the gratification of our ever-shifting pecuniary canons of taste. It may also be that out of a prolonged period of cultural borrowing we have lost the ability to comprehend and appreciate a truly creative experience. And our ability to discriminate between an aesthetic and technological achievement has become so confused and contaminated, by aims and purposes that are alien, that we cannot clearly differentiate between "accomplishments" of intrinsic aesthetic value, and those which yield a purely technological satisfaction.<sup>295</sup>

Ackerman questioned whether such a thing as a machine aesthetic could exist, and in addition, he believed that within the existing price system, it had little hope of escaping the pervasive logic of business. Within his Veblenian scheme, the whole question of form and aesthetics, was evaded. He had thus departed from his earlier idealism by questioning the relevance of representation itself. For his own architectural work, he returned to Veblen's instinctual absolute, to the ideal of workmanship: "Durability and

---

<sup>294</sup> Ackerman, "Dissertations in Aesthetics," p. 49.

<sup>295</sup> *Ibid.*, p. 51.

permanence call for an architectural expression more deeply rooted in reason than the extremes of fashion which pass in a day."<sup>296</sup> Based on this conviction, with a few exceptions, he worked within simple and traditional forms and materials [ figs. 51-52 ].

Ackerman's strategy of regression-- the return to workmanship and the excavation of uncontaminated facts-- was also the operative principle in what may be characterized as his politico-technical activities of the thirties. With the economic crisis of the Depression, there was a revival of the technocratic movement. In the spring of 1932, Ackerman, along with Walter Rautenstrauch, Howard Scott, and Bassett Jones, the electrical engineer who was also a member of the R.P.A.A., formed a group called the Committee on Technocracy. Ackerman was very active in the group, writing numerous articles concerning the theories of technocracy, and using his influence in the A.I.A. to persuade the Architect's Emergency Relief Committee of New York to provide funds and manpower for research. The technocracy groups, however, were far from the Soviet of Technicians that Veblen had proposed in 1919. Despite the renewed hope for actualizing a technocratic society after the Depression, Committee on Technocracy never claimed to have a revolutionary aim, presenting its function as a "research organization." In fact, a specific program of action to bring about the needed change was never proposed by the technocrats. This was, on the one hand a fundamental naivete of technocratic thinking, and on the other, a genuine belief in the long durations involved in historical changes.<sup>297</sup>

---

<sup>296</sup> Ackerman, "The Planning of College and Universities," *Architectural Forum* 54, June 1931, p. 692.

<sup>297</sup> William E. Akin in *Technocracy and the American Dream* provides the following analysis: "As [ technocrat's ] inability to grapple succesfully with the problem of political theory indicated, their primary concerns were to define the nature of technocratic society and the means of maintaining the new order. This emphasis on ultimate goals, rather than on method of actuating social change, left the movement without any sense of immediate direction." ( p. 117 ) Ackerman is not an exception, as his writings reveal a distrust of politics: "How to shift the control over industry from the field of financial business to that of technology is a matter which will be decided when a sufficient number of people shall have discovered that our system of loan credit and banking...inevitably results in waste, curtailment and constant inflation...This is not a matter to be disposed of by political action; forces arising out of a conviction that a change is due will take care of the matter. Again so runs history." ( Ackerman, et al., *Housing Famine*, New York; Dutton, 1920, pp. 242-243. )

Ackerman's regressive rationality stands in contrast with the writings of Lewis Mumford, another member of the R.P.A.A. who had assimilated Veblen into a body of architectural theory. Mumford was well acquainted with Veblen's writings through his books, lectures at the New School of Research, and personal contacts when they were both at Dial. Veblen enters strongly into Mumford's work towards the late twenties and early thirties.<sup>298</sup> In Theory of the Leisure Class, Mumford read a confirmation of his thesis concerning architecture in the western world after the eighteenth century; that "with the introduction of new functions in economic and social life, with the displacement of old habits and modes of thought," a unified social expression in architecture had collapsed. Veblen's analysis, according to Mumford, provided the key to the "difficulties in the industrial and decorative arts." It exposed the bourgeois obsession with conspicuous appearances, verifying his distinction between truly expressive "form" and inauthentic and spurious architecture.

Mumford's architectural criticism belongs in the tradition of Ruskin and Morris, an approach that he characterized as "sociological." From his earliest essays to the voluminous production of the 1960s, Mumford's statement in 1921 that "'style' is fundamentally the outcome of a way of living, that it ramifies through all the activities of a community, and that it is the reasoned expression, in some particular work, of the complex of social and technological experience that grows out of a community's life" remained constant.<sup>299</sup> During the 1930s, the key to Mumford's demand for the

---

<sup>298</sup> Though my knowledge of the literature by and on Mumford is far from complete, it would seem that the influence of Veblen has not been closely examined. One of the reasons may be because Mumford disavowed Veblen in his later writings. For instance, in Technics and Human Development, he lumps together modern social theorists such as Carlyle, Karl Marx and Veblen, in their overemphasis of the machine in the development of culture. Mumford thus concludes that they had inadvertently become apologists of the repressive force of the "modern megamachine." ( The Myth of the Machine I: Technics and Human Development, New York; Harcourt, Brace, and World, 1967, pp. 263-294. ) For Mumford's more forgiving apology for his own earlier writings on the machine, see Lewis Mumford, "An Appraisal of Lewis Mumford's 'Technics and Civilization' ( 1934 )," Daedalus 88, Summer, 1959.

<sup>299</sup> Mumford, "Machinery and the Modern Style", New Republic Aug. 3, 1921, reprinted in Roots of Contemporary American Architecture, New York; Dover, 1952, pp. 197-198.

integration of architecture and society lay in the Veblenian definition of the machine as an autonomous force of human civilization. This was evident in Technics and Civilization ( 1934 ) where Mumford defined the machine not just as a mechanical device, but as "the entire technological complex": "This will embrace the knowledge and skills and arts derived from industry or implicated in the new technics, and will include various forms of tool, instrument, apparatus and utility as well as machines proper."<sup>300</sup>

The conception of the machine as the catalyst in the reintegration of modern community can also be found in the writings of Catherine Bauer, Mumford's companion and protege during the early thirties. In her Modern Housing, also published in 1934, she echoed Mumford's view of Veblen, writing that in Theory of the Leisure Class he had stated "the philosophy of modern architecture, in its relation to the architecture of the nineteenth century."<sup>301</sup> Bauer began the chapter titled "Architecture" with a long passage from Veblen's Theory of the Leisure Class.

The canon of beauty requires expression of the generic. The 'novelty' due to the demands of conspicuous waste traverses this canon of beauty, in that it results in making the physiognomy of our objects of taste a congeries of idiosyncracies....

This process of selective adaptation of designs to the end of conspicuous waste, and the substitution of pecuniary beauty for aesthetic beauty, has been especially effective in the development of architecture. It would be extremely difficult to find a modern civilized residence or public building which can claim anything better than relative inoffensiveness in the eyes of anyone who will dissociate the elements of beauty from those of honorific waste. The endless variety of fronts presented by the better class of tenements and apartment-houses in our cities is an endless variety of architectural distress and of suggestions of expensive discomfort. Considered as objects of beauty, the dead walls of the sides and back of these structures,

---

<sup>300</sup> Mumford, Technics and Civilization, New York, Harcourt, Brace & Co., 1934, p. 12.

<sup>301</sup> Catherine Bauer, Modern Housing, Boston; Houghton Mifflin, 1934, p. 212.



left untouched by the hands of the artist, are commonly the best feature of the building....

The underlying norms of taste are of very ancient growth, probably far antedating the advent of the pecuniary institutions that are here under discussion. Consequently, by force of the past selective adaptation of men's habits of thought, it happens that the requirements of beauty, simply, are for the most part best satisfied by inexpensive contrivances and structures which in a straightforward manner suggest both the office which they are to perform and the method of serving their end.<sup>302</sup>

Bauer understood the term "the generic" as a set of shared conventions, and went on to claim that architecture was "the social art, the expression of those forces which keep people together and not of those which separate and individualize."<sup>303</sup> Interestingly enough, this was exactly the same sentence that appeared in her article in Creative Art on the International Style exhibition. In the article published two years earlier, the sentence appeared in the context of how the common style, so convincingly exhibited, implied "the common acceptance, conscious or unconscious, of a basic norm of design."<sup>304</sup> If in 1932, the "forces which keep people together" had not yet been defined, in Modern Housing, Bauer was able to specify the machine as the most important communal force. Mumford, once again in Technics and Civilization, reiterated, in rather dramatic fashion, this socializing function of the machine.

The machine levels, spreads, vulgarizes: that is its great boon to humanity.  
As our machine economies become more effective, the goods of the world

---

<sup>302</sup> Ibid., p. 212. There is a curious inversion of sequence in Bauer's quote. The last paragraph, which appears in p. 109 of The Theory of the Leisure Class actually comes before the first two paragraphs which appear in pp. 110-111 of Veblen's book.

<sup>303</sup> Bauer, Ibid., p. 213.

<sup>304</sup> Bauer, "Exhibition of Modern Architecture. Museum of Modern Art," Creative Art 10, March 1932, p. 201. After this passage, Bauer writes "It predicates common beliefs and common purposes in a large number of contemporary people. But more than that, it defines architecture, first and last, as the *social art*, the expression of those forces which keep people together and not those which separate and individualize. Architecture is not a medium for expressing individual personality." ( Bauer's emphasis )

will tend to be distributed more and more like sunshine and rain, falling on the just and unjust, the snobs and the democrats. It threatens to ruin the spurious "values" of our predatory leisure class culture. Whatever the politics of a country may be, the machine is a communist.<sup>305</sup>

Indeed in Mumford's Geddesian historiography, it was an historical imperative of the impending neotechnic synthesis that the universal *form* of the machine aesthetic be established. In the paleotechnic phase, the "technical importance of shape" had gone unappreciated. With the introduction of the organic world into science and technology, a new logic was introduced in which machines were now forced to recognize the "superior economy of nature."<sup>306</sup> Machines thus provided an inherent principle of a new collective economy as well as a new aesthetic: "modern technics, by its own essential nature, imposes a great purification of esthetics...we cannot intelligently accept the practical benefits of the machine without accepting its moral imperatives and its esthetic forms"<sup>307</sup> [ fig. 53 & 54 ].

Here one begins to see the parting of ways between Mumford and Veblenian regression. The difference can be seen by contrasting Mumford's passage on "the machine as communist" quoted above, with its probable source in Theory of Business Enterprise, where Veblen wrote, "The machine is a leveler, a vulgarizer, whose end seems to be the extirpation of all that was respectable, noble, and dignified in human intercourse and ideals."<sup>308</sup> This was Veblen's typically sardonic manner of describing the destructive effect of the machine. As David W. Noble has pointed out, this statement

---

<sup>305</sup> Mumford, "The Economics of Contemporary Decoration," Creative Art 4, Jan. 1929, p. xx. The "socializing" effect of the machine was reiterated and became an essential thesis of Technics and Civilization. The provocative phrase "the machine is a communist" was in fact repeated word by word in p. 354 of the latter text.

<sup>306</sup> Mumford, Technics and Civilization, p. 352. Mumford extended his thesis of the "principle of economy" specifically to architecture in the Culture of Cities, New York; Harcourt, Brace and Co., 1938, p. 416.

<sup>307</sup> Mumford, Technics and Civilization, pp. 353-355.

<sup>308</sup> Veblen, The Theory of Business Enterprise, p. 170.

was a radical demand for the destruction of history, and of culture as it stood in the present.<sup>309</sup> It is telling that it appeared in the context of Veblen's description of the disruptive effects of the machine on modern communities, particularly on the working class family. In contrast to Mumford, he did not limit the object of the machine's destructive force to the culture of the leisure class. Whereas Mumford viewed the machine as the key to the reintegration of form and society, Veblen, as well as Ackerman, refused to provide any form to the society cleansed by the machine. Veblen's future was an ultimate regression to a ground zero civilization where there was no paradox between a complex industrial environment and the instincts of an ideal "prehistoric" man. Veblen saw in the present, the machine compromised by pecuniary culture; but he could not imagine the form of a machine culture.

A specific manifestation of the schism between Mumford and the Veblenian project was their divergent perceptions of the role of industrial design. In Mumford's case, he set up a contrast between the principle of conspicuous waste that dominated bourgeois culture and the principle of conspicuous economy that was inherent in machine-work and mass production. Though Mumford was critical of the consumerist logic of existing industrial design, he believed in the potential of the designer to fulfill "the great principle of machine production, that of conspicuous economy."

If the decision against conspicuous waste cuts the designer off from the single wealthy patron, let him be consoled by this: the community as a whole is a much wealthier patron, and once it begins to be well-housed and furnished-- even a 'prosperous' country like the United States is far from such a general goal-- once it begins to demand modern and well-designed houses, as it now demands its 1930 model car, there will be more work for the artist in the

---

<sup>309</sup> David W. Noble, The Paradox of Progressive Thought, Minneapolis; Univ. of Minnesota Press, 1958, p. 223.

factory than he has dared to dream of for many a century, as he waited in the ante-rooms of the well-to-do.<sup>310</sup>

In a letter of response to these optimistic sentiments, Ackerman sketched out his view of the institutional development of industrial design ( See Appendix B ).<sup>311</sup> For Ackerman, industrial design emerged as a form of mediation in the conflict between the machine and pecuniary culture. This followed Veblen's warning that "When the question is cast up as to what will come of this conflict of institutional forces-- called the Social Problem-- it is commonly made a question of remedies: What can be done to save civilized mankind from the vulgarization and disintegration wrought by the machine industry?" According to Veblen's analysis, the answers would be sought within the framework of "business traffic"; presented in "some appeal to philanthropic, esthetic, or religious sentiment, some endeavor to conjure with the name of one or another of the epiphenomena of modern culture."<sup>312</sup> Industrial design was then merely one of these palliatives, a subterfuge for the fundamental contradictions of modern civilization.

Despite his affinity to Veblen, Mumford was disdainful of the simplistic claims of technocracy. Not surprisingly, he also viewed Ackerman's radicalism as ineffectual. "[ Ackerman's ] revolutionary premises had the effect of making him, in practice, a thorough conservative: since he expected nothing good of the existing system, he took it as it was."<sup>313</sup> There is no doubt that Mumford developed a more fruitful understanding of the relation between technology and culture than Ackerman. However, throughout the thirties, Mumford followed the Veblenian dissociation between economic development

---

<sup>310</sup> Mumford, "The Economics of Contemporary Decoration," pp. xix-xxii.

<sup>311</sup> Letter from Ackerman to Mumford, dated Feb. 19, 1929, Van Pelt Library, U. Penn. Special Collections.

<sup>312</sup> Veblen, Theory of Business Enterprise, pp. 178-179.

<sup>313</sup> Mumford, "Frederick Lee Ackerman, FAIA, 1875-1950," JAIA, Dec. 1950, p. 249

and technics, remaining essentially within the paradigm that Veblen had set up.<sup>314</sup> In Technics and Civilization, Mumford wrote:

By the completion of our machine organization, we can recover for work the inherent values which it was robbed of by the pecuniary aims and class animosities of capitalist production. The worker, properly extruded from mechanical production as slave, comes back as director: if his instincts of workmanship are still unsatisfied by these managerial tasks, he has by reason of the power and leisure he now potentially commands a new status within production as an amateur. The gain in freedom here is a direct compensation for the pressure and duress, for the impersonality, the anonymity, the collective unity of machine production.<sup>315</sup>

Ackerman and Mumford can thus be viewed as opposite sides of the Veblenian coin. The following analysis of Veblen by Adorno applies to both Ackerman and Mumford, but in quite different ways.

Veblen would like to make a clean slate, to wipe away the rubble of culture and get to the bottom of things. But the search for 'residues' regularly falls prey to blindness. As the reflection of truth, appearances are dialectical; to reject all appearances is to fall completely under its sway, since truth is abandoned with the rubble without which it cannot appear.<sup>316</sup>

On the one hand, with Ackerman, there is a conscious and strategic evasion of form itself. On the other hand, with Mumford, true form must be distinguished from mere appearance. Thus, in Mumford's post-World War II writings, when his optimistic prophecies of cultural synthesis were no longer sustainable, images of true form could no

---

<sup>314</sup> See Christopher Lasch, "Lewis Mumford and the Myth of the Machine," Salmagundi 49, Summer 1980, and Leo Marx, "Lewis Mumford: Prophet of Organicism," in Thomas P. and Agatha Hughes, eds., Lewis Mumford. Public Intellectual. Oxford: Oxford Univ. Press, 1990.

<sup>315</sup> Mumford, Technics and Civilization, p. 414.

<sup>316</sup> Adorno, "Veblen's Attack on Culture," p. 84.

longer be illustrated. This move towards the opposite side of the coin was evident in the Conduct of Life, the last in his so-called "Renewal of Life" series, where the typical format of inserting glossy pages of illustrations in-between the text was dropped. In a preface to a later publication of the book, Mumford commented on the "difficulties" in writing this final volume of a series that had originally been based on his cultural and philosophical optimism: "for the hopeful note that pervaded the earlier volumes, conceived as they were in 1930, no longer rang true; and the concrete richness of illustration, drawn from actual life in the earlier books, was too often missing."<sup>317</sup> Once again Adorno's critique of Veblen penetrates to Mumford: "He does not understand the distinctly modern character of regression. The deceptive images of uniqueness in an era of mass production are only vestiges for him, not responses to highly industrialized mechanization which betray something of its essence."<sup>318</sup>

Whatever the problems of their ideological constructions, Ackerman and Mumford set forth on specific discursive strategies based on their critical appraisals of the status of architecture in modern society. In this very general sense, they shared with the architectural journals the premise that radical changes in the discipline were required for architecture to retain its viability in new social and industrial conditions. The traditional domain of architectural knowledge-- the objects and methods of knowing and seeing-- were insufficient, incommensurable or invalid in the modern conditions of architectural production. Though they formulated very different ideological positions, there was an underlying conception that the fundamental problem of architecture was institutional. Unlike the editorial policies of the architectural journals, however, Ackerman did not view the industrial structure of capitalism as a rational institution, nor did he believe that it could be rationalized by applying modern technology. He not only accepted the post-

---

<sup>317</sup> Mumford, "Preface: 1970," in The Conduct of Life, 1951 reprinted New York; Harcourt Brace Jovanovich, 1970, p. v.

<sup>318</sup> Adorno, *Ibid.*, p. 85.

World War I theme of crisis, but developed it as a basic paradoxical condition of architecture. Ackerman's project was then a radical rejection of the possibility of a holistic discipline and of cultural representation in architecture.

## V. The Formation of the Discourse of the Diagram

### 1) Scientific Management, the Body and the Development of the Diagram

In Chapter III, the emergence of functional planning in architecture was examined in relation to Taylorism's concept of planning as a scientific intervention into the social and physical organization of the factory. I argued that during the 1920s, planning came to be defined as the provision and execution of a rational program. Consequently, the notion that there should be a one to one congruence between the program and the architectural plan was established. My discussion, however, came to a provisional close with the observation that in this initial stage, the planning manuals and articles continued to be organized along traditional modes of discourse. The present section returns to scientific management, shifting the focus to its specific techniques of planning, and the formation of what I have called the "discourse of the diagram." It is a prelude to the following section which examines the transformation of this mode of discourse in its dissemination into architectural discourse during the 1930s.

Throughout its development, scientific management had identified itself as a *method*; one that was centered on the control of the worker. According to the historian David Noble, the development of modern management could itself be construed as a "shift on the part of engineers from the engineering of things to the engineering of people." He described this shift in terms of two overlapping, complementary phases:

The first, social engineering, was the conscious attempt to exercise managerial prerogatives through the medium of the workplace, through organization of the work activity of labor. The second, human engineering, was the



movement to control the human element of production at the individual and group level through the study and manipulation of human behavior.<sup>319</sup>

Noble went on to argue that the introduction of the human element into the discipline of engineering was in fact a logical extension of the pursuit of rationalizing production. In a system of production based on minute divisions of labor-- each division requiring simple and exacting motions-- the engineering principles of materials and equipment were easily applied to human behaviour and social organization. As the terms "human engineering," "human motor," and "human machine," so pervasive in the literature of management implied, the body of the worker was scrutinized as a machine, and treated as such [ fig. 55 ]. This mechanical model of human physiology was largely based on the precepts of industrial psychology and the behaviorism of John B. Watson, popularized during the teens and twenties. Not surprisingly, scientific management shared with behaviorism the common goal of the "prediction and control of human beings."<sup>320</sup>

During the 1910s, the most meticulous investigations into the body as an instrument of production were produced by the husband and wife team of Frank and Lillian Gilbreth. The former had been a successful building contractor when he came upon Taylor's scientific management. The latter received a Ph.D in industrial psychology from Brown University, one of the first to acquire such a degree in the United States. Though the two worked in close cooperation, Lillian Gilbreth, the psychologist in full grasp of

---

<sup>319</sup> David Noble, America By Design. Science, Technology, and the Rise of Corporate Capitalism, Oxford; Oxford Univ. Press, 1977, p. 263-264.

<sup>320</sup> John B. Watson, The Ways of Behaviorism, New York; Harper & Brothers, 1928, p. 2. The man-machine idea has of course a long tradition in western thought since Descartes' formulation in the seventeenth century. See Jules Amar, The Human Motor or the Scientific Foundations of Labour and Industry, 1914 translated from French in New York; E.P. Dutton, 1920; Frederick Lee, The Human Machine and Industrial Efficiency, New York; Longmans, Green and Co, 1918; and Dana R.T. and A.P. Ackerman, The Human Machine in Industry, New York; Codex Book Co., 1927. A recent historical work that deals with the mechanical model of the human body, concerned primarily with French and German situations, is Anson Rabinbach, The Human Motor. Energy, Fatigue, and the Origins of Modernity, New York; Basic Books, 1990.

the work of Hugo Munsterberg and Walter Dill Scott, is commonly regarded to have brought the human body under the scrutiny of scientific management.

In developing a set of techniques for measuring and regulating the body, two inter-related principles of conceptualizing the body were established by Lillian Gilbreth. The first was called "functionalization," which facilitated the second principle of "standardization":

Under Scientific Management divisions are made on the basis of underlying ideas. Functions are not classified as they are embodied in particular men, but men are classified as they embody particular functions. This allows of standardization, through which alone progress and evolution come quickest. It is comparatively easy to standardize a function.<sup>321</sup>

It is evident from this passage that what Gilbreth meant by function, as it pertained to the manual worker, was a simple set of movements. Thus, within a system of minute divisions of labour, the body could be categorized and represented as a single functional unit. The principles of functionalization and standardization were inseparable from Frederick Winslow Taylor's assumption that the management of the factory should be based on a radical separation of thinking and doing, of "planning and performance." Taylor named this institutional principle "functional foremanship." Based on Taylor's functional divisions, the Gilbreths transcribed his system into a diagram illustrated in fig. 56. In this diagram the worker was placed at the center of the converging lines of "functional management," or "functional control," as it was sometimes called.

The diagram was of course an abstract model. In charting the functional relations of the various production units and departments of a factory, the Gilbreths' basic diagram had to be expanded and dispersed [ figs. 57 & 58 ]. Following the basic principle of

---

<sup>321</sup> Lillian Gilbreth, The Psychology of Management, New York; Sturgis and Walton, 1914, p. 65.

fig. 56, each box in these charts represented a functional unit, rather than a spatial area. The diagram was also a static model. In other words, it did not address the problem of the *movement* of bodies, material and equipment in the factory. Subsequently, the implementation of the Gilbreths' ideal diagram into a concrete spatial and temporal organization required a set of institutional mechanisms that maintained the lines of control. Due to the separation between the planning department and the worker, regulations, timetables and incentives that could overcome spatial distance had to be adopted: "The worker would have little actual contact with those in the planning room, control being exercised through the medium of work tickets, instruction cards, piece rate cards, etc., which were issued to him with each job."<sup>322</sup> At the performance level of the diagram, spatial relations which facilitated the surveillance of the worker by the various bosses had to be arranged. Furthermore, these methods of control must be integrated into a system of managing time and movement. Accordingly, the factory was organized as a predictable set of *patterns*. In the terminology of scientific management, "routing" was used to define the science of regulating material, worker and equipment into a repetitive system of movements. These mechanisms may be understood in terms of what Michel Foucault has called the "rule of functional sites," i.e., the technique of creating places which are "defined to correspond not only to the need to supervise, to break dangerous communications, but also to create a useful space."<sup>323</sup>

In realizing this basic diagram, space and time were then at once obstacles and the means of maintaining functional control. It was a problem not unlike what Jeremy Bentham's Panopticon in the late 18th century was devised to solve [ fig. 59 ].<sup>324</sup> The

---

<sup>322</sup> Arthur G. Anderson, *Industrial Engineering and Factory Management*, New York; Ronald Press, 1928, p. 52.

<sup>323</sup> Michel Foucault, *Discipline and Punish. The Birth of the Prison*, New York; Vintage, 1979, pp. 143-144.

<sup>324</sup> Not surprisingly, it was intended to be used as both a prison and a factory. For a discussion of the architectural aspects of the Panopticon, see Robin Evans, "Bentham's Panopticon. An Incident in the Social History of Architecture," *Architectural Association Quarterly* 3, April-July 1971, and *The*

Panopticon, unlike Gilbreth's diagram, was a spatial configuration. Its essential purpose was to eliminate all possibilities of unobserved and uncontrolled activity. At the same time, to borrow Foucault's description, the Panopticon "must not be understood as a dream building: it is the *diagram of a mechanism of power reduced to its ideal form*; its functioning, abstracted from any obstacle, resistance or friction, must be represented as a pure architectural and optical system."<sup>325</sup> On the one hand, the Panopticon symbolized an absolute functionalized space, where there were no dark corners of unobserved movements. It was the *spatial* ideal that the Gilbreths' diagram pursued. On the other hand, Bentham intended the Panopticon as an emblem of the ideal *functional* relations within society as a whole: to once again use Foucault's definition, it was meant to be a "generalizable model of functioning...a figure of political technology that may and must be detached from any specific use."<sup>326</sup> In the implementation of the two diagrams, each pursues the other. The Panopticon is then the spatial transcription of the Gilbreths' functional diagram and vice versa. It should be underscored, however, that for both diagrams to work and coalesce, all the mechanisms of surveillance, of regulating time and movement, must be perfectly implemented. Only in this panoptic utopia, where the functionalization and standardization of the body is absolute, can there be such a thing as the collusion of space and function.

In other words, fig. 56 and 59 symbolize respectively the ideal functional and spatial relation that scientific management pursued. It was between the Gilbreths and Bentham's diagrams that the discourse of the diagram emerges in the management of the factory. From the layout of the plant to the individual worker, its operational principle was to functionalize space and spatialize function. More specifically, the discourse of the

---

Fabrication of Virtue. English Prison Architecture, 1750-1840, Cambridge; Cambridge Univ. Press, 1982.

<sup>325</sup> Foucault, *Ibid.*, p. 205. ( my emphasis )

<sup>326</sup> *Ibid.*, p. 205.

diagram was a tool in correlating the functionalized body of the worker, the unit of production, and a spatial area. For instance, figs. 60 and 61 show a plan layout in which "functionalized" workers assigned with identical tasks were represented as production units that were then directly transcribed into spatial areas. Ideally, these layouts could be unraveled and descaled to form the kind of functional and departmental charts in figs. 57 and 58. At the scale of the individual worker, the body must become integrated with its tools as well as the immediate material and spatial environment to form a productive unit. This led to what were perhaps the first systematic inquiries into the anthropometrical design of tools, equipment and furniture. The Gilbreths themselves had engaged in the design of specialized furniture, each meant for a particular job or for special kinds of users such as the physically disabled. As the chairs in fig. 62 illustrate, most of their work was quite crude. More sophisticated designs, however, can be found, for example, in office manuals by William Leffingwell and Lee Galloway published during the 1920s [ fig. 63 ]. These were standardized and anatomically correct furniture that were meant to "fit" the contours and motion of the office worker.

In order to design the body as part of a mechanical unit of production, it must be possible to measure and classify. One must first posit a "standard man," which was easily formulated as a logical extension of the standardization of function:

The standard man is the ideal man to observe and with whom to obtain the best Motion Study and Time Study data. He is the fastest worker, working under the direction of the man best informed in the particular trade as to the motions of best present practice, and being timed by a Time Study Expert.<sup>327</sup>

As this passage illustrates, the basic elements of the standard in a mechanical object, the setting of a performance requirement ( the standardized function of the fastest worker )

---

<sup>327</sup> Gilbreth, *Ibid.*, p. 152.

and unit of measure ( motion and time ) were now applied to the worker. Secondly, a set of representational techniques must be developed. Accordingly, in what became widely known as their "time-motion studies," a set of photographic techniques for recording and measuring relatively small movements of the body were developed. By making long exposures of single light points attached to parts of the body, a "cyclegraph" that transcribed its movement as a diagram of one continuous curvilinear line was produced [ fig. 64 & 65 ]. In their "micromotion studies," the Gilbreths made extensive use of the movie camera to record minute divisions in the sequence of the work process [ fig. 66 ]. Based on these photographic records, they evaluated the motion and posture of the worker in relation to the time and energy spent on the particular job.<sup>328</sup> The principle of cyclegraphic representation could also be extended as the basis of the routing diagram. According to Lillian Gilbreth, there were basically two ways of routing: first, planning the movement of material and equipment ( which may involve more than one person ), or second, following the worker's performance of a minimal task ( usually involving a single tool or material ). In both cases, it was the material and equipment involved in a simple task, rather than the movement of the body per se, that were represented by the lines of the diagram [ fig. 67 ]. After analysing these diagrams, the management engineer would set on the most efficient movement pattern, and use it as a tool for training the worker. Through constant surveillance and repetition, the efficiency expert was to be an "industrial coach" who trained the worker to perform a certain task in what the Gilbreths called the "one best way."<sup>329</sup> Under the principle of functionalization and the full

---

<sup>328</sup> It is not clear whether the Gilbreths were aware of Edward Muybridge's studies of human motion or the anthropometry of Alphonse Bertillon, but they undoubtedly shared the zeal for measurement and classification. Frank Gilbreth did acknowledge the "chronophotography" of Etienne-Jules Marey but incorrectly claims, as Anson Rabinbach points out, that the latter was not interested in its application. ( Rabinbach, *Ibid.*, p. 335. ) What distinguished the Gilbreths from these earlier studies and other literature on human engineering is that they were trying to capture a normative relation between the body and its immediate material and spatial environment.

<sup>329</sup> See "Industrial Coach. How the Efficiency Engineer Studies the Human Machine," Scientific American Nov. 6, 1915. The work of the Gilbreths have been well documented by their own

implementation of mechanisms of social control, a concept of mono-functionalism-- defined as the pursuit of space and equipment that allowed only a limited set of designated motions-- was formulated. Under these conditions, "fitness" in design meant the elimination of unnecessary space and material surrounding the body.

What the Gilbreths had done, to borrow Daniel Bell's characterization, was to detach human movement from the person and make it an "abstract visualization."<sup>330</sup> Throughout the development of scientific management, graphic and linear presentation had been considered the privileged form of knowledge. In fact, the term "graphic management" could be substituted for its mode of intervention into the production process. According to Taylor, it was the role of the manager to classify, tabulate and reduce the empirical and scattered knowledge possessed by workmen into "rules, laws and formulae."<sup>331</sup> To represent a group of verbal propositions and a set of numbers into a line-- a graph, chart or diagram-- was to have abstracted from empirical data a set of basic lines of control; the dictum "Let lines replace figures" was an axiomatic principle of scientific management.<sup>332</sup> The diagram could thus be used as a device for regulating the human body as a functional unit. Its goal was to reduce and control the possibilities of space and time at all levels; a mode of representation that all at once embodied the ideology of control, efficiency and fitness.

As I had mentioned in Chapter III, the discourse of scientific management spread to virtually all institutions in American society. In its expansion outside of the factory, however, the kernel of the discursive formation of Taylorism-- the principles of

---

publications as well as several secondary sources. Among their numerous books, Motion Study, New York; D. Van Nostrand, 1911; Applied Motion Study, New York; Sturgis and Walton, 1917; and Fatigue Study, New York; Macmillan, 1919, are the most relevant to their investigations into the motions of the human body.

<sup>330</sup> Daniel Bell, Work and its Discontents, Boston; Beacon Press, 1956, p. 8.

<sup>331</sup> Taylor, Principles of Scientific Management, pp. 35-36.

<sup>332</sup> This phrase as well as the term "graphic management" appear in C. E. Knoeppel, Graphic Production Control, New York; The Engineering Magazine Co., 1920.

functionalization and standardization-- could no longer be sustained. The reasons for this are quite simple. First of all, the activity involved in most institutional routines, no matter how simplified, cannot be functionalized in the manner of the minimal divisions of factory labour. Secondly, with the exception of the most regimented institutions such as the prison or the military, the institutional mechanisms of surveillance and regulation in the factory are difficult, if not impossible to implement. Consequently, in the attempts to develop similar techniques of regulating patients, children, and housewives in what may be called "ordinary environments," there was a shift in the discursive logic of scientific management.

This transformation is immediately noticeable in the breakdown of the representational basis of the diagram provided by the principle of functionalization. Examine, for instance, the routing diagrams in Christine Frederick's Household Engineering ( 1915 ) [ fig. 68 ]. Though her ideas were not particularly original ( as the 1911 Hoosier Cabinet advertisement in fig. 69 shows, the idea of routing was not something new to the domestic literature of the time ), her illustrations became the most widely recognized examples of the routing diagram. There was, however, a leap from the micro-motion studies based on the minute division of labour in the factory to the circulation diagrams applied to the kitchen by Frederick. One can observe from fig. 68 that she distinguished just two kinds of patterns in the kitchen: the "preparation route" and the "clearing away route," each task signified by one continuous line. If she had actually adhered to the more minute divisions of work that were the basis of Gilbreth's work, her diagrams would be hopelessly muddled. It is thus not surprising that in Lillian Gilbreth's own contribution to kitchen planning that appeared in the March 1930 issue of Architectural Record, there were no routing diagrams.<sup>333</sup> Instead, Gilbreth

---

<sup>333</sup> After her husband died in 1924 and Lillian Gilbreth became a professor of management at Purdue University. She became actively involved with the rationalization of the kitchen. In 1930, she worked with the Brooklyn Borough Gas Company and the Herald Tribune and the editor of its Sunday magazine,



presented a comparison of two "process charts" of making a coffee cake required in two different kitchen lay-outs [ fig. 70 ]. If one were to devise routing diagrams based consistently on cyclegraphic representation, even the simple task of making a cake would result in several dozen separate diagrams; or if one reduced the number of diagrams, they would be virtually illegible.

One of the most interesting applications of Taylorism's conception of space, body and function outside of the factory, can be found in Mary Pattison's Principles of Domestic Engineering ( 1915 ). Notwithstanding the difficulties just outlined, Pattison attempted to maintain the "rule of the functional site." Unable to designate functions to the body, Pattison divided the body into its separate "requirements." In a chapter of her book titled "The Meaning of Rooms," Pattison began by classifying the "life of a family" into four "essential sides": "the physical, the intellectual, the social and the spiritual." In effect, Pattison had violated the basic idea of functionalization-- the principle that "Functions are not classified as they are embodied in particular men, but men are classified as they embody particular functions" ( see above p. 162 ). She then assigned a space or room to provide for each functional requirement of the body; as Pattison asked, "Are not the very partitions in a house, in order that the needs of the body be supplied each part, excluding the other sides for the time."<sup>334</sup> A room was thus defined by its designated activities.

---

Mrs. William B. Meloney, in the development of model kitchens. Meloney had been instrumental in establishing the Better Homes in America association as well as the Institute for Women. With Lillian Gilbreth, she devised a demonstration kitchen that the newspaper made widely known through its pages and a special pamphlet. In 1931, this kitchen was one of the main exhibits in the International Exhibition on Housing and Town Planning in Germany, more widely known among architectural historians for the Berlin Building Exposition that Mies van der Rohe organized.

<sup>334</sup> Mary Pattison, Principles of Domestic Engineering, New York; The Trow Press, 1915, p. 200. Pattison, along with Christine Frederick, were the two representative figures in the adoption of scientific management to domestic issues. Their magazine articles, pamphlets and books were enormously popular and exemplified an approach to the domestic environment that would later be institutionalized during the twenties and thirties. Unlike Frederick's publications, Principles of Domestic Engineering had no illustrations, but is a much more theoretical text. For a general introduction to Pattison's book see David P. Handlin, "Efficiency and the American Home," Architectural Association Quarterly 5, Oct.-Dec., 1973.

The logical way to furnish a home is to see first to the nature of the family, and then separate the parts into the principal sides, and these sides into their *unit* of composition. In other words, assemble in characteristic form the furnishings and material for each other. The drawing room for instance, is a room for congregation, spaced in such a way as to give opportunity for intimate, or friendly conversation, proper audience to music...and altogether a place to withdraw for social purposes.<sup>335</sup>

The task of planning the house was a matter of separating and reintegrating the units based on the functional requirements of its occupants. The plan of the home could thus be construed as a physiological map of the human body; and routing-- the control of movement in this system-- became the pursuit of a symbiotic relation between environment and inhabitant:

The routing that realizes the most perfect daily results is more than the kind of material used, and more than the separate tasks. It is practically the effect of one's closest environment, as it were, in its activity.<sup>336</sup>

These metaphors of scientific management invariably involved analogies with natural systems. The ultimate goal of "planning of a high order," one specialist in routing claimed, was to establish a "rhythm in manufacturing." Like the movement of the heavenly bodies that obey mathematical laws, "material flowing in a mass production shop is also governed by its laws."<sup>337</sup> When extended outside the factory, the daily routine of an efficient household, the office schedule of a secretary, or normative regularities such as the curriculum of a school, came to be regarded as natural patterns discovered through the science of routing.

---

<sup>335</sup> Pattison, *Ibid.*, p. 201.

<sup>336</sup> *Ibid.*, p. 78.

<sup>337</sup> John Younger, Work Routing in Production, New York; Ronald Press, 1930, pp. 98-99.

In the gap between the ideal diagram of the functionalized body and the panoptic utopia of an absolute functionalized space, the metaphor of the physical environment as a natural system-- the possibility of talking about the "function of a building," of "spatial function"-- was constructed. At the level of class ideology, the metaphor contributed to the formulation of what Daniel Bell called Taylorism's attempt to "enact a social physics."

Once work was scientifically plotted, Taylor felt, there could be no disputes about how hard one should work or the pay one should receive for labor. "As reasonably might we insist on bargaining about the time and place of the rising and setting sun," he once said. For a managerial class which at the turn of the century had witnessed the erosion of its justificatory mystique of "natural rights," the science of administration per se provided a new foundation for its moral authority.<sup>338</sup>

The metaphor was of course a way of talking about the physical environment and its inhabitants; the key trope of the discourse of the diagram. It facilitated the depiction of a building as a biological or, as I have already shown in Chapter III, a mechanical system with its own natural components and rhythms:

The office cannot be adequately conceived, either as merely a place or as a system... An office is more than the room which houses the operatives, or the framework or system which ties the parts together. When we speak of an office we should think of a living active, organization.<sup>339</sup>

Like this characterization of the office by Lee Galloway, a professor of commerce and an important exponent of Taylorism, one encounters in the literature of scientific management passages that read like statements concerning "organic architecture." At the center of this discourse was the object with which I had begun this inquiry, the human

---

<sup>338</sup> Daniel Bell, *Ibid.*, pp. 7-8.

<sup>339</sup> Lee Galloway, *Office Management*, New York; Ronald Press Co., 1919, p. iv.

body. As the eminent Taylorist Harrington Emerson wrote in the foreword to Principles of Domestic Engineering, the body was the object through which "every great principle" of social organization was "plainly revealed":

...as the apple-blossom is still in all its delicacy and beauty, visible in the thin cross section of the ripe apple, so also all sound human organization is but the fruiting of the bud that we find in the organization of the human body.<sup>340</sup>

Emerson's use of the term "cross section" was perspicacious in that the plans illustrated in the manuals of scientific management were concerned less with the form of the building or the room, than with the representation of an idealized and planned social pattern. In scientific management, the plan was a social diagram of regularized movements of materials and workers. Planning thus acquired as its object, a building that could be transcribed as a social and institutional pattern.

## **2) The Architectural Discourse of the Diagram**

As I had pointed out in Chapter III, the notion of evolving the plan from functional diagrams was well established by the end of the twenties. Articles such as the one titled "The N.W. Ayer Building Designed from an Organization Chart," published in the American Architect in 1931, clearly indicate the prevalence of concepts derived from scientific management in the architectural process. In the article, the architect of the N. W. Ayer Building revealed that he had been assisted by a firm of "Management Engineers and Building Planning Specialists" retained by the clients. They provided an "analytical

---

<sup>340</sup> Harrington Emerson, "Foreword," in Pattison, *Ibid.*, pp. 21-22.

study of the functioning of the organization" which "disclosed the interrelation of the various departments and the normal routing of work through them." Yet, like the Philip Sawyer article previously discussed, neither the functional chart nor the routing diagram appeared in the article.<sup>341</sup> Even until the late twenties, they could rarely be found in the architectural journals.

It was during the 1930s that architecture's version of the functional chart and routing diagram became a systematic part of architectural discourse. Diagrams were certainly not the invention of scientific management. They were often part of popular and technical manuals concerned with domestic issues and hygiene during the late nineteenth century.<sup>342</sup> For example, fig. 71 shows a circulation diagram illustrated in a nineteenth century advice book titled Notes on the Art of House Planning by Charles Francis Osborne. However, as noted in Chapter II, the popular advice books were at best marginal in the formation of the architectural discipline. Even Christine Frederick's The New Housekeeping, which was immensely popular throughout American society, had little impact on architecture. The significance of Frederick's circulation diagram for architectural theory and practice was more quickly grasped in Europe, particularly in Germany. In the politically charged climate of the Weimar Republic, Frederick's book was translated and enthusiastically endorsed by both the women's movement and the modernists in Berlin and Frankfurt. The most explicit use of the circulation diagram

---

<sup>341</sup> Ralph B. Bencker, "The N.W. Ayer Building Designed from an Organization Chart," American Architect 139, Jan. 1931, p. 43.

<sup>342</sup> For example, with the controversies over theories of disease transmission and the effects of air quality, diagrams showing the movement of air were often found in both popular and technical literature on ventilation. Diagrammatic analysis of sun angles and shadows seems to have had the longest history of use in architectural discourse. E.T. Potter's study of sun angles, appropriately titled "Diagram," published in the AABN in 1887 is one of the best known of nineteenth century examples. Coinciding with the emergence of the functional chart and circulation diagram in the thirties, sun angle diagrams began to appear frequently in the journals. See, for example, Howard T. Fisher, "Sunlight Analysis," Architectural Record 70, Dec. 1931; Erving I. Freese, "Pathways of the Sun," American Architect 145 & 146, Nov. 1934 & Jan. 1935; and "Site Planning and Sunlight as Developed by Henry Wright," American Architect 149, Aug. 1936.

appears in Bruno Taut's Die neue Wohnung ( 1924 ) [ fig. 72 ] and Alexander Klein's studies for the Reichsforschungsgesellschaft.<sup>343</sup> It was in fact Klein's studies that introduced the routing diagram to the American journals. They appeared as part of an article on "Efficiency in Apartment House Planning" in the March 1929 T.N.R. section of Record [ fig. 73 ]. It was a single page lay out with the subtitle "Illustrations of German Efficiency Studies" and just a note that they were taken from a November 1927 issue of Die Baugilde. There was almost no additional discussion, nor was Klein's name mentioned. The whole issue had been devoted to the planning of apartments, featuring Henry Wright's study of apartment types. Klein's diagrams were given further exposure through his own article in Architectural Forum and by Henry Wright, who perhaps made the most serious investigations into the German rationalist studies during the 1930s.<sup>344</sup>

Klein's diagrams, as well as other circulation diagrams that began to appear regularly in the journals during the thirties suffered from the same difficulties of the routing diagram when applied outside of the factory. For instance, a July 1933 article on

---

<sup>343</sup> The notion of an efficient and simple domestic environment did manifest itself in popular architectural trends such as the bungalow, as well as the more sophisticated designs of the Prairie School. Even in these cases, the concerns were expressed in terms of a general reform of domestic living and the advocacy of simplified designs. See Gwendolyn Wright, Moralism and the Model Home. Domestic Architecture and Cultural Conflict in Chicago, 1873-1913, Chicago; Chicago Univ. Press, 1980, and Cheryl Robertson, "House and Home in the Arts and Crafts Era: Reforms for Simpler Living," in Wendy Kaplan, "The Art that is Life": The Arts and Crafts Movement in America, 1875-1920, Boston; Museum of Fine Arts, 1987. For discussions of the German studies, see Gunther Uhlig, Kollektivmodell "Einkuchenhaus." Wohnreform und Architekturdebatte zwischen Frauenbewegung und Funktionalismus, 1900-1933, Berlin; Anabas-Verlag, 1981; Marjn Boot, et al., "La cucina 'razionale' nei Paesi Bassi e in Germania," in La casalinga riflessiva. La cucina razionale come mito domestico negli anni '20 e '30, Rome; Multigrafica Editrice, 1983; and Nicholas Bullock, "First the Kitchen-Then the Facade," AA Files 6, May 1984.

<sup>344</sup> See Alexander Klein, "Judging the Small House," Architectural Forum 55, Aug. 1931. Klein's diagrams also appeared in Milton D. Lowenstein, "Germany's Bauhaus Experiment," Architecture 60, July 1929, as the kind of studies mistakenly associated with the Bauhaus. The article also used other illustrations unrelated to the Bauhaus, such as Le Corbusier's Domino housing, Richard Neutra's Rush City project, and site plans for German Siedlungen. For other illustrations of Klein's diagrams, see "Planning the House Interior," Architectural Record 77, May 1935, and Henry Wright's discussion of Klein's studies published in chapters 14 and 15 of his Rehousing America, New York; Columbia Univ., 1935.

kitchen planning from American Architect carried a series of plans designed to "minimize waste motion and unnecessary steps" [ fig. 74 ]. Compared to Frederick's diagrams in fig. 68, these have moved even further away from the cyclegraphic representation of the movement of the body and equipment. More than the movement of the body, the arrows present the basic arrangement and shape of the kitchen. Another example of the fuzzy and inconsistent use of the diagram in architecture can be found in the illustration of two houses designed by George Howe in the mid-thirties, the William Stix Wasserman House and the Maurice J. Speiser House. Both houses were first published in Architectural Forum, the one in March 1935 and the other in February 1936. While the plan of the Wasserman House was plainly illustrated, the Speiser house plans in fig. 75 were overlaid with diagrams.<sup>345</sup> When the Wasserman house was republished in a book called The Modern House in America in 1940, the same type of diagram was drawn over the identical plans published in Forum five years before [ fig. 76 ]. Next to the plans Howe wrote that "The lines of human circulation in the plans are curvilinear axes of actual movement which replace the old rectangular axes of theoretical movement."<sup>346</sup> As Robert A.M. Stern points out, this statement should be understood in the context of Howe's growing interest in space, or what became a central concept for Howe during the late thirties, "flowing space." Putting aside the question of whether the Wasserman House actually evinces a sense of flowing space, however it may be construed, or whether the diagram was a generative tool or a mere afterthought, it is clear that Howe's

---

<sup>345</sup> Both the Wasserman House and Speiser House are discussed in Robert A.M. Stern, George Howe. Toward a Modern American Architecture, New Haven; Yale Univ. Press, 1975, pp. 162-174. There is however, no mention at all about the diagrams in the book. One possible factor in the sudden appearance of the diagram in the illustration of the Speiser House in February 1936 is his brief partnership with Norman Bel Geddes in the summer of 1935, formed after Howe had broken up with William Lescaze. Unfortunately, there is very little that is known about their collaboration that ended immediately.

<sup>346</sup> James Ford and Katherine Ford, The Modern House in America, New York; Architectural Book Pub. Co., 1940, p. 61.

diagrams have little to do with the body as a functional unit.<sup>347</sup> Like other examples of circulation diagrams in architectural discourse, they were rather abstract demarcations of spatial boundaries and indications of access [ fig. 77 ]. Contrary to Howe's assertions, the object of his diagrams in figs. 75 and 76 seem closer to the "theoretical movement" of David Varon's parti sketches in fig. 78 than the actual movement of the body that scientific management's routing diagram pursued.

The functional chart emerged as a systematic part of the architectural journal in the reference issues of Forum in 1933, and later in Record in 1939.<sup>348</sup> In fact, this coincided with important changes in the format of the journals, which will be examined in the next chapter. The focus, for the moment, will be on the nature of the diagrams themselves. The first of a series of functional charts to appear in Forum during 1933, was included in a March article called "The Country House. Room by Room," by Frederic Arden Pawley [ fig. 79 ]. Underlying the diagram, one discovers Mary Pattison's logic of dividing functional requirements discussed in the previous section. Like Pattison, Pawley begins with a "logical subdivision by function." According to Pawley, the house should have three basic "functional groups"; "(1) Social, recreational, cultural; (2) Individual, resting, bathing, dressing, exercising, etc.; (3) Dining, food preparation, and various service functions"; then for each group, a set of rooms, spaces and elements are assigned as separate units.<sup>349</sup> A comparison with scientific management's organizational charts, however, demonstrate that the boxes in this chart were not the functional units in figs. 67 and 68. The divisions of fig. 79 were of rooms, space and physical elements rather than departmental and productive units. Like the

---

<sup>347</sup> Stern provides a quote by Talbot Hamlin, who observed in The New International Yearbook of 1931 that the Wasserman House, despite its Corbusian aspirations, was a very "conventional plan." ( Stern, *Ibid.*, p. 163 )

<sup>348</sup> The earliest appearance of the functional chart that I have been able to trace was in W.P. de Saussure, "Hotel Front Office Equipment," Architectural Forum 51, Dec. 1929, p. 737.

<sup>349</sup> Frederic Arden Pawley, "The Country House. Room by Room," Architectural Forum 58, March 1933, p. 195.



circulation diagram, they provided indications of spatial proximity, accessibility and relative size. At the same time, the chart did not represent the building as a physical entity; the circumference of the rectangular boxes were not the sections of enclosing walls. As the functional chart became a codified part of architectural discourse, they began to provide more formal information. For example, fig. 80 from Record in 1939 and fig. 81 from a 1943 architectural study on school planning show functional charts with indications of scale, differentiated unit shapes and circulation lines. They were often regarded, more accurately, as a representation of *spatial* organization. The functional chart thus took on the character of the "bubble diagram."

Underlying this shift in the routing diagram and the functional chart is the different role of the human body in architecture's appropriation of the discourse of the diagram. In contrast to Gilbreth's standard man, which was defined by its function ( "the fastest worker, working under the direction of the man best informed in the particular trade as to the motions of best present practice" ), architecture's standard man was a spatial entity. This can be seen in the way the human body was adopted into architectural discourse during the thirties. The first articles published in the journals explicitly based on anthropometrical data were Lawrence Kocher and Albert Frey's "Dimensions" series in Record in 1932. The first installment was devoted to kitchen equipment and furniture, and began with an illustration of the "method for plotting heights of work surfaces and kitchen arrangement" developed by Lillian Gilbreth and the Brooklyn Borough Gas Company in the design of their model kitchens [ fig. 82 ]. The results of this "application of motion study to kitchen planning" had been published in the March 1930 Record mentioned in the previous section.<sup>350</sup> Kocher and Frey's article as a whole relied heavily on the data of home economists, particularly the reports that had been presented by the

---

<sup>350</sup> "Efficiency Methods Applied to Kitchen Design," Architectural Record 67, March 1930, p. 292. The measurement techniques were based on the studies conducted by Lillian Gilbreth. See also Lillian Gilbreth, "The Kitchen Practical," Brooklyn Borough Gas Co., 1930.

Committee on Kitchens and Other Work Centers at the President's Conference on Home Building and Home Ownership. ( Kocher and Frey had participated in the Conference, held a month before the publication of the article, as designers of two prefabricated farm house models that followed the requirements set up by the Committee on Farm and Village Housing. ) In simple graphic presentations, Kocher and Frey provided standard measurements for kitchen equipment as well as a minimum kitchen plan based on the data provided by home economists [ fig. 83 ]. In 1934, the standard anthropometrical figure of the "the average man" that was to be incorporated for many years in articles and manuals appeared in American Architect [ fig. 84 ]. Under the title "The Geometry of the Human Figure," the standard figures were drawn by Ernest Irving Freese, a Los Angeles architect and a well known expert on architectural graphics. Unfortunately, Freese does not provide any reference to his measurements and I have not been able to ascertain the source of his 5 foot 9 inch body. According to Freese, the "conventionalized human figure" represented the "average in size and conformation." These "diagrams" constituted "working drawings" of the human figure and dimensional extremes that influenced architectural planning and design.<sup>351</sup> The following year, American Architect published several articles on minimum spatial requirements that were based on these figures [ fig. 85 ]. In 1937, the notion of standard-minimum space was incorporated into a series that was called "Unit Planning." In nine installments it provided unit plans and standard

---

<sup>351</sup> Ernest Irving Freese, "The Geometry of the Human Figure," American Architect 144-145, July 1934, p. 57. One of the difficulties in locating the source of the figures, in the absence of any reference provided by Freese, is that by the early decades of this century, there is a multitude of studies related to anthropometry that could have been used. Art manuals, reports by scientific and educational societies such as the American Statistical Association, American Association for Advancement of Physical Education, medical, anthropological and biological journals such as Human Biology and the American Journal of Physical Anthropology, are just a few of the possible sources for his measurements. One interesting point is that Freese's average height of 69 inches is taller than most of the statistical measurements provided in these studies, which usually give the average height of adult males to be less than 68 inches. Considering the fact that Freese does not distinguish between male and female measurements ( though his diagrammatic figure is obviously a male figure ), his dimensions are inordinately large compared to anthropometrical data. On the other hand they are much smaller than the measurements provided by art manuals which generally adhere to the notion of the ideal dimensions of the 6 foot man.

arrangements that ranged from closets and stairways to kitchen, baths and class rooms. Through the use of "planning data of a standardized-unit character" architectural practice was to be simplified and enhanced.<sup>352</sup> For the architectural discipline, the human body provided a "natural" unit of measure for dimensional standards and standard plans.

At the same time, this spatial body provided the conceptual medium in forming a functional program. Perhaps the best example of the integration of the spatial body and functional planning in architecture was a set of studies called "Family Living as the Basis for Dwelling Design" conducted by the John B. Pierce Foundation in the early 1940s. John Hancock Callender, who had worked for the Foundation since the early thirties, introduced the series under the rubric of a "functionalist theory" of design. For Callender, this meant "the idea that the house should be planned to fit around the activities of the family in the same way that a tailor fits a suit around the human body."<sup>353</sup> Once again, it was Mary Pattison's logic of functional divisions that provided the point of departure; "family living" was divided into its "distinct functions" and designated as a spatial unit. Furthermore, "to avoid all preconceptions," Callender wrote, terms such as "space for sleeping" and "space for dressing" were used rather than conventional room names. In this scheme, Pattison's concept of the functional requirements of the body was transfigured into the general requirements of the architectural program. These requirements must be "fully determined and stated in specific and quantitative terms" and in this form they become the "specifications" for "scientifically designed" housing.<sup>354</sup>

The study of these spatial requirements was published in a booklet called "Measuring Space and Motion," co-authored by Jane Callaghan, who had assisted Lillian Gilbreth in the model kitchen studies at the Brooklyn Borough Gas Company, and

---

<sup>352</sup> "Unit Planning," *American Architect* 150, Jan. 1937, p. 87.

<sup>353</sup> John Hancock Callender, "Introduction to Studies of Family Living," John B. Pierce Foundation, 1943, p. 5.

<sup>354</sup> Callender, "The Scientific Approach to Design," *Prefabricated Homes*, May 1943.

Catherine Palmer. As their version of the cyclegraph in fig. 86 shows, the study involved photographic techniques of measurement similar to those of the Gilbreths. The authors, however, explicitly distinguished their work from that of scientific management in that the goal of their "Space-and-Motion Studies" was "to measure total used space."

Time and motion studies, a well known technic used in speeding up factory production, record and measure the motions themselves with the idea of changing them for efficiency in performance. This technic will be useful in studying the work functions, such as housecleaning, food preparation, etc. But here the aim was to measure space needed, as a first step in designing a dwelling that would free the family of all space limitations to healthful and comfortable living. It is recognized that changes in family living itself will inevitably follow design based family living, and, in fact, that the quality of these changes will be the measure of the success of the design. Our primary purpose, however, is to measure space requirements of family functions in order to redesign the dwelling and not to redesign family living.<sup>355</sup>

The specific product of this study was a set of "space shapes" for each function, the minimum space needed for dressing or tying shoe laces [ fig. 87 ] The study also included an investigation into the space that was occupied as the body moved through a room, thus coming closer to the representational basis of the circulation diagrams just discussed [ fig. 88 ]. The body then had a dual role. On the one hand, it provided the medium for conceptualizing a general set of functional requirements. On the other hand, space could be represented not by the enclosure of walls, columns and vaults, but by the physical presence of the human body. It allowed the architect to delineate spatial boundaries without drawing walls.

---

<sup>355</sup> Jane Callaghan and Catherine Palmer, "Measuring Space and Motion," John B. Pierce Foundation, 1943, p. 4.

If the body was situated between function and space, the discourse of the diagram constituted a discursive level of planning between the program and the architectural plan. On the one hand, it was the medium through which architectural discourse moved in and out of the program. Once again, we turn to John Hancock Callender's description of this role of the diagram in an article on school planning in Forum's 1933 reference series. Echoing the views of the the Pierce Foundation's Director of Research, Robert L. Davison, he stated that planning should begin with "modern educational theory as a base, using past practices as a check only."<sup>356</sup> Following the standard format of the Forum series, Callender introduced the functional chart in fig. 89:

Based upon modern educational trends, with provisions for rooms and activities not found in schools of older type, this chart serves as an outline for planning. Logical grouping of *units*, chosen in accordance with the specific needs of the community and its educational program and molded into a plan well oriented and flexible, is the theory of modern elementary school planning.<sup>357</sup>

For Callender, the chart, predicated on the separation of functional units, was itself a manifestation of the theory of school planning and offered a natural mode of representation in formulating a necessary relation between the program and architectural plan. Architecture thus responded, at the ideological level, to the demands expressed in following passage from a manual on factory management:

It has been well said that plant design has passed through three stages. The first stage was when factories were housed in "just buildings"; the second when architecture was employed to improve the appearance of such

---

<sup>356</sup> John Hancock Callender, "New Day Elementary Schools. A Study of Architectural Developments Keeping Pace with the Requirements of Progressive Education", Architectural Forum 59, Dec. 1933, p. 481. Callender, who is now best known as the author of the Time Saver Standards, also contributed another article on the planning of distilleries in the series.

<sup>357</sup> *Ibid.*, p. 480.

structures; and the third, the present stage, when industrial buildings are designed to "fit the processes" carried on within them, and form an integral part of the production scheme. Many such recently constructed plants may be looked upon as in themselves "big machines" containing and coordinating all the "little machines."<sup>358</sup>

In effect, architecture came to share, or more appropriately, was caught in the metaphorical trope of spatial function: the proposition, reiterated by Callender in the article above, that the school should be designed so that "it shall not merely house these activities, but shall function as a working part of the process of education."<sup>359</sup> The metaphor was the central ideology of functional planning in architecture, the point where the architectural profession identified its role in the intervention into social institutions and its program.

At the same time, as I pointed out in my discussion of Principles of Domestic Engineering, the Taylorist principle of the functionalization of body, space and equipment did not correlate with Pattison's logic of classifying space along the functional requirements of the body. In architecture, as in domestic engineering, the conception of function as a minimal set of designated motions cannot be maintained. Yet, despite the breakdown in the representational and logical coherence of the principle of functionalization, the object of Pattison and Frederick's discourse continued to be the body. In the absence of more direct methods of surveillance, diagrams, charts and spatial divisions were used as mechanisms of self-regulation. In the architectural discourse of the diagram, on the other hand, the body was not its direct object. The architectural discipline and scientific management moved in different directions. As we have seen in fig. 66, all the mechanisms of control moved towards the "docile body." The diagram in

---

<sup>358</sup> Arthur G. Anderson, Industrial Engineering and Factory Management. New York; Ronald Press, 1928, p. 94.

<sup>359</sup> Callender, "New Day Elementary Schools," p. 481.

scientific management was essentially a regulating device, whose function was to reduce, eliminate and control the ponderous and unpredictable nature of space. Architecture, for all its willingness to oblige the imperative of social control, did not design function.<sup>360</sup>

In the linear movement from the program to the plan, the architectural diagram provided a bridge toward the architectural plan. By definition, it will always stop before the actual design, but at the same time, allow the architect to talk about the design. To reiterate an earlier point, with the discourse of the diagram, a discursive level of planning was made possible without the notion of material confinement. The diagram, unlike traditional architectural drawings that formed a system of self-referential representations of architectural objects, denoted concepts and objects external to the building: the movement and activity of its occupants, the flow of air, the exposure to sunlight, i.e., the "function" of the building. The basic principle of correspondence in architectural representation-- the idea of projection and description between two dimensional drawings and the actual or imagined object -- was no longer operative. The key to the diagram is the notion that it represents not what one "sees" but what one "knows"; that it was not based on visual perception but a conceptual image. As a prominent equipment engineer

---

<sup>360</sup> My argument here runs against some recent critics who have also appropriated Foucault's writings to demonstrate architecture's complicit relation with institutional management. I have in mind two articles, Robert McAnulty's "Body Troubles" and Mark Rakatansky's "Spatial Narratives," that appear in John Whiteman, et al., eds., *Strategies in Architectural Thinking*, Cambridge, MA; MIT Press, 1992. Robert McAnulty, for example, misreads Foucault's analysis of architecture as a thesis that "architecture is clearly complicitous with the disciplinary structures of power" ( p. 184 ); and according to Rakatansky, it is this similarity between the "structure of institutions and architecture" that brings about an "interchangeability of inhabitation and management." ( p. 205 ) Foucault has himself stated, as late as 1982, that his analysis of architecture remained "vague." Clearly Foucault did recognize architecture's participation in disciplinary mechanisms: "[architecture ] is not only considered as an element in space, but is especially thought of as a plunge into a field of social relations in which it brings about some specific effects." However, he was also careful to distinguish the designs of institutions that relied on rigid mechanisms of control from the more regular practices of architecture. For Foucault there were only a "few simple and exceptional examples in which the architectural means reproduce, with more or less emphasis, the social hierarchies. There is the model of the military camp, where the military hierarchy is to be read in the ground itself, by the place occupied by the tents and the buildings reserved for each rank. It reproduces precisely through architecture a pyramid of power; but this is an exceptional example, as is everything military-- privileged in society and of an extreme simplicity." ( "Space, Knowledge and Power," *Skyline* March 1982. p. 20. )

stated, it was a "mental picture" of the functions of the building.<sup>361</sup> The diagram presented an immediate and abstract form of knowledge unmediated by precedent, thereby shifting architectural representation away from visual memory.

Because of the duality of the diagram, its ability to link but at the same time to form an indeterminate relation between program and plan, the diagram could be regarded as a mediating device. One of the most specific expositions concerning this role of the diagram can be found in a 1937 article for Record by the French trained American architect Paul Nelson. In this article titled "A Method of Procedure in Architectural Design," Nelson set up his "method of approach for architectural problems" in three "stages": "The Nonarchitectural Analysis-- abstraction in terms of life; The Architectural Analysis--abstraction in terms of space; The Architectural Synthesis-- concretion in terms of architecture."<sup>362</sup> Notwithstanding his very different vocabulary from the planning articles we have examined, Nelson made the familiar assertion that the architectural project must be initiated without any formal preconceptions.

The work of [ the first stage of Nonarchitectural Analysis ] is abstract because entirely nonarchitectural. Effectually neither the architect, his collaborators, nor the client must think or speak architecture, otherwise its natural growth will be deformed. Any preconceived ideas of form, style, etc., will only tend to limit the life to them, whereas architecture should be born from life and takes the organic form imposed by it.

The second stage was "devoted to the translation of the nonarchitectural analysis into an architectural program." Diagrams, which were characterized by Nelson as "schematic and flow process drawings" that established "ideal space arrangements" and "ideal

---

<sup>361</sup> W.P. de Saussure Jr., "Hotel Front Office Equipment," Architectural Forum 51, Dec. 1929, p. 737.

<sup>362</sup> Paul Nelson, "A Method of Procedure in Architectural Design," Architectural Record 81, June 1937, p. 53. The work of Nelson has recently been examined in Terence Riley and Joseph Abrams, eds., The Filter of Reason: The Work of Paul Nelson, New York; Rizzoli, 1990.



schemes of interrelationship," became crucial in this "translation," a term invariably used in the planning articles to express the notion of moving from the verbal program to the architectural plan. It was in the third stage that a yet "unforeseen" architectural design was "crystallized."<sup>363</sup> In the paradigm of a linear design process in which the project was initiated by "nonarchitectural" propositions, the diagram was deemed to retain the possibility of generating form which words could not. The diagram typified a kind of knowledge that lay somewhere in the middle of pictorial representation and verbal knowledge.<sup>364</sup> It affirmed the gap between the program and architectural design, and at the same time promised to be a kind of translating machine that traversed the fuzzy realm between words and images. We may recall Stanley Taylor's proposition outlined in Hotel Planning and Outfitting that the functional plan should gradually "unravel" into an architectural plan. The key point in this unravelling process was less its automatic nature than the fact that such a methodical process itself was required. The discourse of the diagram was essential in forming a method that was apparently logical but would always produce new and unforeseen results.

During the 1930s, the discourse of the diagram found its most efficacious application in housing. The notion of *housing*, as distinct from the design, production, and distribution of individual houses, was a problem which the institutional formations of academic professionalism had difficulty dealing with. As I had pointed out in my discussion of the Plan Books and the A.S.H.S.B., the logic of the stock plan was

---

<sup>363</sup> Ibid., p. 54.

<sup>364</sup> This perception of the diagram was reaffirmed in the 1960s, most conspicuously by Christopher Alexander in his Notes on the Synthesis of Form, and the urban design theories of Donald Appleyard and Kevin Lynch, exemplified in The View from the Road. It remains persistent in the most recent studies in design methods. See Stephen M. Ervin, "The Structure and Function of Diagrams in Environmental Design: A Computational Inquiry," Ph.D. Dissertation, MIT, 1989, where the author writes: "Diagrams appear at the threshold between the graphical and the non-graphical. Though diagrams themselves are graphical artifacts, the information they contain is not essentially graphical; it is equally in some propositional ( verbal/textual/logical/symbolic ) form. Since diagrams are graphical, graphical inferences may lead to a reformulation of the diagram, as part of an argument, or chain of reasoning. Likewise, since they are graphical, they may be further developed into more pictorial drawings." ( p. 44 )

unacceptable to the traditional formations of architecture because it relinquished the possibility of an autonomous profession and discipline; the plan was a complete commodity that circulated within the market. One may recall that even in the framework of American Architect's consumerist discourse, the stock-plan was opposed, as emphasis was shifted away from material documents to the notion of architectural service ( see above p. 113 ). In confronting the problem of housing, the profession had to meet the imperatives of economic feasibility while maintaining some independent domain for its services. In the case of market housing, designs had to satisfy a certain margin of profit, while in government subsidized housing, there were even more severe restrictions that had to be met. At the level of the discipline, the difficulties lay in two inter-related aspects of the architectural program. First, since there was no specific client-occupant, a general architectural program for what was often referred to as the "average American family" had to be devised. To once again use John Hancock Callender's expression, "The problem was how to obtain the data on which to base a design for housing not one, but several thousand, families."<sup>365</sup> Secondly, the traditional concept of the architect's design as a singular response to a particular set of requirements was no longer operative.

During the 1930s and 40s, architectural journals were strewn with articles responding to the architectural task of housing design.<sup>366</sup> The most common objective of these articles was to elaborate a method of planning the domestic environment. One of the more notable examples of this type of article was published in the January 1936 issue of Architectural Forum titled "Small Houses for Civilized Americans." It was written by the architectural firm of Fordyce and Hamby, who were at the time engaged in the design

---

<sup>365</sup> Callender, "Introduction to Studies of Family Living," p. 5.

<sup>366</sup> With almost no activity in other sectors of the building industry, the 1930s was one of the few periods in American architecture when housing was at the center its attention. Housing emerged as an architectural issue after the Depression as government related projects, large private real estate developments backed by the newly established Federal Housing Administration, and private corporations looking towards industrialized housing as an outlet for production, provided opportunities for architectural activity.

of houses for speculative real estate developments. Their opening statement encapsulated the role of the discourse of the diagram in the design of housing in the private market.

Architecture is space enclosed for a reason. And the reason is all important. Recognizing the absence of any coordinated, scientific data on the "reasons" behind small house architecture, this study examines the house room by room, defines its space in terms of use. It makes no attempt to re-create the social order to fit the house, but, rather, re-creates the house to fit existing needs. Thus from the "reasons" are established criteria of minimum standards. No patent medicine formula. No magic. Fordyce and Hamby have treated the house as a commodity -- as merchandise.<sup>367</sup>

The authors claimed that the central purpose of the article was to provide a "method of approach": "The method described here is basic-- it can be used for any development, no matter what size the houses or what class the market."<sup>368</sup> The universality of the method was crucial because of the very nature of housing design:

Designing a house for a family you have met and whose way of living you know, is rather simple compared to designing a speculative house for an unseen family. The latter is a little like shooting at a very thin bird on a dark night. The shot must have a wide pattern.<sup>369</sup>

Fordyce and Hamby then went on to elaborate the basic principles of their method. At the first tier of principles, they identified four general criteria in the design of "better living facilities: "Utility , Flexibility, Circulation, Orientation"; the most important being utility, which was the problem of "fitting the space to the functions." Each item was

---

<sup>367</sup> Allmon Fordyce and William I. Hamby, "Small Houses for Civilized Americans," Architectural Forum 64, Jan. 1936, p. 1.

<sup>368</sup> *Ibid.*, p. 6.

<sup>369</sup> *Ibid.*, p. 7.

basically comprised of a set of simple axiomatic statements accompanied by circulation and bubble diagrams [ figs. 90 ].

At the second tier of consideration was the "personality" of the house, defined as "the sensory appeal which arouses the buying urge." This consisted of the "type of appearance," "selling gags," and "color." Fordyce and Hamby, in a moment of anachronistic retreat, added that true "style" was something quite different from mere appearance. This issue, however, would be deliberately avoided because it was deemed too "complicated and philosophical." The appearance of the house was then a totally different problem from the rational problem of planning. It was something best left for surveys of consumer preference to determine: "The question is not whether people want Traditional or Modern Types, but how many people want each type. The answer should be a reasonable indication of the number of houses to be built in each type."<sup>370</sup>

According to Clifford Edward Clark's study of the American home, there were more than forty-one such surveys conducted between 1936 and 1950.<sup>371</sup> They were concerned with the preference of home buyers, and conducted primarily by women's magazine's such as Ladies Home Journal, McCall's, Good Housekeeping, Better Homes and Gardens, etc.[ fig. 91 ]. We have in fact already encountered the logic of Fordyce and Hamby's article in Chapter IV, when I discussed Robert L. Davison's article on the "Effect of Style on Cost" ( see above pp. 130-131 ). In isolating planning as a rational method, the discourse of the diagram was able to shift the discipline away from the material document-- from both the portfolio and the stock plan-- and the problematic issues of style and representation. As one letter on Fordyce and Hamby's article stated, "Here at last we have a pattern of approach for deductive analysis instead of a portfolio

---

<sup>370</sup> Ibid., p. 22.

<sup>371</sup> Clifford Edward Clark, The American Family Home, 1800-1960, Chapel Hill; Univ. Of North Carolina, 1986, p. 201.

for 'inspiration' or ( more boldly stated ) copying."<sup>372</sup> Furthermore, style or "type of appearance" could be treated as a residue of the architectural discipline, and inserted in the consumer market. Architecture could now participate in the market and yet maintain an explicit and independent disciplinary formation.

The discourse of the diagram was also present in the architectural interventions of the public housing of the 1930s. In 1935, the technical staff of the Housing Division of the Public Works Administration produced a set of "Sample Plans and architectural "standards" to be followed by project architects. These unit plans and standards were published in separate Government documents as well as in articles that appeared in American Architect, February 1935 and Architectural Record, March 1935 [ fig. 92 ]. Not surprisingly, the Housing Division insisted that the objective of these plan studies was the "establishment of standards of planning rather than standardization of plan."<sup>373</sup> The sources for these planning standards and unit plans were most explicitly outlined in the special issue of Record mentioned above. A "check list" called "Apartment House Planning Requirements," in all likelihood the work of Lawrence Kocher, was provided as a "supplement" to the studies undertaken by the Housing Division.<sup>374</sup> Under the heading of "BUILDING DESIGN," a set of recommendations by the National Association of Housing Officials and home economists was included, which explained the rationale for this system.

The degree to which design of housing should be influenced by the present living habits of the proposed tenants is a very debatable question.

Experienced social workers have come to the conclusion that it is not practical

---

<sup>372</sup> Letter from George R. Metzger published in Architectural Forum 64, March 1936, p. 9.

<sup>373</sup> U.S. Federal Emergency Administration of Public Works, "Foreword," in Sample Book, Washington, D.C., May 1935.

<sup>374</sup> The article itself did not indicate the author. However, its format was similar to other reference articles that Kocher co-published with Albert Frey in Record during the mid-thirties. In addition, the inventory of A. Lawrence Kocher Collection, Colonial Williamsburg Foundation Library, lists this section as Kocher's writing.

to formulate housing plans by asking the prospective tenants what they want. The families usually do not know what they want or their demands are so varied and out of reason that they form no sane basis for design. The most that can be done is to study:

#### DISTRIBUTION OF FAMILY SIZE.

Studies serve as a means of determining the number of dwelling units of various sizes to be provided.

#### DESIGN BASED ON STUDIES OF EFFICIENT HOME ECONOMICS

This will entail an examination of recommendations of qualified bodies regarding minimum efficient room sizes and domestic equipment.

The experience and opinions of social welfare workers who have intimate contact with the low wage-earning class and whose conception of minimum decent housing is based upon practical experience will be a valuable check on over-ambitious architects or others.<sup>375</sup>

The unit plans were thus backed by a universal set of criteria: research by home economists, the dimensional standards of industrial production, and rational restrictions to architectural form such as sun angles and ventilation [ fig. 93 ]. Though the plans were to be repeated as types, the architectural discipline of housing design no longer hinged on the logic of the stock-plan.

Notwithstanding the battle between private housing and direct government intervention that has continued for many decades since the 1930s, both ideological formations appropriated the discourse of the diagram in forming the kernel of its mode of design intervention. In both instances, the discourse of the diagram shifted the locus of the discipline away from the standard plan to the notion of planning standards and the process of planning. In the case of public housing, it had two key functions. First of all, as Wolfgang Rudorf points out, it formed a system that would produce uniformly

---

<sup>375</sup> "Apartment House Planning Requirements," Architectural Record 77, March 1935, pp. 171-172.

controllable and predictable results in each project regardless of its individual context.<sup>376</sup> Secondly, it provided the scientific basis for governmental authority's to impose its notions of the right way of living. In the problem of the small house and mass housing, with the absence of a specific client to provide a set of individual needs, the discourse of the diagram itself took on the character of a generic program. The problem of economic, technical and social restraints became a general constraint to the discipline. The domestic environment provided the setting in which the body as a locus of functional requirements could be directly appropriated as an architectural program, and where planning was formulated as a universal method of translating requirements into an architectural plan. It was in housing that the discourse of the diagram was assimilated in its purest form.

---

<sup>376</sup> Wolfgang Rudolf, "The Housing Division of the Public Works Administration in its Architectural Context," Masters Thesis, MIT, 1984, p. 11. Despite this critical evaluation Rudolf comments that a "need for immediate realization of a housing program and the lack of experience of the architectural profession with regard to social housing, the provision of the architects with a handbook offering reproducible models may have been inevitable." ( p. 56 )

## VI. The Reconfiguration of Architectural Discourse, 1928-1943

### 1) Architectural Graphic Standards and the Development of the Modern Reference Manual

During the 1930s, the "reference manual" emerged as a new genre of architectural discourse. Adopting the emerging concepts, objects and representational methods of the discourse of the diagram, it entered and transformed a discursive field traditionally occupied by the construction manual, catalogue and planning manual. The two representative manuals published in America, Charles G. Ramsey and Harold R. Sleeper's Architectural Graphic Standards ( AGS ) and Time Saver Standards ( TSS ), perhaps the most widely used architectural texts of this century, both originated in the 1930s. They were just two of several texts that established this distinctly modern architectural manual. Though the reference manual is now published in bound books, during this initial period of development, most of the data first appeared in journal articles. In fact, the first edition of AGS was an exception in that almost all of its plates were published for the first time in book form.<sup>377</sup> In the case of TSS, there were two different series. The first began as part of a "Reference Data" section in American Architect's July issue of 1935. Two years later, the data sheets that had appeared in the journal as the "Time Saver Standards" ( TSS ) and the "Time Saver Standards of

---

<sup>377</sup> It should be noted that much of the additions to its second edition of 1936 were articles from the American Architect contributed by its authors Harold R. Sleeper and Charles G. Ramsey. European examples of the reference data can be found in Ernst Neufert, Bau-Entwurfslehre, Berlin and in Planning, The Architect's Handbook, London which were both published as a single volume in 1936. The latter was published for the journal Architecture and Building News while the former appeared as loose-leaf sheets in the journal Bauwelt the year before. Another British periodical, The Architect's Journal ran a series of data sheets between 1933 and 1934 that were published later as The Information Book and The Architect's Journal Library of Planned Information by the Architectural Press. The Japanese reference manual 建築設計資料集成 ( Architectural Design Data Collection ) was first published in 1941 by the Japan Society of Architecture. Some information on Neufert can be found in Anna Teut, "Von Typen und Normen, Massreglern und Massregelungen," Daidalos 18, Dec. 1985.



Advertised Products," could be acquired in a binder. When Record purchased American Architect in early 1938, it began the second TSS series in a different format. The direct antecedent of the present TSS goes back to its first edition published in 1946 by Record. It was compiled from articles published in a new department begun in 1937 called "Building Type," which will be discussed in the next section, as well as the sheets that had previously appeared in American Architect. Pencil Points published its "Draftsman's Data Sheets" ( DDS ) between 1932 and 1942, which came out in a bound book two years later as Data Sheets.<sup>378</sup> Other notable publications of reference data in journals, not incorporated into book form, were Record articles published between 1931 and 1934 by Lawrence Kocher and Albert Frey, including the "Dimensions" series mentioned in Chapter V [ figs. 67 & 68 ]; Architecture's series on "Working Drawings" [ fig. 94 ]; and the "Architectural Forum Data and Detail Sheets" that began in June of 1932 [ fig. 95 ]. Among these various titles, AGS was the most consistent and lucid in organizing its objects, strategies and format.<sup>379</sup> According to Harold Sleeper's own recollection, it was AGS that "inaugurated a major change in format, content, and manner of presentation" in the design manual.<sup>380</sup> My study is thus centered on AGS, because more than any other reference text, it provides insight into the continuity and innovations involved in the reorganization of the discourse of reference.

Ramsey and Sleeper, at the time of AGS's production, were both working in Frederick Ackerman's office. Though the name of Ramsey, who was almost 10 years Sleeper's senior, appeared first in the publications, AGS seems primarily the work of the

---

<sup>378</sup> Don Graf, Data Sheets. Thousands of Simplified Facts about Building Materials and Construction, New York; Reinhold Pub. Corp., 1944 ( 2nd ed., 1949 ).

<sup>379</sup> "The Architectural Forum Data and Detail Sheets" was concerned primarily with dimensions of equipment and furniture and followed the representational mode of the AGS but was discontinued by the end of the year. Architecture's series on "Working Drawings," provided just one section plate a month, and was not an important aspect of the journal.

<sup>380</sup> Sleeper, "The House of Wiley and a Century and a Half of Architecture," type-written manuscript dated Feb. 28, 1956, p. 6. Harold Reeves Sleeper Papers, Department of Manuscripts and Archives, Cornell University.

latter.<sup>381</sup> Like his employer, Sleeper ( 1893-1960 ) had studied architecture at Cornell and in 1919, began work in what was then the office of Trowbridge and Ackerman. When Ackerman formed an independent office during the mid-twenties, Sleeper became his chief specification writer, and eventually an associate in 1928.<sup>382</sup> Throughout the twenties, Ackerman's office meticulously collected data as a general practice, and as we have already seen in their contributions to Record and Forum, conducted surveys and research in relation to specific projects. Sleeper himself wrote numerous articles on planning, specifications and materials, and until the late 1950s, was perhaps the most active American architect in producing practical data.<sup>383</sup>

Ackerman was undoubtedly a driving force in this work, particularly during the late twenties and thirties. In his foreword to the first edition of AGS, Ackerman summarized the basic project of the book, which effectively expressed what were by then long-standing concerns of the architectural profession.

Twenty-five years ago, working drawings and specifications of important structures were turned out without reference to other than a few documents dealing with materials and the techniques of fabrication and assembly. During the intervening period no less than a revolutionary change has taken place.

---

<sup>381</sup> I have not been able to trace the precise circumstances in which the Sleeper and Ramsey team was commissioned by the publishers John Wiley and Sons. John Wiley and Son's was founded in 1807 as the "House of Wiley," concentrating primarily on engineering texts. Among its notable architectural books published in the nineteenth century were Downing's Cottage Residences ( 1842 ) and Country Houses ( 1848 ) and Frank E. Kidder's Architect's and Builder's Pocket-Book. W. Bradford Wiley, in a publisher's note that appeared in the first student's edition of AGS, writes that Martin Matheson, who was at the time Advertising and Sales Manager, had persuaded Ramsey and Sleeper to "develop their ideas and prepare the plates." Bradford Wiley also indicates that it was Ramsey's connection with the publishers through an earlier "Wiley textbook," that he had authored, which led to the commission. Wiley does not specify the title of the book but in all likelihood it was Architectural Details published in 1924 and actually coauthored by Louis Rouillion and Ramsey.

<sup>382</sup> Ackerman's office was eventually continued in 1950 as Sleeper, Ramsey and Schwartzman, Associated Architects.

<sup>383</sup> Due to the great success of AGS, Ramsey and Sleeper became involved in several planning and data articles in American Architect that were incorporated into later editions. They were also invited by Lawrence Kocher to make contributions to Record, but no articles actually came about from this proposal. Letters in the Sleeper papers also indicate that Wiley had thoughts of involving Sleeper in a new edition of Frank E. Kidder's Architect's and Builder's Pocket-Book.

The production of a competent set of drawings, today, necessitates reference to a vast amount of widely scattered information covering an endless list of materials and items of one sort or another-- all of which involves highly specialized methods of production and assembly. Failure to produce drawings in conformity with current practice imposes a serious burden of additional cost without compensating gains.

This modern store of factual knowledge is too complex and extensive to be memorized. It is scattered through an endless number of books, pamphlets, reports, and documents of all sorts. Important facts are so deeply buried in the body of literature that they only come to light in the course of research...[ AGS ] is a serious attempt to confine within a book of reasonable dimensions the essential factual references by the architect, draughtsman, and builder in the course of the day's work.<sup>384</sup>

We may recall that it was in fact some twenty-five years before the appearance of AGS that Thomas Nolan expressed similar concerns of the "reference problem" in the first edition of Sweet's Indexed Catalogue: the problem of the immense dispersion of technical information brought about by modern industrial conditions. The reference problem was in fact a persistent issue throughout the early decades of the century, and for architectural offices to function, a way of systemizing information had to be devised. For instance, one architect suggested in the December 1920 issue of Forum, that because relevant data was scattered about in "hand-books, text-books, building codes, insurance regulations, magazines, manufacturers' catalogs and note-book jottings," each office should devise its own data file. The data would be organized on 5 by 8 inch cards, and in the case of standard size details, they could be "slid under the tracing and made to fit the desired location and then copied line for line through the linen."<sup>385</sup>

---

<sup>384</sup> Frederick L. Ackerman, "Foreward", AGS, 1932.

<sup>385</sup> H. Vandervoort Walsh, "The Draftsman's Own Data File," Architectural Forum 33, Dec. 1920, p. 201. See also Albert C. Woodroof, "Saving Time in the Drafting Room," American Architect 142, Oct. 1932, where the author suggests that the architectural office should keep their own "standardized detail sheets" filed.

The ambition of AGS to systematically solve the problem of reference was clearly not a new one. It was a response to the need of the profession to devise a system that could bring together the functions of various genres of reference-- most importantly the construction manual, manufacturer's catalogue and advertising-- into a single body of text that was integrated with the design procedure of the architect's office. According to Ackerman, what distinguished AGS from other reference material was its mode of representation:

Graphic presentation is the language of the draughting room. This accounts for the absence of text. The plates, in many cases, constitute translation into this simple language of facts that are often obscured by words.<sup>386</sup>

Ackerman was here referring to the verbose nature of the multi-volumed construction manual and pocket books as well as what the profession widely regarded as the superfluous and irrelevant copy writing of catalogues and advertisement. It was however, not simply the graphic nature of AGS that separated it from other manuals. As far as subject matter was concerned, AGS was a hybrid of the construction manual and the catalogue, the two primary genres of reference. In order to understand the specific innovations of AGS, I will examine the policy and format of some key texts that may be considered its predecessors: namely Sweet's catalogue and the more graphic forms of the construction manual.

In the case of Sweet's, its initial solution to the catalogue problem, as I had discussed in Chapter II, consisted of providing a unified format that controlled the layout and bulk of the manufacturer's catalogues in a single volume. This method, however, was already proving to be untenable by the mid-teens when a single volume Sweet's had approached two thousand pages. In 1914, the A.I.A. committee on the Standardization

---

<sup>386</sup> Ackerman, "Foreword", AGS, 1932.

of Sizes of Advertising Matter criticized such compilations as "sundry schemes...by outside parties whose incentive is that of obtaining a fee from the advertiser. All are familiar with the huge and unwieldy permanently bound volumes of extracts from the catalogues of advertisers, whose matter may or may not appear in the next issue."<sup>387</sup> In 1926 the Sweet's expanded from a single volume to a three volume set, and by 1938 it had reached 5 volumes. Since the late twenties, Sweet's evolved a classification system which approached the organization of trades, and in 1927 began to insert manufacturer's catalogues without any reformatting. By the end of the thirties, most of them took the form of "cover catalogues" that had their own pagination, and were filed under the appropriate trade classification [ fig. 96 ]. These cover catalogues would sometimes reach several dozen pages of assorted advertisements and miscellaneous data and advice, which was exactly the problem that the original Sweet's had hoped to overcome. To borrow Sweet's own characterization, its cataloging system had changed from the "form of standardized, encyclopedic listings" to a system in which manufacturer's catalogue were treated as a "complete, prefiled and classified unit."<sup>388</sup> This transformation was also reflected in the change of its title from the original "Sweet's Indexed Catalogue of Building Construction" to Sweet's Architectural Catalogue, and in 1933, to Sweet's Catalogue File. In effect, by the late twenties, Sweet's had abandoned the project of providing a "scientific standard catalogue" through condensing and formatting, and began taking the shape that basically continues today.

In terms of format, the closest predecessors to AGS were the construction detail manuals. The use of sheets of standard construction details, often mistaken to be an invention of AGS, had been published before the turn of the century. Two notable

---

<sup>387</sup> This is quoted from the summary of the report of the Standing Committee on the Standardization of Sizes of Advertising Matter, published in JAIA 2, July 1914, p. 357.

<sup>388</sup> "Progress in Supplying Primary Buying Information," Architectural Record 79, April 1936, p. 71 ( advertising section ), and "Sources of Buying Information Used in the Building Market," Architectural Record 79, June 1936, p. 64 ( advertising section ).

examples of these manuals, which may be considered a sub-genre of the construction manual, were Francis W. Chandler's Construction Details ( 1892 ) and Clarence A. Martin's Details of Building Construction ( 1899 ).<sup>389</sup> Plates illustrating construction sections were also provided by manufacturers, and during the twenties, there were at least four new books on architectural details published [ figs. 97 & 98 ]. These included a 1924 Wiley publication that Ramsey coauthored with Louis Rouillion called Architectural Details. Many of its designs were taken from the houses that Trowbridge and Ackerman had developed for the Curtis Company's standard lumber products [ fig. 99 ]. Ackerman explained that the designs were developed from the "standpoint of averages"; from a study of "those forms which had been most frequently used by architects of recognized standing and ability."<sup>390</sup> Though section details were its primary contents, it was organized to deal with various problems concerning drafting, perspective, and the whole range of drawings involved in architectural presentation [ fig. 100 to 102 ].

The closest predecessor to AGS was Philip G. Knobloch's Good Practice in Construction, published by Pencil Points in two volumes in 1923 and 25. The manual was quite popular during the twenties and was considered by John Wiley and Sons during the early planning stage of AGS as a possible competitor.<sup>391</sup> The process of

---

<sup>389</sup> Francis W. Chandler, Construction Details Prepared for the Use of Students of the Massachusetts Institute of Technology, Boston; The Heliotype Printing Co., 1892, and Clarence A. Martin, Details of Building Construction, Boston; Bates and Guild Co., 1899. Both authors were professors of architecture, respectively at MIT and Cornell, and developed the sections from their school courses.

<sup>390</sup> Frederick Ackerman, "An Influence on Better Small House Design," Architectural Forum 32, April 1920, p. 168.

<sup>391</sup> In the preface to the second volume, Eugene Clute explained that it was because of the popularity of the first volume and the great demand for additional material that the second volume of new details were produced. Another edition combining the two volumes with the addition of ten new plates, came out in 1931. See Eugene Clute, "Preface," Good Practice in Construction, Part II, New York; Pencil Points Press, 1925. Other manuals published were Frank Halstead, Architectural Details, New York; John Wiley & Sons, 1927, and the aforementioned Architectural Details, by Rouillion and Ramsey. The most notable detail manuals published for local builders and contractors rather than professional architects were published by the Chicago based Radford Architectural Company. See Radford's Portfolio of Details of Building Construction ( 1911 ) and Architectural Details for Every Type of Building ( 1921 ).

producing Good Practice in Construction was explained in the preface to its first volume by Thomas Hastings:

...Mr. Knobloch began by selecting detail sheets from the files of some eight or ten offices. Being supplied with blue prints of these sheets he chose a detail here and there, combining and assembling them in an effort to arrive at the best construction. His original sources were in every instance the detail drawings of portions of buildings that had been actually built during the past few years. He then availed himself of criticisms and suggestions from a large number of men each of whom was in a position to know especially well the characteristics and methods of employment of some particular building material.<sup>392</sup>

According to this passage then, Knobloch's section plates were essentially derived by selecting and reworking blue print construction drawings from a number of architectural offices [ fig. 103 ]. Each plate contained a design that functioned as a *model*-- an exemplary and specific solution to a general problem. As the detail for an "Entrance Doorway and Palladian Window" in fig. 104 shows, stylistic vocabulary was treated as an integral part of the constructional details. Though many of the sections were based on wood and masonry details of traditional designs, the development of new materials and equipment, such as steel casement windows and steel framing, were given ample exposure. Yet despite the inclusion of such technical developments, Knobloch's manual continued to be based on the organizing principles of selection and exemplification; on what Clarence Martin had called "the authority of good practice" in 1899.<sup>393</sup>

---

<sup>392</sup> Thomas Hastings, "Preface," in Knobloch, Good Practice in Construction, 1923.

<sup>393</sup> Details of Building Construction, 2nd page of "Preface." Martin wrote that the original idea came from his teaching experience and that the first drawings were in fact rough sketches which were later developed into blue print drawings, and used in the class room. The drawings in the text were themselves "carefully prepared after a long, practical experience and with the aid of one of the best libraries in this country, supplemented by a large collection of working drawings from the offices of leading architects." ( Ibid. )

Another interesting manual was Architectural Construction also published by John Wiley and Sons in 1925 and 1927. It was authored by Walter C. Voss, who was at the time head of the Department of Architectural Construction at Wentworth Institute and Ralph Coolidge Henry, a Boston architect. Though not entirely graphic, the manual nevertheless departed from the format of the textbook and attempted to devise an innovative system of reference on construction and materials. It consisted of two volumes and three separate books, totaling well over 2000 pages; much smaller than the multi-volume construction manuals but still very unwieldy. The subtitle of Volume One was "An Analysis of the Design and Construction of American Buildings Based Upon the Actual Working Documents of recent Examples." Volume Two consisted of two books that dealt respectively with wood and steel construction, and followed the basic format of construction textbooks. The first volume, was comprised of separate sections on building types, each type organized along case studies [ table 8 ]. The buildings for analysis were chosen to include "a recent interpretation of each of the more important historic styles in architectural design."<sup>394</sup> The authors argued that this method of organization was superior to the presentation of theoretical material as it "exemplif[ied] each structural step" of design and construction. Furthermore, each case study was to be illustrated by a full set of architectural documents:

If the book may lay any well-founded claim to originality or novelty in its method of approach to a field at once so comprehensive in its scope and rich in its authoritative records, such a claim must be based upon its adoption, for purposes of illustration, of the complete, working documents of executed buildings, the photographic record of the results accomplished and the conformity of its order of expansion in discussing the methods employed, to the order in which each step was taken in the actual operations of building.

---

<sup>394</sup> Voss and Henry, "Preface," Architectural Construction, New York; John Wiley & Sons, 1925, p. v.



The authors stressed that for the manual to "speak with authority," it had to rely on the accurate reproduction of "the actual, original drawings, details and specifications" that were used in the building. Figs. 105 to 110 are just a few of the selections from a total of forty plates that illustrated the first case study for a cottage house in the Georgian style. The plates moved from perspectival photographs of the exterior and interior, to plans, elevations and sections, and concluded with construction drawings and details.

Architectural Construction thus shared with the detail manual the underlying principles of selection and exemplification. The difference was that whereas the latter was based, literally, on a section of architectural discourse, the former attained its generality through the scope of its case studies and documents involved in the different phases of design.

From the early stages of its preparation, Ramsey and Sleeper envisioned a manual that departed from its antecedents in both its format and function. In a memo to John Wiley and Sons, written prior to the decision to publish AGS, Ramsey and Sleeper criticised the format of conventional "detail sheets and handbooks" that showed "all phases of architecture; design, standards and construction." They felt that contemporary architects had little "need to refer to handbooks for their design ( speaking of it in the ornamental sense )" and that its inclusion only served to "complicate the drawings."<sup>395</sup> Ramsey and Sleeper proposed that their prospective book incorporate the following subject matter:

---

<sup>395</sup> Ramsey and Sleeper, "Statement Concerning Proposed Book," memo to John Wiley and Sons dated Oct. 29, 1930, p. 2. Harold Reeves Sleeper Papers, Dept. of Manuscripts and University Archives, Cornell University. When the memo was written, Ramsey and Sleeper had not yet decided on a title and provided the following as possible titles: Architect' Drafting Room Guide. Standards and Data for the Use of Architects, Engineers, Builders and Draftsmen; The Data Book. A Collection of Standards and Information Helpful to Architects, Engineers and Builders and Others Interested in Building. Presented Graphically for Drafting Room Use; Thumbtack Data for Architects. A Collection of Information and Standards Displayed Graphically for Use by Those in the Building Industry; Graphic Guide for Architects. A Collection of Data, Standards and Facts Graphically Shown for Drafting Room Use of Architects, Builders, Engineers and Students. ( Ibid., pp. 3-4 ) In an article by Sleeper, "University Housing Problems," Architectural Forum 54, June 1931, published about a year before the AGS, it was referred to as Architect's Drafting Room Guide.

- (1) Data, standards and dimensions fixed by the human scale
- (2) Government and trade association's accepted trade standards
- (3) Information and standards which have become fixed through usage and practise<sup>396</sup>

As is evident from this list, as well as its eventual title, the new manual was to be based on the concept of the *standard*. We have already seen another example of this discursive formation in Kocher and Frey's "Dimensions" series in figs. 67 and 68, where the human body was appropriated as a natural basis for the dimensions of industrial standards. Though the original edition of AGS in 1932 did not carry a plate of the standard body, Freese's human figure in fig. 69 was incorporated into the 1937 TSS as well as the 1946 Record edition of the TSS [ fig. 111 ]. Freese's drawings eventually made their way into AGS in its third edition of 1941 [ fig. 112 ].

It was the organizing principle of the industrial standard that distinguished AGS from earlier reference texts. In fact, all three types of standards in Ramsey and Sleeper's list fit into the theory of industrial standardization prevalent since the early years of this century. According to the theory, the process of standardization is initiated when a set of manufacturing practices follow the basic performance requirements established by the human body and its labour. Industrial standards develop through existing manufacturing processes, but once a standard is established, it becomes the scientific a priori of mass production-- the underlying *fact* of industrial products. The industrial standard thus provided the basis for two sets of distinctions that AGS employed as its organizing principle. The first was the distinction between fact and appearance, and the second was between the two basic elements that constituted the scientific basis of a standard--

---

<sup>396</sup> Ramsey and Sleeper, "Statement Concerning Proposed Book," p. 2.

performance and dimension.<sup>397</sup> We may recall Ackerman's statement in his foreword that AGS was to deal solely with factual reference, and specifically with dimension. Whether the object was steel beams or plumbing fixtures, it was their standard dimensions extruded from production models that were illustrated in a chart or as an icon; the performance standard of the product ( its structural and material properties ) was assumed and left out of the text [ figs. 113 & 114 ]. AGS, as one contemporary reviewer stated, was an "encyclopaedia of dimensions."<sup>398</sup> What it presented were not architectural models but dimensional types, or to use Sleeper's characterization, "core or skeleton data." In contrast to the model, this dimensional type was "purposely devoid of all design in the decorative sense" and was intended for further "development, design, or improvement."<sup>399</sup> Accordingly, AGS contained very few elevations, as construction details were presented primarily in sections [ fig.115 ].

A glimpse of the genesis of AGS's representational strategy was provided by Frederick Ackerman in a retrospective introduction to Harold Sleeper's Architectural Specifications published in 1940. Ackerman wrote that during the mid-teens he had issued a "manifesto" to his office that fuzzy verbal descriptions, "weasel" words and clauses as he called them, would no longer be used in specifications. Furthermore, along with this order, Ackerman claimed that he presented a "general theory as to how a specification should be organized and developed, and what should be its relationship to the drawings which its function was to explain."

Under the general theory as to the relation of drawings and specifications, it was assumed that the general drawings were to give explicit information in

---

<sup>397</sup> See N.F. Harriman, Standards and Standardization, New York; McGraw Hill, 1928 and John Gaillard, Industrial Standardization. Its Principles and Application, New York; H.W. Wilson Co., 1934, for reference concerning theories of industrial standardization.

<sup>398</sup> Quote by Sherrill Whiton, Director of the New York School of Interior Decoration published in an advertising pamphlet for the second edition of AGS by John Wiley & Sons.

<sup>399</sup> Ramsey and Sleeper, "Preface," AGS, 1932.

terms of dimensions; but they were not to constitute a specification of materials. Information as to the use of material was to be found only in the specification. A clause headed "Scope" at the opening of each trade section was to be so drawn as to constitute an explicit statement covering the extent of the use of a given material in a building. Since the drawings gave no information as to the use of materials, there could be no possibility of conflict between drawings and specifications in this respect.<sup>400</sup>

The underlying principle of AGS, then was based on what Ackerman regarded as two distinct levels of representation in the framework of architectural design-- its dimensions and the specific manufacturer's model. The one was to be conveyed in the architect's construction drawing, the representational level of AGS, and the other in the specification. Though Sleeper and Ramsey made reference to earlier detail manuals, the source of the plates were primarily texts dealing with industrial materials and products: manufacturer's catalogues, advertisements, Sweet's Architectural Catalogues, trade journals, technical bulletins and reports of trade associations, the United States Bureau of Standards, the American Standards Association, the Board of Underwriters, etc. In contrast to the sections of the earlier detail manuals, the plates of AGS were not selected from existing construction drawings, but *abstracted* from the standardized industrial product. In the detail manuals, the specification was something that merely followed the construction drawing. Whether the product to be specified in construction was custom made or mass produced was of secondary importance. AGS, on the other hand, conceived the design process with the basic assumption of using mass produced components that would be indicated in the specification. It created a representational medium for the architect working in the middle of the design process, which assumed the

---

<sup>400</sup> Ackerman, "Introduction," in Harold Sleeper, Architectural Specifications. New York: John Wiley & Sons, 1940, p. v. I have not been able to locate this "manifesto." There is however, a similar indexed manual titled "Office System" dated Oct. 25, 1926, used in Ackerman's office in Box 3 of the Harold R. Sleeper papers, Cornell University.

industrialization of building. It abstracted from this basic condition of modern architecture a discursive level of design based on dimensional types-- separated from the exigencies of ornamentation and undetermined by mass production.

This process of abstraction from the manufacturer's product to the dimensional type provided the answer to the "catalogue problem." The following editorial introduction to American Architect's first installment of its reference data series in 1932, elucidates this process.

Too few building material manufacturer's realize the importance of the right kind of copy when advertising to architects-- copy that is concise, informative, authoritative, and well worth filing for future reference. Heretofore no magazine has attempted to do much about it. American Architect, having made an investigation on this subject among architects, has decided that something should be done about it. As a consequence, in this issue will be found an innovation in building product advertising. On page 75 is an article which presents the latest data on the various types of oil burners so that an architect may make the best selection for the particular purpose at hand. Immediately following this article are advertisements of a number of manufacturers of oil burning equipment. These advertisements have been especially prepared and edited. Every effort has been made to substitute facts for generalities, logic for high-sounding claims.<sup>401</sup>

In the case of American Architect, the logic of abstracting and separating factual data from the catalogue and advertisement was later formalized into a single data sheet that was called "Time Saver Standards of Advertised Products" [ fig. 116 ]. Unlike AGS, the format of these plates was more a hybrid of the catalogue and the reference manual, providing both photographs of the manufacturers product and data on dimensions on the same sheet. If the strategy of the catalogue and Sweet's remained within the framework

---

<sup>401</sup> "Valuable Advertising," American Architect, Aug. 1932, p. 41.

of the logic of choice, external to the disciplinary formation of design and planning, the reference data formulated a level of "factual" architectural knowledge integrated with the discipline.

As with previous reference texts, the information in the reference manuals was considered to be contingent on technical and social development. Plates had to be replaced because of revisions in laws and regulations or obsolete technology. For example, in the decade between the first and third edition of AGS, new sections for the expanding use of aluminum were added and the repeal of prohibition necessitated the inclusion of data on distilleries and bars. The obsolescence of data was in fact a basic assumption of the manuals; both American Architect's TSS and Pencil Points' DSS were published in a format to be used in a binder, so that when a sheet became outdated it could be individually discarded and replaced. The manuals then shared with Sweet's the assumption of the rapid turnover of information. Yet at the same time, it was not felt that AGS had to be overhauled every year as was the case with Sweet's.<sup>402</sup> While the manufacturer's model may change ever so often, the industrial standard evolved at a slower pace.

Acceleration in technological advance implies an even more rapid turnover in technical data. In theory it might appear that revised editions of Ramsey-Sleeper would thus be required even more frequently, but actually, this is not likely. The individual architect cannot be expected to absorb an increasingly more complex and more extensive store of factual matter, even when presented in simple standardized form.

---

<sup>402</sup> The second and third editions of AGS came out respectively in 1936 and 1941. There was of course the increase in bulk from the 233 pages in the first edition to the 344 in the third. The most noticeable change was the increase in minimum standard plans and the aforementioned ergonomic diagrams, as AGS remained consistently within the organizational principle of the industrial standard.

According to this review of the second edition of AGS in Record, the essential contribution of the manual was that it freed the architect from the burden of having to absorb the details of technical knowledge. Manufacturers were "taking over the function of design in terms of structural parts and equipment" and the architect thus had "less and less need to bother with details when more and more whole wall assemblies, even whole room units, [were] made available for his specification in terms of functional performance." The anonymous reviewer concluded that "With this division of labor, the architect can focus his efforts on the study of living requirements and the integration of structural services; he is free to design on a much broader scale than ever before."<sup>403</sup>

It was within this "division of labor" that the second TSS series and its relation to AGS may be understood. Though the graphic format of the first TSS series differed from AGS, as we have already seen in fig. 116, its subject matter was essentially the same. The second series published by Architectural Record, however, formed a different kind of reference manual. While it included the kind of graphic data of AGS-- construction sections, equipment dimensions and standard plans-- its format and content approached the axiomatic discourse of architectural planning. For example, figs. 117 to 120 illustrate the typical sequence of a TSS article. They were selected from Record's Building Type section in its December 1939 reference number on hospitals. The TSS began with a general statement of planning principles and a bubble diagram representing the "broad, general pattern of organization of space and circulation within the average voluntary general hospital" [ fig. 117 ].<sup>404</sup> The next part then focused on the administrative area. Once again, it started with verbal principals, interrupted by a bubble diagram of the administrative area, this time accompanied by a plan of the White Plains Hospital [ figs. 118 & 119 ] The section was then concluded by a chart of spatial

---

<sup>403</sup> Review of the second edition of AGS, Architectural Record 80, Sept. 1936, p. 36.

<sup>404</sup> "Planning the Small General Hospital," Architectural Record 86, Dec. 1939, p. 78.

requirements and equipment together with the rest of the verbal text [ fig. 120 ]. One can see that the diagram provided the key to the organization of the TSS. When the Record articles from the Building Type section were published in book form, much of the verbal text and photographs that appeared in the journal series were excluded, transforming the articles into a graphic plate format closer to AGS. The 1946 TSS also included anthropometric data published in American Architect in the mid-thirties as well as the 1937 TSS [ fig. 85 ]. The organizing principle of the TSS was centered on the notion of functional planning, under which the subject matter of AGS could be inserted. While AGS was organized along the sequence of construction, beginning from the foundation working up to the roof and into the interior, TSS was divided along building type.<sup>405</sup> The two manuals-- AGS, as a manual of standards of construction and equipment, and TSS, as a manual based on the more general concept of planning standards-- would then form a complementary relation within the discourse of reference; bringing about the "division of labor" and the freedom of design that the review of AGS had called for.

It was then quite logical that Harold Sleeper eventually produced two other manuals to complete a trilogy of reference manuals: Architectural Specifications in 1940, dealing

---

<sup>405</sup> The sequential organization of the original AGS was maintained until the fifth edition of 1956. Since 1970 AGS has been organized according to classifications based on building trade or specialty devised by the Construction Specification Institute. This change in sequence has been emphasized in George Barnett Johnson, "Gardens of Architecture: Reflections on the Plates of Architectural Graphic Standards," Proceedings of the 77th Annual Meeting of the ACSA, 1989, one of the few secondary articles on AGS. Bardett believes that the first four editions of AGS retained an "analogical structure" that "served as a bridge between draftsman and the builder." His analysis of AGS is unfortunately fraught with romantic divisions between a pre-enlightenment organic practice and the mechanized practice of the modern age: "Because Graphic Standards was, metaphorically, the building unfolded, anyone familiar with construction knew where to open the book. The graphic plates, which were hand-drawn and hand-lettered, still convey the warmth of their humanity, which is their main clue to an architecture of material reality." ( p. 225 ) In my judgement, however, the sequence in both AGS and TSS is inconsequential because the actual guide to their content is the extensive cross reference and alphabetical index at the end of the manuals. See also by the same author, "Tradition and Its Interpretation Through Architectural Convention," Proceedings of the 78th Annual Meeting of the ACSA, 1990. Another example of a historically inaccurate and simplistic essay that views the emergence of the modern reference manual as the "decline of holistic and poetic thinking," is Kent Keegan and Gil Snyder, "The Crisis of the Construction Pattern Book," in Marc Angelil, ed., On Architecture, the City and Technology, ACSA Technology Conference, 1991, p. 99.



with the "integration of structural services"; and Sleeper's own version of TSS which was titled Building Planning and Design Standards in 1955, a building type manual concerned with the "study of living requirements." According to Sleeper, Building Planning and Design Standards was both a "natural outgrowth" and a "supplement" to the AGS. Like the sequence of TSS, each section on a building type began with "diagrams showing spatial relationships and area requirements" [ figs. 121 & 122 ]. Sleeper then moved on to "typical plans" and dimensional types [ figs. 123 & 124 ]; subject matter already dealt by AGS, but now organized to supply "information for making comprehensive programs and also for making schematic and preliminary drawings."<sup>406</sup> As this statement succinctly shows, the development of the reference manual marked an important shift in the status of the discourse of reference within the discursive field of the discipline. Though AGS and TSS continued to be regarded as reference texts, they were no longer marginal in the formation of architectural knowledge. In other words, unlike the construction manual and catalogue, this new type of reference discourse provided a system of knowledge that was considered internal to the design process. This process of internalizing what was traditionally at the fringes of architectural knowledge, of conceptualizing space and function through the medium of the human body, dissolved the hierarchical and closed structure of the discursive formation of academism. The distinctions between core and marginal concepts, the hierarchy of genres, and the clear separation of discursive modes, that characterized academic discourse was diffused. In this flattened field of discourse the status of the reference manual, as a single genre, may then be compared with the diagram; while it provides a key medium in establishing a specific boundary for the architectural discipline-- a discursive level of factual design-- it is dependent on developments external to architecture. More specifically, though the

---

<sup>406</sup> Sleeper, "Preface," Building Planning and Design Standards, New York; John Wiley and Sons, 1955, p. ix.

invention of new construction systems or research into institutional planning remained practices outside of architecture's jurisdiction, the reference manual's role was to organize and abstract it into a level of architectural knowledge.

## 2) The Reorganization of the Architectural Journal and the Demise of the Portfolio

Photographs always have dominated the pages; there was a long period, in all architectural magazines, when photographs were "plates," and each took a full page; frequently the page opposite was left blank, doubtless to heighten the pictorial effect. In those days, the text, if any, was isolated from the pictures.

The concept of pictorial journalism that we know today came later ( if in fact it has fully come to this date ). I mean the consideration of photographs, plans, sections, captions, text as a unified communication effort, in which one element complements, not repeats, the others... I doubt if early editors of the RECORD ever considered what we think today as "double" reading. We consciously arrange many of our "presentations" for two types of reading: scanning and study. A story is designed to give a quick message to the hurried reader, and also to reward the more studious reader-- who actually may be the same person at a different time.<sup>407</sup>

These comments concerning the changes in the format of Architectural Record were those of its editor, Emerson Goble, made in 1966. Writing on the occasion of the journal's 75th anniversary, Goble had placed his finger on a fundamental shift of the journal away from a discourse centered on the portfolio. Goble, however, seems to have had little

---

<sup>407</sup> Emerson Goble, "Seventy-Five Years of Pushing Forward for Better Architecture," Architectural Record 140, July 1966, p. 212.

historical sense of the function of the full page plates or the new discursive practice of what he called "double reading." Furthermore, his claim in the same article, that there was "no evidence of this kind of planning effort in any of the magazines" until the mid-1940s, as I will show in the following pages, was quite inaccurate. The beginnings of this modern formation of the architectural journal can in fact be traced back specifically to the new editorial policies announced by American Architect, Architectural Record and Architectural Forum in the late twenties. These policy changes marked the introduction of new principles of organizing the periodicals, and the dissolution of the traditional format of the journals. As noted in Chapter II, the traditional "segregated" format was characterized by the clear division of the letter press, portfolio and advertising; each section distinguished by its different modes of discourse and maintaining a relatively independent relation to each other [ tables 1 & 2 ]. In this section, I will examine the breakdown of this traditional format, particularly the demise of the independent portfolio section, and the emergence of a new form of reading in tune with what Goble called "pictorial journalism."

There were two basic factors in the restructuring of the journals. The first was the development of a journal format organized along planning studies. In Chapter IV, I pointed out that after the announcement of the new editorial policies in American Architect, Record and Forum, great emphasis began to be placed on articles concerning planning, business and engineering. The initial policy of Record and Forum was to create a separate department on these practical matters: the Technical News and Research ( T.N.R. ) department for the one and the "Business and Engineering" section for other. In this binary structure, the portfolio sections were still maintained as a separate part of the journal. In fact, with the move to a larger page size in 1928, Record's "Portfolio of Recent Architecture," begun in 1924, became a more prominent part of the journal. In the case of American Architect, there had been a more radical change in format. In the

October issue of 1929, the portfolio section was completely eliminated. As I have already mentioned, an integral part of its editorial policy of "architecture as business" was the move away from being a journal of "plates." The rationale was that material dealing with contemporary problems was considered to be "for reading not for filing."<sup>408</sup> Furthermore, during the first two years of this format, the journal attempted to emulate the graphics and layouts of the mass circulation magazines [ fig.125 ]. The organization of the journal may be best characterized as "topical," as there were no thematic categories that organized the various articles [ table 9 ]. It would seem, however, that this was much too radical a policy for an architectural journal and by 1932, American Architect returned to a more ordered structure. In its June 1932 issue, a "Plate Section" was reinstated and in the August issue of the same year, a regular series on planning called "American Architect Reference Data" was begun.

After several years of publishing in this binary format, Forum and Record gradually departed from this policy of separating the practical from the aesthetic. In the case of Forum, this process began with its January 1933 issue, when it also changed its cover design and typography. As the contents in table 10 shows, the practice of dividing the journal into the Engineering and Business section and Design section was abandoned. At this point however, the portfolio remained separate from the letter press. With the following September issue, a reference number on public works, the division between articles and illustrations began to loosen [ table 11 ]. After initial articles on general topics concerning government sponsored projects, the rest of the issue was then devoted to the discussion of the various types of public buildings, ranging from city halls to post-offices. Each section on a building type followed an identical format in which "Chart and Text" preceded the illustrations of buildings, and at times included data on construction,

---

<sup>408</sup> The "New Architecture" and the New "American Architect", American Architect 136, Nov. 1929, p. 20.

furniture and equipment [ fig. 126 to 129 ]. A standard format for the reference issues for Forum was thus established.

A similar change in Record occurred when it reorganized its format in 1937. In the first issue of the year, the T.N.R. department was discontinued and a separate section called "Building Types. Reference Studies on Design and Planning" was initiated. In the following June issue, the journal was divided into three sections--"Building News, Design Trends, and Building Types." The explanation was that the divisions followed a "chronological" test; current events were reported in summary fashion in the "Building News," and when "there is a recurring number of events of similar character--enough to suggest a trend," these were treated "analytically" in the "Design Trends" section; and if the trend developed into a "standard," its relation to a specific type of building would be published in the "Building Types."<sup>409</sup> Much like Forum, the dissolution of a separate portfolio coincided with the restructuring of the journal along the lines of building type. In this tripartite format, the Portfolio of Recent Architecture was renamed "Pictorial Record" and became a subsection of Design Trends. The Pictorial Record itself lasted only a few months and was dropped from the journal in October 1937. Subsequently, illustrations of buildings were either part of the Building News sections as "New Buildings" or part of the Building Type studies presented as "Case Studies." In contrast to the segregated format, illustrations of buildings were now dispersed into various sections of the journal. They could be grouped under planning studies of a certain building type; as part of a topical event, such as the advent of an exposition or exhibition; or simply as a way of introducing a new building.

In this new organization, the page layout for architectural illustrations began to depart from the single-plate format. As fig. 128 from the September 1933 issue of

---

<sup>409</sup> See Architectural Record 82, July 1937, p. 5, and "Why is Architectural Record Published in Three Sections?" Architectural Record 82, 1937, p. 96.

Forum shows, the illustrations were smaller and often combined with verbal text and plans on the same page. These photographs and plans, stated Forum, were intended as "*examples* of the grouping of departmental functions."<sup>410</sup> In Record's introductory editorial to its tripartite format, a similar role was assigned to the illustrations of the building type section:

Each study will constitute an addition to the customary contents and will be illustrated with photographs, plans and detail drawings. The illustrations for the series as a whole, by picturing architectural features of new significance associated with many building types, will give a fair idea of modern trends in design and of practical considerations motivating the trends.<sup>411</sup>

In effect, the main bulk of the illustrations became subordinate to a system of organization centered on the problem of planning. The function of these illustrations were then closer to those displayed in fig. 130 from Hotel Planning and Outfitting than the independent portfolio. One may contrast this statement with another proposition thirty years before that the purpose of the portfolio was to "place before Architects an absolutely reliable and correct reproduction of all that pertains to the practice of Architecture, so that an Architect...could reproduce a given subject from a chimney stack to a door knob" ( see above p. 41 ). In this new format, where the illustration had a more interdependent relation with verbal text, the illustrations began to move away from the "depth model." In other words, they were not meant to be emulated and transformed in the manner of the traditional plates.

---

<sup>410</sup> "The Planning of Public Buildings," Architectural Forum 59, Sept. 1933, p. 164. ( my emphasis )

<sup>411</sup> "Editorial Foreword," Architectural Record 81, Jan. 1937.

It was in this format that the diagram entered the architectural journal as a systematic element in the development of a new mode reading. The following is once again taken from Forum's September 1933 reference issue on public buildings.

In these analytical studies space and functional charts will be found to clarify the problems and simplify both discussions with the authorities and the actual planning which will follow. In connection with each type of building shown in the following plates, functional charts are shown, such as can be developed for the particular problem in hand. The charts are typical and include the usual requirements for the designated buildings. Several of the buildings shown in photograph and plan on the following pages are examples of the grouping of departmental functions either in one building or as a civic center.<sup>412</sup>

The reader must thus shift between different modes of representation; from verbal text to diagrams and charts, to plans and photographic reproductions. These images are not meant to be read individually but as a *set of figures* that must be horizontally linked. The most systematic formation of this type of horizontal scanning was established in the Building Type section of Record, particularly after 1939. The typical sequence of this section would begin with a verbal statement of general planning principles. This was followed by the Time Saver Standards (TSS), which Record took over from American Architect in 1938. Then came the illustrations of the building type under the title of "Case Studies"; and finally, a reference bibliography, that concluded the section. The organization of the TSS-- moving from planning principles to diagrams to design examples--was in fact described in the previous section [ figs. 117 to 120 ]. In the TSS, this scanning was practiced primarily along a sequence of pages. But as the layout in fig. 119 and fig. 131 from Douglas Haskell's article on the planning of nurseries show, the

---

<sup>412</sup> "The Planning of Public Buildings," Architectural Forum 59, Sept. 1933, p. 164. ( my emphasis )

move from verbal text to diagram to plan and photograph could be displayed on a single page.

This dispersed layout stands in contrast with the discursive mode of an earlier hospital manual of 1913. In providing a narrative concerning the planning of a similar type of administrative area to figs. 118 and 119 in TSS, the manual guides the reader through the accompanying plan in fig. 132, with the following passage.

Let us follow the patient who comes afoot, applying for admission to the hospital. He passes through the large double-door entrance, turns to the right into the common waiting rooms, which contain seats on three sides. When his turn comes to be examined, he passes into the next, or examining room, where there is a large window and all the paraphernalia for making preliminary observations. If he is accepted, he is taken in charge by an attendant, male or female, as the case may be, and passes along the inner corridor into the bath-room, where his clothes are removed, tied into a bundle, labeled, and thrown into the chute. After the bath, he is given hospital clothing from the closet at the end of the corridor, and passed across the main corridor to the elevator, which takes him to his destination upstairs.<sup>413</sup>

In this discursive formation, the plan provides a point for the verbal text to converge.

"Function" was not designated as a unit, but depicted in narrative sequence as the specific actions that occurred in the rooms. The verbal text thus *described* the dimensions, equipment and workings of the plan. According to the authors, the plans in the manual were "outlines" and "ideal arrangements" that could be "elaborated almost indefinitely or contracted to meet the needs of a small institution."<sup>414</sup> In other words, it functioned as a plan type or parti type. In the case of TSS, if there were a central reference point, it

---

<sup>413</sup> John Allan Hornsby and Richard E. Schmidt, The Modern Hospital, Philadelphia: W.B. Saunders Co., 1913, p. 41.

<sup>414</sup> *Ibid.*, pp. 40-51.



would be the diagram. The diagram, however, did not act as a centrifugal element and moved towards dispersing the field of architectural knowledge. The verbal text, diagram, plan and chart render different kinds of knowledge, as the reader was required to move among these various levels of representation. Whereas the illustrated plan in fig. 132 was meant to be manipulated in accordance to the particular program, neither the diagrams in figs. 117 and 119 nor the plan of the White Plains Hospital in fig. 119 were to be transcribed. While the diagrams were associated with a generalized and a-figurative knowledge-- "the broad, general pattern of organization of space and circulation within the average voluntary general hospital."<sup>415</sup>-- the plan was regarded as a *realized example of the diagram*. With the emergence of the diagram, the information layered within the plan type was dispersed.

Before moving on to the discussion of the second element in the the restructuring of the journals, it should be underscored that I am not claiming that the breakdown of the segregated format coincided with the shift away from the self-referential system of representation. Even before the independent portfolio section was abandoned, the function of the illustration and its modes of representation were undergoing changes. By the twenties, particularly with the growing consciousness of modernism, the role of the architectural journal as suppliers of architectural models had diminished. One would be mistaken to equate the role of Record's "Portfolio of Recent Architecture," the new portfolio series in Architecture begun in 1928, and the pictorials that were reinstated in the American Architect in 1932, with the nineteenth century illustrations of the journals [ fig. 133 ]. The transformations of the modes and strategies of architectural illustrations is a complex issue that has not been adequately studied. It would require a study of material much larger than the architectural periodicals and I believe, would have to be

---

<sup>415</sup> "Planning the Small General Hospital," Architectural Record 86, Dec. 1939, p. 78.

organized along a different set of parameters. In view of the framework of this study, it is a topic best left to another set of historical research.

The second factor in the reorganization of the journal was the changing discourse of advertising. There are two aspects of this transformation to be considered; the first is the way advertising was inserted into the journal and secondly, the representational strategy of the advertising copy itself. The amount of advertising that was carried and the way it was inserted and indexed differed somewhat from journal to journal. However, as already indicated in Chapter II, it was common practice to place advertising at the beginning and end of the journal with separate page numbers from the main text.<sup>416</sup> Once again, the new editorial policy of American Architect in 1929 signaled an abrupt change in its advertising format. In its October issue, the journal adopted the so-called "tailing" method, a well known practice of mass circulation magazines. This technique of pushing the end of articles back with an assortment of advertisements ensured the exposure of advertisements to the magazine's readers [ fig. 134 ]. One of its immediate consequences was the elimination of the separate pagination of advertising and main text. Pencil Points had employed a form of tailing since its inception in 1920, but the significant difference with American Architect was that the end of the articles was not mixed with advertising. In contrast to the commercial objective of American Architect, it was rather a technique used to maintain the unified appearance of each page as well as the division between verbal text and the plates. By the early thirties, both Forum and Record began the practice of tailing. Furthermore, when Record initiated its tri-partite format in 1937, each division began and ended with advertising, thereby bringing advertising into center of the magazine [ fig. 135 ].

---

<sup>416</sup> The strict division between advertising and main text as a general practice in publications is discussed in Robert Craig, "Ideological Aspects of Publication design," Design Issues 6, Spring 1990.

The second aspect to be considered is the emergence of new modes of representation in architectural advertising. During the 1920s, even before the infiltration of advertising into the main text, a new type of advertising copy had begun to appear in architectural journals. New layouts that employed photomontage and/or innovative lettering techniques could be found alongside the more traditional classified and single-plate formats [ figs. 136 to 138 ]. Furthermore, before color reproduction was introduced in the main text, color advertisements, primarily by manufacturers of bathroom fixtures, appeared regularly in the latter half of the twenties. Instead of providing information concerning the product, which could later be obtained through manufacturer's catalogues, the essential function of the advertisement was to catch the attention of the architect. The development of this new strategy can be understood within the context of the general transformation in the advertising industry during the 1920s. During this time, the central issue for manufacturers and advertisers was to maintain a market that would continue to expand.<sup>417</sup> This would be achieved by stimulating multiple purchases of the same product or incurring its rapid turnover by making the product technically, and more importantly, socially obsolete. This advertising strategy had to achieve two things: first of all, the value of the product had to be shifted away from utility and necessity to convenience, social status and aesthetic leisure; and secondly, to borrow Stuart Ewen's characterization, the consumer had to be endowed with a "critical self-consciousness in tune with the 'solutions' of the marketplace."<sup>418</sup>

---

<sup>417</sup> In the ten years prior to the Depression, magazine advertising revenues more than tripled to become \$ 200 million at the end of the twenties. The emergence of an advertising profession and the transformation of the strategies and forms of advertising are examined in Roland Marchand, Advertising the American Dream. Making Way for Modernity, 1920-1940, Berkeley: Univ. of California, 1985, and Stuart Ewen, Captains of Consciousness. Advertising and the Social Roots of the Consumer Culture, New York; McGraw-Hill, 1976.

<sup>418</sup> Ewen, *Ibid.*, p. 37. Ewen's interpretation provided a framework for other studies such as Mike Featherstone, "The Body in Consumer Culture," Theory, Culture and Society 1, Sept. 1982, and Marchand, *Ibid.* It is a convincing thesis succinctly supported by Walter Dill Scott, who wrote in The Psychology of Advertising, Boston; Small, Maynard & Co., 1913, that "Advertising has as its one function the influencing of human minds." ( p. 2 )

The advertising copy thus had to turn the consumer's attention away from the product toward himself.

This strategy introduced a different mode of representation that departed from the traditional object centered methods of photography. One of the best examples of this new representational strategy, though not directly related to architecture, is an advertising series by Hinds Cream on "Domestic Hands" during the early thirties [ fig. 139 ]. In this surrealistic image created by Anton Bruehl, the product and its intrinsic use took secondary importance to the social and psychological effect of consumption, or in this case, of not using the product. Photography was no longer used as a medium of iconic illusion. It is not the photograph that is on trial for its veracity, but as Susan Sontag has aptly stated "it is the reality which is scrutinized, and evaluated, for its fidelity to photographs."<sup>419</sup> This mode of representation stands in contrast with the object centered use of photography central to the catalogues and traditional advertising formats of the architectural journals. The catalogue relied on illusionistic modes of representation; in other words, the illustration had not only to resemble but also to act as a substitute of the actual object. The veracity of the illustrations was therefore crucial for the catalogues. For instance, a 1911 catalogue for the Standard company proudly claimed that their illustrations were "direct photographic reproductions of the articles, set up complete as for service, in the manner and position in which they are shown."

This method of illustrating is superior to any other, since it gives the buyer the satisfaction of knowing that the illustrations are reproduced from actual photographs, and are not the drawings of our artist unfamiliar with the goods, and whose work, therefore, would have been more or less imperfect in detail.<sup>420</sup>

---

<sup>419</sup> Susan Sontag, *On Photography*, New York; Penguin, 1979, p. 87.

<sup>420</sup> "Standard" *Baths and Plumbing Fixtures*, 1911, p. 5.

The departure from this object centered mode of representation opened the way to the fragmented imagery of figs. 137 to 139. With the infiltration into the main text and these aggressive graphic techniques, advertisements became a dominant visual presence of the architectural periodicals.

Replacing the three distinct modes of discourse that coincided with their separate sections, the journals acquired a page format in which there was little differentiation between advertising, illustration and articles. For lack of a better term, I have named this diffused mode of discourse the "composite photographic text." In contrast to the full page illustration and the verbal letter press, the composite photographic text was characterized by the combination of photographs, verbal text and other graphic techniques ( including the diagram ) within a single page. We have in fact already seen an exemplary layout in fig. 131. Though the term is derived from the composite photographic image, or the photo montage, I use it as a more general category that encompasses the techniques of montage and assemblage, as well as the more traditional combination of text and illustration. This multi-medium text was first popularized during the 1920s in mass circulation magazines, particularly in women's magazines such as Ladies Home Journal.<sup>421</sup> Letters concerning the changing policies and format of the architectural journals indicate that its fragmented appearance was initially a matter of great consternation to the architectural community.<sup>422</sup> One of the most astute observations was

---

<sup>421</sup> For a discussion of the representational techniques of mass circulation women's magazines, see Sally Stein, "The Composite Photographic Image and the Composition of Consumer Ideology," Art Journal 41, Spring 1981, and "The Graphic Ordering of Desire. Modernization of a Middle-Class Women's Magazine, 1914-1939," Heresies 18, 1985.

<sup>422</sup> In the case of American Architect, I was not able to discover any collection of letters that remained in archival sources, and had to rely on the letters that American Architect chose to show in its September issue of 1929. In the case of Record, in late December of 1929, Kocher sent letters to solicit responses from practicing architects "concerning the value of the new installment and suggestions for further improvement," particularly on the "method of presentation." Some of these letters were included in "Research Applied to Architecture: A New Editorial Policy," Loeb Library, Special Collections. Because of the nature of this document the letters that were included were primarily positive responses. However, as Robert Benson reports ( based on his interview with Theodore Larson ) there were numerous letters that "vehemently protest[ed] changes in the organization and content of the magazine." ( Benson,

provided by a subscriber to American Architect responding to the new format initiated in October 1929. The disraught architect protested that the magazine looked like "a cross between Vogue and a comic paper and not a plate or article [ could ] be cut up and filed for use ( as we have done for years )." He further lamented that "most of [the plates and articles are] mixed up with advertising at that. This sort of popular scream is of no use whatever to an architect's office."<sup>423</sup> Another architect wrote to Record after its reorganization into the tripartite format, and protested that he was "thoroughly annoyed at the arrangement" of the journal, and that it was not "necessary to stuff advertising down the throat" of its readers.<sup>424</sup> These were by no means overreactions; for the nature of the architectural discipline was indeed at stake in these transformations.

By the early forties, all three of the major journals published out of the east coast, Architectural Record, Architectural Forum and Pencil Points had all completely forgone a separate portfolio section. ( By this time, Architecture was absorbed by American Architect, which in turn was purchased by Record in 1938. ) Pencil Points, which had persistently been the most conservative of the major periodicals, changed towards a topical format in 1942. As the following passage from Kenneth K. Stowell's editorial for Forum's reference series in 1933 illustrates, the journal had departed from McKim's conception that it function as a means of sustaining the "special world" of the architectural profession.

Realizing that this issue of The Architectural Forum will be used by the architect in his conferences with clients and prospective clients, as well as in his own office work, we have designed this issue with such a purpose in

---

"Douglas Putnam Haskell," p.176-177. ) Another set of letters that provide some insight to the architectural community's reponse to the changing policies and format of the journals is a set of letters that Forum published as part of its inquiry into the reactions to a special issue on school planning in January 1935. The letters, totaling over 120, were published in the following March issue.

<sup>423</sup> American Architect 136, Nov. 1929, p.20.

<sup>424</sup> Architectural Record 82, Dec. 1937, p. 5.

view. The format has been developed in a style which is expressive of the best typography with which clients are familiar; a style which at once dramatizes the presentation of photograph and fact, and offers a stimulating variety in page appearance.<sup>425</sup>

This discursive "variety" indeed heralded the beginning of what Emerson Goble had called "pictorial journalism." The journal could not just circulate within the confines of the drafting room. It had to respond to the concerns of the client, the advertisers, and the building industry, all the while maintaining the identity of the profession and discipline of architecture. The architectural journal was no longer a mirror to an interior of architectural knowledge, but a window to the outside world.

---

<sup>425</sup> Kenneth Kingsley Stowell, "The Editor's Forum," Architectural Forum 58, Jan. 1933, p. 10.

## VII. Conclusion

*No patent medicine formula. No magic. Fordyce and Hamby have treated the house as a commodity-- as merchandise.*<sup>426</sup>

*"Small Houses for Civilized Americans," Architectural Forum, 1936.*

*"Slum Surgery in St Louis" <sup>427</sup>*

*Title of article on the Pruitt-Igoe apartments, Architectural Forum, 1951.*

With these statements, one is reminded of Walter Benjamin's comparison of the painter and the camera-man in his 1936 essay "The Work of Art in the Age of Mechanical Reproduction." For Benjamin, the painter works like a magician; someone who "maintains the natural distance between the patient and himself; though he reduces it very slightly by the laying on of hands, he greatly increases it by virtue of his authority."<sup>428</sup> The magician's hands and tools thus always remain outside of the body. The camera-man, on the other hand, is a surgeon. In contrast to the ritual healer, his power lies in the procedures that occur *within* the patient. The surgeon's knife sinks into the very organs and tissues that make up his ailing body. Benjamin's metaphor remains equally compelling when applied to the different self-images cultivated by academic professionalism and the "modern" architect who emerged after the late teens. If the Beaux-Arts architect fashioned himself as a magician, keeping his distance from reality, maintaining a set of skills, techniques and knowledge accessible to only a closed and privileged circle, the modern architect was to be the surgeon. With his training grounded

---

<sup>426</sup> Allmon Fordyce and William I. Hamby, "Small Houses for Civilized Americans," Architectural Forum 64, Jan. 1936, p. 1.

<sup>427</sup> Architectural Forum 94, April 1951, p. 128-136.

<sup>428</sup> Walter Benjamin, "The Work of Art in the Age of Mechanical Reproduction," 1936, translated in Illuminations, New York; Schocken Books, 1985, p. 223.



on scientific methods, he would work by cutting into the social body, thereby "penetrat[ing] deeply into the web of reality."<sup>429</sup>

There is of course a fundamental gap between Benjamin's vision of a redefined art and the contemporaneous discourse of Fordyce and Hamby's denial of magic. Imbedded in the dialectical nature of the former, Benjamin's thesis is deliberately made fragile and an inevitably frustrating proposition. He was well aware that the new modes of depiction and perception entailed in the technologies of photography and film did not in itself constitute the new art. On the other hand, for many American architects, a new architectural discipline was something tangible and operative in the present. Indeed, by the early 1940s, the practice of the "architect-surgeon" was firmly codified into architectural discourse. One of the most succinct descriptions of this method of procedure appeared in the March 1941 issue of Architectural Record. It was Record's 50th anniversary, and the year's first three issues were devoted to looking to the past achievements of American architecture. More importantly, the theme was "to show the architect as he is-- not as he was."<sup>430</sup> Unlike the feeling of inadequacy in the wake of the First World War, the articles exuded a sense of optimism concerning architecture's new role after the Second World War. In a section aptly called "The Architect in the Institutional World," the following "five-point policy" of the architectural firm of Lyndon, Smith and Winn was presented. The firm, according to Record, was renown for its successful collaboration with educators in the design of schools.

1. Determination of the requirements by detail discussions: This necessitates a wholesome respect for the layman's thought at this point, regardless of its architectural consequences. Many times the client has definite ideas which he has no way of expressing except in terms of things he has already experienced or in terms of things which seem impossible "architecturally." A careful

---

<sup>429</sup> Ibid., p. 233.

<sup>430</sup> "The Architect in Action," Architectural Record 89, March 1941, p. 49.

search of the elements that prompted these suggestions, along with intelligent analysis, sometimes brings forth amazing possibilities which the architect might easily miss because of preconceived prejudices.

2. Complete organization of the separate elements determined as part of the problem. This usually is done by means of diagrammatic charts showing circulation between and access to separate elements and their inter-relations in terms of their functions. At this point such a diagram should be without regard for architectural composition.

3. A building design developed from the organization diagram.

4. Refusal to submit even preliminary sketches until each element has been analysed in detail and the designer is convinced it belongs there. The scheme must be "workable" at all times.

5. Presentation of the scheme in such a manner as to give the client an opportunity to understand the reasoning back of the organization of the plan and composition of the elements. Sound design analysis can almost always be interpreted in everyday language which the client is capable of understanding completely. Once the client does comprehend the thoroughness and sincerity with which the analysis has been made, the design becomes part of his experience. He is then not living with a building which he has only been told is correct.<sup>431</sup>

As stages one and five illustrate, the architectural procedure is now an open process. It is open, first of all, in the sense that architectural knowledge is not considered exclusive to the profession. There are no longer any traces of the cultural authority enjoyed by the Beaux-Arts architect, the "aura" that distinguished his domain of expertise from the concerns of the client, and by extension, society in general. Secondly, this procedure is open in that the institutional program has become a legitimate object of inquiry for the architect, a point that I have underscored throughout Chapters IV to VI. It was the route through which the architect could penetrate into the social body.

---

<sup>431</sup> "Architect and Educator Work Together," Architectural Record 89, March 1941, p. 67.

By defining the program as a domain of systematic intervention, the architect's field of knowledge expands and shifts towards a world external to architecture; to the natural sphere of the human body's requirements and an idealized social world of institutional patterns. Once the internalized world of academic professionalism had been broken up, the onus was defining a body of *architectural* techniques and objects independent of the individual program. As the following description of the architect's activities in school planning also published in 1941, his intervention into the program moves toward the formation of "method."

He has consulted school superintendents, teachers, pupils, custodians; he has spent endless hours in the classroom to observe just what goes on; he has consulted architects, engineers, manufacturers of school furniture, city planners; and has visited many of the school systems throughout the state-- all in an effort to find the basis for the *new approach*.<sup>432</sup>

Indeed, the middle phase of Lyndon, Smith and Winn's five point policy, centered on the discourse of the diagram, incapsulates this discursive level of method. The academic discipline, as noted in Chapter II, was also defined as a method. It was, however, to use Michel Foucault's terminology, a system in which the principle of commentary-- the idea that there is "some meaning which must be rediscovered...an identity to be reiterated"-- was operative. It was less a system of inventing new forms, than a way of restating conventionalized forms for different conditions. The diagram, on the other hand, provided the key to a rational discursive formation that was cleansed of formal preconceptions and retained, to quote again from Foucault, "the possibility of

---

<sup>432</sup> Ernest Langford, commenting on the research done by William W. Caudill, who was at the time an instructor at the Department of Architecture at the Agricultural and Mechanical College of Texas, for the bulletin Space for Teaching. An Approach to the Design of Elementary School for Texas, Texas Engineering Experiment Stations, Aug. 1, 1941.

formulating-- and of doing so ad infinitum-- fresh propositions."<sup>433</sup> The avoidance of form at the initial stages of design then resulted in the burden of formal invention at the end of the architectural procedure. As the second and third stages of Lyndon, Smith and Winn's procedure stated, the diagram must begin "without regard for architectural composition," and eventually be "developed" into a building design. Once form was excluded from the program, ironically, the problem became how it could be reconnected as its logical product.

We have in fact examined the geneology of this self-imposed predicament. In my inquiry into the transformations of academic professionalism, I had traced the fragmentation of what was once a unified and efficacious discipline into the separate domains of architectural style, abstract composition and functional planning. The polarization of composition and planning thereby prepared the way for the emergence of a new discipline centered on the latter. This discipline of the architect-surgeon did not simply replace a tradition that had lost its legitimacy, but was formed on the ruins of this very tradition. Nor was the discursive formation centered on the concept of planning the only line of development that followed the breakdown of the academic discipline. Perhaps the most publicized project of the 1930s, entrenched in this conceptual dichotomy between the aesthetic and the functional, was the 1932 modern architecture exhibition at the Museum of Modern Art and the companion book by Henry-Russell Hitchcock and Philip Johnson.<sup>434</sup> Their formulation of the "International Style" can in

---

<sup>433</sup> "In a discipline, unlike in commentary, what is supposed at the point of departure is not some meaning which must be rediscovered, nor an identity to be reiterated; it is that which is required for the construction of new statements. For a discipline to exist, there must be the possibility of formulating-- and of doing so ad infinitum-- fresh propositions." ( Michel Foucault, "The Discourse on Language," 1971, translated in The Archeology of Knowledge and The Discourse on Language, New York; Pantheon, 1972, p. 223. )

<sup>434</sup> As the recent study by Terence Riley, The International Style: Exhibition 15 and The Museum of Modern Art, New York; Rizzoli, 1992, has shown, the formulation of the principles of the International Style can be attributed primarily to Hitchcock. The direct source of this assessment is a letter from Alfred Barr to Lewis Mumford, dated Feb. 27, 1948, in which Barr wrote that though he was responsible for applying the term "International Style" to architecture, it was not his formula but "one arrived at by

fact be understood within the framework of the modernism debate of the 1920s. On the one hand, Hitchcock and Johnson followed the traditionalist's argument that if one rejected the discipline of stylistic restraints, a vacuum where anything would be possible was opened, resulting in the loss of a communal discipline of architecture. On the other hand, they could not accept the eclecticism of both the traditionalist and the modernists. Hitchcock, had in fact begun to pursue the notion of a singular modern style several years before the exhibition. He wrote in 1930: "Modern architecture cannot be served by syncretist acceptance. Either it is a new way of light which demands conversion, or it is merely an impediment in the growth of taste in revivalism."<sup>435</sup> Functionalism, did not provide a theory on which a new discipline could be based; it could not fill the void because form could not be generated.<sup>436</sup>

Technical perfection...is not in a complicated problem-- and every building is a complicated problem and increasingly so-- exact in the sense that four is the exact as well as perfect solution of two times two. Thus the sum of free choices among equally satisfactory solutions of details within the technical perfection of the complex whole is another and separate complex whole. These choices may be left to chance-- or economics, which is historically the

---

Hitchcock and Johnson, principally Hitchcock who, although he now seems evasive about it, was teacher and theorist for both Johnson and I" ( Lewis Mumford Papers, Van Pelt Library, U. Penn published in "What is Happening to Modern Architecture," Museum of Modern Art Bulletin 15, Spring 1948, p. 21 ). Another indication to this effect is that Johnson's early proposals for the exhibit show none of the essentially formalist conception of the International Style.

<sup>435</sup> Hitchcock, "Architectural Education Again," Architectural Record 67, May, 1930, p. 445.

<sup>436</sup> An interesting aspect of Hitchcock and Johnson's formulation of functionalism is their distinction between European and American functionalists. They identified the latter with the successful Beaux-Arts trained commercial architects. Hitchcock and Johnson did not specify them in The International Style but they clearly targeted these architects of the New York skyscrapers during the 1920s: a group that Johnson called the "Skyscraper School of Modern Architecture" a year before the exhibition ( See "The Skyscraper School of Modern Architecture," in Arts 17, May 1931, pp. 569-75 ). The fault of the Americans was that they relegated the legitimate province of the architect to the "aesthetic desires of the client." American functionalists, or as was later renamed "commercial functionalists" by Alfred Barr, thus relinquished their disciplinary autonomy. Alfred Barr claimed in the Museum of Modern Art symposium in 1948 that "we felt that the cynical parody of functionalism which we found among certain American architects was equally debasing. I refer to the theory that architecture is not an art, but a business or an industry in which design is simply a commodity to be furnished as a superficial afterthought" ( "What is Happening to Modern Architecture," p. 6. ).

same thing-- in which case the separate complex whole is unintelligent and disordered, or it may be entirely controlled by the consciousness of the designer, in which case it is intelligent and ordered. In the first case there is no architecture, in the second there is.<sup>437</sup>

For Hitchcock, between building and architecture, there was a point where "Consciously or unconsciously the architect must make free choices before his design is completed."<sup>438</sup> And in The International Style, the proper choices were provided. Its three principles-- volume, regularity and the avoidance of applied decoration-- were basically reactions and specifications of the formal principles of composition that had been established during the twenties: volume was formulated as an antithetical principle to mass, regularity a specific form of rhythm, and avoidance of decoration a principle of surface. By insisting that one adhere to a specific set of formal qualities, Hitchcock and Johnson hoped to negate the arbitrariness of style that accompanied the commitment to formalism. By recuperating the stylistic imperative lost in the fragmentation of academic discourse, they hoped to reassert the cultural authority of an "aesthetic discipline."

In 1957, John Summerson gave a lecture called "The Case for a Theory of 'Modern' Architecture." It was one of the first texts that self-consciously addressed the dilemma imposed by the form-function dichotomy. The point of departure for the lecture was whether there was a consistent "basis of principle applicable to modern architecture," in the way Alberti and Laugier's writings had previously provided a "theory" of architecture. Summerson then discussed Le Corbusier's Vers une Architecture and Moholy Nagy's Von Material zu Architektur (originally published in 1929 and translated

---

<sup>437</sup> Hitchcock, "The Decline of Architecture," Hound and Horn, Sept. 1927, p. 34.

<sup>438</sup> Hitchcock and Johnson, International Style, 1932, reprinted New York, Norton; 1966, p. 37. Two years later, in the Machine Art exhibition, Barr repeated Hitchcock's formulation of the architect's function within the technical conditions of production: "The role of the artist in machine art is to choose, from a variety of possible forms each of which may be functionally adequate, that one form which is aesthetically most satisfactory. He does not embellish or elaborate, but refines, simplifies and perfects." See Alfred Barr, "Foreword," in Machine Art, New York; Museum of Modern Art (unpaged).

into English as The New Vision: from Material to Architecture in 1932 ), in order to demonstrate that these exemplary modernist texts in fact did not provide the "ultimate authority" that was required of a theory. Rather abruptly, he arrived at the conclusion that the "source of unity" for modern architecture lay in the "social sphere" of the architectural program. The most interesting aspect of this lecture was the fact that Summerson was acutely aware of the consequences of this definition.

The conceptions which arise from a preoccupation with the programme have got, at some point, to crystallize into a final form and by the time the architect reaches that point he has to bring to his conception a weight of judgement, a sense of authority and conviction which clinches the whole design, causes the impending relationships to close into a visually comprehensible whole. He may have extracted from the programme a set of interdependent relationships adding up to a unity of the biological kind, but he still has to face up to the ordering of a vast number of variables, and how he does this is a question. There is no common theoretical agreement as to what happens or should happen at this point. There is a hiatus.<sup>439</sup>

It was around the same time that Summerson posed this problem of the "hiatus" between program and form, that it became the object of a new field of theoretical discourse in architecture. Written a few years after Summerson's lecture, Christopher Alexander's doctoral thesis at Harvard University was published as Notes on the Synthesis of Form in 1964. Up to that point, it was conceivably the most systematic embodiment of the aspirations and problems of the discourse of the diagram. In a nutshell, the book attempted to formulate a mathematical method of deriving diagrams from a complex verbal program of requirements; and from the diagram arrive at a design solution that "fit" the program. Notwithstanding Alexander's later attempt to dissociate his work with the

---

<sup>439</sup> John Summerson, "The Case for a Theory of 'Modern' Architecture," London, 1957 reprinted in The Unromantic Castle and Other Essays, London; Thames and Hudson, 1990, p. 264.

study of "design methods," Notes exemplified the beginnings of this self-conscious intervention into the discourse of the diagram.<sup>440</sup> Written during the late fifties and early sixties, both Alexander and Summerson's texts were meditations on the rationalist formations of the architectural discipline that emerged since the breakdown of academic professionalism. While theorizing the problems of the discursive formation of the diagram in divergent ways, their unquestioned point of departure was the conception of the program as a social pattern, which had to somehow be connected with architectural form. To quote Summerson's definition, the program was a "local fragment of social pattern," involving "some rhythmically repetitive pattern-- whether it is a manufacturing process, the curriculum of a school, the domestic routine of a house, or simply the sense of repeated movement in a circulation system."<sup>441</sup> Nonetheless, to reiterate an earlier point, Summerson was much more aware than Alexander of the consequences of this assumption:

...if you accept the principle that the programme is the source of unity, the crucible of the architect's creative endeavor, you cannot postulate another principle, another crucible, at the other end of the designing process to satisfy the architect's craving for conspicuous self-expression. You cannot have it both ways. You certainly cannot have two sources of unity. Either the programme is or it is not the source."<sup>442</sup>

Unfortunately, it was not the assumption that has been scrutinized; the question was most often posed as which side you were on. It is in this black-mail of the form-function dichotomy-- the logic of either/or and before/after-- that much of architectural discourse

---

<sup>440</sup> Alexander wrote in the preface to the paperback edition to Notes published in 1971: "Indeed, since the book was published, a whole academic field has grown up around the idea of 'design methods'-- and I have been hailed as one of the leading exponents of these so-called design methods. I am very sorry that this has happened, and want to state, publicly, that I reject the whole idea of design methods as a subject of study, since I think it is absurd to separate the study of designing from the practice of design."

<sup>441</sup> John Summerson, "The Case for a Theory of 'Modern' Architecture," pp. 263-264.

<sup>442</sup> *Ibid.*, p. 266.



has been immersed. In recent years, this predicament has been manifested in the kinds of responses to the apparent failures of modern architecture. Numerous critics have chosen to attack the architecture of public housing, such as the infamous Pruitt-Igoe apartments, as the emblem of modernist ideology and practices. And by now, we are familiar with the images of the demolition of the Pruitt-Igoe apartments, used in different ways as a convenient symbol of modern architecture's failure to fulfill its promise.<sup>443</sup> The polemics of this strategy is in part justified as architects were active participants in the ideology of "slum surgery." A central theme in this study was in fact to examine the emergence of the institutional formation in which architects and planners willingly took on the burden of the role of the surgeon of America's social illness. To use Frederick Ackerman's expression, architects and planners suffered from having assumed "responsibility for results in a domain in which they [had] neither authority nor the remotest chance of gaining it."<sup>444</sup> The antithesis of the architect-surgeon, however, does not lie in the pursuit of the infinite permutations of a lost magic. The corrective of the avoidance of form does not reside in the evasion of social responsibilities-- the self-indulgent formal games and the intellectual gestures of polemical writing. Like the strategy of the International Style, these subterfuges do not provide an antithesis to the practice of the architect-surgeon but become necessary ornaments to that which they claim to transcend.

The emergence of culture as ornament was of course a central Veblenian thesis. It parallels Walter Benjamin's description of *l'art pour l'art*, which emerged, according to

---

<sup>443</sup> See Oscar Newman, Defensible Spaces, New York; Macmillan, 1972; Peter Blake, Form Follows Fiasco. Why Modern Architecture Hasn't Worked, Boston; Little, Brown and Co., 1974, p. 155; Charles Jencks, The Language of Post-Modern Architecture, New York; Rizzoli, 1977, p. 9; Colin Rowe and Fred Koetter, Collage City, Cambridge, MA; MIT Press, 1978, p. 7; and Tom Wolfe, From Bauhaus to Our House, New York; Simon and Schuster, 1981, pp. 80-81. For an insightful discussion of the formation of Pruitt-Igoe as the mythical symbol of the failure of modernism, see Katherine G. Bristol, "The Pruitt-Igoe Myth," Journal of Architectural Education 44, May 1991.

<sup>444</sup> Ackerman, "A Note on the Problem of Site and Unit Planning," New York City Housing Authority, 1937, p. 8.

him, as a response to the breakdown of the ritual basis of art caused by the "revolutionary means of reproduction."<sup>445</sup> In this situation, Ackerman's strategy was to refuse the possibility of authentic representation and subsequently, a holistic discipline of architecture. Much in the way that Benjamin's vision of a "political art" was a radical demand on photography and film to transform the very notion of art-- towards a formation of art that did not exist in the present-- Ackerman was well aware that the promise of the architect-surgeon was something beyond its capacities. We are reminded that Ackerman's architect-technician did not exist in a society dominated by the price system. Ironically, Benjamin's dialectical thinking and Ackerman's regressive strategy share the common difficulty of having to write about a future that cannot be seen in its whole. They saw only glimpses and fragments that must be systematically redeemed in a possible future. The fragmented strategy of Ackerman and Benjamin both stem from the assumption of an organic past and the totalizing force of capitalism. In different ways, both struggle in a dualism in which the notion of an authentic modern form, set against the spurious appearances of commodities, is present, and yet is something that cannot be grasped. Against Ackerman's notion of the impossibility of an architectural discipline, I would contend that the discipline is something that can be cultivated, discussed and criticized. Indeed this dissertation has been motivated by the need to understand the institutional web of this dualist discursive formation. It hopes to be part of a continuing effort to understand the limitations, boundaries and potential of architectural intervention into the complex economic, political and physical problems of modern life.

---

<sup>445</sup> "We know that the earliest art works originated in the service of a ritual-- first the magical, then the religious kind. It is significant that the existence of the work of art with reference to its aura is never entirely separated from its ritual function...With the advent of the first truly revolutionary means of reproduction, photography, simultaneously with the rise of socialism, art sensed the approaching crisis which has become evident a century later. At the same time, art reacted with the doctrine of *l'art pour l'art*, that is, with a theology of art. This gave rise to what might be called a negative theology in the form of the idea of "pure" art, which not only denied any social function of art but also any categorizing by subject matter." ( Benjamin, "The Work of Art in the Age of Mechanical Reproduction," p. 224. )

**From the Portfolio to the Diagram: Architectural  
Discourse and the Transformation of the Discipline of  
Architecture in America, 1918-1943**

*Volume Two*

by

Hyungmin Pai

B.S. in Arch., Seoul National University  
1983

Master of Urban Design, Graduate School of Environmental Studies  
Seoul National University  
1985

SUBMITTED TO THE DEPARTMENT OF ARCHITECTURE  
IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE DEGREE OF  
DOCTOR OF PHILOSOPHY  
IN THE FIELD OF  
ARCHITECTURE, ART AND ENVIRONMENTAL STUDIES  
AT THE  
MASSACHUSETTS INSTITUTE OF TECHNOLOGY  
JUNE 1993

© Hyungmin Pai 1993. All rights reserved

The Author hereby grants to M.I.T. permission  
to reproduce and to distribute publicly copies  
of this thesis document in whole or in part.

Signature of the Author

Hyungmin Pai  
Department of Architecture  
April 30, 1993

Certified by

Stanford Anderson  
Head, Department of Architecture  
Professor of History and Architecture  
Thesis Supervisor

Accepted by

Stanford Anderson  
Chairman  
Department of History, Theory and Criticism

## Appendix A:

Michael A. Mikkelson, "Two Problems of Architecture," Architectural Record 65, Jan. 1929, pp. 65-66.

### TWO PROBLEMS OF ARCHITECTURE

The outstanding problems in the practice of architecture are (1) how to adjust design to the conditions created by mass production and (2) how to adjust the general practice of architecture to the conditions created by modern technics in the useful arts, including commerce and industry, which tend to segregate architects into groups of specialists--hospital architects, school architects, bank architects and so on.

Both problems derive from the same cause, which is the distinguishing and governing fact of modern life, namely the extension of the research method of science--observation, hypothesis, deduction, experimental verification--to the useful arts from education and medicine to commerce and industry.

The research method of science is a procedure for the discovery of principles. That it is applicable in the useful arts has been sufficiently demonstrated. Whether it is applicable in the fine arts is often questioned. But if, as modern scientific thought postulates, science is a faceted whole concerned with all natural phenomena because these are reciprocal, if geology, for example, is one such facet or branch of science using the data of physics, chemistry and biology, if psychology cannot be divorced from anatomy, chemistry and electricity, if esthetics, being inseparable from psychology, deals exclusively with natural phenomena, what reason is there to think that the research method valid in the useful arts is not equally valid in the fine arts?

Indeed, considering the reciprocity of natural phenomena, what objective cleavage is there between art and science or between the useful arts and the fine arts?

### MODERN DESIGN

Presumably, then, the problem of how to adjust design to mass production is capable of solution through discovery of principles by scientific procedure-- observation, hypothesis, deduction and experimental verification. A hypothesis in this connection is any supposition made in order to deduce from it principles of design that will accord with the facts of standardized fabricated materials and manufactured equipment and with the trade operations of assembling and putting them together in the construction of buildings.

Experimental verification of the principles deduced consists in applying them to designs for buildings. If the buildings receive general approbation from informed critics, say, architects, the principles have been practically verified, and you have modern design or modern architecture.

Obviously, hypotheses formed upon a limited knowledge of the facts of mass production and of construction methods, or in semi-ignorance of the facts of design in generally admired buildings of earlier periods, are not likely to yield principles worth putting to the test of experiment.

Capricious hypothesis account for a large share of illogical design. They originate mainly in failure to eliminate mythological elements from the concept of art. The most common, perhaps, is a survival from Platonic philosophy, which predicated an immaterial world of archetypes. These have been rationalized into abstract ideas, and the search for abstract beauty or the archetype of beauty persists.

If hypotheses were based exclusively upon observed facts-- upon phenomena evident to the senses-- progress in adjusting design to mass production would be far more rapid. This increasingly is being done by those architects, here and abroad, who are the recognized leaders of the modernist movement. Their hypotheses have the appeal of scientific thinking and their design, always interesting as experiment, is often beautiful. One can appreciate the logic of a hypothesis which runs something like this; hence, design, in order not to defeat this purpose, should achieve beauty through mass, grouping, proportion, and other fundamentals of composition. Or, fabricated materials have beauty of color and texture; therefore, adapt design to the decorative qualities of materials.

Modernism, in so far as it is vital, is an attitude of mind-- the scientific attitude, which declines to accept facts statements that cannot be verified by the senses and which uses a certain method of investigation-- observation, hypothesis, deduction, experimental verification. This method is is neither more or less than the trial-and-error method used in every drafting room. The trial-and-error method is scientific because it is the way the normal mind works, although generations of learned debate were expended to reach agreement upon this everyday fact.

#### SPECIALIZATION IN PRACTICE

The general acceptance of scientific concepts and procedure has created a desire for accurate observation and precise experiment in all professions and occupations. Thus, a

modern hospital uses a great variety of mechanical devices in diagnosis, therapeutics and surgery; also, there is a great variety of departments and activities. The data bearing on equipment and operation which an architect must gather to plan a hospital have mounted in number, and this is of course true with respect to other classes of building.

The complexity of functional planning seems to invite, perhaps to demand, specialization in practice. On the other hand, the data for such planning, which develop outside the profession of architecture, are being compiled and systematized in the professions and occupations that produce them. The lack of authoritative books of reference is being remedied, and specialists are available for consultation.

Probably the need to specialize in the practice of architecture is less today than it was ten years ago, when functional data had to be gathered more extensively by word of mouth from clients, mostly corporate executives, whose knowledge was confined to a narrow personal experience.

#### TECHNICAL NEWS AND RESEARCH

The foregoing paragraphs explain the attitude of this magazine towards two problems in its field of service which have come to engage the practical interest of many architects, and which therefore demand systematic editorial attention.

We will try to learn whether specialization in practice is increasing and what its advantage and disadvantages are. Whatever the results of this investigations, we recognize the universal need for specialized information in planning and will publish the new developments-- not yet available through books of reference-- connected with the planning of buildings.

How to adjust design to machine technics, in our opinion, is not a problem of disembodied, abstract art, but a problem inseparable from and conditioned by modern planning and construction. In publishing examples of design, we will therefore select those those which seem logical and promising from this point of view. Acting upon the supposition ( hypothesis ) that progress in architecture depends upon a more extensive and accurate knowledge of modern planning and construction, we will publish new data-- not text book data--related to construction as well as data related to planning.

In order to symbolize this enlargement of the scope of the editorial service, the present issue contains a department entitled Technical News and Research.

MICHAEL A. MIKKELSON

**Appendix B:**

Letter from Frederick Ackerman to Lewis Mumford, dated March 10, 1931, Van Pelt Library, U. Penn. Special Collections.

My Dear Mumford,

I appreciated your article in the January issue of Creative Art which Miss Arfman called to my attention as being decidedly worth while. It immediately started a train of thought which resulted in the accompanying notes in the shape of a syllabus--which may be filled in ( or not ) some time.

For an indeterminate future, interest in art ( using the term in the sense that it is now employed by the man on the street ) is due to be actuated by the aims of conspicuous consumption under the guidance of the pecuniary canons of taste. ( "interest signifies concern on the part of all of us from "wop" to millionaire )

This will serve to sustain a remnant of handicraftsmen. ( but hardly a remnant of the handicraft industry )

But the handicraftmen so sustained will go to their work under the guidance of the ever more pervasive logic of machine technology.

So, presently, they will fail to supply the demand-- which state of affairs will serve to increase it.

Hence, the need for substitutes-- men and products.

The "designer" appears.

But the "designer" must of a necessity go to his work without benefit ( or handicap ) of discipline under the logic of handicraft and the logic of machine technology.

So that presently the creative effort involved in supplying the entire community with goods, must needs be differentiated to meet the differential concepts; and what could

count as conspicuous consumption under the guidance of pecuniary canons of taste will fall exclusively ( approximately ) under the guidance of the logic of salesmanship.

This may be deemed unfortunate.

But we are faced with a dilemma: the logic of handicraft runs at cross purposes with the logic of technology; and the logic of machine technology runs at cross purposes with conspicuous consumption.

Handicraft, therefore is dead. ( approximately )

But conspicuous consumption is not.

For the time being, conspicuous consumption may be sustained by salesmanship but this turns upon the power of salesmanship to accelerate the rate of turnover of taste, style and fashion. For this is all that salesmanship is equipped to offer in this field.

The pecuniary canons of taste could prevail us now; but the criteria would change. To be greatly appreciated or highly prized, an expression would have to be utterly strange, untainted, as it were, by the causal circumstances out of which it burst upon us.

Sincerely, Frederick Lee Ackerman



## Bibliography

### Primary Sources I.

- Adams, Rayne. "Thoughts on Modern, and Other, Ornament." Pencil Points 9, Jan. 1929.
- Amar, Jules. The Human Motor or the Scientific Foundations of Labour and Industry. New York: E.P. Dutton, 1920.
- Anderson, Arthur G. Industrial Engineering and Factory Management. New York: Ronald Press, 1928.
- "Announcement." Architectural Reprint 2, April 1902.
- "Apartment House Planning Requirements," Architectural Record 77, March 1935.
- "The Architect, The Draftsman and 1930!" Pencil Points 11, Jan. 1930.
- "The Architect in Action." Architectural Record 89, March 1941.
- "Architect and Educator Work Together." Architectural Record 89, March 1941.
- Atkinson, Robert & Hope Bagenal. Theory and Elements of Architecture. New York: McBride, 1926.
- Bach, Richard. "Three Books for Draftsmen." Architectural Record 42, Dec. 1917.
- Baldwin, Charles C. Stanford White. 1931, reprinted New York: Da Capo, 1976.
- The Ballinger Company, Buildings for Commerce and Industry. Philadelphia, 1924.
- Barney, J. Stewart. "The Ecole des Beaux Arts. Its Influence on Our Architecture." Architectural Record 22, Nov. 1907.
- Barr, Alfred. "Foreword." in Machine Art. New York: Museum of Modern Art, 1934.
- Bauer, Catherine. Modern Housing. Boston: Houghton Mifflin, 1934.
- \_\_\_\_\_. "Exhibition of Modern Architecture. Museum of Modern Art." Creative Art 10, March 1932.
- Baum, Dwight James. "Modern Traditionalism." T-Square Club Journal 1, April 1931.
- Bencker, Ralph B. "The N.W. Ayer Building Designed from an Organization Chart." American Architect 139, Jan. 1931.
- "The Best Twenty Books for an Architect's Library." American Architect 21, Feb. 12, 1887.

- Betts, Benjamin F. "The 'Stock Plan' House Can Never Have a Soul." American Architect 136, Oct. 1929.
- \_\_\_\_\_. "Can We Sell Architecture to the Small House Buyer?" American Architect 139, March 1931.
- Birkmire, William H. The Planning and Construction of American Theatres. New York: John Wiley and Sons, 1896.
- \_\_\_\_\_. The Planning and Construction of High Office Buildings. New York: John Wiley and Sons, 1898.
- Blackall, C.H. "Architecture After the War." American Architect 115, April 2, 1919.
- Blomfield, Reginald. Architectural Drawing and Draughtsmen. New York: Cassell and Co., 1912.
- Bosworth, Frank H. and Roy C. Jones. A Study of Architectural Schools. New York: Charles Scribner's Sons, 1932.
- Brockway, Albert L. "Results Justify Affiliation of Bureau with AIA." American Architect 141, Feb., 1932.
- Brown, Frank, et al. Study of the Orders, A Comprehensive Treatise on the Five Classic Orders of Architecture. Chicago: American Technical Society, 1928. ( republication of a 1906 and 1913 texts for the American School of Correspondence )
- Callaghan, Jane and Catherine Palmer. "Measuring Space and Motion," New York: John B. Pierce Foundation, 1943.
- Callender, John Hancock. "New Day Elementary Schools. A Study of Architectural Developments Keeping Pace with the Requirements of Progressive Education." Architectural Forum 59, Dec. 1933.
- \_\_\_\_\_. "Introduction to Studies of Family Living." New York: John B. Pierce Foundation, 1943.
- \_\_\_\_\_. "The Scientific Approach to Design," Prefabricated Homes, May 1943.
- Carlson, Oliver and Ernest S. Bates. Hearst, Lord of San Simeon. New York: Viking Press, 1936.
- Caudill, William W. "Space for Teaching." Bulletin of the Agricultural and Mechanical College of Texas, Aug. 1, 1941.
- Chandler, Francis W. Construction Details Prepared for the Use of Students of the Massachusetts Institute of Technology. Boston: The Heliotype Printing Co., 1892.
- Churchhill, Henry. "Are We Architects or Merely Pencils." American Architect 137, Feb. 1930.

- Clute, Eugene. The Practical Requirements of Modern Buildings. New York; Pencil Points Press, 1928.
- Coburn, Elmer Roswell. "Economics-- The New Basis of Architectural Practice." American Architect 143, Sept. 1933.
- Corbett, Harvey Wiley. "Zoning and the Envelope of the Building." Pencil Points 4, April 1923.
- \_\_\_\_\_. "The American Radiator Building, New York City." Architectural Record 55, May 1924.
- "The Course in Architecture." Technology Architectural Record 1, May 1907.
- Cram, Ralph Adams. My Life in Architecture. Boston: Little, Brown & Co., 1936.
- Cret, Paul. "Design" in Book of the School. Department of Architecture, University of Pennsylvania, 1874-1934.
- "The Current Index of Architectural Literature." JAIA 3, Jan. 1915.
- Davison, Robert L. "Effect of Style on Cost." Architectural Record 65, April 1929.
- \_\_\_\_\_. "Problems of Country House Design and Construction." Architectural Record 66 Nov. 1929.
- \_\_\_\_\_. "Prison Architecture." Architectural Record 67, Jan. 1930.
- \_\_\_\_\_. "Gymnasium Planning." Architectural Record 69, Jan. 1931.
- \_\_\_\_\_. "Prison Architecture." The Annals of the American Academy of Political and Social Science 157, 1931.
- Desmond, Harry W. "By Way of Introduction." Architectural Record 1, July-Sept. 1891.
- Devereux, Leslie W. "The Condition of Modern Architecture." Architecture 45, Feb. 1922.
- Eichenlaub, George E. "40% of Fall in Houses Occur on Stairways. Old Rules Should be Discarded for Comfort and Safety." American Architect 137, Jan. 1930.
- "Editorial." Brickbuilder 1, Jan. 1892.
- "Editorial Comment and Notes for the Month." Architectural Forum 26, Jan. 1917.
- "Editorial Comment," Architectural Forum 27, July 1917.
- Edwards, Trystan. Architectural Style. London: Faber and Gwyer, 1926.
- Fellheimer, Alfred, "Low-Rent Housing...Planning American Standards for Low-Rent Housing." American Architect Feb, 1935.

- Ferree, Barr. "An 'American Style' of Architecture." Architectural Record 1, July-Sept, 1891.
- Flagg, Ernest. "The Ecole des Beaux-Art, Third Paper." Architectural Record 4, July-Sept., 1894.
- \_\_\_\_\_. "The Planning of Hospitals." Brickbuilder 12, June 1903.
- Ford, George B. "Beauty Snubbed by City Planners." JAIA 4, July 1916.
- Ford, James and Katherine Ford. The Modern House in America. New York: Architectural Book Pub. Co., 1940.
- Fordyce, Allmon and William I. Hamby. "Small Houses for Civilized Americans." Architectural Forum 64, Jan. 1936.
- Freese, Ernest Irving. "Correct Proportioning of Stair Treads and Risers." American Architect 143, July 1933.
- \_\_\_\_\_. "Walkways, Stairways, Climeways." American Architect 144-145, March 1934.
- \_\_\_\_\_. "The Geometry of the Human Figure." American Architect 144-145, July 1934.
- Gaillard, John. Industrial Standardization. Its Principles and Application. New York: H.W. Wilson Co., 1934.
- Galloway, Lee. Office Management. New York: Ronald Press, 1918.
- "Garages." Architectural Record 65, Feb. 1929.
- Gilbreth, Frank and Lillian Gilbreth. Motion Study. New York: D. Van Nostrand, 1911.
- \_\_\_\_\_. Applied Motion Study. New York: Sturgis and Walton, 1917.
- \_\_\_\_\_. Fatigue Study. New York: Macmillan, 1919.
- Gilbreth, Lillian. The Psychology of Management. New York: Sturgis & Walton, 1914.
- \_\_\_\_\_. "Efficiency Methods Applied to Kitchen Design." Architectural Record 67, March 1930.
- \_\_\_\_\_. "The Kitchen Practical." Brooklyn Borough Gas Co., 1930.
- Graf, Don. Data Sheets. Thousands of Simplified Facts about Building Materials and Construction. New York: Reinhold Pub. Corp., 1944 ( 2nd ed., 1949 ).
- Greeley, William R. The Essence of Architecture. New York: D. Van Nostrand, 1927.
- Greene, Benton. Elements of Architecture. New York: Harmo Press, 1931.

- Guadet, Julien. Eléments et théorie de l'architecture. Paris: Lib. de la Construction Moderne, 1901-1904.
- Haber, William. Industrial Relations in the Building Industry. Cambridge, MA: Harvard Univ. Press, 1930.
- Halstead, Frank. Architectural Details. New York: John Wiley & Sons, 1927.
- Hamlin, A.D.F. "American Schools of Architecture, 1. Columbia University." Architectural Record 21, May 1907.
- \_\_\_\_\_. "The Influence of the Ecole des Beaux Arts on Our Architectural Education." Architectural Record 23, April, 1908.
- Hamlin, Talbot. "The Architect and the Depression." The Nation 137, Aug. 1933.
- Hammond, Henry D. "Americanization as a Problem in Human Engineering." Engineering News-Record, 1918.
- Haneman, John. A Manual of Architectural Compositions. New York: Architectural Book Publishing Co., 1923.
- Haskell, Douglas. "The Modern Nursery School." Architectural Record 83, March 1938.
- Harbeson, John. The Study of Architectural Design. New York: Pencil Points Press, 1926.
- Hitchcock, Henry-Russell. "The Decline of Architecture." Hound and Horn, Sept. 1927.
- \_\_\_\_\_. "Architectural Education Again." Architectural Record 67, May, 1930.
- Hitchcock, Henry-Russell and Philip Johnson. International Style. 1932, reprinted New York, Norton: 1966.
- Hood, Raymond. "The Spirit of Modern Art." Architectural Forum 51, Nov. 1929.
- Hooper, Parker Morse. "The Editor's Announcement." Architectural Forum 48, Jan. 1928.
- Hornsby, John Allan and Richard E, Schmidt. The Modern Hospital, Philadelphia: W.B. Saunders Co., 1913.
- "How Can Architects Develop Business?" Architectural Record 73, May 1933.
- "Industrial Coach. How the Efficiency Engineer Studies the Human Machine." Scientific American Nov. 6, 1915.
- "In What Manner and By What Means Can the Practice of Architecture be Developed in Order to Win a Larger Recognition?" Architectural Forum 28, March & May, 1918.
- Johnson, Philip. "The Skyscraper School of Modern Architecture." Arts 17, May 1931.

- \_\_\_\_\_. "Rejected Architects." Creative Arts 8, June 1931.
- Kahn, Ely Jacques. "On What is Modern." in Ely Jacques Kahn, New York: McGraw Hill, 1931.
- Kahn, Albert. "Organization for Service in Industrial Building." Journal of the Proceedings of the 51st Annual Convention of the A.I.A., 1918.
- Kimball, Fiske. American Architecture. Indianapolis: Bobs-Merrill, 1928.
- Klein, Alexander. "Judging the Small House." Architectural Forum 55, Aug. 1931.
- Knobloch, Philip G. Good Practice in Construction. Part I & II. New York: Pencil Points Press, 1923 & 1925.
- Knoeppel, C. E. Graphic Production Control. New York: The Engineering Magazine Co., 1920.
- Kocher, A. Lawrence and Robert L. Davison. "Swimming Pools." Architectural Record 65, Jan. 1929.
- Kocher, A. Lawrence and Albert Frey. "Stairways, Ramps, Escalators." Architectural Record 69, July 1931.
- \_\_\_\_\_. "Dimensions, Part One. Kitchens." Architectural Record 71, Jan. 1932.
- \_\_\_\_\_. "Dimensions, Part Two. Bedrooms-Bathrooms." Architectural Record 71, Feb. 1932.
- \_\_\_\_\_. "Design and Drafting Problems, Seating Heights and Spacing Table Sizes and Heights." Architectural Record 71, April 1932.
- La Beaume, Louise. "Crabbed Age and Youth." JAIA 16, 1928.
- Larson, Jens F. & Archie M. Palmer. Architectural Planning of the American College. New York: McGraw Hill Book Co., 1933.
- Lebhar, Lionel M. "Architect or Building Economist?" Architectural Record 72, Dec. 1932.
- Leffingwell, William H. Office Management. Chicago: A.W. Shaw, 1925.
- Lowenstein, Milton D. "Germany's Bauhaus Experiment." Architecture 60, July 1929.
- Macartney, Marvyn E. The Practical Exemplar of Architecture. London: The Architectural Review, 1907.
- Marks, Percy L. The Principles of Planning. London: B.T. Batsford, 1901.
- Martin, Clarence. Details of Building Construction. Boston: Bates and Guild Co., 1899.

- "Massachusetts Institute of Technology, Department of Architecture Course of Instruction." Architectural Record 21, June 1907.
- McKim, Charles Follen. "Editorial." New York Sketchbook of Architecture 1, Jan. 1874, reprinted in Leland Roth, ed. America Builds. New York: Harper Row, 1983.
- Mikkelson, Michael A. "A Word about the New Format." Architectural Record 65, Jan. 1928.
- \_\_\_\_\_. "Two Problems of Architecture." Architectural Record 65, Jan. 1929.
- \_\_\_\_\_. "Expansion of The Architectural Record for 1930." Architectural Record 65, Nov. 1929.
- Moore, Charles. Daniel Burnham. Architect. Planner of Cities. Boston: Houghton Mifflin, 1921.
- Mowery, H. Weaver. "Material and Proportions are Both Factors in Stair Safety." American Architect 137, July 1930.
- Mumford, Lewis. "Machinery and the Modern Style", New Republic Aug. 3, 1921, reprinted in Roots of Contemporary American Architecture, New York; Dover, 1952.
- \_\_\_\_\_. "The Economics of Contemporary Decoration." Creative Art 4, Jan. 1929.
- \_\_\_\_\_. Technics and Civilization. New York: Harcourt, Brace and Co., 1934.
- \_\_\_\_\_. Culture of Cities. New York: Harcourt, Brace and Co., 1938
- \_\_\_\_\_. "Frederick Lee Ackerman, FAIA, 1875-1950." JAIA, Dec. 1950.
- \_\_\_\_\_. "An Appraisal of Lewis Mumford's 'Technics and Civilization' ( 1934 )." Daedalus 88, Summer, 1959.
- \_\_\_\_\_. The Myth of the Machine I: Technics and Human Development. New York: Harcourt, Brace, and World, 1967.
- \_\_\_\_\_. The Conduct of Life. 1951 reprinted New York: Harcourt Brace Jovanovich, 1970.
- Nelson, Paul. "A Method of Procedure in Architectural Design." Architectural Record 81, June 1937.
- The "New Architecture" and the New "American Architect." American Architect 136, Nov. 1929.
- Nolan, Thomas. "Introduction." "Sweet's Indexed Catalogue of Building Construction. New York: Architectural Record Co., 1906 edition.

- North, Arthur T. "Architects Must Study Building Economics." American Architect 136, Nov. 1929.
- Ochsner, Albert and Meyer Sturm. The Organization, Construction and Management of Hospitals. Chicago: Cleveland Press, 1907.
- Older, Fremont. William Randolph Hearst American. New York: D. Appleton, 1936.
- "The Organization and Aims of the Producer's Council, Incorporated." in Annuary of the Producers Council, 1929-1930.
- Pattison, Mary. Principles of Domestic Engineering. New York: The Trow Press, 1915.
- Pawley, Frederic Arden. "The Country House. Room by Room." Architectural Forum 58, March 1933.
- Pickering, Ernest. Architectural Design. New York: John Wiley and Sons, 1933 ( 1st ed. ), 1941 ( 2nd ed. ).
- Pierre, E.D. "We Must Become Part of the Building Industry." American Architect 139, May 1931.
- "The Planning of Public Buildings." Architectural Forum 59, Sept. 1933.
- "Planning the House Interior." Architectural Record 77, May 1935.
- "Planning the Small General Hospital." Architectural Record 86, Dec. 1939.
- "Post-War Committee on Architectural Practice, Announcement of Preliminary Program for the Inquiry into the Status of the Architect." JAIA 7, Jan. 1919.
- "The Post-War Committee on Architectural Practice." Architectural Forum 31, July 1919.
- Ramsey, Charles G. and Harold R. Sleeper. Architectural Graphic Standards. New York: John Wiley and Sons, 1932 ( 1st ed. ), 1936 ( 2nd ed. ), 1941 ( 3rd ed. ).
- Raymond, George L. Painting, Sculpture and Architecture as Representative Arts. New York: Knickerbocker Press, 1895.
- Reilly, C.H. "The Modern Renaissance in American Architecture." Journal of the Royal Institute of British Architects ( 3rd Series ), June 25, 1901.
- "Report of the Post-War Committee on Architectural Practice." JAIA 8, July, 1920.
- Robertson, Howard. The Principles of Architectural Composition. Westminster: The Architectural Press, 1924.
- \_\_\_\_\_. Modern Architectural Design. London: The Architectural Press, 1932.
- Robertson, Howard and F.R. Yerbury. Examples of Modern French Architecture. London: Benn, 1928.



- Robinson, John Beverly. Principles of Architectural Composition. New York: Architectural Record, 1899.
- Rouillion, Louis and Charles G. Ramsey. Architectural Details. New York: John Wiley & Sons, 1924.
- \_\_\_\_\_. Architectural Composition. New York: D. Van Nostrand, 1908.
- de Saussure Jr., W.P. "Hotel Front Office Equipment." Architectural Forum 51, Dec. 1929.
- Sawyer, Philip. "The Planning of Bank Buildings." Architectural Review 12, Feb. 1905.
- \_\_\_\_\_. "The Planning of Banks." Architectural Forum 38, June 1923.
- Scott, Geoffrey. The Architecture of Humanism. 1914, reprinted New York: W.W. Norton, 1974.
- Scott, Walter Dill. The Psychology of Advertising. Boston: Small, Maynard & Co., 1913.
- Sherman, Ray W. "More than a Designer." American Architect 137, June 1930.
- Sleeper, Harold R. Architectural Specifications. New York: John Wiley and Sons, 1941.
- \_\_\_\_\_. Building Planning and Design Standards. New York: John Wiley & Sons, 1955.
- "Slum Surgery in St. Louis." Architectural Forum 94, April 1951.
- Smith, Edward R. "A List of Standard Architectural Books for Offices and Public Libraries." Brickbuilder 17, July, Aug., Sept., 1909.
- Stevens, Edward F. The American Hospital of the Twentieth Century. New York: F.W. Dodge, 1928.
- Stowell, Kenneth Kingsley. "The Editor's Forum." Architectural Forum 58, Jan. 1933.
- Stratton, Arthur. Elements of Form and Design in Classic Architecture. New York: Charles Scribner's, 1925.
- Stuart, Percy C. "Architectural Schools in the United States-- Columbia University." Architectural Record 10, July 1900.
- Sullivan, Louis. Autobiography of an Idea. 1924, reprinted New York: Dover, 1956.
- Talbot, Winthrop. "A Study in Human Engineering." Human Engineering 1, Jan. 1911.
- Taylor, C. Stanley. "The Architect of the Future 1." Architectural Forum 30, Jan. 1919.
- \_\_\_\_\_. "Architectural and Building Economics." Architectural Forum 30, June 1919.

- \_\_\_\_\_. "Architectural Service from the Business Point of View." Architectural Forum 48, Jan. 1928.
- Taylor, C. Stanley and Vincent R. Bliss, eds. Hotel Planning and Outfitting. Chicago: Albert Pick-Barth Co., 1928.
- Taylor, Frederick Winslow. "Shop Management." Transactions of the A.S.M.E., 1902-1903.
- \_\_\_\_\_. Principles of Scientific Management. New York: Harper and Row, 1911.
- Tudor, Richard W. "The Architectural Profession in the Present Day." JAIA 8, Mar., 1920.
- Turner, William W. Fundamentals of Architectural Design. New York: McGraw Hill, 1930.
- "Unit Planning." American Architect 150, Jan. 1937.
- U.S. Federal Emergency Administration of Public Works. Sample Book. Washington, D.C., May 1935.
- "The Value of the Architect's Service." Pencil Points 11, July 1930.
- Van Brunt, Henry. "Architecture at the World's Columbian Exposition." Century Magazine 44, 1892 reprinted in Coles and Reed, eds. Architecture in America. A Battle of Styles. New York: Appleton-Century-Crofts, 1961.
- Van Pelt, John. A Discussion of Composition. New York: Macmillan Co. 1902.
- \_\_\_\_\_. "Architectural Detail, Part I." Pencil Points 2, May 1921.
- Varon, David. Architectural Composition. New York: William Helburn, 1923.
- \_\_\_\_\_. Indication in Architectural Design. New York: William T. Comstock, 1916.
- Veblen, Thorstein. The Theory of Business Enterprise. New York: Charles Scribner's Sons, 1904.
- \_\_\_\_\_. The Instinct of Workmanship. New York: Macmillan, 1914.
- \_\_\_\_\_. The Engineers and the Price System. 1921, reprinted in New Brunswick: Transaction Books, 1983.
- Voss, Walter C. and Ralph Coolidge Henry. Architectural Construction. New York: John Wiley & Sons, 1925
- Wadsworth, George R. "Planning Methods for Large Institutions." Pencil Points 8, March 1927.

- Wagner, Sydney. "The Statler Idea in Hotel Planning and Equipment." Architectural Forum 27, Nov. 1917.
- Ware, William Robert. The American Vignola. Part I. Boston: The American Architect and Building News Co., 1902.
- \_\_\_\_\_. The American Vignola. Part II. Scranton: International Textbook Co., 1906.
- Walsh, H. Vandervoort. "The Draftsman's Own Data File." Architectural Forum 33, Dec. 1920.
- Watson, John B. The Ways of Behaviorism. New York: Harper & Brothers, 1928.
- Willcox, W.R.B. "Draftsmanship is not Architecture." Architectural Record 77, April 1935.
- Woodroof, Albert C. "Saving Time in the Drafting Room." American Architect 142, Oct. 1932.
- Wright, Henry. "The Architect, The Plan, and the City." Architectural Forum 54, Feb. 1931.
- \_\_\_\_\_. Rehousing America. New York: Columbia Univ., 1935.
- Younger, John. Work Routing in Production. New York: Ronald Press, 1930.

## **Primary Sources II: The Writings of Frederick Ackerman**

- "Statement by Mr. Frederick L. Ackerman." in Report of the Heights of Buildings Commission. New York, 1913.
- \_\_\_\_\_. "The Architect's Part in the World's Work." Architectural Record 37, Feb. 1915.
- \_\_\_\_\_. "Community Stupidity. How Real-Estate Promotion Creates Congestion and Reduces Values." JAIA 3, May 1915.
- \_\_\_\_\_. "The Battle with Chaos." address delivered to the National Conference on City Planning 1915, JAIA 3, Oct. 1915.
- \_\_\_\_\_. "The Relation of Art to Education." JAIA 4, May 1916.
- \_\_\_\_\_. "The Relation of Art to Education. II. Architectural Schools." JAIA 4, June 1916.

- \_\_\_\_\_. "How Shall We Teach Something About Art? III. Basis of Esthetic Education." JAIA 5, May 1917.
- \_\_\_\_\_. "The Significance of England's Program of Building Workmen's Houses." JAIA 5, Nov. 1917.
- \_\_\_\_\_. "The Government, The Architect and the Artisan in Relation to Government Housing." Proceedings of the 51st Annual Convention of the AIA, 1918.
- \_\_\_\_\_. "War-Time Housing-- England's Most urgent Civic Lesson for America." American City 18, Feb. 1918.
- \_\_\_\_\_. "The Real Meaning of the Housing Problem." JAIA 6, May 1918.
- \_\_\_\_\_. "Houses and Ships." American City 19, Aug. 1918.
- \_\_\_\_\_. "Nation Planning." National Municipal Review 8, Jan. 1919.
- \_\_\_\_\_. "The Housing Question in Other Countries." JAIA 7, May 1919.
- \_\_\_\_\_. "How Shall We Provide Good Houses for All?" in Houses for Workmen. New Orleans: Southern Pine Association, 1919.
- \_\_\_\_\_. "Post-War Committee Program on Education." Proceedings of the 52nd Annual Convention of the AIA, 1919.
- \_\_\_\_\_. "Preliminary to City-Planning-- Zoning." JAIA 8, Jan. 1920.
- \_\_\_\_\_. "Where Goes the City-Planning Movement? III. Guiding Principles of Land Subdivision." JAIA 8, March 1920.
- \_\_\_\_\_. "An Influence on Better Small House Design." Architectural Forum 32, April 1920.
- \_\_\_\_\_. "Where Goes the City-Planning Movement? IV. The Confusion of View Points." JAIA 8, Aug. 1920.
- \_\_\_\_\_. "Where Goes the City Planning Movement? V. Drifting." JAIA 8, Aug. 1920.
- \_\_\_\_\_. "The British Guildsmen and Their Plans." JAIA 8, Oct. 1920.
- Ackerman, Frederick, John J. Murphy & Edith Elmer Wood, Housing Famine, New York; Dutton, 1920
- \_\_\_\_\_. "Our Philosophy of Restriction." JAIA 9, March 1921.
- \_\_\_\_\_. "Trade Schools and the Building Trades Union." Architectural Forum 36, March 1922.

- \_\_\_\_\_. "The Phelps-Stokes Fund Tenement House Competition." JAIA 10, March 1922.
- \_\_\_\_\_. "The Division of Labor." JAIA 10, Sept. 1922.
- \_\_\_\_\_. "Craftsmen- Machines- Credit- Speed." JAIA 11, June 1923, reprinted in Lewis Mumford, ed. Roots of Contemporary American Architecture. New York: Reinhold, 1952.
- \_\_\_\_\_. "Our Stake in Congestion." Survey Graphic 7, May 1925. reprinted in Carl Sussman, ed. Planning the Fourth Migration. Cambridge, MA: MIT Press, 1976.
- \_\_\_\_\_. "Architecture." in Douglas Fryer, ed. Vocational Self-Guidance. New York: J.B. Lippincott, 1925.
- \_\_\_\_\_. "Dissertations in Aesthetics IV." JAIA 14, Feb. 1926.
- \_\_\_\_\_. "Cities of the Nth Degree-- I." JAIA 14, June 1926.
- \_\_\_\_\_. "A Brand New Theory of Congestion." JAIA 15, Jan. 1927.
- \_\_\_\_\_. "The Function of Architectural Criticism." JAIA 16, April 1928.
- \_\_\_\_\_. "Modern Architecture." JAIA 16, Nov. 1928.
- \_\_\_\_\_. "The Modern Movement. I. A Point of Theory." JAIA 16, Dec. 1928.
- \_\_\_\_\_. "Georgian Architecture." Tuileries Brochures, Mar. 1930.
- \_\_\_\_\_. "The Planning of College and Universities." Architectural Forum 54, June 1931.
- \_\_\_\_\_. "Forces that Influence the Profession's Future." American Architect 141, May 1932.
- \_\_\_\_\_. "A Survey of Providence, R.I." Architectural Record 73, May 1933.
- \_\_\_\_\_. "Technocrats and the Debt Burden." New Republic 74, May 3, 1933.
- \_\_\_\_\_. "The Facts Behind Technocracy." New York: Continental Committee on Technocracy, 1933.
- \_\_\_\_\_. "The Technologist Looks at the Depression." in Howard Scott, et al., eds. Introduction to Technocracy. New York: John Day, 1933.
- \_\_\_\_\_. "Controlling Factors in Slum Clearance and Housing." Architectural Forum 60, Feb. 1934.
- \_\_\_\_\_. "Debt as the Foundation for Houses." Architectural Forum 60, April 1934.

- \_\_\_\_\_. "Population Expectations, Zoning, Appraisals and Debt." American City 49, Oct. 1934.
- \_\_\_\_\_. "Zoning." Planner's Journal 1, July-Aug. 1935.
- \_\_\_\_\_. "Must We Have Trailers for Houses?" Octagon ?, Feb. 1937.
- \_\_\_\_\_. "Land Values and City Planning." Plan Age 3, April 1937.
- \_\_\_\_\_. "An Appraisal of War Housing." Pencil Points 21, Sept. 1940.

## Secondary Sources

- Adorno, Theodor. "Veblen's Attack on Culture." Studies in Philosophy and Social Science 9, 1941, reprinted in Prisms, Cambridge, MA: MIT Press, 1981.
- Akin, William E. Technocracy and the American Dream. The Technocrat Movement, 1900-1941. Berkeley, CA: Univ. of California Press, 1977.
- Alexander, Christopher. Notes on the Synthesis of Form. Cambridge, MA: Harvard Univ. Press, 1964.
- Anderson, Lawrence B. "Rereading Gromort." Journal of Architectural Education 33, Nov. 1979.
- Anderson, Stanford. "Architecture and Tradition that isn't 'Trad, Dad'." in Marcus Whiffen, ed. The History, Theory and Criticism of Architecture, Cambridge, MA: MIT Press, 1970.
- \_\_\_\_\_. "Review of The Sources of Modern Architecture and Design." Art Bulletin 53, June 1971.
- \_\_\_\_\_. "On Criticism." Places 4, No. 1, 1987.
- Becherer, Richard. Science Plus Sentiment. Cesar Daly's Formula for Modern Architecture. Ann Arbor, M.I.: UMI Press, 1984.
- Bedford, Steven, et al. Between Traditions and Modernism. New York: National Academy of Design, 1980.
- Bell, Daniel. Work and Its Discontents. Boston: Beacon Press, 1956.
- Benjamin, Walter. "The Work of Art in the Age of Mechanical Reproduction." 1936, translated in Illuminations. New York: Schocken Books.

- Bentel, Paul. "Idealism and Enterprise: Modernism and Professionalism in American Modern Architecture, 1919-1933." Ph.D Dissertation, MIT, 1992.
- Boot, Marjn, et al. "La cucina 'razionale' nei Paesi Bassi e in Germania." in La casalinga riflessiva. La cucina razionale come mito domestico negli anni '20 e '30. Rome: Multigrafica Editrice, 1983.
- Bledstein, Burton J. The Culture of Professionalism. The Middle Class and the Development of Higher Education in America. New York: W.W. Norton, 1976.
- Boorstin, Daniel. The Americans: The Democratic Experience. New York: Vintage, 1974.
- Bricker, Lauren Weiss. "The Writings of Fiske Kimball: A Synthesis of Architectural History and Practice." in Elisabeth Blair MacDougall, ed., The Architectural Historian in America. National Gallery of Art, 1990.
- Bristol, Katherine G. "The Pruitt-Igoe Myth." Journal of Architectural Education 44, May 1991.
- Bronner, Simon J. "Manner Books and Suburban Houses, The Structure of Tradition and Aesthetics." Winterthur Portfolio 18, Spring 1984.
- Brownlee, David. Building the City Beautiful: The Benjamin Franklin Parkway and the Philadelphia Museum of Art. Philadelphia: Philadelphia Museum of Art, 1989.
- Bullock, Nicholas. "First the Kitchen-Then the Facade." AA Files 6, May 1984.
- Burchard, John & Albert Bush-Brown. The Architecture of America. A Social and Cultural History. Boston: 1961.
- Christie, Robert A. Empire in Wood. A History of the Carpenter's Union. Ithaca: Cornell Univ., 1956.
- Ciucci, Giorgio, et al. The American City. From the Civil War to the New Deal. 1973 translated Cambridge, MA: MIT Press, 1979.
- Clark, Clifford Edward. The American Family Home, 1800-1960. Chapel Hill: Univ. Of North Carolina, 1986.
- Coleman, Laurence V. Museum Buildings. Washington, D.C.: The American Association of Museums, 1950.
- Colqhoun, Alan. "The Beaux-Arts Plan." in Essays in Architectural Criticism, Cambridge, MA: MIT Press, 1981.
- \_\_\_\_\_. "Composition versus the Project." Casabella 50, Jan.-Feb. 1986, reprinted in Modernity and the Classical Tradition. Cambridge, MA: MIT Press, 1989.
- Craig, Robert. "Ideological Aspects of Publication design." Design Issues 6, Spring 1990.

- Crosbie, Michael J. "From 'Cookbooks to Menus': The Transformation of Architecture Books in Nineteenth Century America." Material Culture 17, Spring 1985.
- D'Amico, Robert. "What is Discourse?" Humanities in Society 5, Summer & Fall 1982.
- \_\_\_\_\_. Historicism and Knowledge. London: Routledge, Chapman & Hall, 1989.
- Dorfman, Joseph. Thorstein Veblen and his America. New York: Viking Press, 1934.
- \_\_\_\_\_. "New Light on Veblen." in Thorstein Veblen. Essays, Reviews and Reports. Clifton, N.J.: Augustus M. Kelley, 1973.
- Dostoglu, Sibel B. "Lincoln Cathedral Versus the Bicycle Shed." Journal of Architectural Education 36, Summer 1983.
- Draper, Joan. "The Ecole des Beaux-Arts and the Architectural Profession in the United States: The Case of John Galen Howard." in Spiro Kostof, ed. The Architect. New York: Oxford Univ. Press, 1977.
- Edgell, George. The American Architecture of To-day. New York: Charles Scribner's & Sons, 1928.
- Elsner Jr., Henry. The Technocrats. Prophets of Automation. Syracuse: Syracuse Univ., 1967.
- Emerson, David B. "The Growth of the Specification." Pencil Points 11, Feb. 1930.
- Emmet, Boris & John E. Jenck. Catalogues and Counters. A History of Sears, Roebuck & Company. Chicago: The Univ. of Chicago Press, 1950.
- Ervin, Stephen M. "The Structure and Function of Diagrams in Environmental Design: A Computational Inquiry." Ph.D. Dissertation, MIT, 1989.
- Esherick, Joseph. "Architectural Education in the Thirties and Seventies: A Personal View." in Spiro Kostof, ed. The Architect. New York: Oxford Univ. Press, 1977.
- Ewen, Stuart. Captains of Consciousness. Advertising and the Social Roots of the Consumer Culture. New York: McGraw-Hill, 1976.
- Foucault, Michel. Archeology of Knowledge and The Discourse on Language. New York: Pantheon, 1971.
- \_\_\_\_\_. "What is an Author." in Donald F. Bouchard, ed. Language, Counter-Memory, Practice. Ithca: Cornell Univ. Press, 1977.
- \_\_\_\_\_. Discipline and Punish. The Birth of the Prison. New York: Vintage, 1979.
- \_\_\_\_\_. "Space, Knowledge and Power." Skyline March 1982, reprinted in Paul Rabinow, ed. The Foucault Reader. New York: Pantheon, 1984.



- \_\_\_\_\_. "What is Enlightenment." in The Foucault Reader. New York: Pantheon, 1984.
- Garvin, James L. "Mail Order House Plans and Victorian Architecture." Winterthur Portfolio 16, Winter 1981.
- Gebhard, David. "The American Colonial Revival in the 1930s." Winterthur Portfolio 22, Summer/Autumn 1987.
- Goble, Emerson. "Seventy-Five Years of Pushing Forward for Better Architecture." Architectural Record 140, July 1966.
- Goodman, Nelson. Languages of Art. Indianapolis: Hackett, 1976.
- Gowans, Alan. The Comfortable House. North American Suburban Architecture, 1890-1930. Cambridge, MA: MIT Press, 1986.
- Haber, Samuel. Efficiency and Uplift. Scientific Management in the Progressive Era, 1890-1920. Chicago: Chicago Univ. Press, 1964.
- Hamlin, Talbot. The Greek Revival Architecture in America. New York: Oxford Univ. Press, 1944.
- Handlin, David P. "Efficiency and the American Home." Architectural Association Quarterly 5, Oct.-Dec., 1973.
- \_\_\_\_\_. The American Home, Architecture and Society, 1815-1915. New York: Little, Brown, 1979.
- Harvey, Thomas. "Mail Order Architecture in the Twenties." Landscape 25, No. 3, 1981.
- Hillier, Bill and Adrian Leaman. "How is Design Possible?" Architectural Research and Teaching 3, 1974.
- Hitchcock, Henry-Russell. American Architectural Books: A List of Books, Portfolios, and Pamphlets on Architecture and Related Subjects Published in America before 1895. 3rd ed., Minneapolis: Univ. of Minnesota, 1962.
- \_\_\_\_\_. Architecture. Nineteenth and Twentieth Centuries. London: Harmondsworth, 1968.
- Jameson, Frederic. "Architecture and the Critique of Ideology." in Joan Ockman, et al., eds. Architecture, Criticism, Ideology. Princeton: Princeton Univ. Press, 1985.
- Johnson, George Barnett. "Gardens of Architecture: Reflections on the Plates of Architectural Graphic Standards." Proceedings of the 77th Annual Meeting of the ACSA, 1989.
- \_\_\_\_\_. "Tradition and Its Interpretation Through Architectural Convention." Proceedings of the 78th Annual Meeting of the ACSA, 1990.

- Keegan, Kent and Gil Snyder. "The Crisis of the Construction Pattern Book." in Marc Angelil, ed. On Architecture, the City and Technology. ACSA Technology Conference, 1991.
- Kilham Jr., Walter H. Raymond Hood, Architect. New York: Architectural Book Publishing Co., 1973.
- Lasch, Christopher. "Lewis Mumford and the Myth of the Machine." Salmagundi 49, Summer 1980.
- Levine, Lawrence. Highbrow/Lowbrow. The Emergence of Cultural Hierarchy in America. Cambridge, MA: Harvard Univ. Press, 1988.
- Levy, Richard M. "The Professionalization of American Architects and Civil Engineers, 1865-1917." Ph.D Dissertation, Univ. of California, Berkeley, 1980.
- Lipstadt, Helene. "The Building and the Book in Cesar Daly's Revue Generale de l'Architecture." in Beatriz Colomina, ed. Architectureproduction. Princeton: Princeton Univ. Press, 1988.
- Lubove, Roy. "Homes and 'A Few Well Placed Fruit Trees': An Object Lesson in Federal Housing." Social Research 27, 1960.
- \_\_\_\_\_. Community Planning in the 1920s. The Contribution of the Regional Planning Association of America. Pittsburgh: Univ. of Pittsburgh, 1963.
- Marchand, Roland. Advertising the American Dream. Making Way for Modernity, 1920-1940. Berkeley: Univ. of California, 1985.
- Marx, Leo. "Lewis Mumford: Prophet of Organicism." in Thomas P. and Agatha Hughes, eds. Lewis Mumford. Public Intellectual. Oxford: Oxford Univ. Press, 1990.
- McAnulty, Robert. "Body Troubles" in John Whiteman, et al., eds. Strategies in Architectural Thinking. Cambridge, MA: MIT Press, 1992.
- McClagherty, Martha C. "Household Art, Creating the Artistic Home, 1868-1893." Winterthur Portfolio 18, Spring 1983.
- Michels, Eileen M. "A Developmental Study of the Drawings Published in American Architect and Inland Architect through 1895." Ph.D Dissertation, Univ. of Minnesota, 1971.
- Mitchell, Wesley C. Types of Economic Theory. From Mercantilism to Institutionalism. New York: Augustus M. Kelley, 1969.
- Moore, Richard A. "The Beaux-Arts Tradition and American Architecture." Catalogue of Exhibition by the National Institute for Architectural Education, New York, 1975.
- Morgan, Keith N. Charles A. Platt. The Artist as Architect. Cambridge, MA: MIT Press, 1985.

- Motz, Marilyn F. and Pat Browne, eds. Making the American Home, Middle-Class Women and Domestic Material Culture, 1840-1940. Bowling Green: Bowling Green State Univ. Popular Press, 1988.
- Noble, David W. The Paradox of Progressive Thought. Minneapolis: Univ. of Minnesota Press, 1958.
- Noble, David. America By Design. Science, Technology, and the Rise of Corporate Capitalism. Oxford: Oxford Univ. Press, 1977.
- Noffsinger, James P. "The Influence of the Ecole des Beaux-Arts on the Architects of the United States." Ph.d Dissertation, Catholic University of America, Washington, D.C., 1955.
- Oliver, Richard, ed. The Making of an Architect, 1881-1981. Columbia University in the City of New York. New York: Rizzoli, 1981.
- O'Neal, William B. "Pattern Books in American Architecture, 1730-1930." in Mario di Valmarana, ed. Building by the Book. ( 3 vols ) Charlottesville: Univ. Press of Virginia, 1986.
- Pokinski, Deborah. The Development of the American Modern Style. Ann Arbor, MI: UMI Press, 1984.
- Pommer, Richard. "The Architecture of Urban Housing in the United States during the Early 1930s." Journal of the Society of Architectural Historians 37, Dec. 1978.
- Poore, Patricia. "Pattern Book Architecture." Old House Journal 12, Dec. 1980.
- Popper, Karl. "On the Sources of Knowledge and of Ignorance." in Conjectures and Refutations, London: Routledge and Kegan Paul, 1963.
- \_\_\_\_\_. Objective Knowledge. Oxford: Clarendon Press, 1982.
- Quinan, Jack. Frank Lloyd Wright's Larkin Building. Cambridge, MA: MIT Press, 1987.
- Rabinbach, Anson. The Human Motor. Energy, Fatigue, and the Origins of Modernity. New York: Basic Books, 1990.
- Rakatansky, Mark. "Spatial Narratives." in John Whiteman, et al., eds. Strategies in Architectural Thinking. Cambridge, MA: MIT Press, 1992.
- Reckman, Bob. "Carpentry: The Craft and Trade." in Andrew Zimbalist, ed. Case Studies on the Labor Process, New York: Monthly Review Press, 1979.
- Riesman, David. Thorstein Veblen. A Critical Interpretation. New York: Charles Scribners, 1953.
- Riley, Terence. The International Style: Exhibition 15 and The Museum of Modern Art. New York: Rizzoli, 1992.

- Riley, Terence and Joseph Abrams, eds. The Filter of Reason: The Work of Paul Nelson. New York: Rizzoli, 1990.
- Robertson, Cheryl. "House and Home in the Arts and Crafts Era: Reforms for Simpler Living." in Kaplan, Wendy. "The Art that is Life": The Arts and Crafts Movement in America, 1875-1920, Boston: Museum of Fine Arts, 1987.
- Robinson, Cervin and Joel Herschman. Architecture Transformed. A History of the Photography of Buildings from 1839 to the Present. Cambridge, MA: MIT Press, 1987.
- Rosa, Joseph. Albert Frey, Architect. New York: Rizzoli, 1990.
- Rowe, Colin. "Character and Composition; or Some Vicissitudes of Architectural Vocabulary in the Nineteenth Century." Oppositions 2, 1974. reprinted in The Mathematics of the Ideal Villa and Other Essays. Cambridge, MA: MIT Press, 1976.
- Rudorf, Wolfgang. "The Housing Division of the Public Works Administration in its Architectural Context." Masters Thesis, MIT, 1984.
- Saylor, Henry. The AIA's First Hundred Years. Washington D.C.: The Octagon, 1956.
- Scully, Vincent. The Stick Style and the Shingle Style. New Haven: Yale Univ. Press, 1971.
- Sontag, Susan. On Photography. New York: Penguin, 1979.
- Stabile, Donald. Prophets of Order: The Rise of the New Class, Technocracy and Socialism in America. Boston: Southend Press, 1984.
- Stein, Karen. "The World According to Starck." Architectural Record 175, Sept. 1987.
- Stern, Robert A.M. "Relevance of the Decade." Journal of the Society of Architectural Historians 24, March 1965.
- \_\_\_\_\_. George Howe. Toward a Modern American Architecture. New Haven: Yale Univ. Press, 1975.
- Stern, Robert A.M., et al. New York 1930. New York: Rizzoli, 1987.
- Stevenson, Katherine Cole & H. Ward Jandl. Houses by Mail. A Guide to Houses from Sears, Roebuck and Company. Washington D.C.: The Preservation Press, 1986.
- Stiverson, Cynthia Z. Architecture and the Decorative Arts. The A. Lawrence Kocher Collection of Books at the Colonial Williamsburg Foundation. West Cornwall, CT: Locust Hill Press, 1989.
- Stein, Sally. "The Composite Photographic Image and the Composition of Consumer Ideology." Art Journal 41, Spring 1981.

- \_\_\_\_\_. "The Graphic Ordering of Desire. Modernization of a Middle-Class Women's Magazine, 1914-1939." Heresies 18, 1985.
- Summerson, John. "The Case for a Theory of 'Modern' Architecture." 1957 reprinted in The Unromantic Castle and Other Essays. London: Thames and Hudson, 1990.
- Tafuri, Manfredo. Architecture and Utopia. Design and Capitalist Development. Cambridge, MA: MIT Press, 1976.
- Teyssot, Georges. "Heterotopias and the History of Spaces." Architecture and Urbanism 121, Oct. 1980.
- Teut, Anna. "Von Typen und Normen, Massreglern und Massregelungen." Daidalos 18, Dec. 1985.
- Tomlan, Michael A. "Popular and Professional American Architectural Literature in the Late Nineteenth Century." Ph.D Dissertation, Cornell Univ., 1983.
- Topalov, Christian. "Scientific Urban Planning and the Ordering of Daily Life. The First 'War Housing' Experiment in the United States, 1917-1919." Journal of Urban History 17, Nov. 1990.
- Trachtenberg, Alan. The Incorporation of America. New York: Hill & Wang, 1982.
- Uhlig, Gunther. Kollektivmodell "Einkuchenhaus." Wohnreform und Architekturdebatte zwischen Frauenbewegung und Funktionalismus, 1900-1933. Berlin: Anabas-Verlag, 1981.
- Upton, Dell. "Pattern Books and Professionalism, Aspects of the Transformation of Domestic Architecture in America, 1800-1860." Winterthur Portfolio 19, Summer/Autumn, 1984.
- Van Zanten, David. "Architectural Composition at the Ecole des Beaux-Arts from Charles Percier to Charles Garnier." in Arthur Drexler, ed. The Architecture of the Ecole des Beaux-Arts. Cambridge, MA: MIT Press, 1977.
- \_\_\_\_\_. "Le System des Beaux Arts." Architectural Design 48, Nov.-Dec. 1978.
- Veseley, Dalibor. "Architecture and the Conflict of Representation." AA Files 8, Jan. 1985.
- Weatherhead, Arthur C. The History of Collegiate Education in the United States. Los Angeles, 1941.
- "What is Happening to Modern Architecture." Museum of Modern Art Bulletin 15, Spring 1948.
- White, Theo. B. ed. Paul Philippe Cret. Architect and Teacher. Philadelphia: Art Alliance Press, 1973.
- Willis, Carol. "Zoning and Zeitgeist: The Skyscraper City in the 1920s." Journal of the Society of Architectural Historians 45, March 1986.

- Wolner, Edward. "The Court of Honor at the 1893 World's Fair: An Architecture of Pathos." Central Papers on Architecture, Winter 1987.
- Wodehouse, Lawrence. "Kocher at Black Mountain." Journal of the Society of Architectural Historians 41, Dec. 1982.
- Wood III, Charles B. "A Survey and Bibliography of Writings on English and American Books Published before 1895." Winterthur Portfolio 2, 1965.
- \_\_\_\_\_. "The Architectural Book in Nineteenth Century America," in Mario di Valmarana, ed. Building by the Book. ( 3 vols ) Charlottesville: Univ. Press of Virginia, 1986.
- Woods, Mary. "The First American Architectural Journals: The Profession's Voice." Journal of the Society of Architectural Historians 48, June 1989.
- Wright, Gwendolyn. Moralism and the Model Home, Domestic Architecture and Cultural Conflict in Chicago, 1873-1913. Chicago: Chicago Univ. Press, 1980.
- Wright, Gwendolyn and Paul Rabinow. "Spatialization of Power. A Discussion of the Work of Michel Foucault." Skyline March 1982.

## **Illustrations**

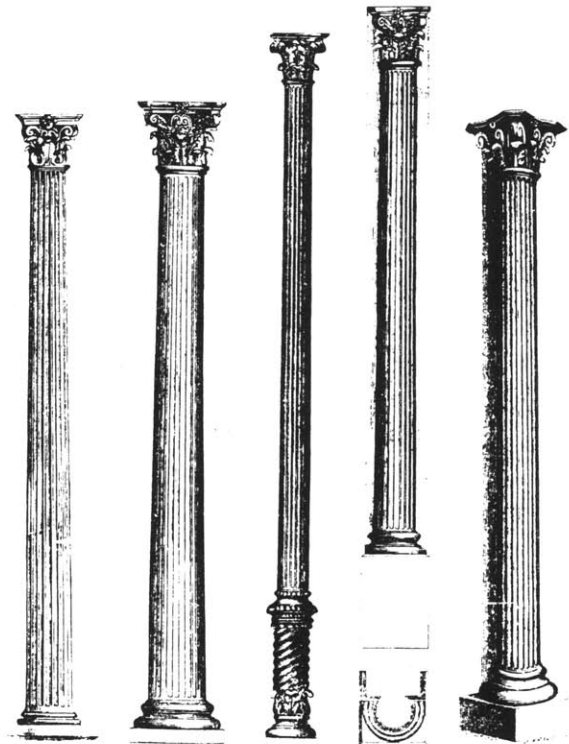


[ fig. 1 ] Catherine E. Beecher and Harriet Beecher Stowe's American Woman's Home, 1869.

ARCHITECTURAL DESIGNS

37

Made any Desired Length.



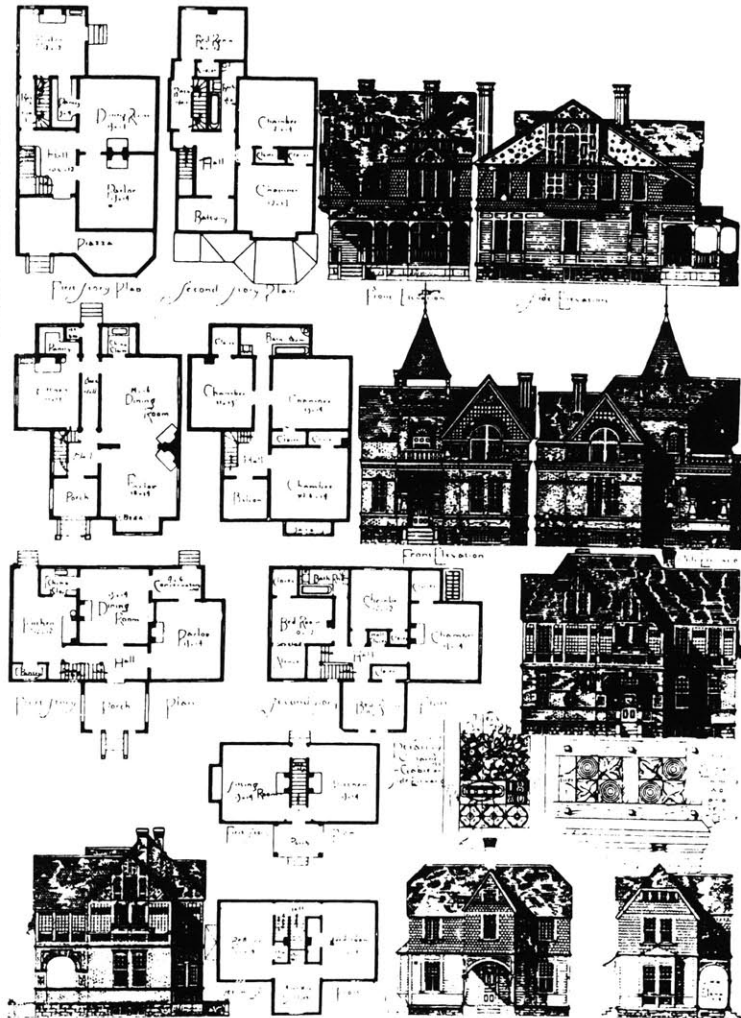
STYLE No. 12. STYLE No. 18. STYLE No. 19. STYLE No. 20. STYLE No. 21.  
 Cast-iron Column. Scale 1/8". Scale 1/8". Scale 1/8". Scale 1/8". Scale 1/8".  
 From drawing at 1/8".

[ fig. 2 ] Buffalo Eagle Iron Works, Catalogue of Architectural Design, 1859



PLATE 2.

[ fig. 3 ] Double page from Palliser's New Cottage Home and Details, 1876



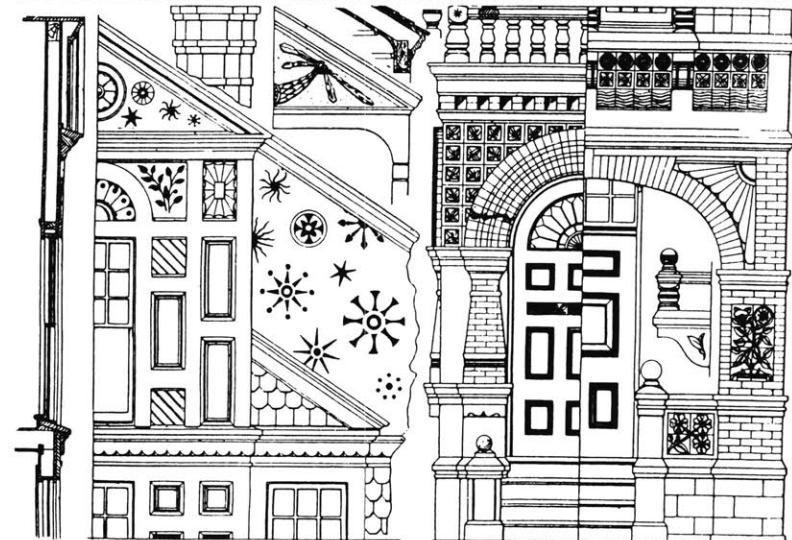
Design 2 represents an attractive two-story cottage in wood, containing eight rooms and bath room, there being two very nice rooms on third or attic floor, where there is ample space for same; the front hall is large and roomy, answering nicely for a reception room, the seat by stairs and closet under stairs being very useful accessories; the back stairs are very handsomely arranged and the kitchen is nicely isolated from the main part of the house; the front porch and piazza are very spacious, giving ample room for two groups to gather without interfering with each other, and the second-floor balcony opening from the hall is a very nice feature, affording a cool and secluded nook in which to sit and read or sew. The style of this house, with first-story clapboarded, second story shingled and gables finished in plaster with stencil work stamped into same and picked out in color, may be termed unique. Such a house painted on body of first story a green drab, shingles of second story old gold, the gable work buff, and general trimmings of sage green, with the mouldings, etc., picked out with Indian red, makes a very attractive appearance, very pleasing to the eye, and a bright spot in the landscape. Cost, \$3,200.

Design 3 is a pleasant little brick cottage, suitable for a small family, and is one of those pleasant little buildings that are always agreeable to the eye in almost any position. The plan is a very compact and convenient one, and the design is suitable for a gate lodge to a brick mansion, which might be in harmony with the style here shown. This house, built with an even-colored, clean, common red brick, trimmed with pressed and moulded brick and terra cotta, all laid up in red mortar and oiled, the roofs tiled or slated with red or black slate, makes it very effective. The open

balconies on second and third stories over hall are nice features of the design which give a character to the whole not otherwise obtained. The sliding doors between parlor and dining room are a great help to sociability, and the fire places as arranged together in the corners of the rooms, come prettily into one chimney above the roof; the inside woodwork in natural white or Georgia pine filled and varnished. Range in the kitchen, brick set, and the whole house heated by a small furnace placed in the cellar at less cost than if heated by two stoves, and the latter could only heat about one-third of the house at best. Cost, \$3,800.

Design 4 is an example of brick, timber and tile, which makes an excellent combination when rightly handled. The first story is brick on a stone underpinning of irregular ashlar in rock faced range. The front porch is particularly handsome and spacious. The first floor plan is conveniently arranged and well suited to the needs of a small family of refined tastes; the dining room has a recess for sideboard, and the conservatory connecting with parlor and dining room is a nice feature and a source of enjoyment to the lover of nature in plant life; the second floor has four fine chambers with good closets, and there is space in attic to finish off a servant's room. Cost, \$4,100.

Design 5 is a neat frame cottage well adapted for a gardener's or a coachman's residence. Could be built with or without collar, as circumstances require, and if placed in a proper location where it would be partially hid by foliage, would make a very necessary addition to a country seat, where the servant would always be within easy call and under the master's eye. Cost complete, \$1,200.

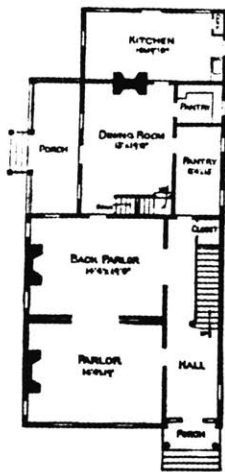




THE OLD HOUSE

THE NEW HOUSE

RE-MODELLING AN OLD HOUSE



FIRST FLOOR OF THE OLD HOUSE

THE alterations and additions to the old house were as follows: A large portion of the side wall was removed and a wing 8 ft., 8 in. x 24 ft. added to the right side; the rear part of the old hall, partitioned off with a part of the new wing, formed a library; the old-fashioned straight staircase was removed and a handsome new one, with landings, erected in that part of the hall formed by the new wing.

A new chimney was built between the library and the hall, serving for each.

In the library and in the front parlor, Jackson's ventilating grates are used, effectually heating the first and second stories, and at the same time giving the cheerful effect of the open fire.

The large front veranda is new, and with its 12 ft. deep secluded bay, formed by the staircase hall, is a feature that is much liked; the side veranda was re-modelled to conform to the style of the other changes.

Large bay-windows were added to front and side.

The servants' staircase was removed from the dining room and put out of sight, with entrance from the pantry.

The high slated roof that was added in place of the flat tin one gives a fine attic, with four good bed-rooms.

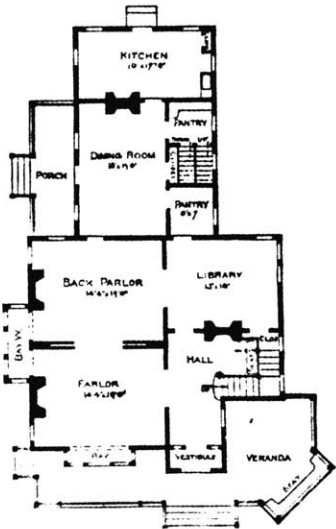
The second story contains five large bed-rooms and bathroom.

The first story was re-trimmed throughout, in modern style with hardwood.

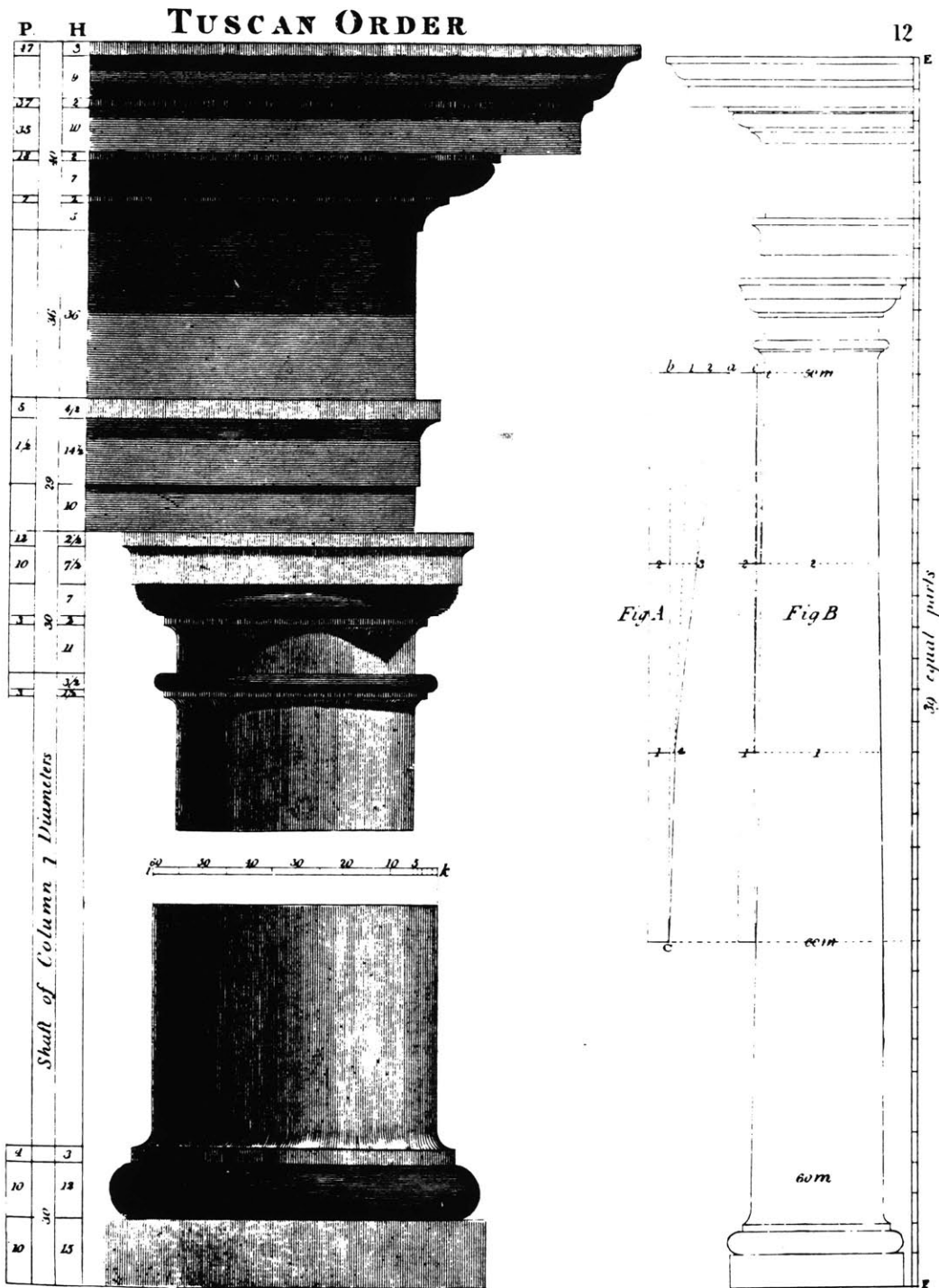
The side bay-window is a rather novel one, being entered from both parlor and back parlor, the openings screened by curtains. The transformation effected in both exterior and interior are great, and show how effectually an old house can be modernized by the employment of a little ingenuity and skill.

The builder of the original house (in the year 1845), still doing business at the old stand, executed the alterations also, and made a good job of it.

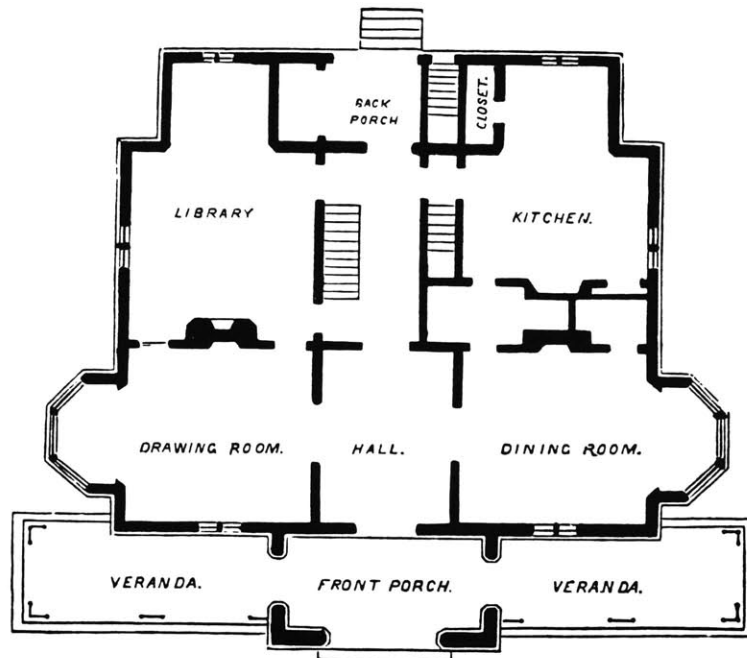
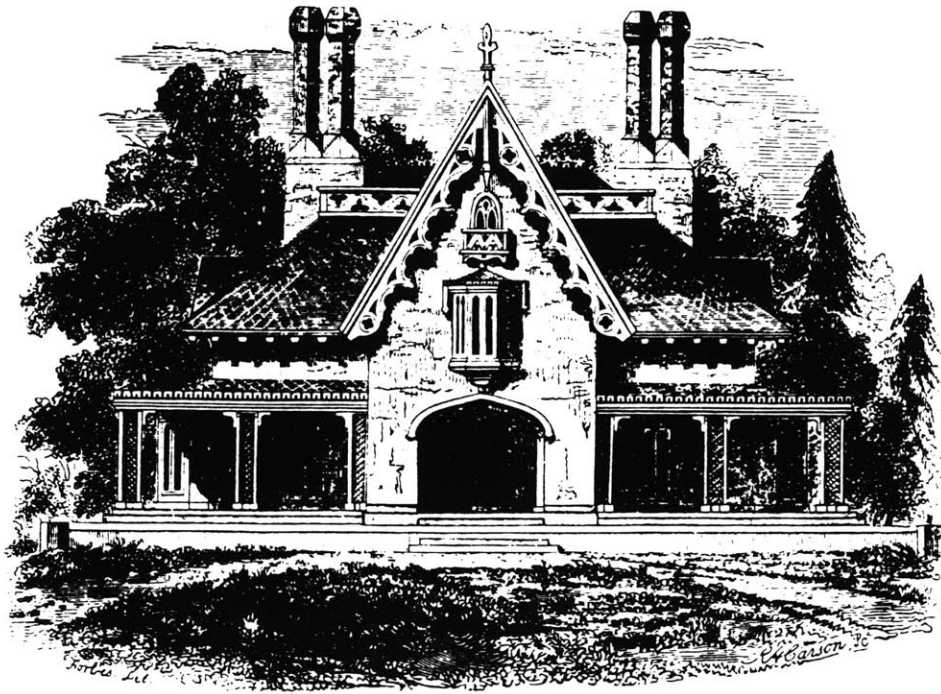
A new house built after this plan would cost about \$6,000 to \$7,000. As a general rule it is better to build a new house than to make extensive alterations in an old one.



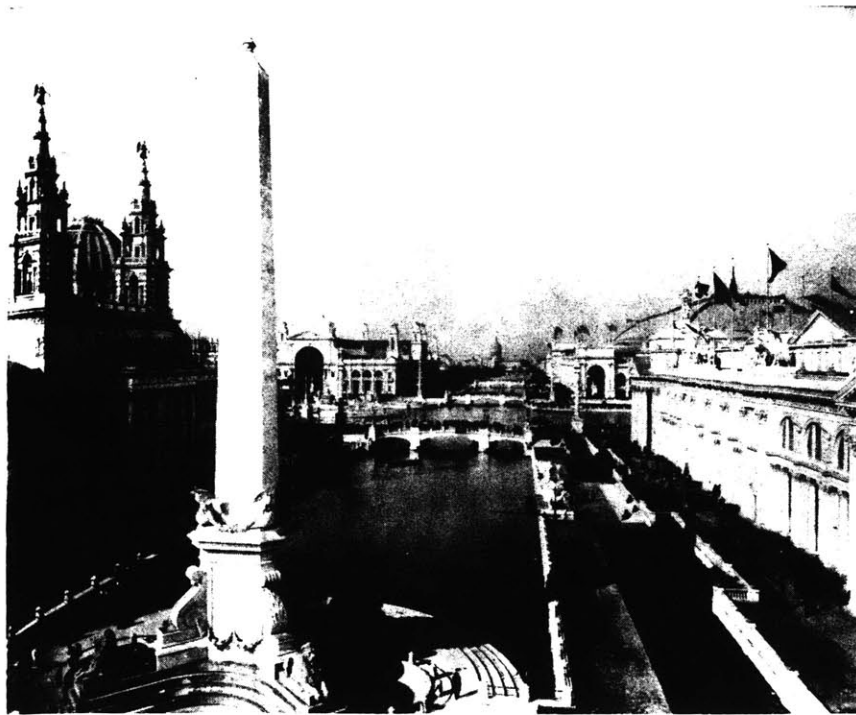
[ fig. 4 ] Advice on remodelling a Greek revival house to the more popular Victorian style of the late nineteenth century in Robert Shoppell, Modern Houses, 1887



[ fig. 5 ] Tuscan Order from Asher Benjamin The American Builder's Companion, 1826



[ fig. 6 ] Gothic house in Alexander Jackson Downing, The Architecture of Country Houses, 1850



[ fig. 7 ] Central Basin area of the World's Columbian Exposition, 1893



[ fig. 8 ] The Midway Plaisance area dominated by George Ferris' first wheel with the Moorish Palace on the right



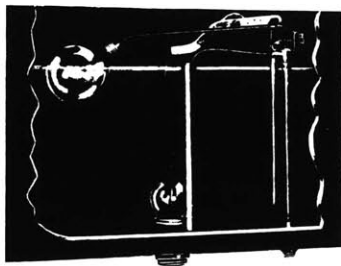
PLATE No. 22 C, "HOLLY"  
 LOW-DOWN SYPHON JET CLOSET  
 PLATE No. 21 C  
 Closet of Finest Vitreous China, with White Cello Varno Tank, 16-ounce Copper Lining, White Cello Varno Saddle Seat, and Heavy Nickel-plated Flush Connection and Supply Pipe. Price as shown .....\$50.00  
 Add for 24x26 inch Italian Marble Floor Slab ..... 7.50



PLATE No. 24 C, "CROWN"  
 LOW-DOWN CLOSET  
 Vitreous China Syphon Action Closet, Plain Antique Oak Tank, Seat and Cover, Nickel-plated Flush Connection and Supply Pipe. Price as shown .....\$18.00  
 Same Combination in Quartered Golden Oak, with 12-ounce Tinned Copper Lining, and Post Hinge, Saddle Seat.\$23.00



"ROYAL FLUSH"  
 LOW-DOWN SYPHON CLOSET  
 Vitreous China Closet with Plain Light or Dark Oak Tank. 10-ounce Lining and Saddle Seat. Price .....\$20.00  
 If 1/2 Golden Oak and 12-ounce Lining.... 23.00



TANK. Back Cut Away, Showing Fittings  
 Architects should specify these Combinations as they are superior to others. The Tanks are constructed with Glass Float and Glass Valve which will outlast any of the old style copper Floats. The Ball-cock has compound Lever adapted for any pressure and is practically noiseless. It is elevated above the water-line which will prevent water in tank syphoning back down the supply pipe. Heavy copper linings are used in all tanks. All the Earthenware is of the finest Vitreous China. The seats are durable and comfortable. We furnish all combinations in any style and kind of Wood, or in Porcelain.



SESCO LAVATORY  
 This is one pattern of the many designs in Vitreous China, the most substantial kind of ware we furnish. Price complete with Primrose Waste and Vigilant Faucets, Elliptic Trap, etc. \$70.00.

[ fig. 9 ] "Sweets" Indexed Catalogue of Building Construction, 1906

# THE AMERICAN ARCHITECT AND BUILDING NEWS

VOL. LXIX.

Copyright, 1900, by the AMERICAN ARCHITECT AND BUILDING NEWS COMPANY, Boston, Mass.

No. 1200

Entered at the Post-Office at Boston as second-class matter.

JULY 7, 1900.



**SUMMARY:—**

The Exhibition of Drawings at the International Congress of Architects.—German Participation in this Congress.—How the Building Industries are affected by these "Times of Prosperity."—The Legal Aspects of the "Westminster Chambers" Case in Boston.—Fall of a Concrete Roof in Philadelphia.—Suggested bodily Removal of the Carnegie Library Building, Pittsburgh, Pa.—Instruction in Artistic Metalwork.—Convention of the American Forestry Association.—Taxation a Cause of Deforestation.—The Movement to purify the German Language from Foreign Words. . . . . 1

A DAY IN PROVENCE.—II. . . . . 3

WASHINGTON, THE CITY BEAUTIFUL. . . . . 6

VAN DYCK AT THE ROYAL ACADEMY.—III. . . . . 6

TWO RUBKIN HALLS. . . . . 7

**ILLUSTRATIONS:—**

Sketch for a Mausoleum.—House of A. G. Hyde, Esq., Larchmont, N. Y.—Detention Hospital.—The Cloister of St. Trophime, and the Roman Theatre, Arles, France.—Exterior of the Arena, and General View therefrom, Arles, France. Metalwork.—VIII: No. 26 West 20th St., New York, N. Y. Additional: The Library: House of Charles H. Coester, Esq., Tuxedo Park, N. Y.—House of R. L. Remsen, Esq., No. 3 East 80th St., New York, N. Y.—Views in the Cloister of St. Trophime, Arles, France.—The Lapidary Museum, Arles, and some of its Treasures. . . . . 8

**NOTES AND CLIPPINGS.** . . . . 8

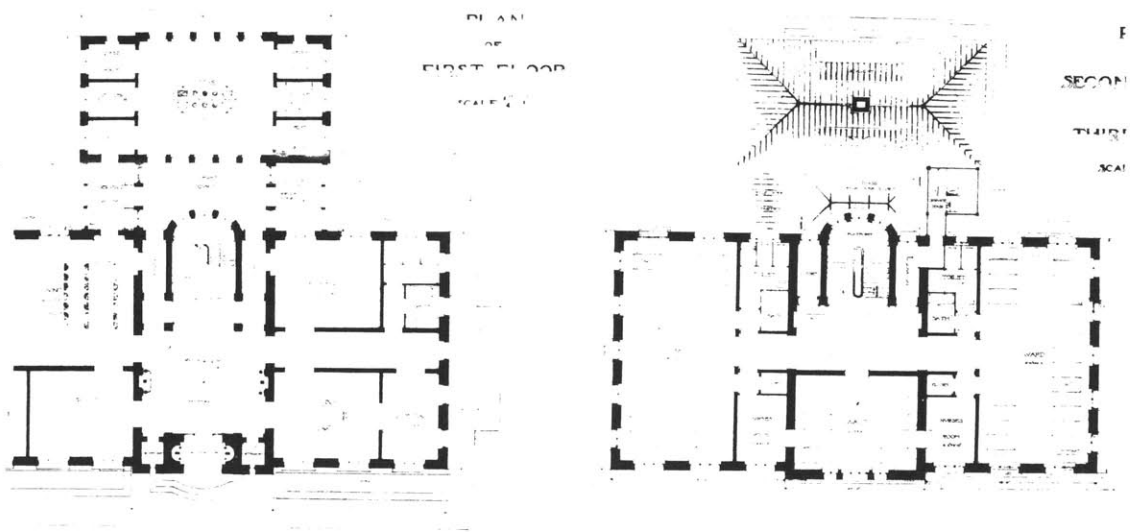
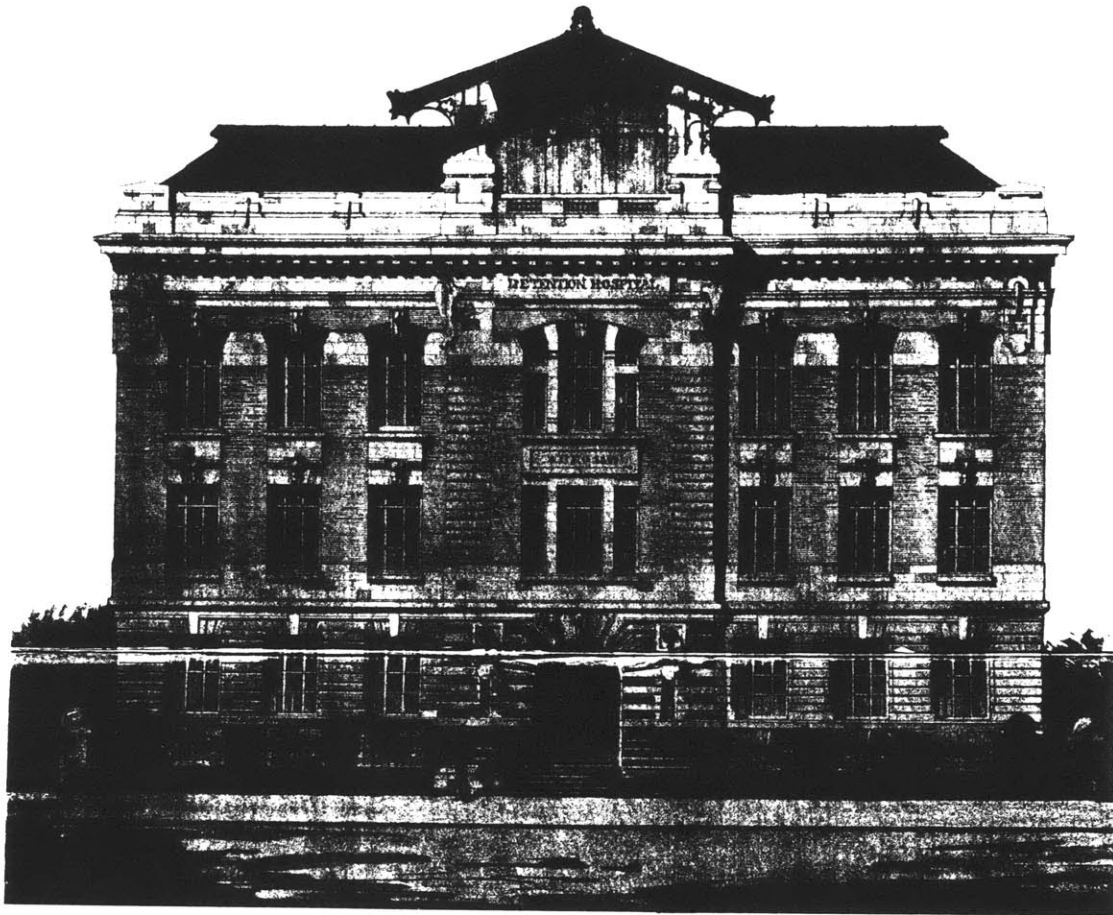
ONE of the attractions of the International Congress of Architects, to be held at the end of next month in Paris, is an exhibition of original drawings by architects, comprising particularly perspective drawings, elevations and drawings of interior decoration. All architects are invited to participate, and the exhibition, although it has been impossible to arrange to give as long previous notice as would have been desirable, will undoubtedly be of great interest. The drawings are to be shown in the rooms of the School of Fine-Arts, which will, of themselves, be an attraction to visitors; and the exhibition is to remain open during the session of the Congress, from July 30 to August 4. Announcement is made, also, for the benefit of intending visitors, that members of the Congress will be given free entrance to the Exposition grounds during the sessions of the Congress, by means of a card, which is to be obtained of the Committee of Organization of the Congress; and attention is called to the advantages which may be secured by the purchase of one or more of the "Bons de l'Exposition." These "Bons," in addition to twenty coupon tickets of admission to the Exposition, carry with them the right to a reduction of one-fourth in the price of admission to the various "spectacles" connected with the Exposition; or, if the bearer prefers, to a reduction in the price of excursion tickets on any of the great French railways, or the steamer lines to Algiers, Tunis or Corsica, of about one-third, reckoned on twice the price of a single ticket. As the "Bons," with the coupons removed, can now be bought in Paris for six francs, or less, they may be the means of making an important saving in the cost of a visit to the Exposition; and, in addition to this advantage, they give a right to participate in a lottery, the drawings of which occur at stated intervals.

A LARGE number of the most distinguished architects in Germany have issued an address, calling upon the profession, as a "duty of honor," to follow the example of the German Government and German manufacturers in participating earnestly in the Paris Exposition by attending the International Congress of Architects. The address gives the principal particulars of the Congress, and mentions that the Society of Architects and Engineers of Westphalia and Lower Rhine has appointed a committee which will, on application from any German architect, arrange for rooms in Paris for the time of the Congress, give information in regard to the journey, the stay in Paris, the interesting sights of the city and the Exposition, and provide, so far as possible, for the comfort of their professional brethren and their families.

IT is curious that the epoch of "universal prosperity," as the politicians tell us, we are now enjoying, should be characterized by the largest proportion of failures in business ever recorded, and is now to be made still more calamitous by general reductions in the wages of unskilled manual building. In several places, reductions of ten per cent have been fixed for July 1, and, although the parties interested have little to say about the matter, similar action is being taken throughout the great cities. As building has almost at a standstill, on account of the movement of prices made last winter in the prices of materials, it is not surprising that the contractors, unable to keep their men employed, are reluctant to turn them away altogether, should any such compromise of this sort; but it is hard on the workers and their families, who, with incomes materially reduced, have had to have been of late years, must pay advanced prices for flour, oil, ice, sugar and all other supplies, whether directly or indirectly, by the great Trusts. In all probability, they will accept the change with resignation, for they can hardly see that their employers are losing money, and that such a reduction in wages is made, great numbers of them must be discharged altogether; while a strike would double the contractors of a heavy burden of wages paid to men who are earning little or nothing, and are kept dependent on the charity for them and their families. Many of them are worth someone's while to study the conditions of the building industry in this country, in the interest of working out a remedy with the condition of business in other countries. It is "prosperous," but where prices of materials are controlled by protected monopolies, and when the important industry of building is not allowed to expand, the doubling or trebling of prices of materials, which the public is helpless. The New York Times says that more than one hundred million dollars of money have been sent to Europe within a few months, an investment where "prosperity" depends on the success of the does not threaten revolution and disaster. It is reported that about five hundred thousand people in Europe have factories closed and dealers ruined, and that at the same time that prices have been doubled, there is a demand within a short time from this country to Europe. It is not likely that all these people are ignorant of the comparative advantages of living in this country and in Europe, and it would be well to have the information on which they are acting made available to the public, not for the sake of inducing them to follow their example, but in order that conditions may be corrected, if necessary, so as to make it possible for the people here to remain.

THE Westminster Chambers case in Boston has raised some curious legal questions. Although the result is a well-known fact, it is not generally understood that a special restriction was placed on the height of the buildings around Copley Square, in consequence of the feelings of the officials of the Trinity Church, who thought that the effect of the proposed building would be injured by a lofty structure in their vicinity. The Legislature was far too sensible to consider any such restriction as curtailing a person's property-rights on such grounds. When it was shown that the Art Museum's collection, in the public has a deep interest, would be endangered by the story building so near, relief had to be sought, not by direct action, which, although justifiable, would be of doubtful legality, but indirectly, through the application of the Park Act, which confers a special control over building in the neighborhood of a public park, for the benefit of the citizens who use the park. Copley Square was, accordingly, declared a public park, and the property around and near it placed under the same control as that conferred in the case of other parks constituted under the Park Act. In the neighborhood of some of the Boston parks the height of buildings is restricted, and, following the precedent, the Legislature imposed a corresponding restriction on the buildings around Copley Square, for the benefit of the Museum of Fine Arts, or of Trinity Church, or of the Public Library, but of the public which is to use Copley Square as a park, and is to derive benefit to its health from the light and air which will reach the park over the adjoining buildings.

[ fig. 10 ] Letter press format of American Architect and Building News, July 7, 1900




[ fig. 11 ] Double page portfolio section in identical issue of American Architect and Building News, July 7, 1900





[ fig. 12 ] "Rolling Venetian Blinds," advertisement from American Architect and Building News, July 20, 1878

STANDARD FOR RUBBER INSULATION.



**OKONITE INSULATED ELECTRIC LIGHT WIRES**

Are pronounced by leading Architects to be **SAFE, DURABLE** and **EASILY ADJUSTED** for the inside wiring of **PUBLIC and PRIVATE BUILDINGS.**

**CANDEE WEATHERPROOF WIRES, OKONITE WATERPROOF TAPE, MANSON PROTECTING TAPE.**

—SOLE MANUFACTURERS—

**THE OKONITE CO., LTD., 253 BROADWAY, NEW YORK.**

WILLARD L. CANDEE, Mfrs. GEO. T. MANSON, Gen'l Supt. H. H. MANSON, CHIEF ENGR. W. H. HOLDING, Sec'y.

**A Pencil**  
should be sharpened to a fine point and wear off in use, instead of breaking off.

**DIXON'S AMERICAN GRAPHITE PENCILS**  
are made with smooth, tough leads, perfectly graded. Ask for them at your stationer's or mention American Architect and Building News and send 10 cents for samples.

JOSEPH DIXON CRUCIBLE CO. JERSEY CITY, N. J.

ESTABLISHED 1868

**SKYLIGHTS HAYES LATHING & FIRE-PROOF CONSTRUCTION**

71-8<sup>TH</sup> AVE. NEW YORK.



**PNEUMATIC TUBES**  
For Rapid Transmission of Cash, Orders, Papers, Documents.

USED IN Prominent Department Stores, Dry Goods Houses, Wholesale Establishments, Newspaper Offices, Banks, etc. Write for Estimates.

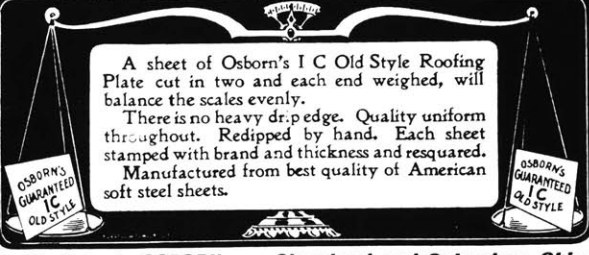
**BOSTEDO PACKAGE AND CASH CARRIER CO.,**  
CHICAGO, 156 Lake Street. NEW YORK, 156 Fifth Avenue.

**AN ARCHITECT**  
Writes from Denver: "I would like some of your pamphlets to distribute among my clients. I have used zinc on my own house, and have known of its wearing qualities for 30 years; but cannot always persuade others of its good qualities."

**ALL ARCHITECTS**  
Who are familiar with Zinc White know that it makes paints economical and durable in color and material: they specify "Combination Paints Based on Zinc White."

Two Interesting Treatises:  
"Paints in Architecture."  
"The Paint Question."  
Sent free on request.

**The New Jersey Zinc Co.**  
71 Broadway, New York



A sheet of Osborn's I C Old Style Roofing Plate cut in two and each end weighed, will balance the scales evenly.

There is no heavy drip edge. Quality uniform throughout. Redipped by hand. Each sheet stamped with brand and thickness and resquared.

Manufactured from best quality of American soft steel sheets.

**J. M. & L. A. OSBORN - Cleveland and Columbus, Ohio.**

**HITCHINGS & CO.,** Established 50 years  
HORTICULTURAL ARCHITECTS AND BUILDERS  
and largest Manufacturers of  
**GREENHOUSE HEATING AND VENTILATING APPARATUS.**



The highest awards received at the World's Fair for Horticultural Architecture. Greenhouse Construction and Heating Apparatus. Conservatories, Greenhouses, Palmhouses, etc., erected complete with our Patent Iron Frame Construction.

Send four cents for Illustrated Catalogue.  
**233 MERCER STREET, N. Y. CITY.**



80-Page Illustrated Catalogue of over 250 Designs of Superior  
**WEATHER VANES, TOWER ORNAMENTS, CHURCH CROSSES, FINIALS, Etc., Etc.**  
Mailed to any address for 2cent stamp—half the postage.  
**T. W. JONES, Manufacturer,**  
18 FLETCHER ST., NEW YORK.



**NEW ENGLAND FELT ROOFING WORKS,**  
18 Post Office Sq., BOSTON.

Originators of Felt Roofing in New England.  
Inventors and only Manufacturers of the Celebrated  
"BEEHIVE BRAND."

**Maxwell's Gypsum Water Paint**  
... FOR WALLS ...  
Of Churches, Office Buildings, Dwellings, Mills, Factories, etc.

Bright, Durable and 50 per cent. cheaper than Oil Paint. For sale at all the Paint Stores.

Works: 1420 S. Front St., Philadelphia, Pa.

**STAINED GLASS**



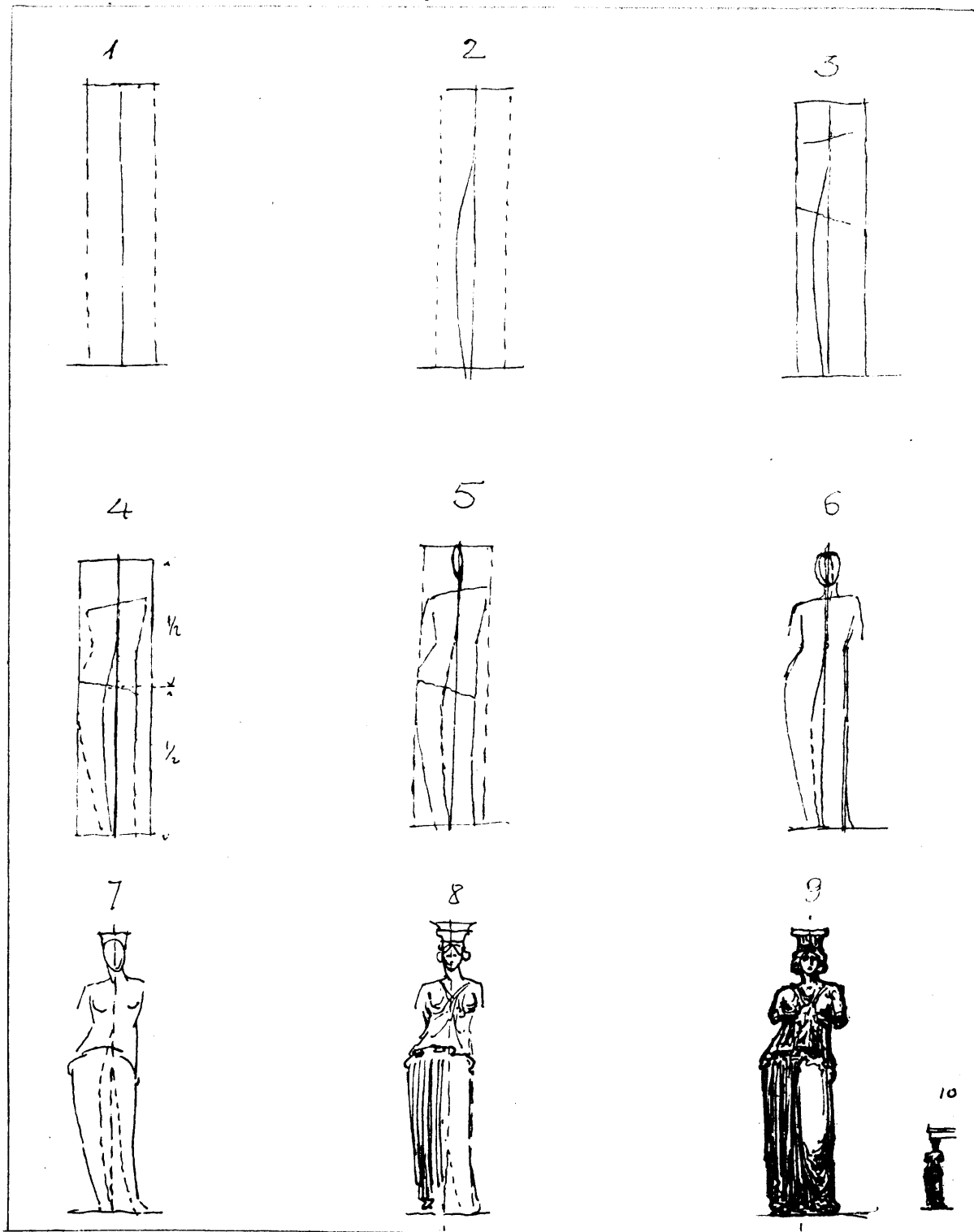
**THE FLANAGAN BIEDENWEG**

**LAUGHLIN-HOUGH Patent Drawing Tables**  
Save Time. Save Labor. Insure Accuracy.

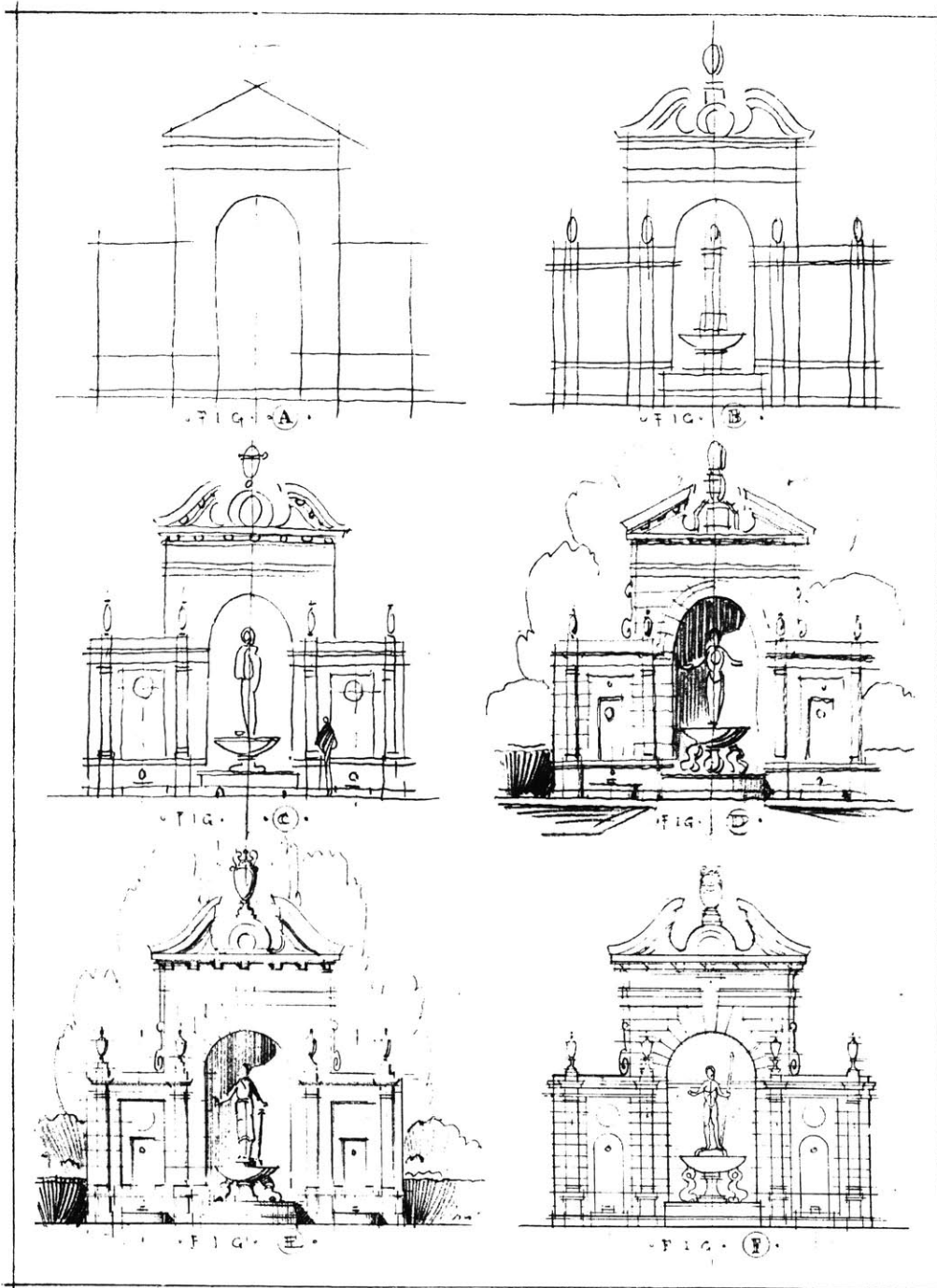


Endorsed by World's Experts. Send for Handsomely Illustrated Catalogue, describing all styles.  
**Laughlin-Hough Company,**  
Business Office, 30 Broad St., Show Rooms, 134 West 14th St.,  
**New York.**

[ fig. 13 ] Advertising page in classified format from American Architect and Building News, July 7, 1900

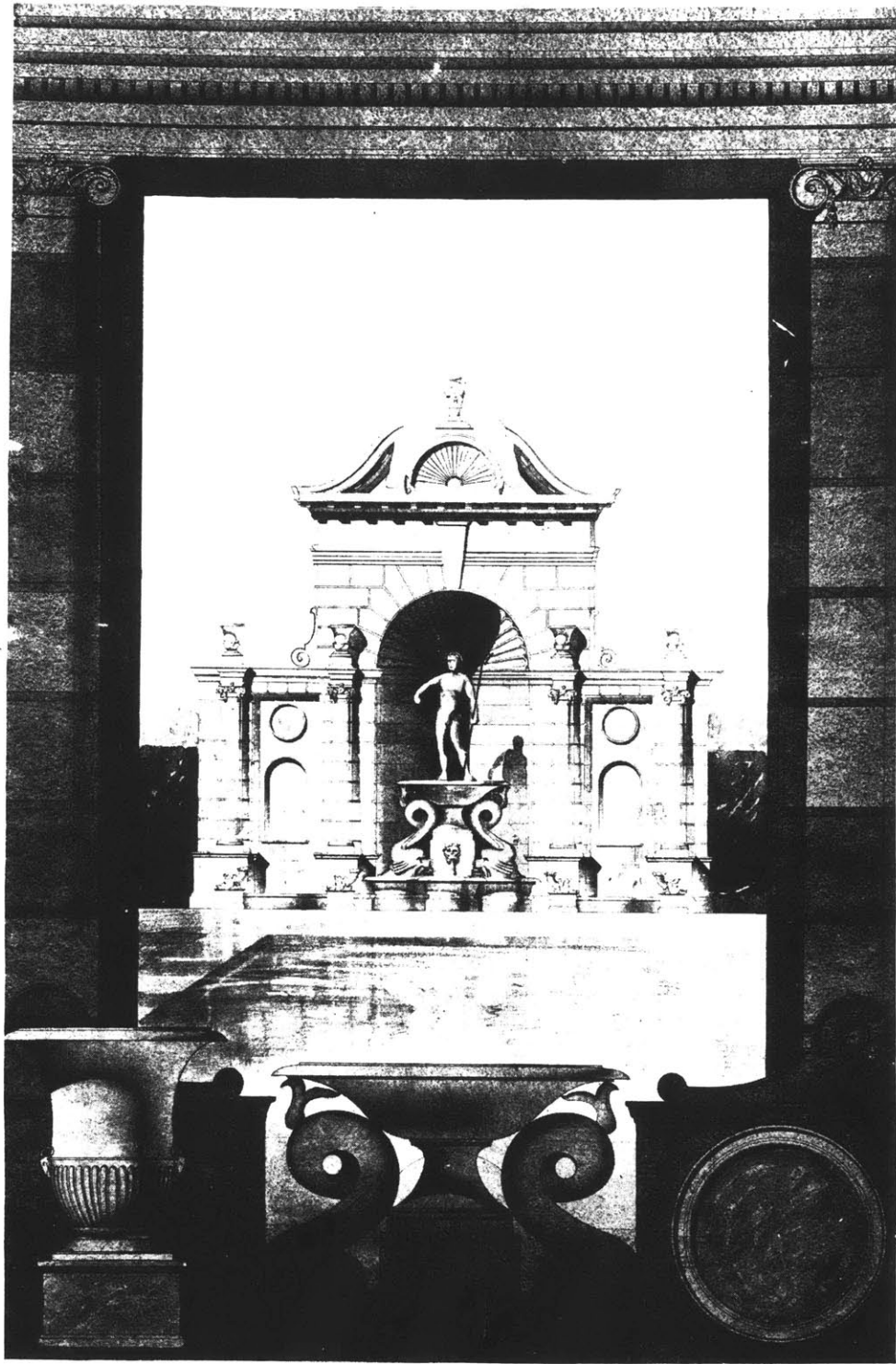


[ fig. 14 ] "The Nine Stages in the Indication of a Caryatid" in David Varon, Indication in Architectural Design, 1916

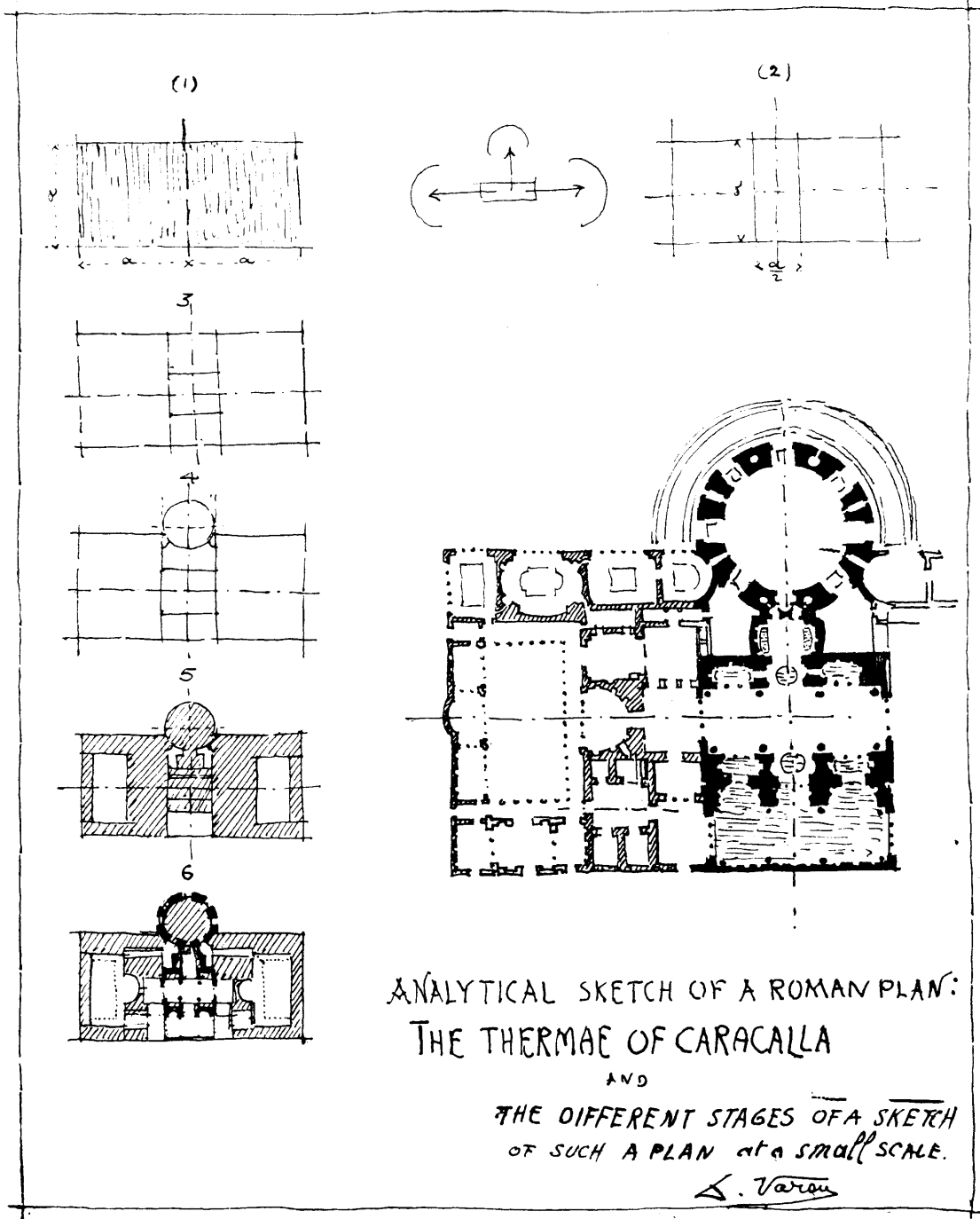


[ fig. 15 ] Levels of indication in the progression of an analytique in Ernest Pickering, *Architectural Design*, 1933

RENDERED ANALYTIQUE



[ fig. 16 ] Final drawing of analytique in Ernest Pickering, *Architectural Design*, 1933



ANALYTICAL SKETCH OF A ROMAN PLAN:  
THE THERMAE OF CARACALLA

AND

THE DIFFERENT STAGES OF A SKETCH  
OF SUCH A PLAN at a small scale.

*L. Varon*

PLATE XXXVIII

[ fig. 17 ] "Analytical Sketch of a Roman Plan, The Thermae of Caracalla", in David Varon, Indication in Architectural Design

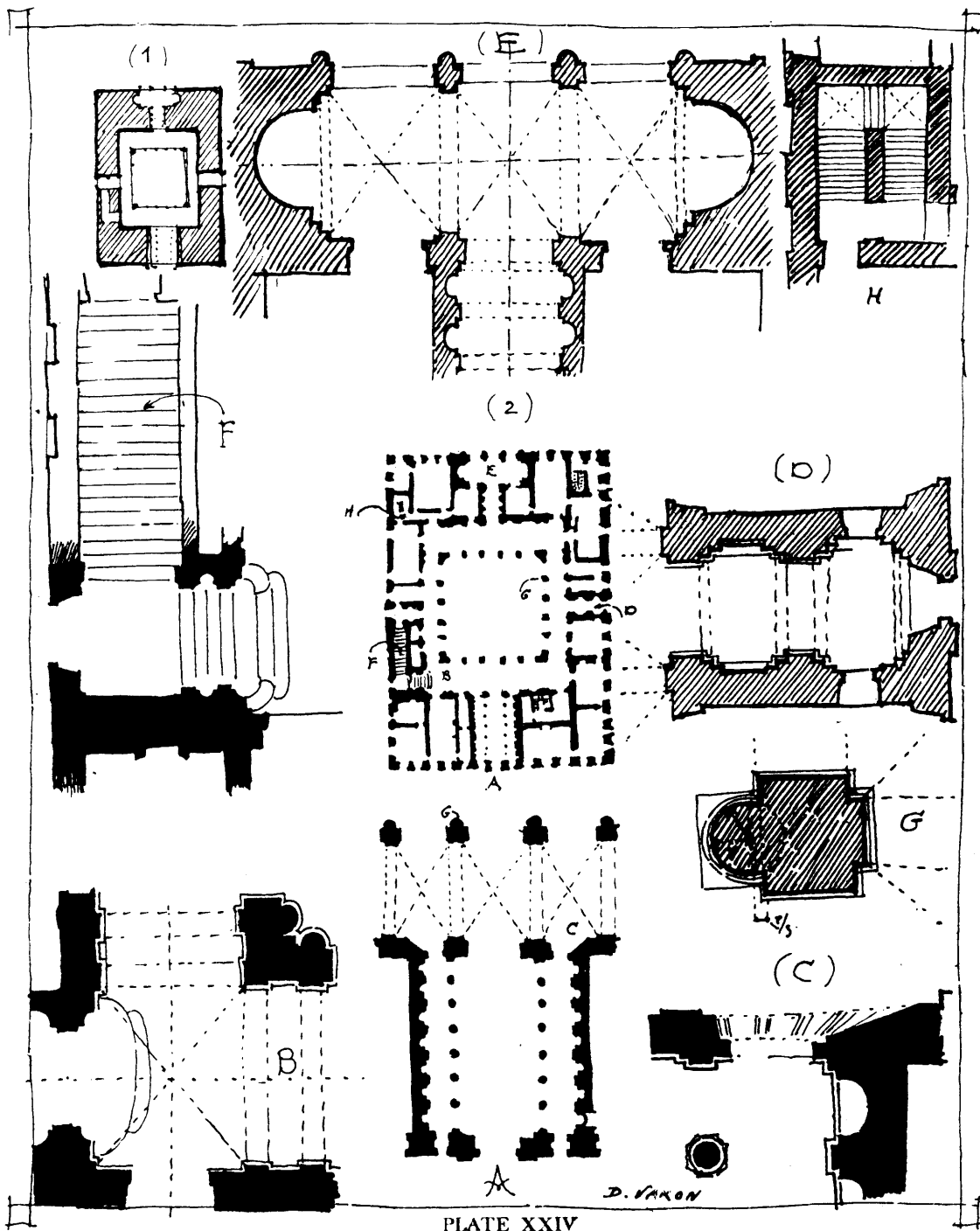
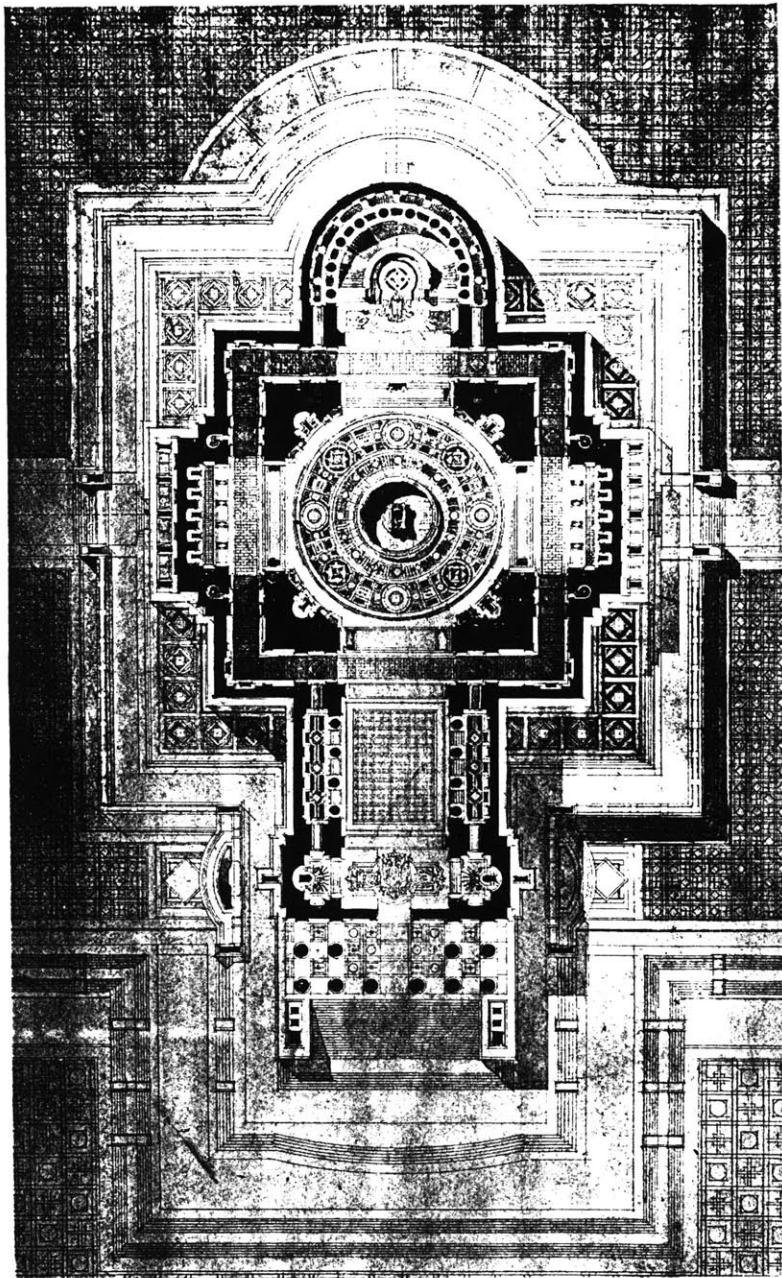


PLATE XXIV

[ fig. 18 ] Analytical studies of the Palazzo Farnese, in David Varon, Indication in Architectural Design



[ fig. 19 ] Plan drawing of design for a Pantheon by L.C. Rosenberg, Advanced Design Project at the Massachusetts Institute of Technology, published in The Technology Architectural Record 1913, fully employing the techniques of *entourage*, *poche* and *mosaique*





[ fig. 20 ] Photograph of doorway in Marvyn E. Macartney, The Practical Exemplar of Architecture, 1907



[ fig. 21 ] Alcove of architectural library in Walker Building at Massachusetts Institute of Technology during the 1880s ( above ) and ateliers of third, fourth and fifth year classes leading to library [ below ]

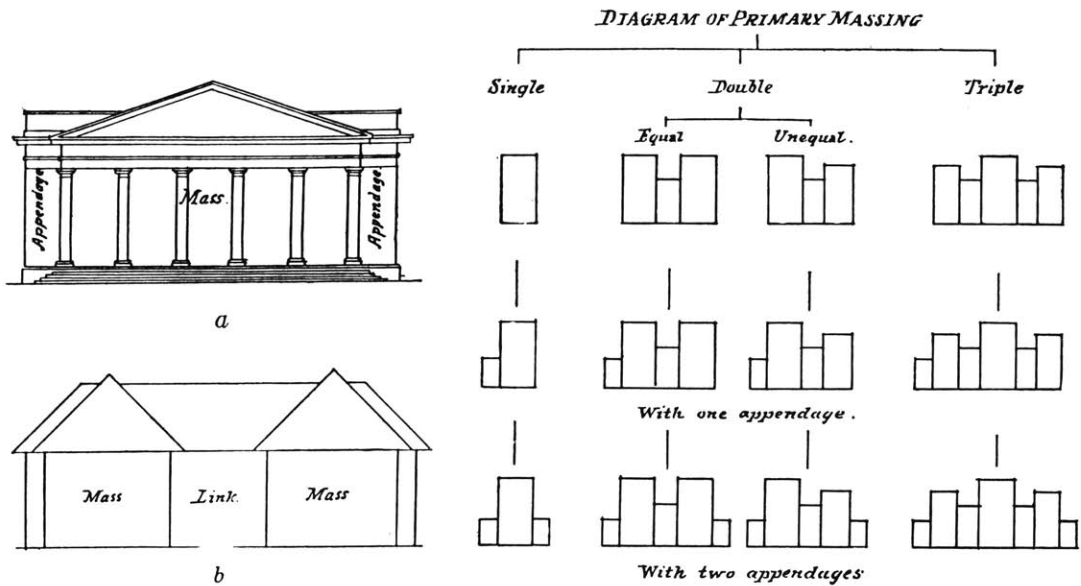
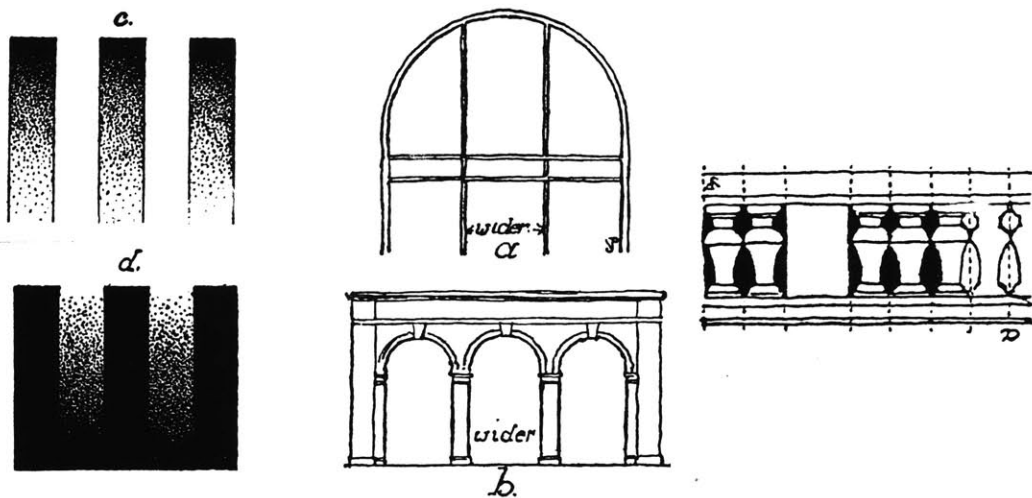


Fig. 32.

Fig. 58.

[ fig. 22 ] Analysis of massing in John Robinson, Architectural Composition, 1908



[ fig. 23 ] Examples of visual Illusions adopted from Helmholtz and its applications, illustrated in John Van Pelt, A Discussion of Composition, 1903

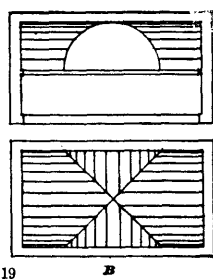
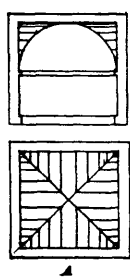


FIG. 19

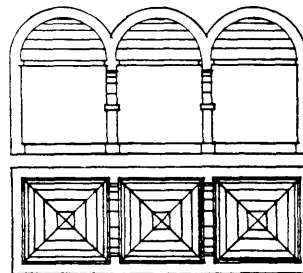
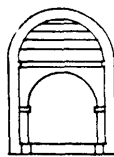


FIG. 21

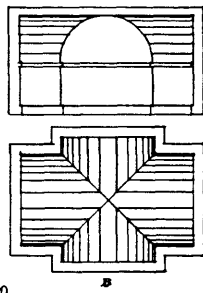
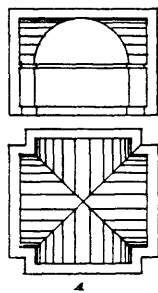


FIG. 20

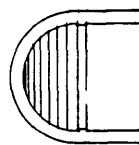
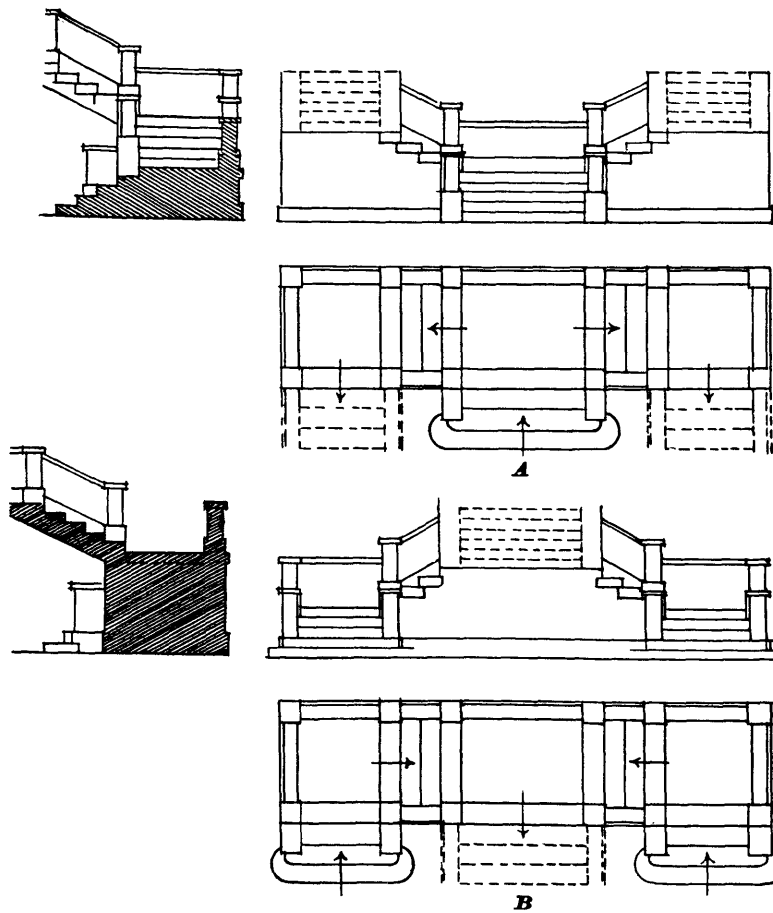


FIG. 22



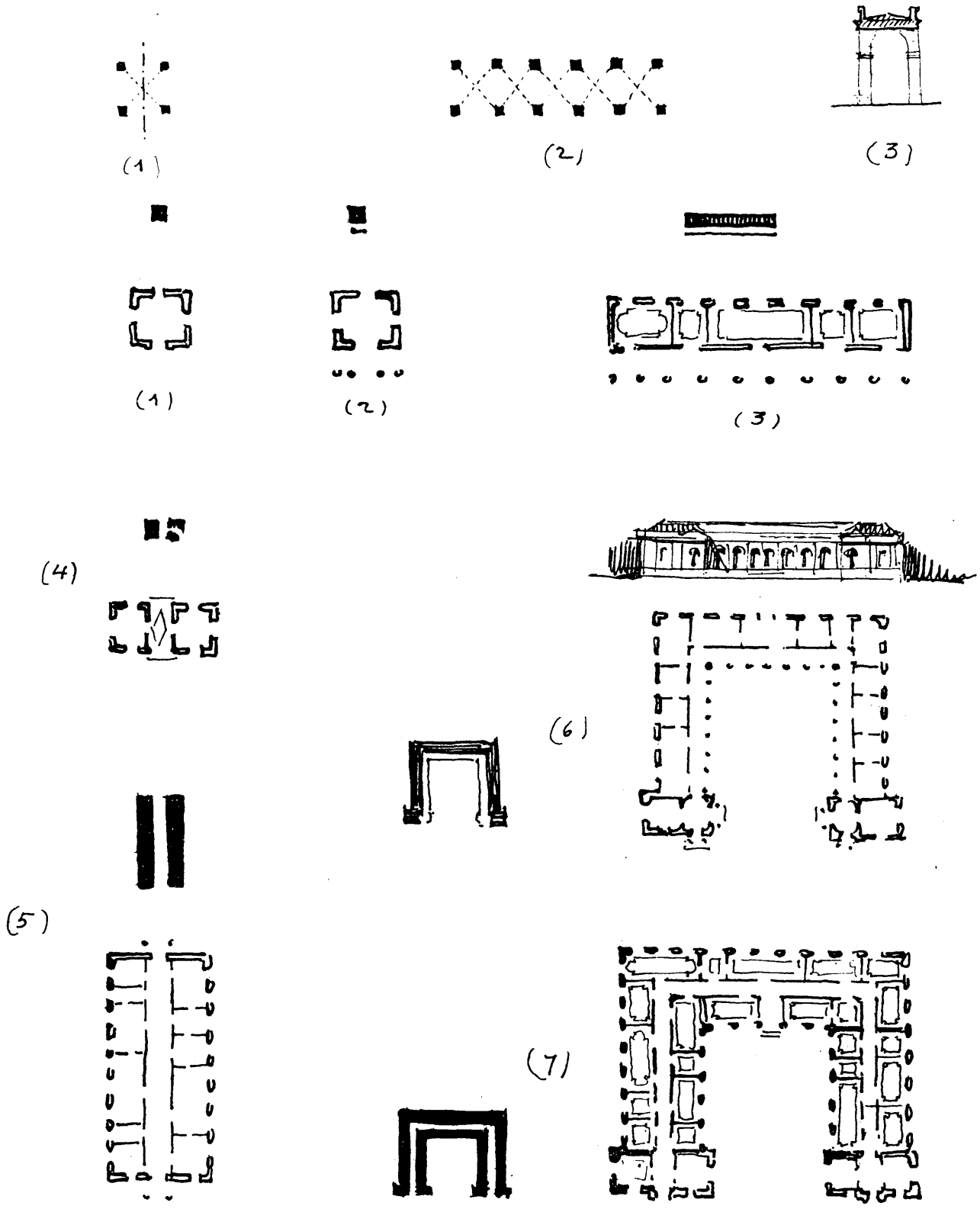
[ fig. 24 ] Illustrations from sections on "Vaults" and "Steps and Staircases" in William Robert Ware, *American Vignola*, 1905 ( Part II )



[ fig. 25 ] Esquisse for a "Marine Museum" by Roger Expert, winner of "Prix de Rome" at the Ecole des Beaux Arts, published in John F. Harbeson, The Study of Architectural Design, 1927



[ fig. 26 ] Exhibition of student's drawings displayed at the headquarters of The Beaux Arts Institute of Design in New York



[ fig. 27 ] Basic plan types and its elemental configurations, in Indication in Architectural Design



THESE lines of the homelike style of architecture will linger here. It will enter the many graceful and practical designs and the selection has been made for all of the material required in their construction with the exception of cement, brick and plaster. \$2.00 buys the plans, specifications and list of material for any one of the 29 houses illustrated on this page.

Send for Plans

**\$721**

Nearly 100 other designs of houses and cottages in our Free Book of Modern Homes No. 2002B.

Over 3,000 of Our Houses Now Built

Material for each house includes all Lumber, Lath and Shingles, Siding, Ceilings, Floors, Doors, Windows, Holdings, Frames, Porch Work, Stair Work, Finishing Lumber, Building Paper, Sash Weights, Pipe, Gutter, Hardware, Paint and Varnish.

Price shown under each house pays for all material except cement, brick and plaster.

Free Plans With Every House

**SEARS, ROEBUCK AND CO., CHICAGO**

Prices of houses shown: \$1,153.00, \$1,428.00, \$999.00, \$752.00, \$699.00, \$562.00, \$825.00, \$541.00, \$934.00, \$671.00, \$1,207.00, \$1,407.00, \$1,479.00, \$1,076.00, \$800.00, \$825.00, \$393.00, \$454.00, \$1,244.00, \$1,137.00, \$1,137.00, \$1,302.00.

[ fig. 30 ] Advertisement of Modern Homes Department Sears, Roebuck and Company, 1914

EXECUTIVE OFFICES  
OF  
**THE RADFORD ARCHITECTURAL COMPANY**

Entire Eleventh Floor Medinah Building CHICAGO, ILLINOIS

**Largest Architectural Establishment in the World**

\$75.00 to \$100.00 plans for only \$8.00 to \$15.00. Complete plans and specifications for over one thousand different kinds of buildings. Every plan and specification guaranteed.

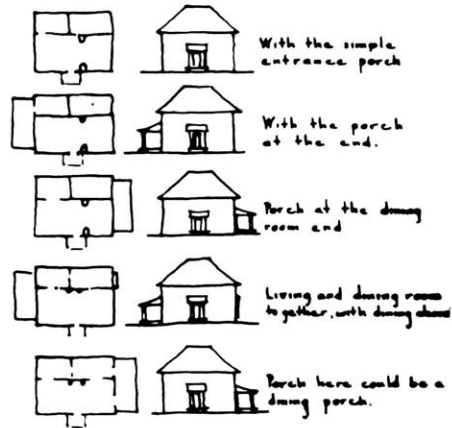
Owners and publishers of the largest and most up-to-date collection of building plan and reference books. Every Home Builder should see our plans before building.

[ fig. 31 ] View of the Radford Architectural Company in Chicago, from Radford's Cement Houses, 1909

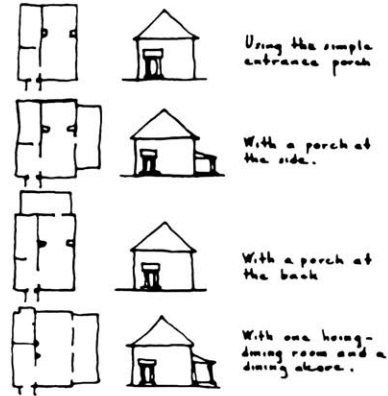


THE ELEMENTS OF THIS HOUSE  
MAY BE ARRANGED IN ANY OF THE  
COMBINATIONS INDICATED BELOW

THESE COMBINATIONS ARE POSSIBLE PLACING  
THE BROAD SIDE TOWARD THE FRONT . . . .



THESE COMBINATIONS ARE POSSIBLE PLACING  
THE SHORT SIDE TOWARD THE FRONT . . . .

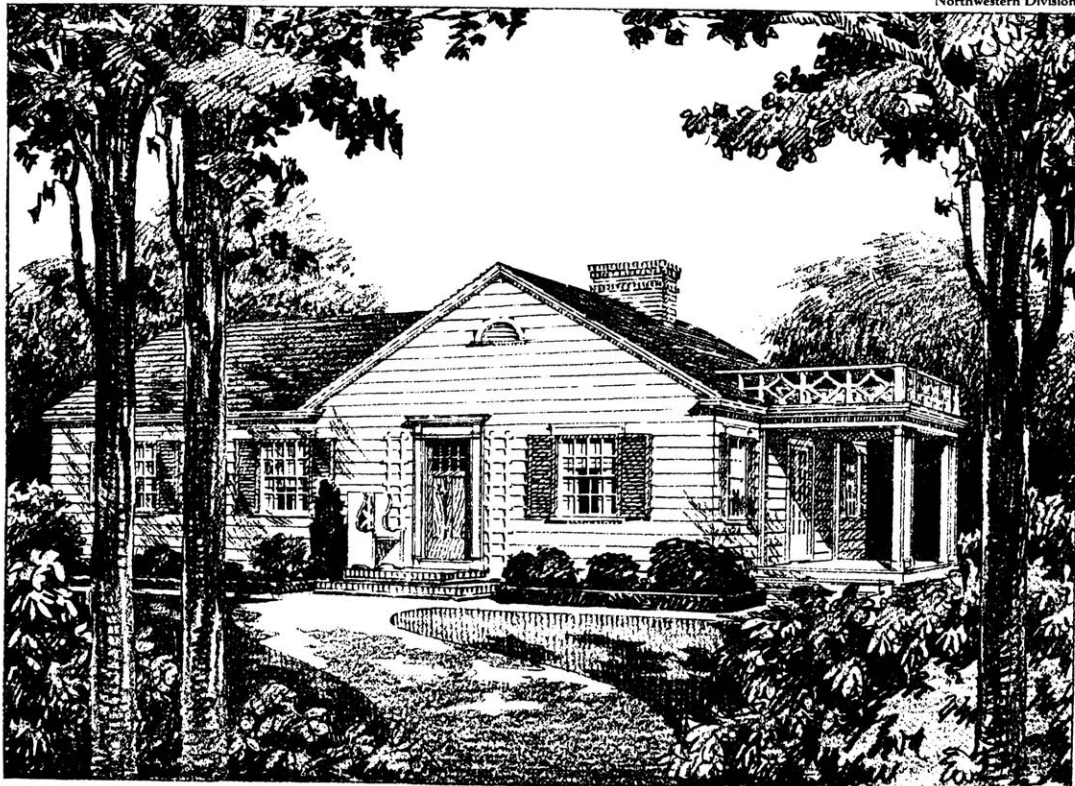


[ fig. 32 ] Demonstration of the flexibility of plan arrangements by A.S.H.S.B.

Architects' Small House Service Bureau

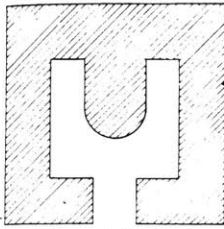
HOUSE PLAN NO. 6A1

Northwestern Division



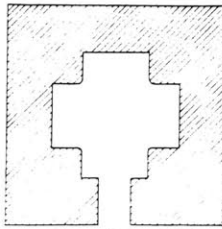
A DELIGHTFULLY SATISFYING HOME, ACHIEVING THE TRUE COLONIAL ATMOSPHERE OF GRACE AND REPOSE  
THE SIMPLICITY OF THE ARRANGEMENT OF ROOMS ASSURES COMFORT AND FREEDOM FROM HOUSEHOLD CARES BUT DOES NOT ADD TO THE COST OF CONSTRUCTION

[ fig. 33 ] Example of house plan offered by the Northwestern Division of the A.S.H.S.B. in 1923



Typical Plan VI A

TYPICAL PLAN VI A  
Seattle National Bank, Seattle 84  
Bank of Italy, Los Angeles 260



Typical Plan VI B

TYPICAL PLAN VI B  
Rhode Island Hospital Trust Co., Providence 257

Norwood Trust Co., Norwood, Mass. 294  
Fidelity & Columbia Tr. Co. and Citizens Union Nat. Bank, Louisville 267  
MISCELLANEOUS PLAN  
Greenwich Savings Bank, New York 271

break in it is made by the entrance. The two plans numbered VI show combinations of the others. These, of course, occur only on rather large lots.

In considering Plan I it is obvious that if it is lighted overhead, it makes no difference which side is occupied by the working space and which by the public. If, however, this plan is also lighted from one side, it is a grave consideration as to whether the comparatively narrow public space should be placed on the light side or along the dead wall away from the light. In the first instance, the patrons have the best of it, and the tellers face the light. If the building is on an open space and this lighting is horizontal, it may be objectionable to have it come in the faces of the tellers, while the customers, standing against a bright light, are perhaps almost unrecognizable in the shadow. If, however, the light comes from a narrow city street and is so poor that the tellers will work under the artificial light of reflectors set in the head of the counter screen, their position is not so important, while the public check desks placed, perhaps, one in each window, receive sufficient natural light. Between the two arrangements it seems preferable to favor the working force, steadily engaged during the whole day, rather than the customer who is in the bank for a time comparatively short. If there is an office building above, the question usually settles itself, for the elevators are gen-

erally placed at about the middle of the dark side, so that if the bank and office building have separate entrances, the bank's will be near the corner and the public space be on the light side; while if they have a single entrance vestibule in common, the public space will be on the inside.

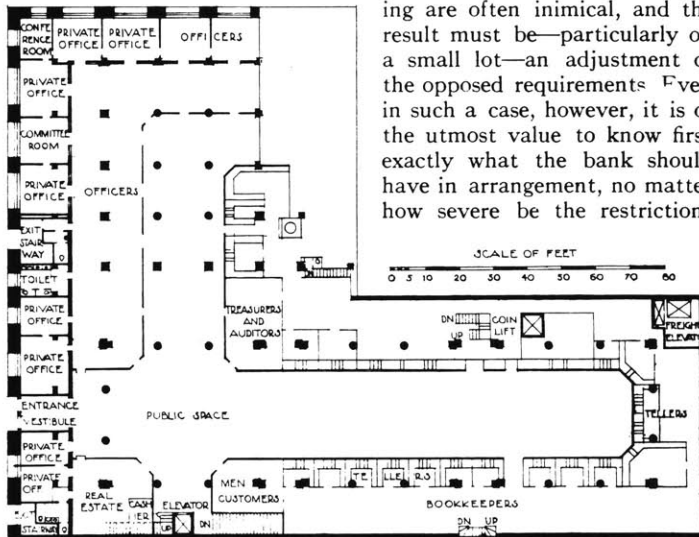
There is wide diversity of opinion among bankers as to the height of banking rooms. On pages 268 and 269 are given diagrams showing the relative areas and heights of a number of recent banking rooms that are of interest for comparison.

*Where the Bank Is Part of a High Building.* Where the building is to be entirely occupied by the bank and the only access to the upper stories is secondary, or only through the bank itself, the plan and design

of the banking room, of course, control, and the elevators and stairs may be so placed as to give proper circulation with the least interference with the working plan and the architectural character of the room. Where, however, the bank is merely an incident in a high building, and the importance of the rentable areas above it outweighs the desirability of the best possible banking room, it is often necessary to place the entrance, elevator lobbies and stairs in such a way as to make the planning of the banking room considerably more difficult and even unsatisfactory. The requirements of the bank as to the first floor or as to the lower stories and the requirements of properly planned upper floors with best access and lighting are often inimical, and the result must be—particularly on a small lot—an adjustment of the opposed requirements. Even in such a case, however, it is of the utmost value to know first exactly what the bank should have in arrangement, no matter how severe be the restrictions

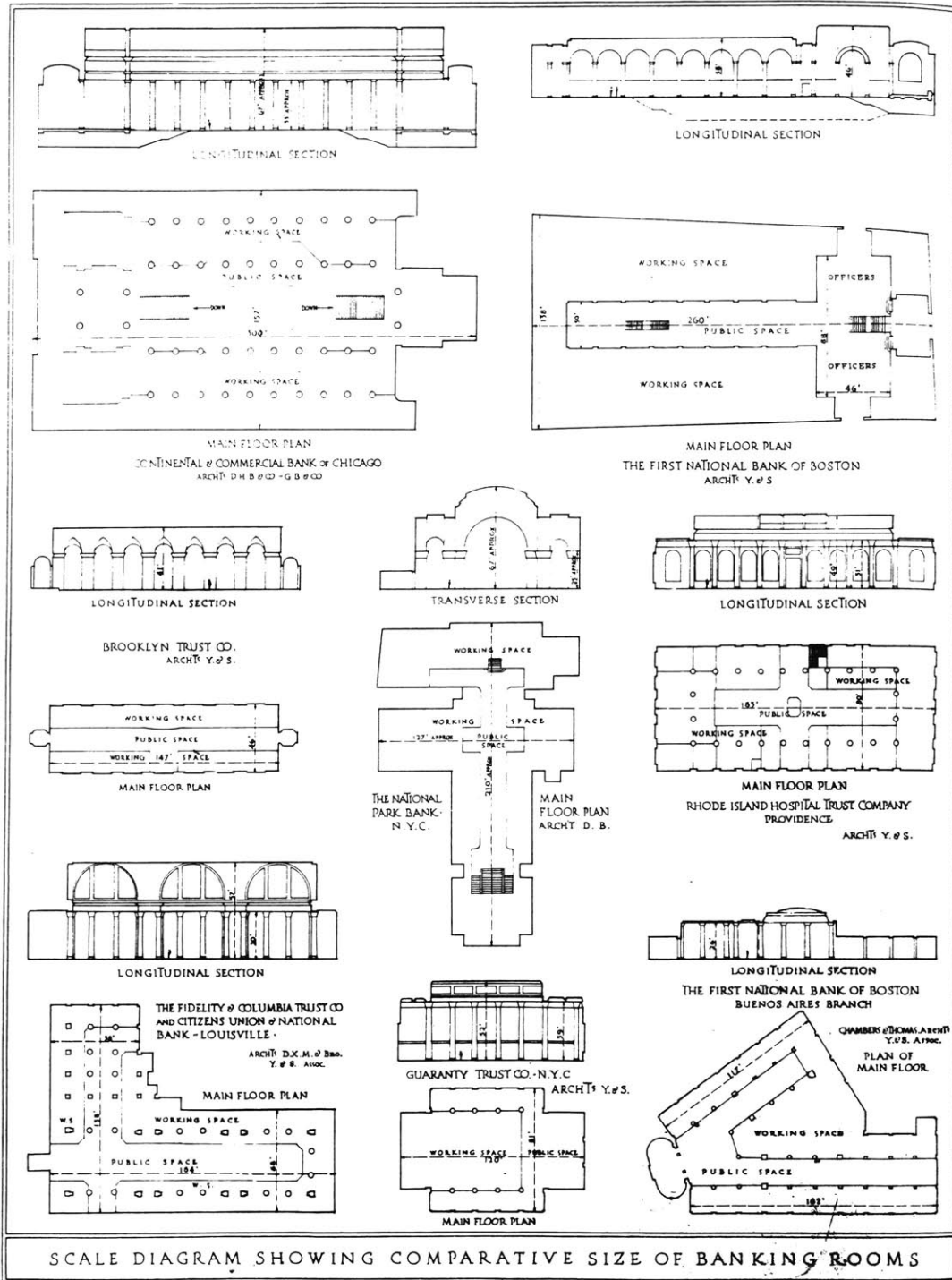


Banking Room in Louisville Bank

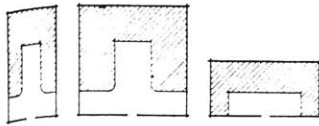


Floor Plan, Fidelity and Columbia Trust Co. and Citizens Union National Bank, Louisville

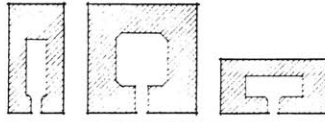
D. X. Murphy & Bro., Architects; York & Sawyer, Associated



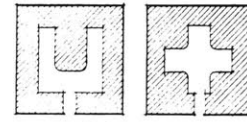
[ fig. 35 ] "Scale Diagram Showing Comparative Size of Banking Rooms" from Philip Sawyer, "The Planning of Banks," Architectural Forum, June 1923



TYPICAL PLAN IV.



TYPICAL PLAN V.



TYPICAL PLAN VI.

Bank of Commerce, Buffalo, N. Y. . . . .	80
Burke & Herbert, Alexandria, Va. . . . .	69
Mercantile National, New York . . . . .	79
Mercantile Trust Co., San Francisco . . . . .	72
Mercantile Trust Co. (Competitive Design) . . . . .	71
Metropolitan Bank, Pittsburg . . . . .	76
Portsmouth (N.H.) Savings Bank . . . . .	74
West Philadelphia Title and Trust Co. . . . .	78

American Security & Trust Co., Washington . . . . .	86
Chicago National Bank . . . . .	90
Cleveland Trust Company . . . . .	93
First National, Paterson, N. J. . . . .	94
First National, Wellsville, N. Y. . . . .	89
Knickerbocker Trust Company . . . . .	82
National Bank of St. Joseph . . . . .	77
Provident Savings, Baltimore, Md. . . . .	81
Riggs National, Washington, D.C. . . . .	84
Rochester Trust and Safe Deposit Co. . . . .	92

Detroit State Savings Bank . . . . .	95
Mississippi Valley Trust Co., St. Louis . . . . .	101
National Park Bank, New York . . . . .	98
Union Trust and Storage Co., Washington . . . . .	100

the public to come in contact to a greater or less extent with the whole body of clerks is a relic of the old conditions where most of the Bank's business transactions were personal and individual; that this is a thing of the past and that it is now desirable that the public do business with as few officers or clerks as possible. From these ideas it follows that the banking room should be of comparatively restricted size, the great body of workers being placed in other rooms disposed in convenient communication with it, and this plan has, besides the safety which results from separating the public entirely from the men keeping the accounts and writing the correspondence, the advantage of making the smaller banking room less expensive, or, of enabling a better show to be made with a limited amount of money. It is open to the criticism that, from the public point of view, the display of the working force is lost, the banking room is comparatively unimpressive, however, and, in one New York Trust Company, at least, where the actual work of the institution is done on other floors, the public banking room, in which the business is transacted for the most part by only half a dozen individuals, presents an appearance which is at times lonesome.

Another point of view requires the banking room to be as large as possible, even though the public is admitted to only a small portion of it, and comes in direct contact with only the same few persons; that a gallery or point of vantage be provided from which visitors may see every clerk in the institution, that the long lines of bookkeepers' tables may make their impression upon him, and that he may overlook the various departments and hear the hum of all the parts of the great machine. Of this the United States Mortgage & Trust Co. in New York is a capital example.

When an architect has built three banks he may feel that he has really obtained a grip on the subject, and he tackles his fourth with the idea that he can tell the banker what he should have, but when he has built a dozen, he approaches the next one in a humble spirit, and is not surprised to see his well-studied arrangement turned upside down by the objection that, "This is a right-hand bank; the Tellers go on the right of the entrance; they always have and they always will," or, "It is all very well to have the Receiving Tellers near the main entrance, but we do not want the Paying Tellers near the entrance at all;

they must be in the back of the room as far away as possible," or, "You have provided no cage for the D. & H. Railroad; it will have to be placed in connection with the General Book-keeper, and must have a window to the Money Clerk and another upon the public space."

It sometimes seems that no other type of institution transacting approximately the same character of business varies so much in its methods as do the banks, each of which has, presumably, worked out its own system in accordance with the pressure of its individual requirements and needs.

In all these institutions, the vault is of great importance, even though it is simply a strong-box carrying temporarily the securities and cash needed in each day's business, and giving over each night to a neighboring vault of greater strength its contents. But usually it protects year in and year out sufficient value to make its contents interesting to cracksmen, and to the banker and public as well. Ten per cent. of the cost of the building frequently goes into the vault, the bank and safe deposit requirements being combined for the greater economy of construction and protection.

In considering such a vault, we find its width to depend upon the number of its aisles, each lined upon either side with tiers of boxes; its length to depend upon the combined requirements of the safe deposit receptacles and the space made necessary by the business of the bank. Infrequently, the interior of such a vault is two stories in height, the intermediate floor being constructed of light, open gratings, the tiers of steel boxes and the metal lining giving one the impression of being in the engine-room of a liner.

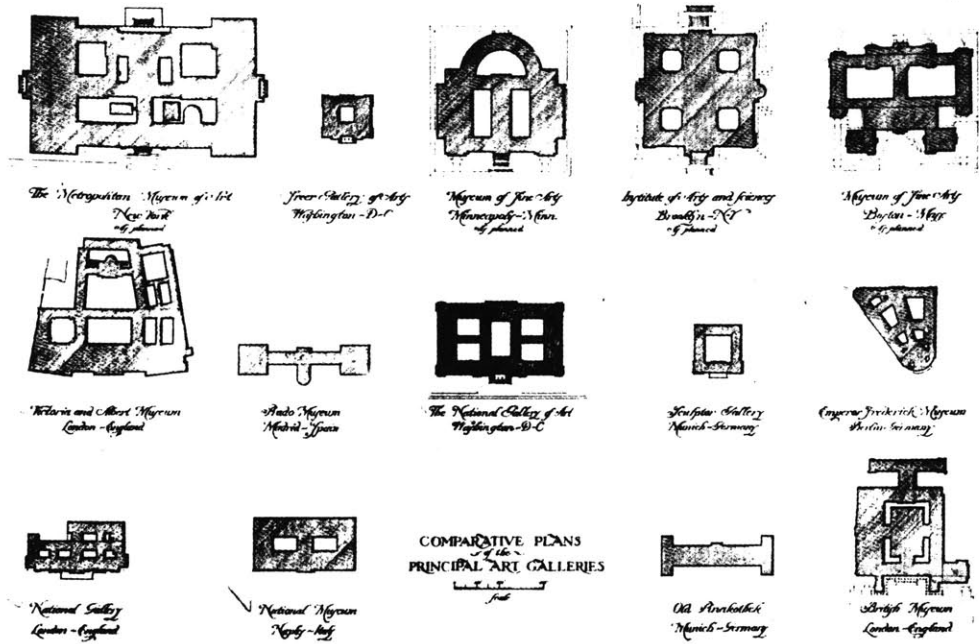
The usual type of vault has, however, but a single aisle, four feet wide, with boxes two feet deep upon either side of it. If, now, the door to the safe deposit space is in one end of this vault, the door to the bank's space in the other, and the two compartments are separated simply by a light steel partition with

an emergency gate, the danger of a lockout is averted and the protection of the vault simplified. Although it is by no means invariably done, a vault should be protected, no matter how thick its construction proper, by a casing of concrete, and, if this concrete contains in addition a fence of steel jail-rods, set close together in a double row, staggered,

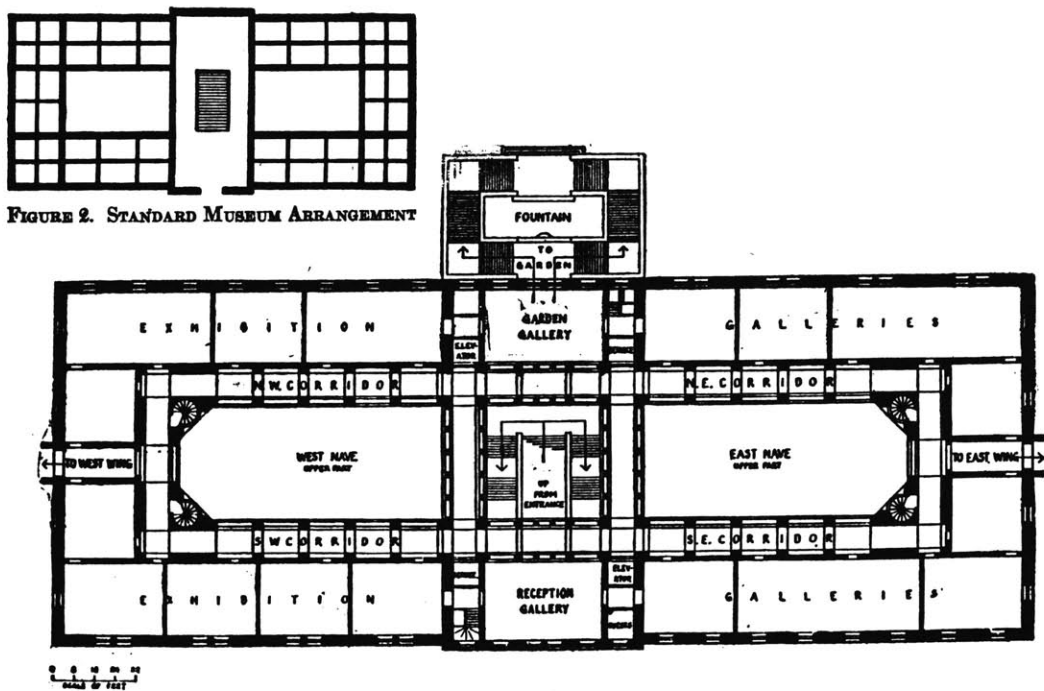


THE BANK OF DUBLIN, IRELAND.

[ fig. 36 ] Page from Philip Sawyer, "The Planning of Bank Buildings," *Architectural Review*, May 1905



[ fig. 37 ] Charles A. Platt, Comparative study of museum plans, 1924



[ fig. 38 ] Benjamin I. Gilman, Diagram and plan of standard arrangement of museums without skylights, in Museum Ideals of Purpose and Method, 1918 (originally published in Museumskunde, Band VII, 1911)



FIG. 10. *Objet*. — A Renaissance crucifix lying on the bottom of a floor case, and bearing an incised design. The observer was asked to describe the design. *A*. — The figure of Christ.



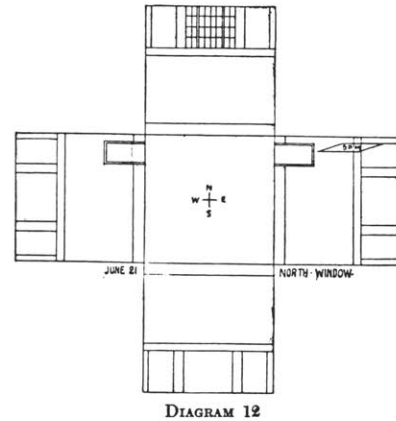
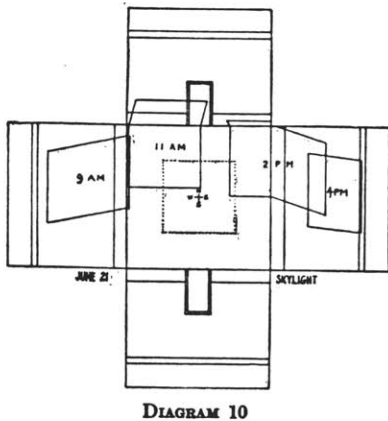
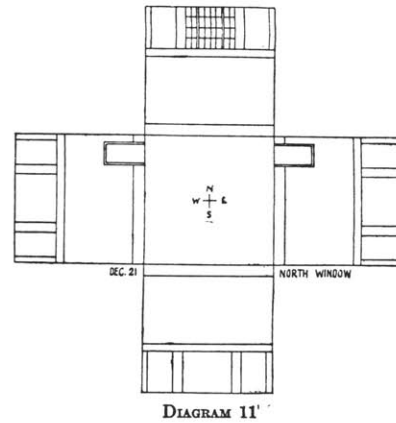
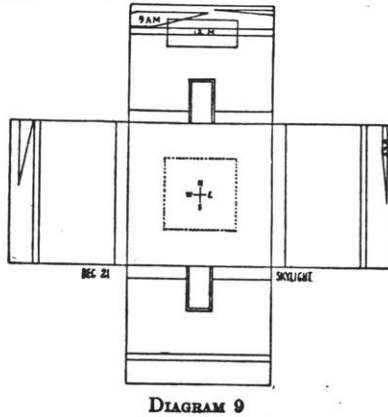
II. MUCH BENT

FIG. 11. *Objet*. — A fragment of ornament lying on the bottom of a floor case. *Q*. — What does the pattern on this fragment represent? *A*. — A group of five persons dancing.



FIG. 12. *Objet*. — A cast of the Venus of Melos. The observer was asked to read the label on the pedestal.

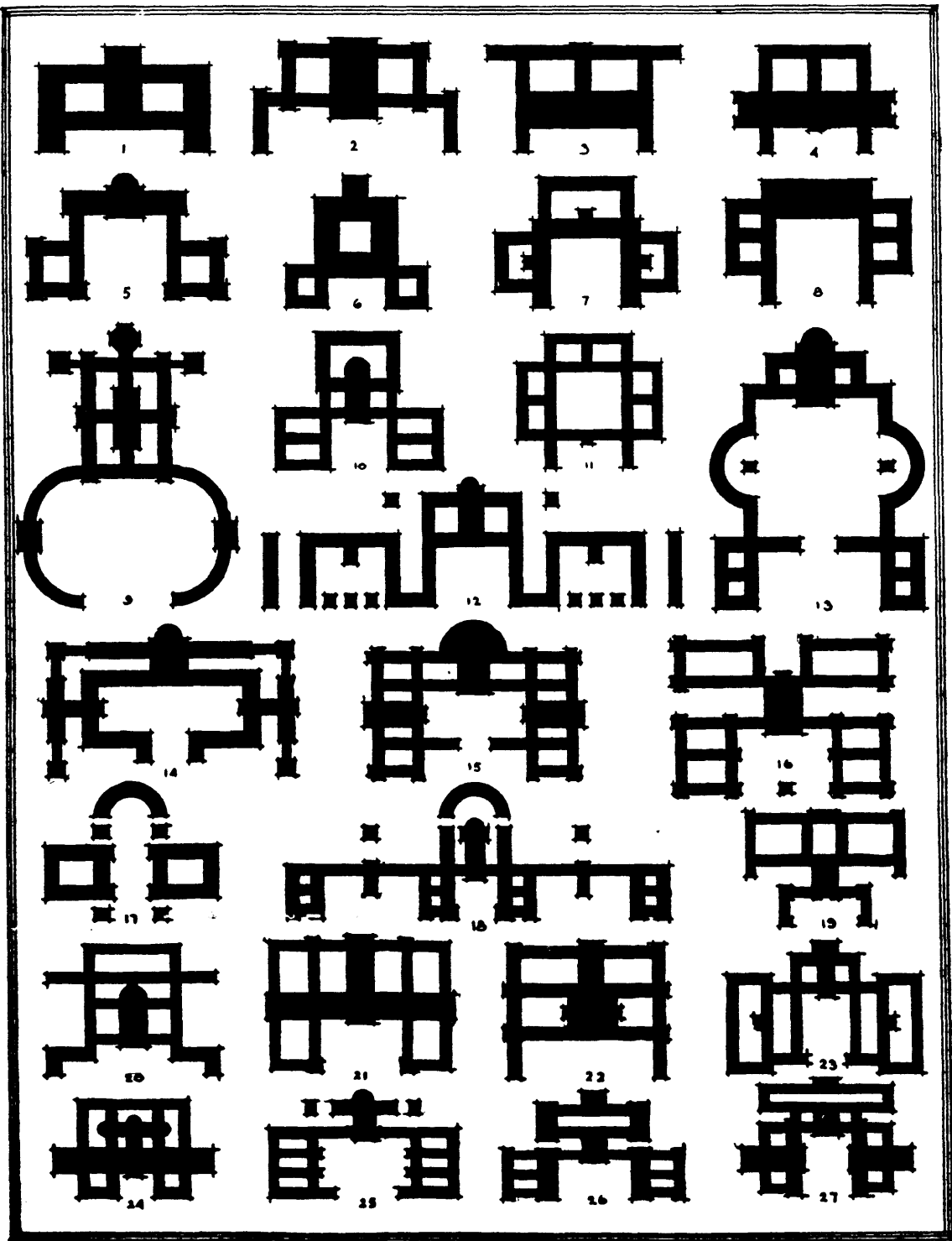
[ fig. 39 ] Photographic analysis of human posture for the study of museum fatigue, Benjamin I. Gilman, Museum Ideals of Purpose and Method, 1918 ( originally published in Scientific Monthly, 1916 )



SUN SPOTS FROM A SKYLIGHT

SUN SPOTS FROM A NORTH ATTIC WINDOW

[ fig. 40 ] Studies of interior lighting in museums, Benjamin I. Gilman, Museum Ideals of Purpose and Method, 1918 ( originally published Architectural Record, 1915 )



[ fig. 41 ] "Plans Dealing with Groups Having Fore and Interior Courts" from John Haneman, A Manual of Architectural Composition, 1923

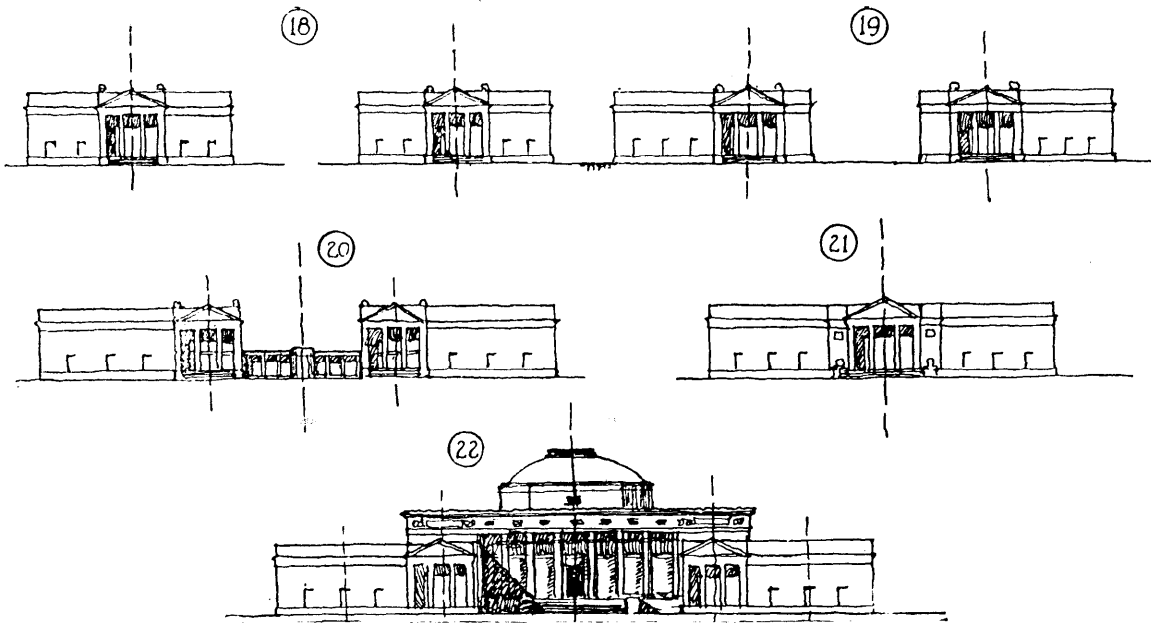


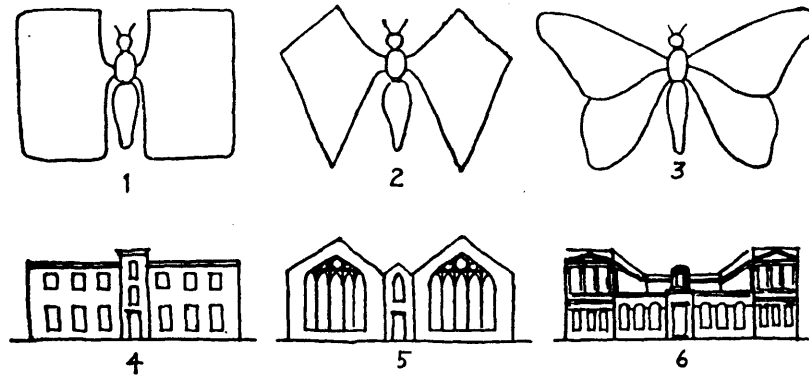
FIG. 18.—Duality.

FIG. 19.—Duality lessened by focussing interest towards centre.  
 FIG. 20.—Unity suggested by a 'link' element.

FIG. 21.—Complete Unity.

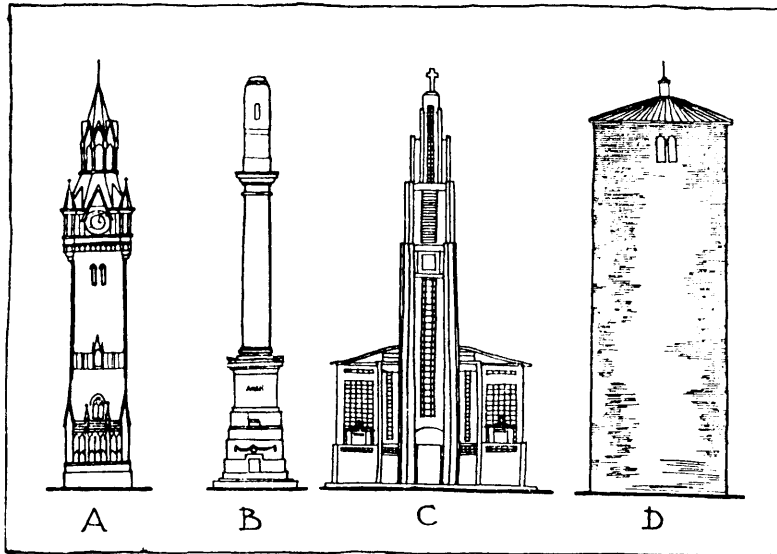
FIG. 22.—The two original elements unified by the introduction of a Dominant third element.

[ fig. 42 ] "The use of the Dominant to provide Unity in composition of Plural Elements," in Howard Robertson, Principles of Architectural Composition, 1924



[ fig. 43 ] Comparison of the principle of "conjugation" applied to forms in nature and architecture, in Trystan Edwards, Architectural Style, 1926





[ fig. 44 ] Examples of the principles of "punctuation," in Trystan Edwards, Architectural Style, 1926

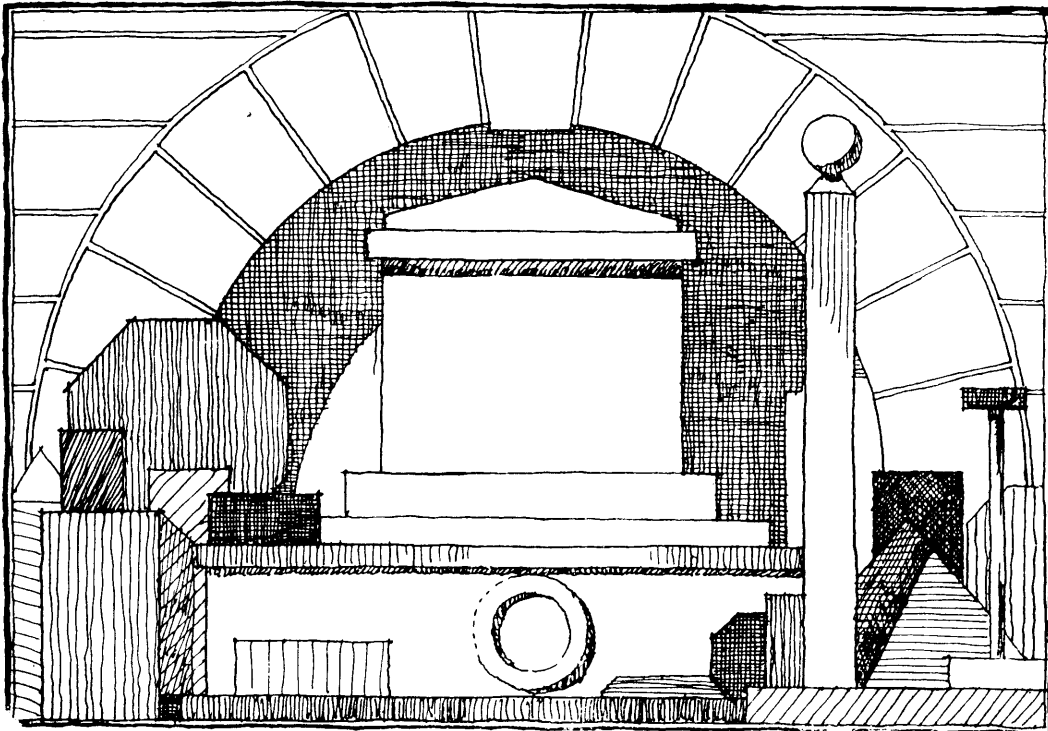
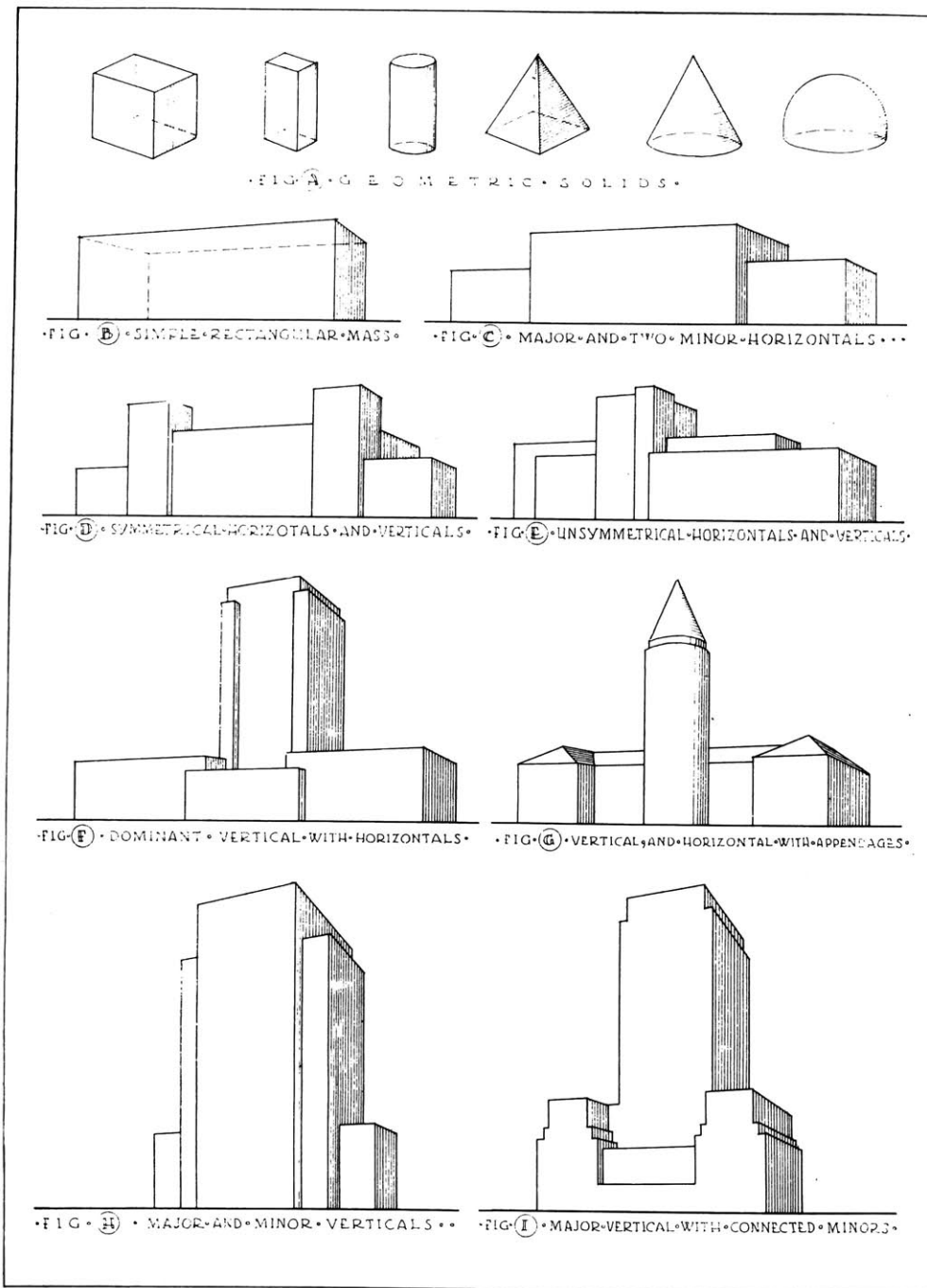


FIG. 30.—A composition of geometrical shapes and simple forms, in which varying weights and tone values serve to form a balance between elements of widely different shape. In spite of lack of complete symmetry the centre of gravity remains in the middle of the picture.

[ fig. 45 ] Howard Robertson, "A Composition of Geometrical Shapes and Simple Forms," in Principles of Architectural Composition, 1924



[ fig. 46 ] The basic geometrical shapes that build towards the architectural principle of mass, in Ernest Pickering, Architectural Design, 1933

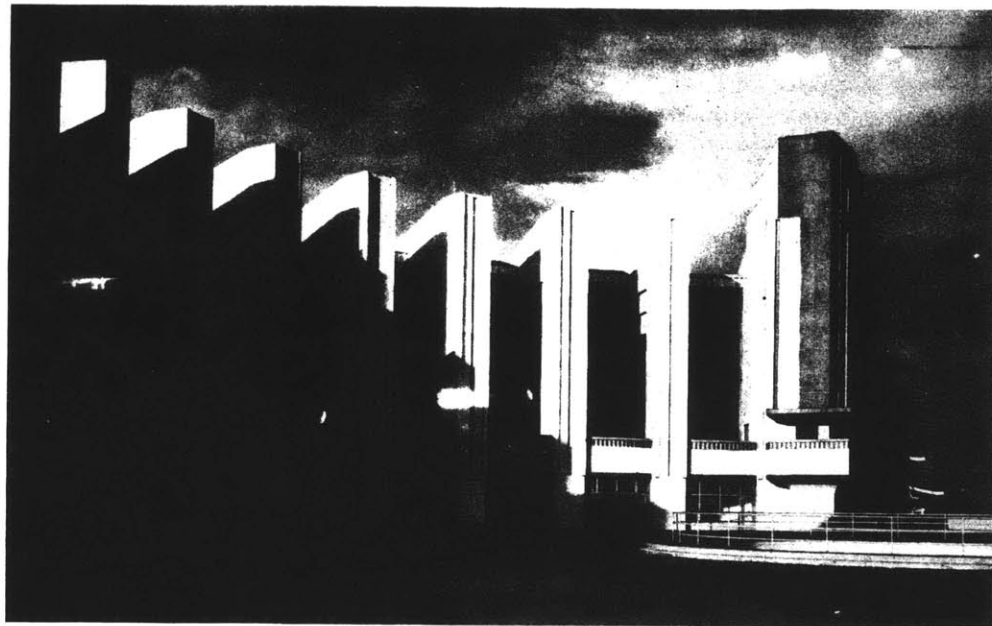
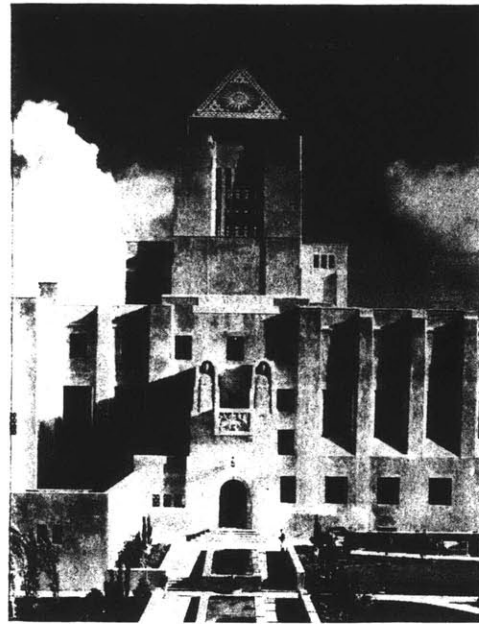
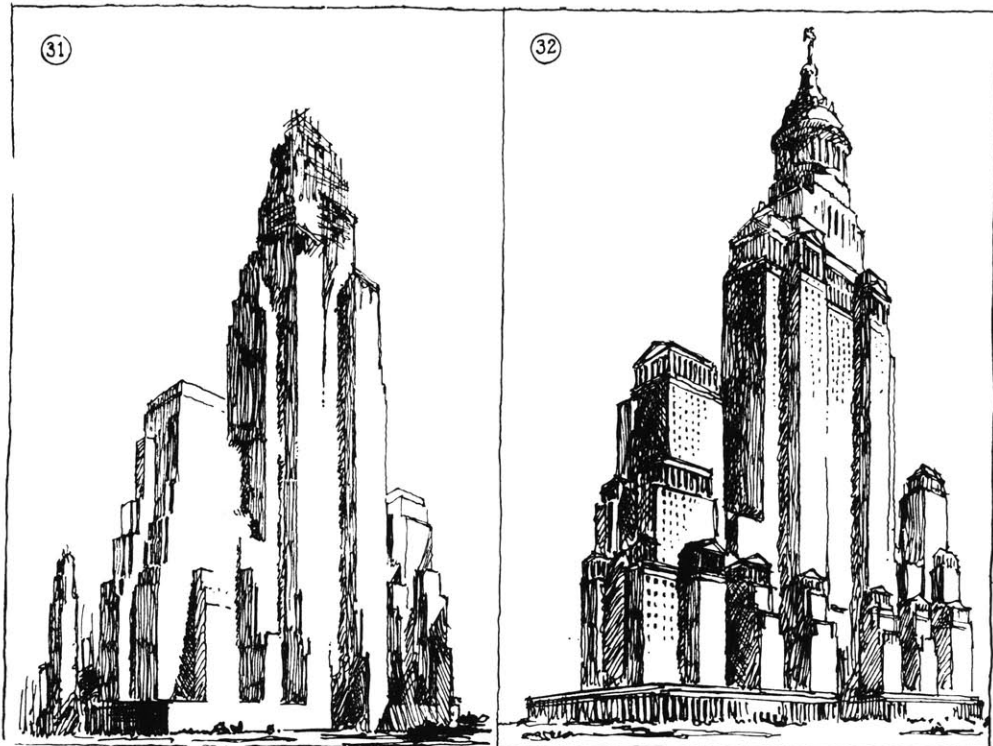


FIG. (A), above.—Vertical masses. Limestone and steel. Koppers Bldg., Pittsburgh. Graham, Anderson, Probst & White, Archts.

FIG. (B), above.—Powerful massing rather than detail. Concrete. Los Angeles Public Library. Bertram G. Goodhue, Archt.

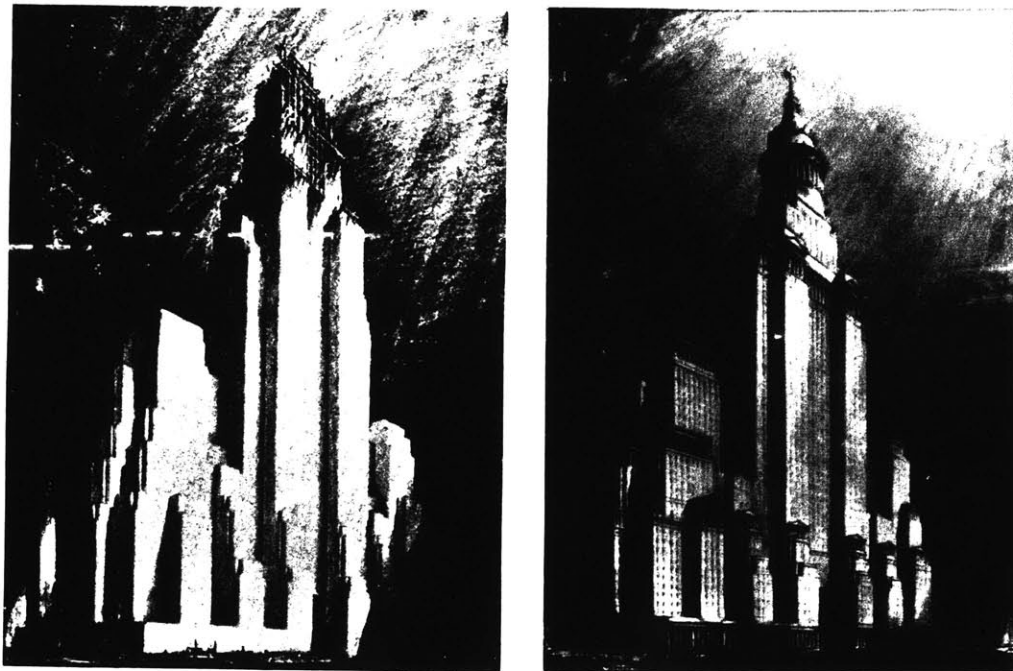
FIG. (C), below.—A composition in abstract design—vertical masses opposing a horizontal. Hall of Science, Chicago. Paul Cret, Archt.

[ fig. 47 ] Illustrations of modern buildings that exemplified the principle of mass, in Ernest Pickering, *Architectural Design*, 1933



Figs. 31 and 32.—Sketches based on designs by Helmle and Corbett for the 'Skyscraper of the Future,' showing how simple geometrical shapes (31) form the basis of the finished architectural conception (32).

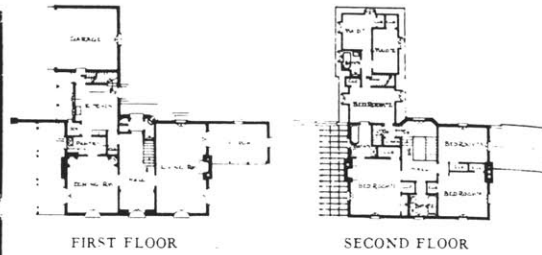
[ fig. 48 ] Robertson's sketches of Hugh Ferriss' drawings of the evolution of the setback skyscraper in Principles of Architectural Composition, 1924



[ fig. 49 ] Hugh Ferriss, "The Fourth Stage," first exhibited in Architectural League of New York annual exhibition in 1922 ( left ), and "The Final Stage," published in Pencil Points, April 1923 [ right ]



FIG. 1. FRENCH FARMHOUSE TYPE (Cost \$32,000)  
ALFRED E. POOR, ARCHITECT  
(Further details are shown on pages 365-369)



The special exterior and interior trim, ironwork, brick construction, dormers breaking cornice line and deep French windows with shutters are factors which determined the high cost of the above house.

*The following five sketches show variations in treatment in which simplification of details and construction lower the total building cost. The same plan is assumed in each scheme.*

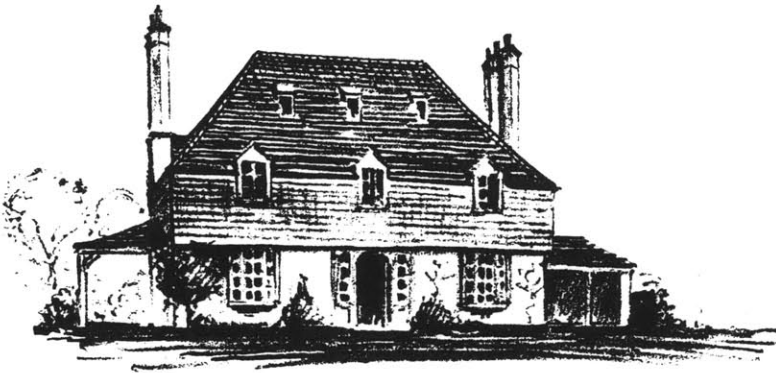


FIG. 2. ENGLISH COTTAGE TYPE (Cost \$30,000). Stucco on frame for first story with shingles above.

The \$2,000 saving with this type as compared with the house as built is partly due to wood construction, with stucco and shingle walls. The major saving is due to the use of standard sash and window frames and the elimination of the brick porch wall.



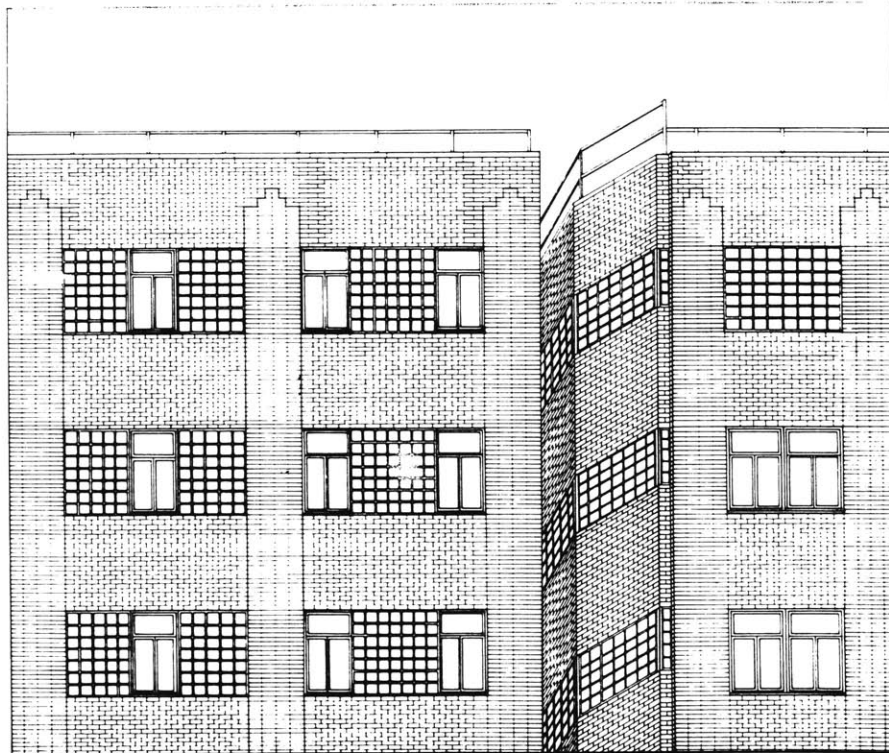
FIG. 3. REGENCY PERIOD (Cost \$29,000). Double concrete wall with stucco on frame.

Drawings by Alfred E. Poor

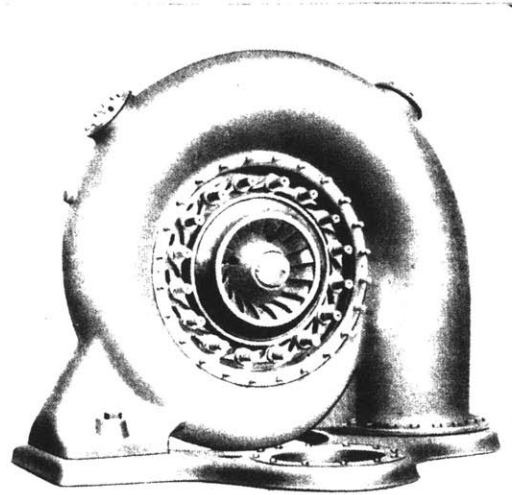
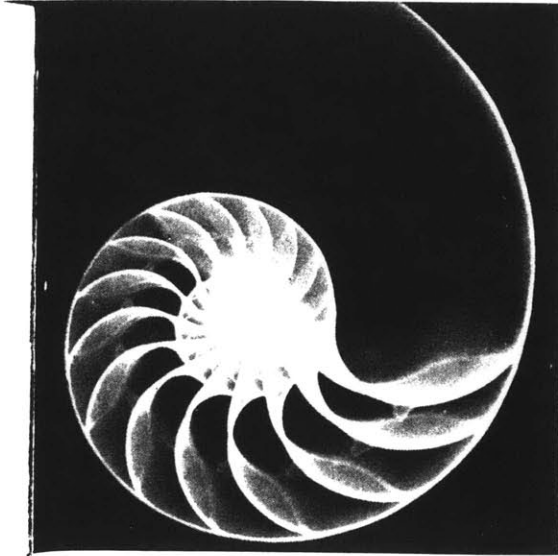
[ fig. 50 ] Robert L. Davison, "Sketches Illustrating Effect of Style on Cost," Architectural Record, April 1929



[ fig. 51 ] Frederick Ackerman, Faculty Apartments, Cornell University, 1928



[ fig. 52 ] Frederick Ackerman, Apartments on East 83rd St., New York, 1938, the first centrally air-conditioned apartment building in New York



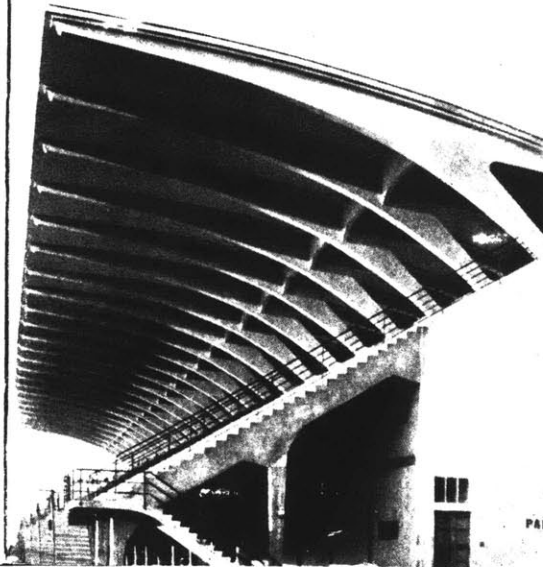
### XIII. NATURE AND THE MACHINE

1: Roentgen photograph of Nautilus by J. B. Polak. Nature's use of the spiral in construction. The x-ray, like the microscope, reveals a new esthetic world. (Courtesy of Wendingen)

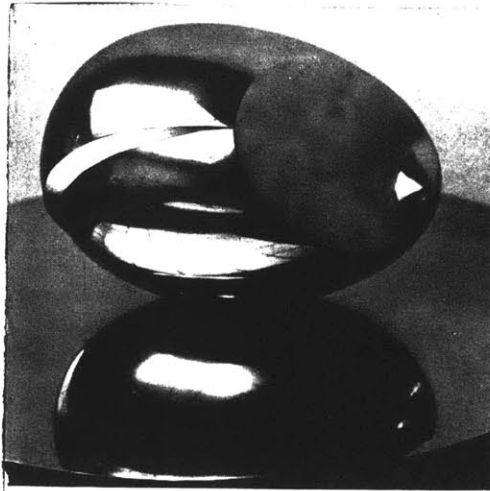
2: Section of modern hydro-turbine: spiral form dictated by mechanical necessity. Geometrical forms, simple and complex, are orchestrated in machine design.

3: Grandstand of new stadium in Florence: Pier Luigi Nervi, architect. Engineering in which imagination and necessity are harmoniously composed.

4: R. Duchamp-Villon's interpretation of the organic form of a horse in terms of the machine. (Courtesy of Walter Pach)



[ fig. 53 ] Lewis Mumford, Illustration page from Technics and Civilization, 1934



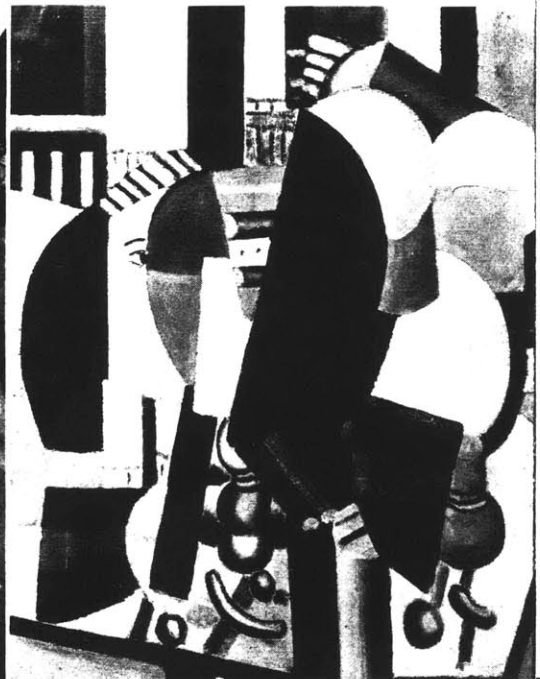
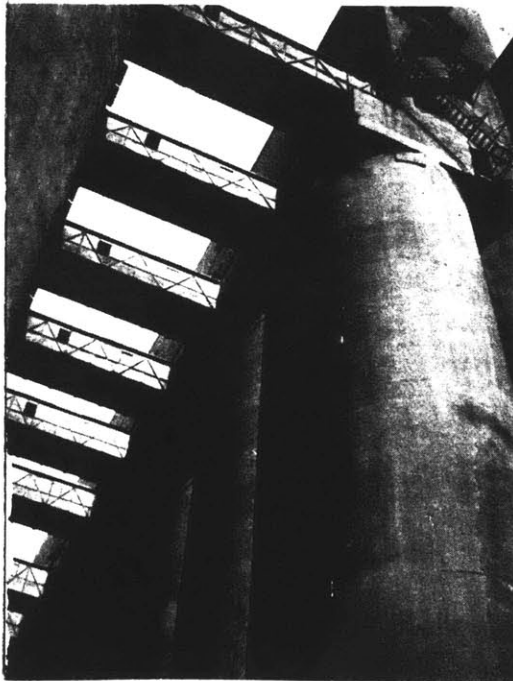
#### XIV. ESTHETIC ASSIMILATION

1: Sculpture by Constantin Brancusi. Abstraction, respect for materials, importance of fine measurements and delicate modulations, impersonality. See Plate XV, No. 2. (Courtesy of Marcel Duchamp)

2: The steel workers: mural by Thomas H. Benton. Realization of the dramatic element in modern industry, and the daily heroism which often outvies that of the battlefield. (Courtesy of the New School for Social Research)

3: Modern grain elevator. Esthetic effect derived from simplicity, essentiality, repetition of elementary forms: heightened by colossal scale. See Worringer's suggestive essay on Egypt and America. (Courtesy of Erich Mendelsohn)

4: Breakfast Table by Ferdinand Léger. Transposition of the organic and the living into terms of the mechanical: dismemberment of natural forms and graphic re-invention. (Private Collection: Courtesy of the Museum of Modern Art)



[ fig. 54 ] Lewis Mumford, Illustration page from Technics and Civilization, 1934



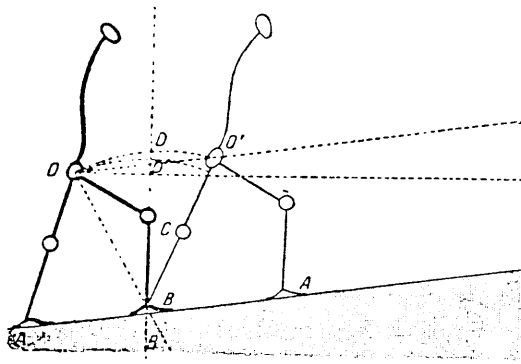


FIG. 259

Walking on an inclined plane.

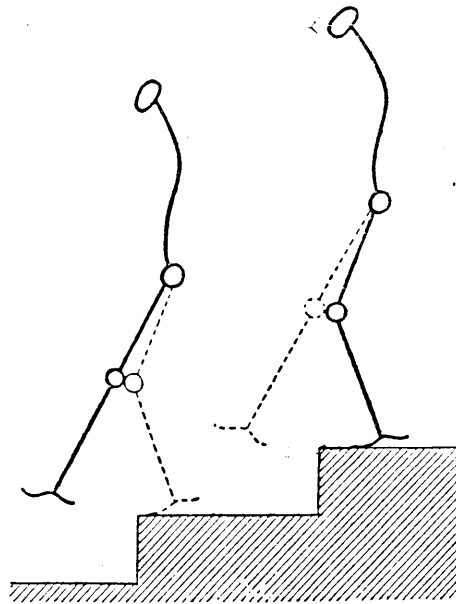
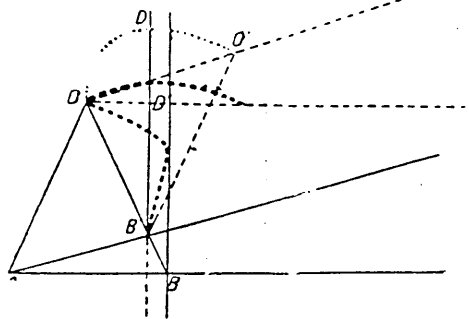
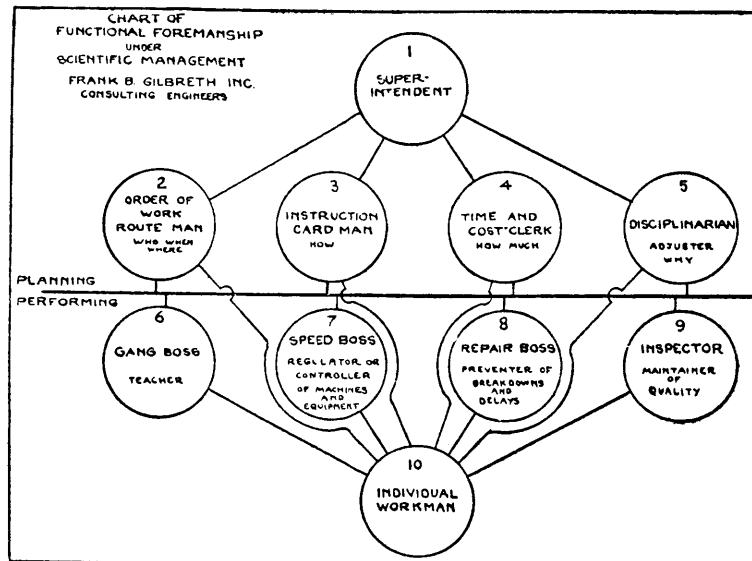


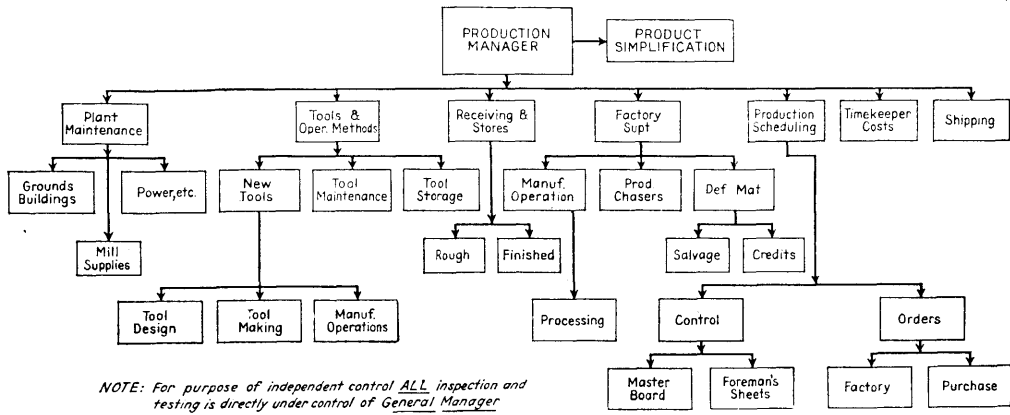
FIG. 261

Descent of a staircase.

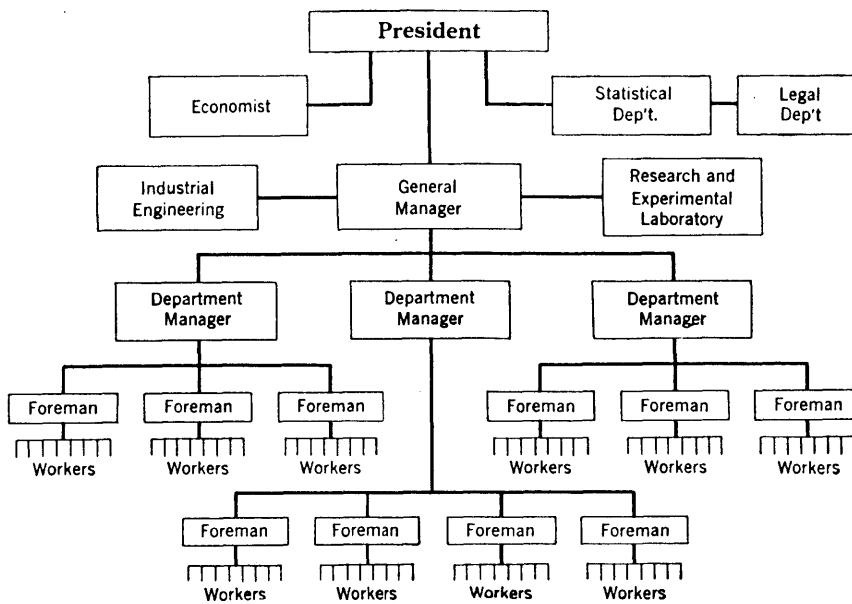
[ fig. 55 ] Movement figures from Jules Amar, The Human Motor, 1914



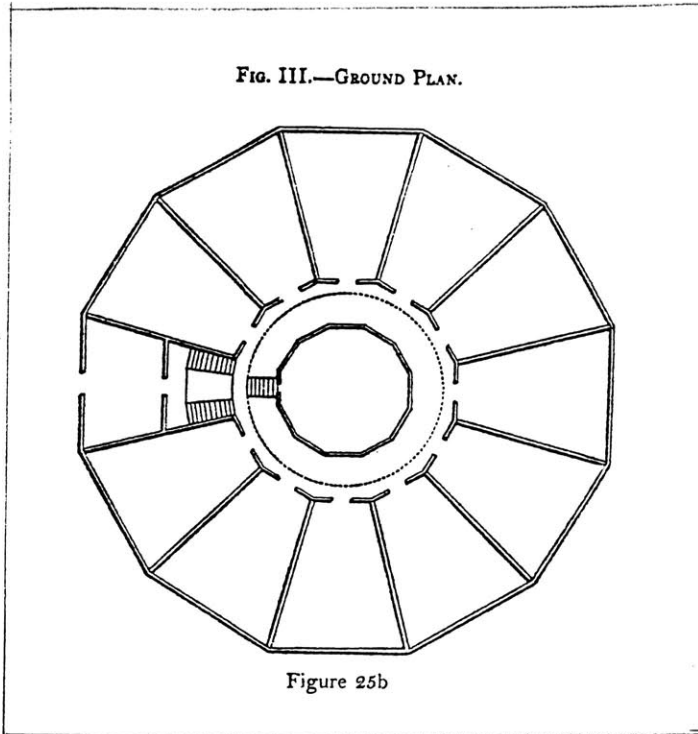
[ fig. 56 ] "Chart of Functional Foremanship under Scientific Management" from Frank and Lillian Gilbreth, Applied Motion Study, 1917



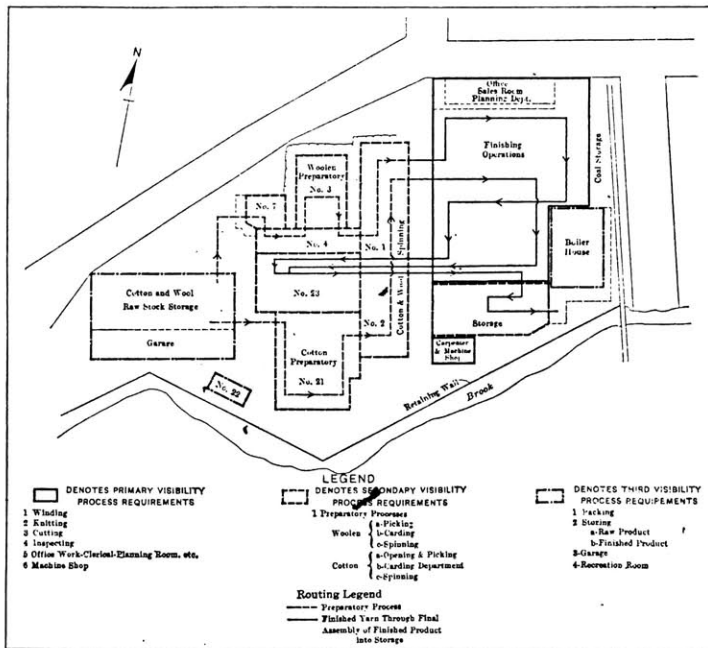
[ fig. 57 ] "Organization Chart and Functions of Production Department" from Author G. Anderson, Industrial Engineering and Management, 1927



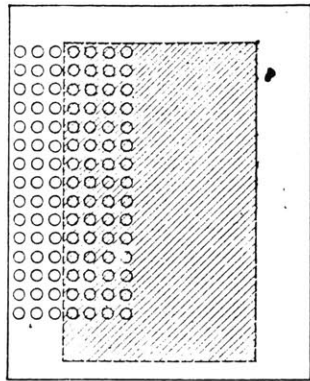
[ fig. 58 ] "Line and Staff Organization" from Author G. Anderson, Industrial Engineering and Management, 1927



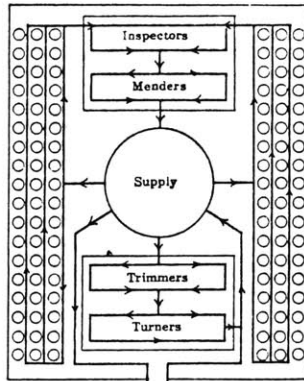
[ fig. 59 ] Ground plan of Jeremy Bentham's Panopticon, devised 1787



[ fig. 60 ] Plant layout of mill from Carle M. Bigelow, "The Organization of Knitting Mills," Management Engineering 1, Nov. 1921



A



B

FIG. 10 ORIGINAL (A) AND REVISED (B) LAYOUT OF A DEPARTMENT TO IMPROVE UTILIZATION OF NATURAL ILLUMINATION

[ fig. 61 ] Typical interior arrangement of mill for efficient illumination from Carle M. Bigelow, "The Organization of Knitting Mills," Management Engineering, Nov. 1921



FIG. 12

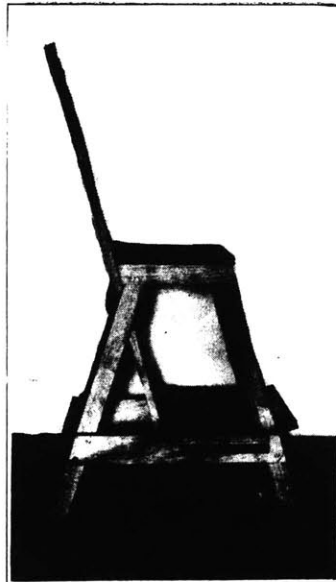


FIG. 13

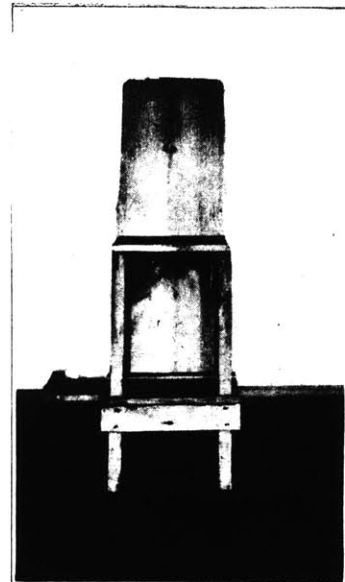
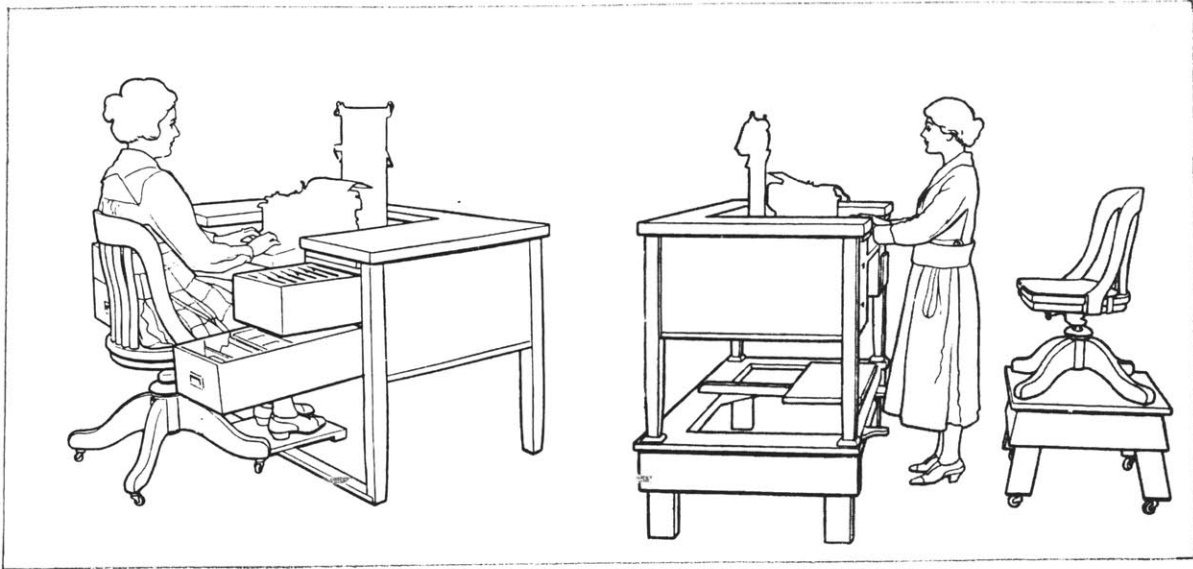
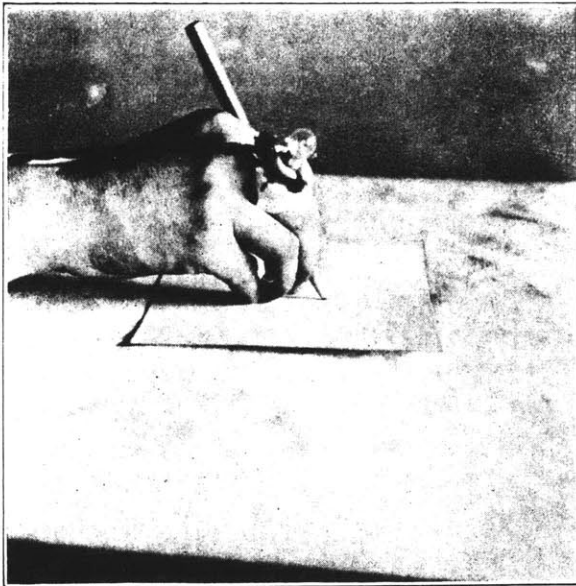


FIG. 14

[ fig. 62 ] Views of two types of chairs designed by Frank and Lillian Gilbreth published in Fatigue Study, 1919; the first for sitting work, and the second for work that had previously been thought for standing ( the third frame is a frontal view of the second type )

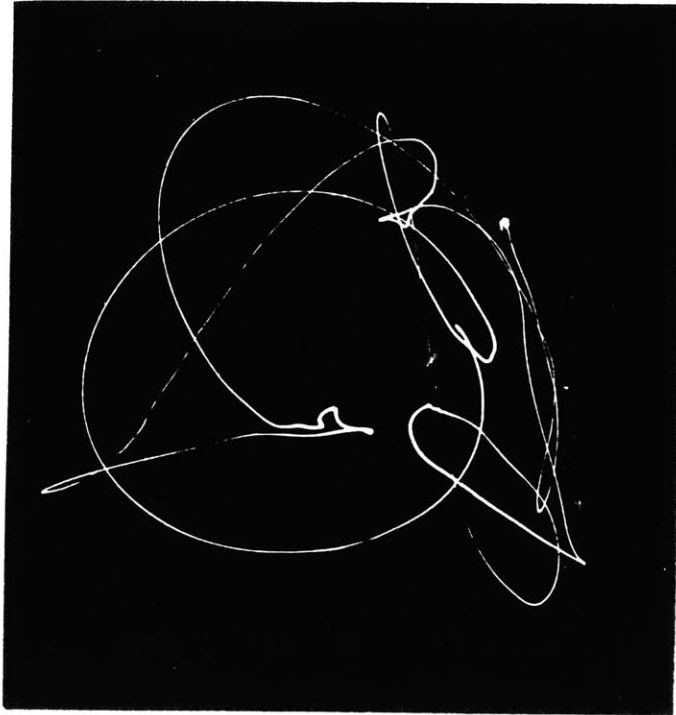


[ fig. 63 ] Sunken-well typist's desk and adjustable stenographer's desk from Lee Galloway, Office Management, 1919



[ fig. 64 ] Lamp attached to the hand for the purpose of taking cyclographs, devised by Frank and Lillian Gilbreth

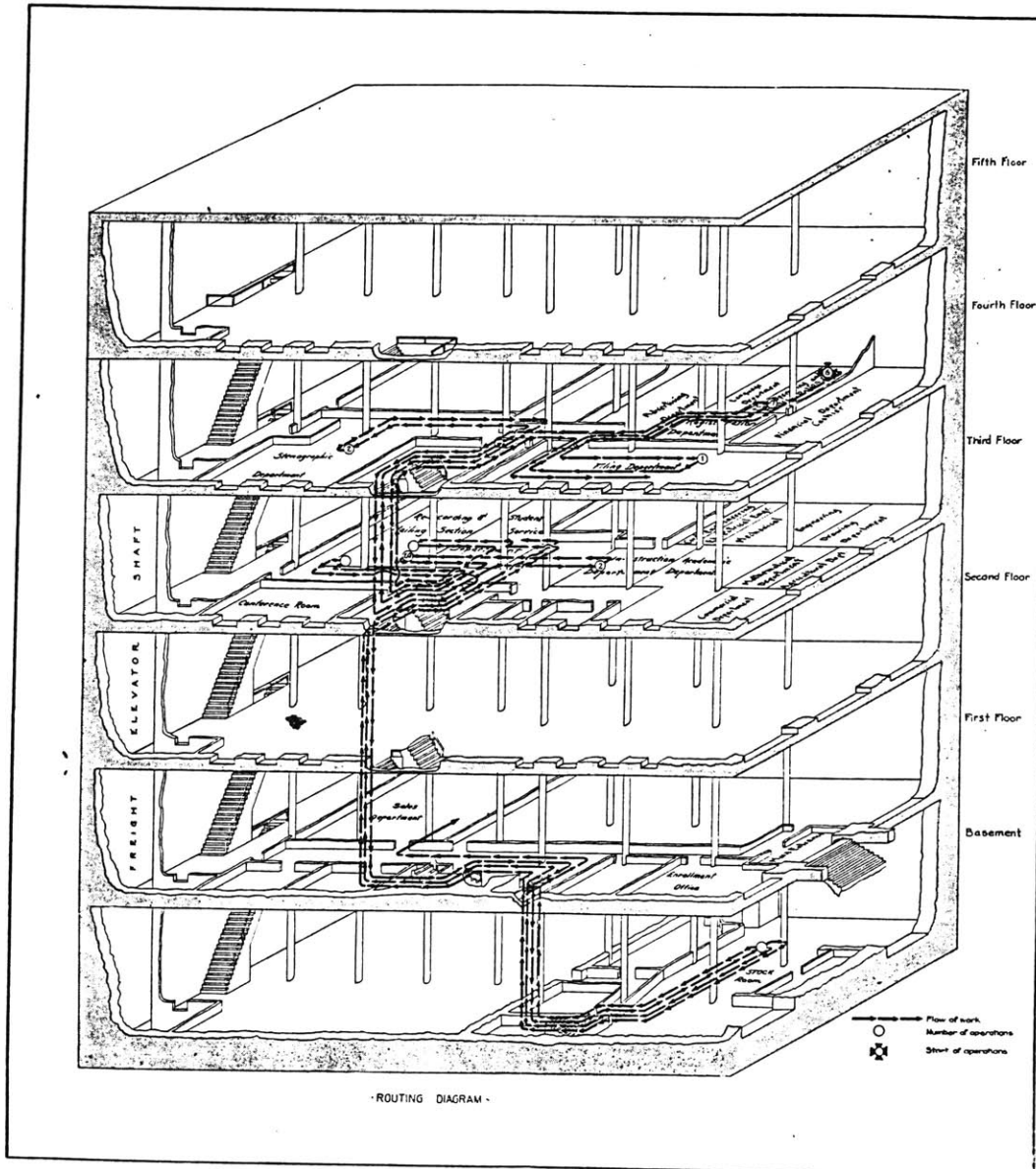
FIG. 20



[ fig. 65 ] Cyclegraph or chronocyclegraph record of the movement path of a point of a rapier used by a fencer



[ fig. 66 ] Micromotion studies on film in Frank and Lillian Gilbreth, Applied Motion Study, 1917



[ fig. 67 ] Routing diagram of proper work flow in an office in William Leffingwell, Office Management, 1925

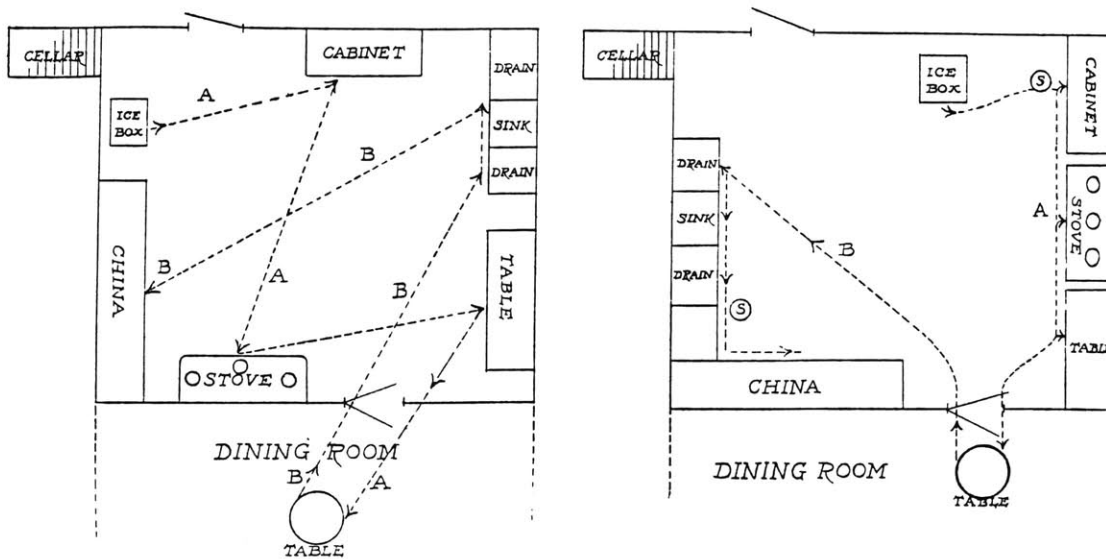


Diagram showing badly arranged equipment, which makes confused intersecting chains of steps, in either preparing or clearing away a meal. (A — preparing; B — clearing)

Diagram showing proper arrangement of equipment, which makes a simple chain of steps, in either preparing or clearing away a meal. (A — preparing; B — clearing)

[ fig. 68 ] Routing diagrams comparing efficient and inefficient movement of the houseworker according to the arrangement of kitchen equipment, in Christine Frederick, Household Engineering, 1915

## My Escape From Kitchen Drudgery

[ BY AN EXPERIENCED HOUSEKEEPER ]

*Note: This is the second of a series of articles on "Model Kitchens." The next will be a story by a woman who quits a new house.*

**D**URING my thirty years of married life I have lived in seven different houses and tried twenty-four hired girls. Some of the kitchens were so-called "convenient" and some were frankly old-fashioned.

The last house we moved into four years ago had, I think, the most inconvenient kitchen of all. Just at that time my last hired girl left me. I tried for months to get another and wore myself out meanwhile doing my own work.

I grew discouraged with looking for kitchen help. The drudgery had become intolerable. My health was breaking under the strain. I had to do something.

That is what set me looking about. That is how I came to "discover" my Hoosier Cabinet.

Right here let me ask why do women wait until they are worn out before they begin to look for the inexpensive labor-saver in a hand? If I had only had my Hoosier when I first needed it! But I am ahead of my story. As soon as I got my Hoosier, which, by the way, I paid for in a few weeks, a dollar a week, I discarded my kitchen table.

That was four years ago. As I sit now at the big aluminum work table of my Hoosier, with everything in easy reach, I think of the miles of steps I had to take every day and the extra work I had to do those months before the Hoosier came.

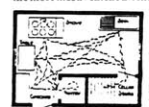
I can see myself baking a cake as I did during the treadmill days of this big kitchen—going to the stuffy dark closet for my mixing spoon and porcelain bowl; then to the cellar stair-shelf where I kept the eggs; one trip down cellar for butter and buttermilk; back to the closet again for sugar and salt; another trip for flour; an extra trip for baking powder and still another for the flavoring extract. I took hundreds of steps around the kitchen gathering onto the table things that went into that cake, and putting them back.

My Hoosier changed all that. It fitted nicely between my stove and sink in less space than my old table filled. I did away with my cupboard and almost entirely quit using the dingy old closet. My dishes, flavoring extracts and package goods I keep in the big cupboard in the top of my Hoosier. I can reach the highest shelf without getting up.

When I want to clean out my Hoosier I simply take out the contents and all the movable shelves—open the doors and roll it on its ball-bearing casters in front of the open door. I can let sunshine and air into every corner.

So my Hoosier is my model kitchen. It saves me endless steps. If I have to move again, I can have a model kitchen now in a few minutes, no matter how old-fashioned the house. I am independent of hired girls. My Hoosier is better a hundred times than any hired girl I ever had—and the wages of a hired girl for a very few weeks paid for it.

If your kitchen isn't perfect as you could wish send to the Hoosier Company as I did for the fascinating little free Model Kitchen Book, "Saving Miles of Steps."



I took hundreds of steps gathering things onto the table.



When I clean my Hoosier I let sunshine and air into every corner.



I can reach the highest shelf without getting up.

Write for the Hoosier Model Kitchen Book

The Hoosier is made to last a lifetime. The name stands for highest quality and low price. Three thousand merchants who believe in this policy display the license sign shown below. They are good men to know.

The Hoosier Manufacturing Company

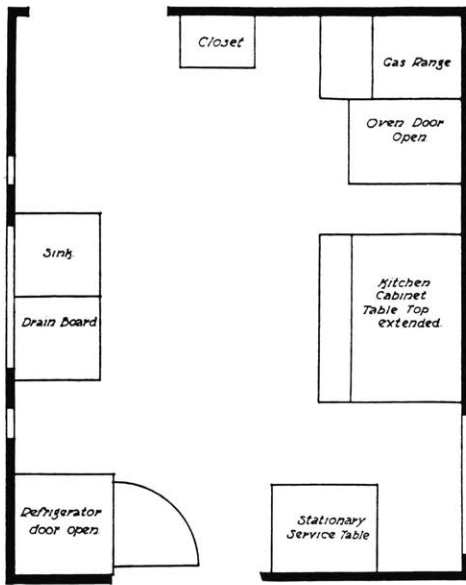


223 Pacific Bldg.  
San Francisco

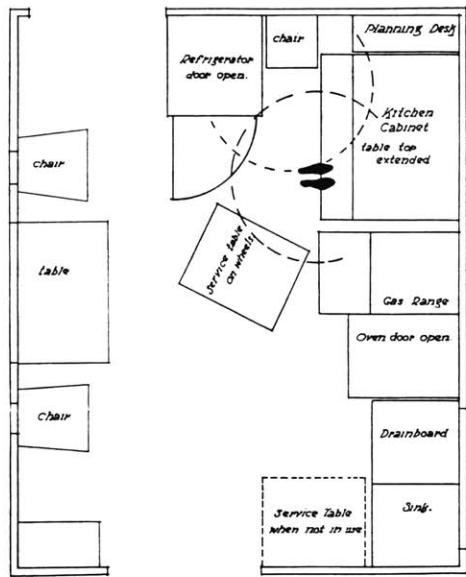
111 Homer St.  
New Castle, Indiana

[ fig. 69 ] Diagram for Hoosier Kitchen Cabinets advertisement from House Beautiful, Nov., 1911





ORIGINAL KITCHEN LAY-OUT: 50 PROCESSES AND 143 FEET OF WALKING



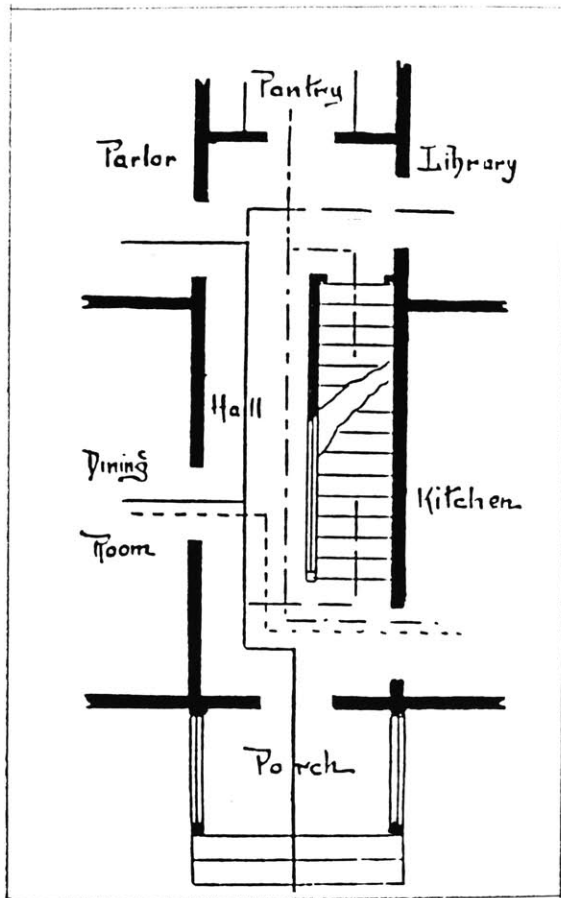
IMPROVED KITCHEN LAY-OUT: 24 PROCESSES AND 24 FEET OF WALKING

- PROCESS CHART  
MAKING A COFFEE CAKE  
ORIGINAL LAYOUT OF KITCHEN**
- 1 Light oven
  - 2 Walk to kitchen cabinet
  - 3 Open kitchen cabinet, assemble recipe and dry ingredients
  - 4 Walk to closet
  - 5 Assemble pans, bowls, spoons, etc.
  - 6 Carry pans, etc. to kitchen cabinet
  - 7 Assemble pans, etc. on kitchen cabinet
  - 8 Carry pans, nuts, sugar-and-cinnamon to table
  - 9 Assemble pans, etc. on table
  - 10 Walk to refrigerator
  - 11 Open refrigerator, collect eggs, milk, butter and oil. Close refrigerator
  - 12 Carry eggs, etc. to kitchen cabinet
  - 13 Assemble eggs, etc. on kitchen cabinet
  - 14 Measure ingredients
  - 15 Carry butter to stove
  - 16 Place butter on stove to melt
  - 17 Return to kitchen cabinet
  - 18 Carry oil to table
  - 19 Grease pans
  - 20 Return to kitchen cabinet
  - 21 Mix cake
  - 22 Carry cake to table
  - 23 Pour cake into pans
  - 24 Walk to stove
  - 25 Carry melted butter to table
  - 26 Put butter, sugar-and-cinnamon and nuts on cake
  - 27 Carry cake to oven
  - 28 Place cake in oven
  - 29 Remove cake from oven
  - 30 Carry cake to table
  - 31 Remove cake from pans and set to cool
  - 32 Carry remaining supplies to kitchen cabinet
  - 33 Place recipe, nuts and sugar-and-cinnamon in kitchen cabinet
  - 34 Carry remaining milk, butter and oil to refrigerator
  - 35 Place milk, etc. in refrigerator
  - 36 Return to kitchen cabinet
  - 37 Assemble used utensils
  - 38 Carry used utensils to sink
  - 39 Walk to table
  - 40 Carry used pans to sink
  - 41 Wash and dry utensils and pans
  - 42 Carry utensils and pans to closet
  - 43 Place utensils and pans in closet
  - 44 Return to sink
  - 45 Carry dish cloth to kitchen cabinet
  - 46 Wipe off and close kitchen cabinet
  - 47 Carry dish cloth to table
  - 48 Wipe off table
  - 49 Carry dish cloth to sink
  - 50 Tidy sink, wash dish cloth and towels and hang to dry

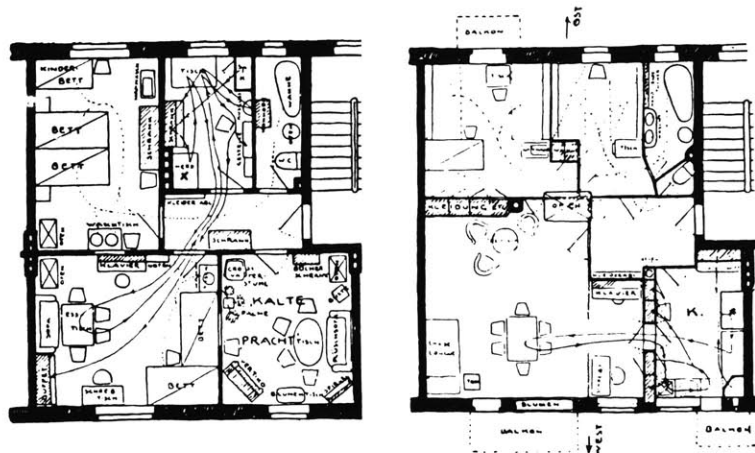
- PROCESS CHART  
MAKING A COFFEE CAKE  
IMPROVED LAYOUT OF KITCHEN**
- 1 Light oven (covers 1)
  - 2 Walk to kitchen cabinet and adjust service table
  - 3 Open kitchen cabinet, assemble recipe, dry ingredients, pans and utensils on kitchen cabinet and service table (2,3,4,5,6,7,8,9)
  - 4 Open refrigerator, collect eggs, milk, butter and oil (10,11,12)
  - 5 Assemble eggs, etc. on kitchen cabinet (13)
  - 6 Measure ingredients (14)
  - 7 Place butter on stove to melt (15,16,17)
  - 8 Grease pans (18,19,20)
  - 9 Mix cake
  - 10 Pour cake into pans (22,23)
  - 11 Search for melted butter, put butter, sugar-and-cinnamon and nuts on cake (24,25,26)
  - 12 Place cake in oven (27,28)
  - 13 Turn off oven and remove cake from oven (29)
  - 14 Place cake on service table, remove from pans, set to cool (30,31)
  - 15 Place recipe, nuts and sugar-and-cinnamon in kitchen cabinet (32,33)
  - 16 Place milk, etc. in refrigerator (34,35,36)
  - 17 Place utensils on service table (37)
  - 18 Move service table to sink (38,39,40)
  - 19 Wash and dry utensils and pans and place on utility table. Add dish cloth (42,44,45)
  - 20 Move service table to kitchen cabinet (43)
  - 21 Replace pans and utensils in kitchen cabinet (43)
  - 22 Wipe off and close kitchen cabinet (46,47,48)
  - 23 Carry dish cloth to sink (49)
  - 24 Tidy sink, wash dish cloth and towels and hang to dry (50)

APPLICATION OF MOTION STUDY TO KITCHEN PLANNING: MAKING A CAKE

[ fig. 70 ] "Application of Motion Study to Kitchen Planning: Making a Cake" from Architectural Record, March 1930



[ fig. 71 ] "The Thoroughfare"  
 from Charles F. Osborne, Notes  
 on the Art of House Planning,  
 1888



[ fig. 72 ] Circulation diagrams from Bruno Taut, Die neue Wohnung, 1924

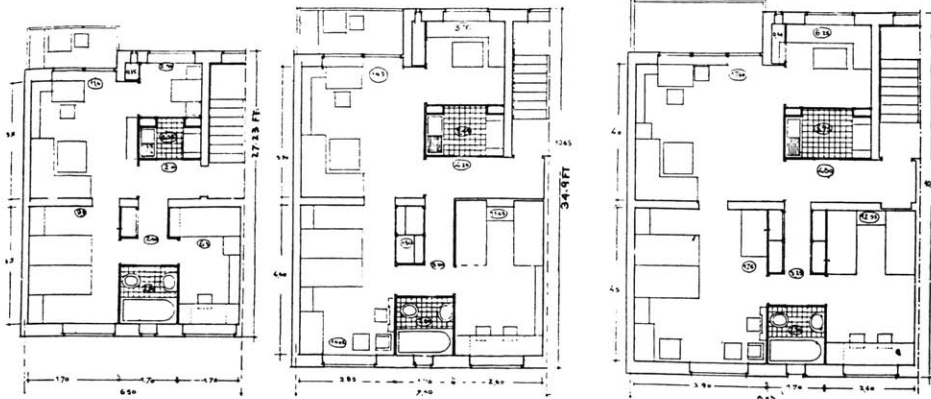


Fig. (a)  
Area 435 sq. ft.; 3 beds  
145 sq. ft. per bed

Fig. (b)  
Area 639 sq. ft.; 4.5 beds  
142 sq. ft. per bed

Fig. (c)  
Area 752 sq. ft.; 4.5 beds  
167 sq. ft. per bed

Studies submitted in a recent competition in Germany for House-Planning. The three plans above were considered to be among the most economical shown.

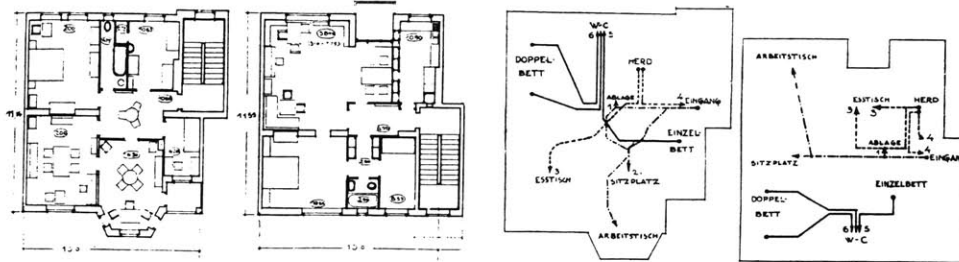


Fig. (d)  
Ground floor plans as originally laid out

Fig. (e)  
Designer's study of a ground floor plan of same dimensions as Fig. (d). Staircase moved to avoid through-passage on ground floor

Fig. (f)  
Diagram showing lines of traffic direction in plan Fig. (d). For daily activities cross-traffic is necessary

Fig. (g)  
Diagram of traffic direction in plan Fig. (e). Cross-traffic avoided by the new position of house entrance

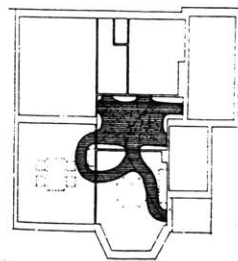


Fig. (h)  
Shaded section indicates wasted space in arrangement Fig. (d). Seating in living, dining room and hall is inefficient

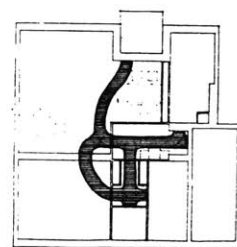
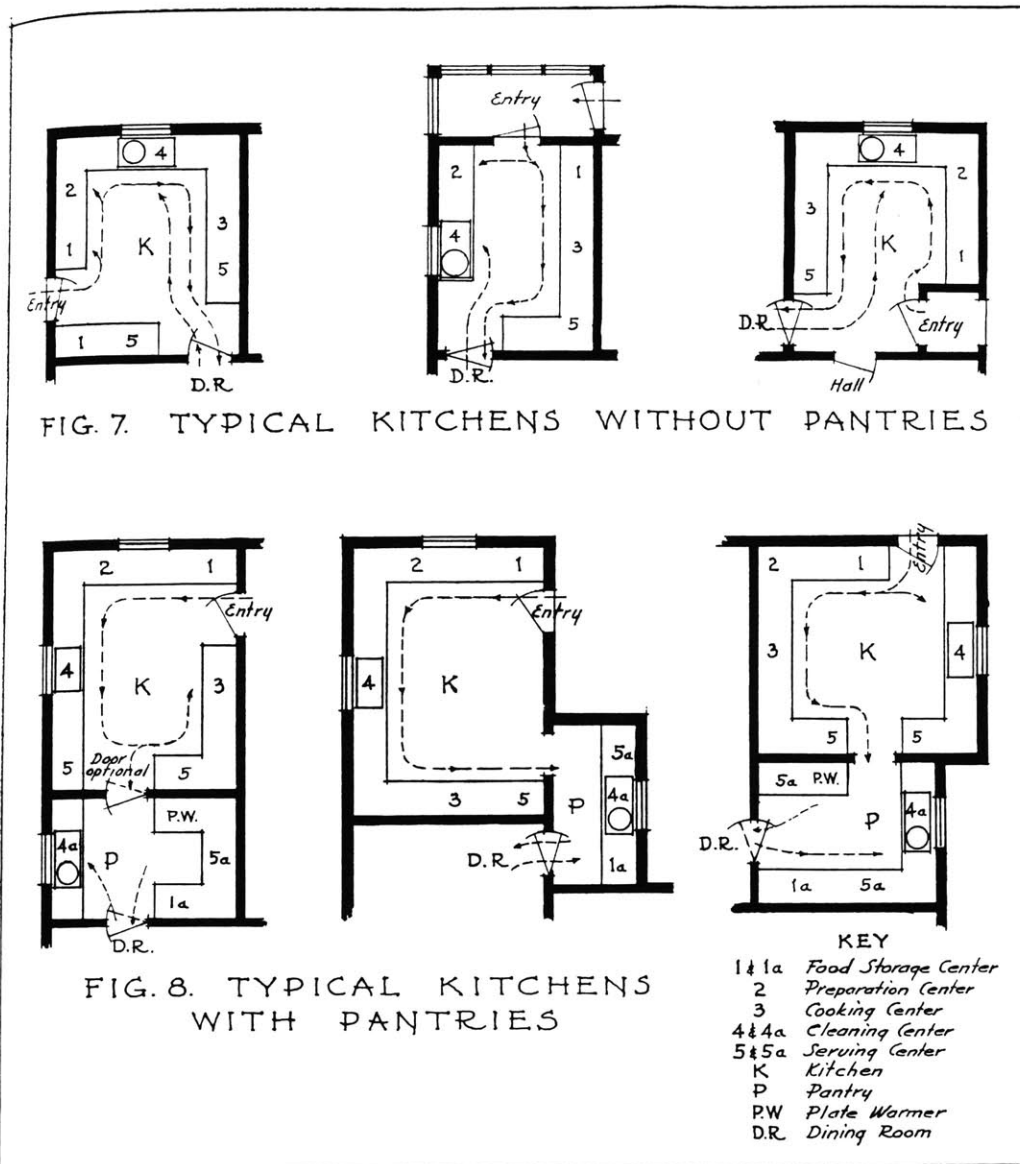


Fig. (i)  
Shaded section indicates space taken up by traffic lanes when floor is arranged as in Fig. (e)

From DIE BAUGILDE, November 29, 1927

ILLUSTRATIONS OF GERMAN EFFICIENCY STUDIES

[ fig. 73 ] "Illustrations of German Efficiency Studies," Architectural Record, March 1929



that an exact sequence is not essential; the objective is to minimize waste motion and unnecessary steps.

#### KITCHENS WITH PANTRIES

A pantry is a desirable adjunct to any kitchen, and particularly where one or more servants are employed.

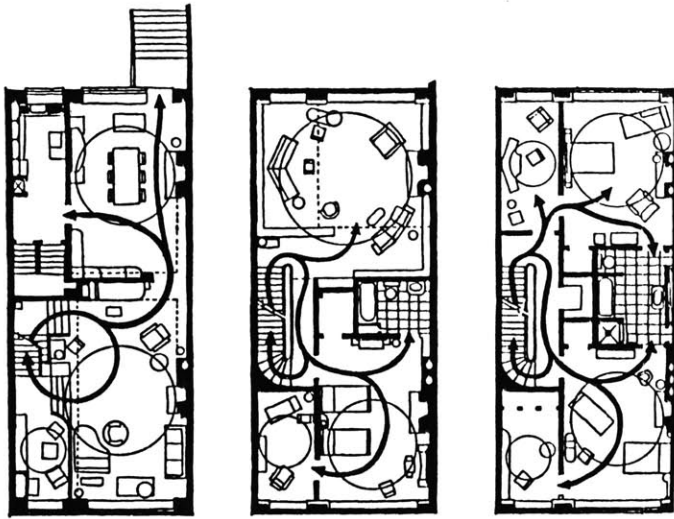
(6) The pantry is primarily a serving and storage center in which dishwashing facilities may also be incorporated. To facilitate the preparation and service of such foods as may be prepared in the pantry a secondary refrigeration center (marked 1a on the plans in Figure 8) is desirable. This refrigerator is for salad materials,

fruits, prepared table butter, chilled water, milk, bottle drinks, ice cubes and frozen or chilled deserts.

The pantry is also the proper storage place for glassware, table silver and such tableware as may not need warming before use. If an auxiliary plate warmer is located here all tableware except serving dishes may be stored in the pantry.

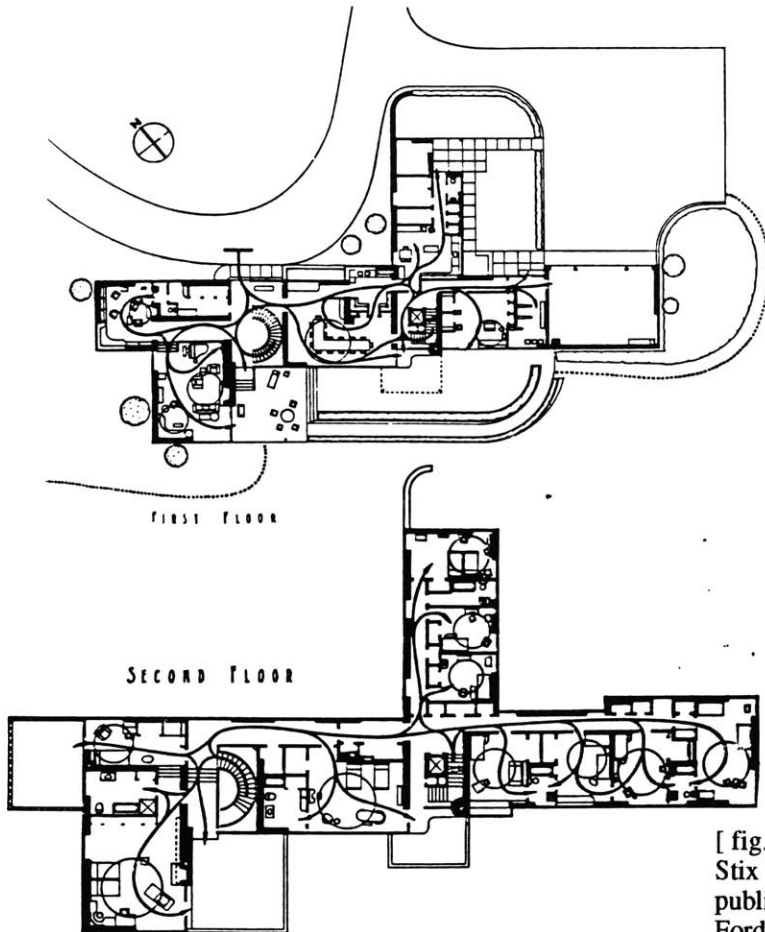
Frequently the pantry is used as a cleaning center for tableware, in which event the dishwasher sink may be located here (marked 4a on the diagrams in Figure 8). The cleaning center in the kitchen may then be pot and vegetable sink. But since the pantry also serves as a "buffer" between kitchen and dining room to keep

[ fig. 74 ] Charles G. Ramsey and Harold R. Sleeper, study of typical kitchen layouts, American Architect, July 1933



FIRST FLOOR    SECOND FLOOR    THIRD FLOOR

[ fig. 75 ] George Howe, Maurice J. Speiser House, published in Architectural Forum, Feb. 1936



[ fig. 76 ] George Howe, William Stix Wasserman House, published in James and Katherine Ford, The Modern House, 1940

# PLANNING THE HOUSE INTERIOR

STUDY PLAN FROM POINT OF VIEW OF "WHAT GOES ON IN THE HOUSE."

SEPARATE COOKING AND DINING SPACE FROM LIVING ROOM SPACE. SIMILARLY SEGREGATE SLEEPING ROOMS AS A SUITE. See accompanying diagrams prepared for Milan Building Exposition for House Planning.

BEDROOMS, KITCHENS AND BATHROOMS CAN BE EXACTLY DETERMINED IN SIZE BY DIMENSIONS OF STATIONARY EQUIPMENT AND THEIR DEFINITE USE.

DINING AND LIVING ROOMS OFTEN SERVE DIVERSE PURPOSES AND SHOULD BE OF AMPLE SIZE TO ALLOW FOR DINING, ENTERTAINING, AND IN SOME CASES AS PLAY SPACE FOR CHILDREN.

FURNISHINGS SHOULD PARTICIPATE IN THE CREATION OF ROOMS.

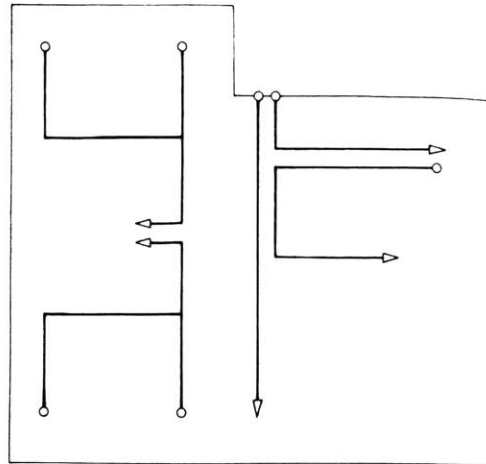
RESTRICT FURNITURE TO ESSENTIAL PIECES. A Committee of Home Economists recommends that "in the interest of economy the typical dining room set be reduced to eight pieces—sideboard, dining table and six chairs. The china cabinet and serving table being considered unnecessary."\* For further economy, two chairs from the dining set could be used in the living room.

CABINETS MAY DIVIDE ROOMS IN PLACE OF PARTITIONS.

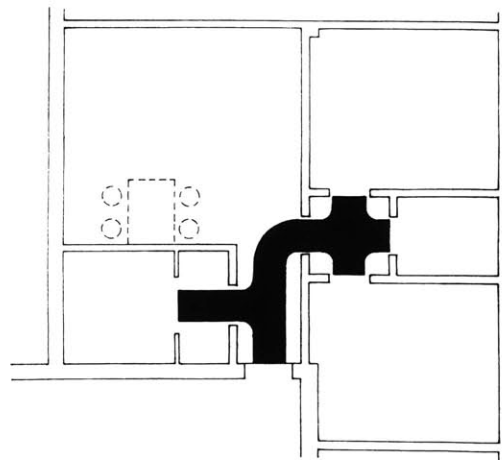
CABINETS SHOULD BE DESIGNED SO AS TO ALLOW FOR:

- Expansion of storage space.
- Variety of storage purposes.

\*Homemaking, Home Furnishing and Information Centers, President's Conference on Home Building and Home Ownership, p. 131.



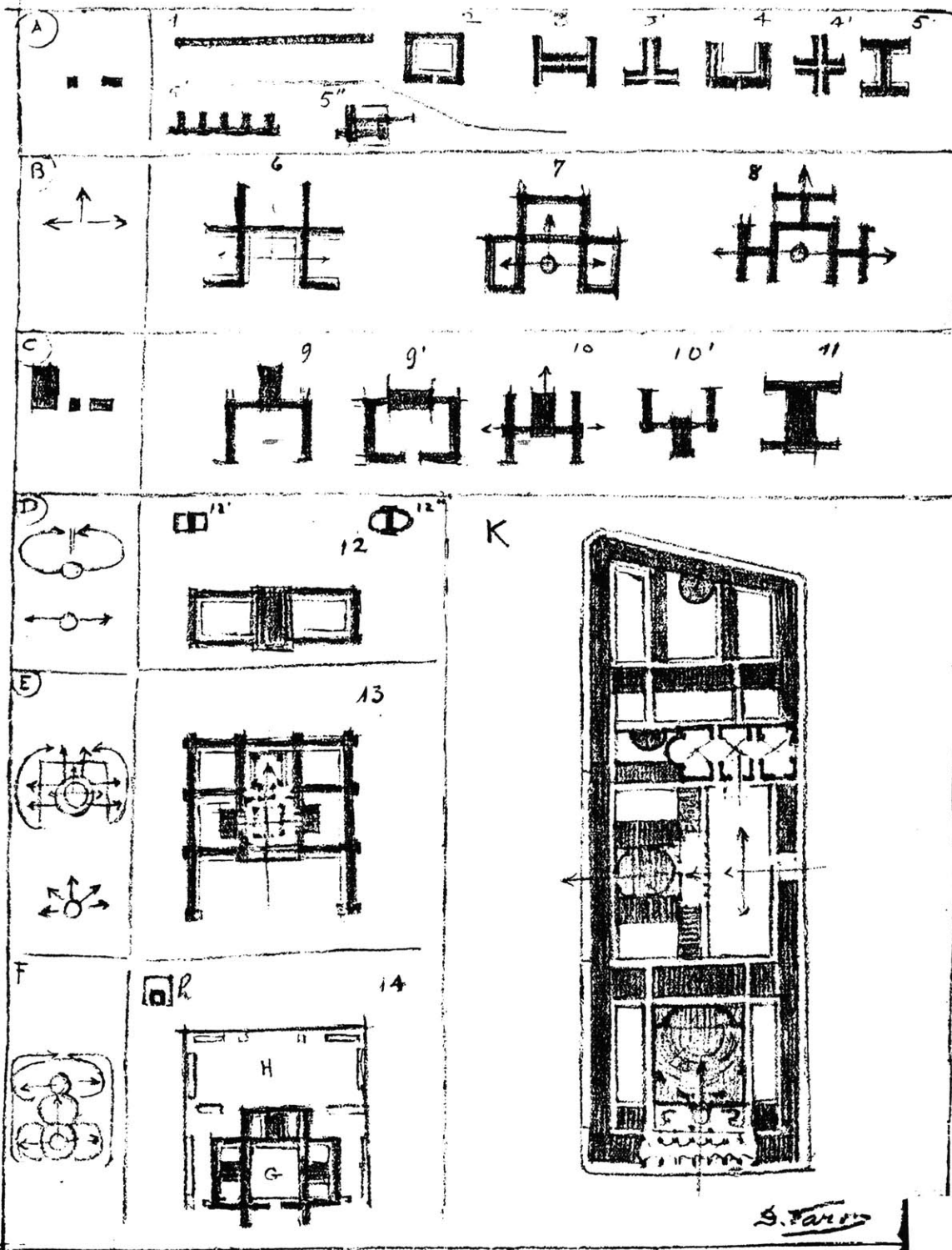
(1) LINES OF COMMUNICATION FOR THE HOUSEHOLD. THE THREE GROUPS OF LINES CORRESPOND WITH THREE MAJOR ACTIVITIES: COOKING-DINING; SITTING-RELAXING; SLEEPING-WASHING. THEY SHOW THE SEGREGATION OF EACH USE, NO INTERFERENCE WITH EACH OTHER, SHORT AND DIRECT RELATIONS.



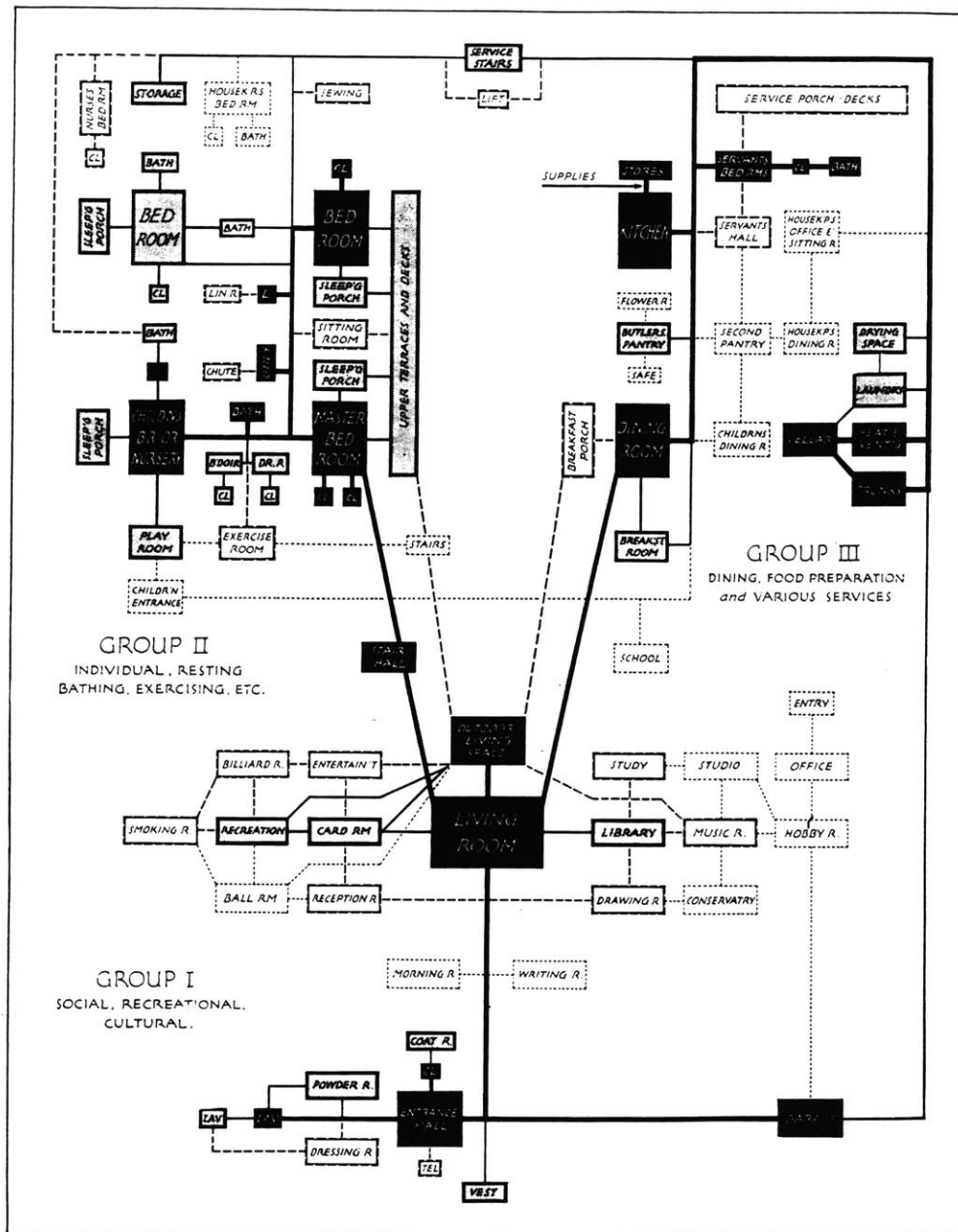
(2) CIRCULATION BETWEEN GROUPS. PATH OF TRAFFIC SHOWS CENTRALIZATION, SHORT DISTANCE FROM ONE GROUP TO ANOTHER, NO OBSTACLES TO AVOID, EASY ACCESS AND FLOW OF WALKING PATH ARE THE BASIS OF EFFICIENT HOUSEKEEPING.

## GRAPHIC METHOD FOR DETERMIN

[ fig. 77 ] "Graphic Methods for Determining Efficiency of House Interior," Architectural Record, May 1935



[ fig. 78 ] Parti sketches from David Varon, *Indication in Architectural Design*, 1916



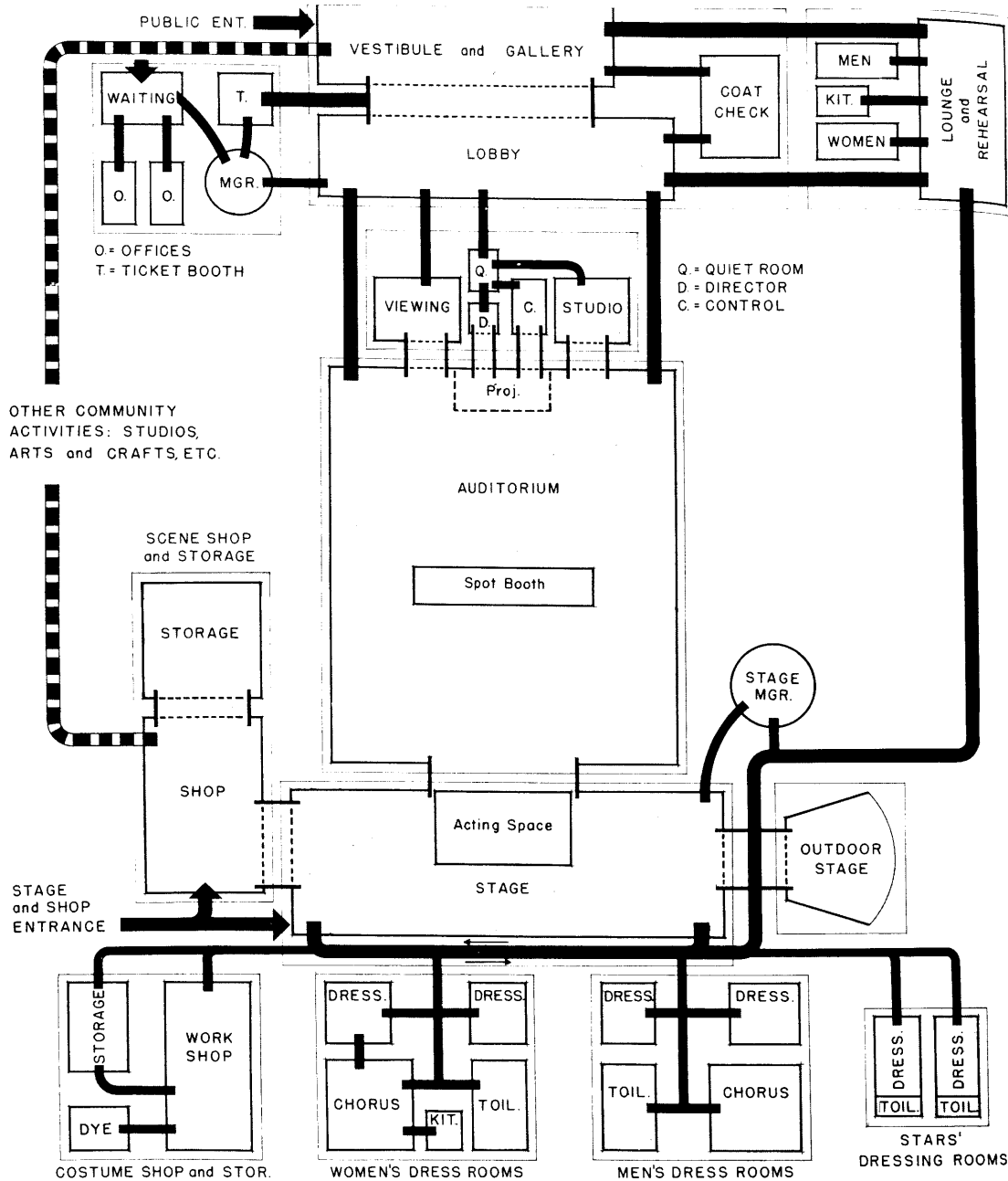
THE COUNTRY HOUSE CHART, ROOM BY ROOM

Functionally grouped, the various rooms of the country house, large or small, are shown diagrammatically in their relations with each other, for purposes of analysis and

checking. The usual relative importance of the rooms is indicated by the relative blackness, the most essential rooms being solid black, next in importance, gray, etc.

[ fig. 79 ] "The Country House Chart, Room by Room," *Architectural Forum*, March 1933

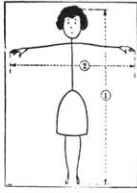




Organization of a community theater. If community activities not directly related to the theater are to be included, it is desirable to provide access from them to gallery exhibition space; and to isolate their quarters, along with the noisy stage or scene shop, in order to simplify the problem of reducing background noises in auditorium. Additional stage and shop entrances may become necessary. Parts of radio unit (viewing room, studio) may also serve as discussion rooms.

[ fig. 80 ] "Organization of a community theater," Architectural Record, Oct. 1939





Height of top shelf.



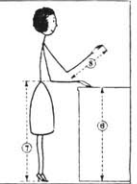
Reach (from finger tip to finger tip).



Space needed to move about freely.



Elbow to floor when seated.



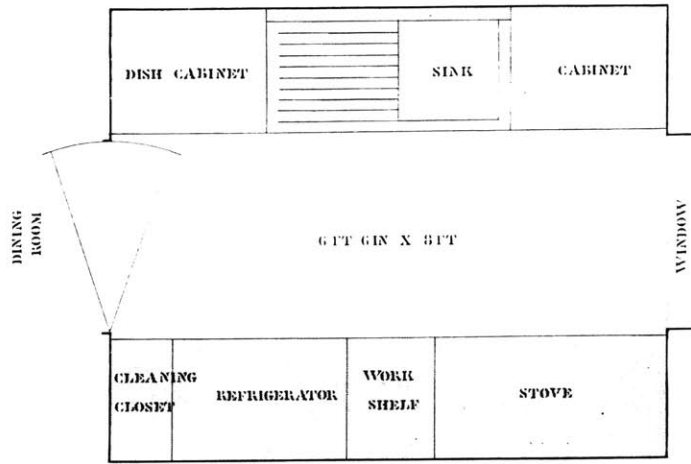
Height of work surface adjusted.



Courtesy, Miss Jane Callaghan,  
Brooklyn Borough Gas Company

METHOD FOR PLOTTING heights of work surfaces and kitchen arrangement.

[ fig. 82 ] "Method for Plotting Heights of Work Surfaces and Kitchen Arrangement,"  
*Architectural Record*, Jan. 1932

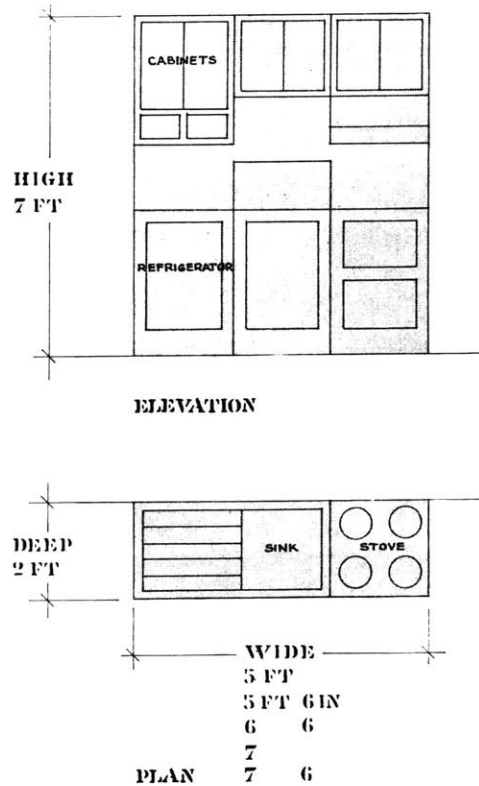


PLAN OF KITCHEN OF MINIMUM SIZE, suited to small family or apartment. "The size of the kitchen is determined by the equipment it must contain to carry out the activities of the family." From report of Committee on Kitchens and Other Work Centers, the President's Conference on Home Building and Home Ownership.

A MINIMAL KITCHEN

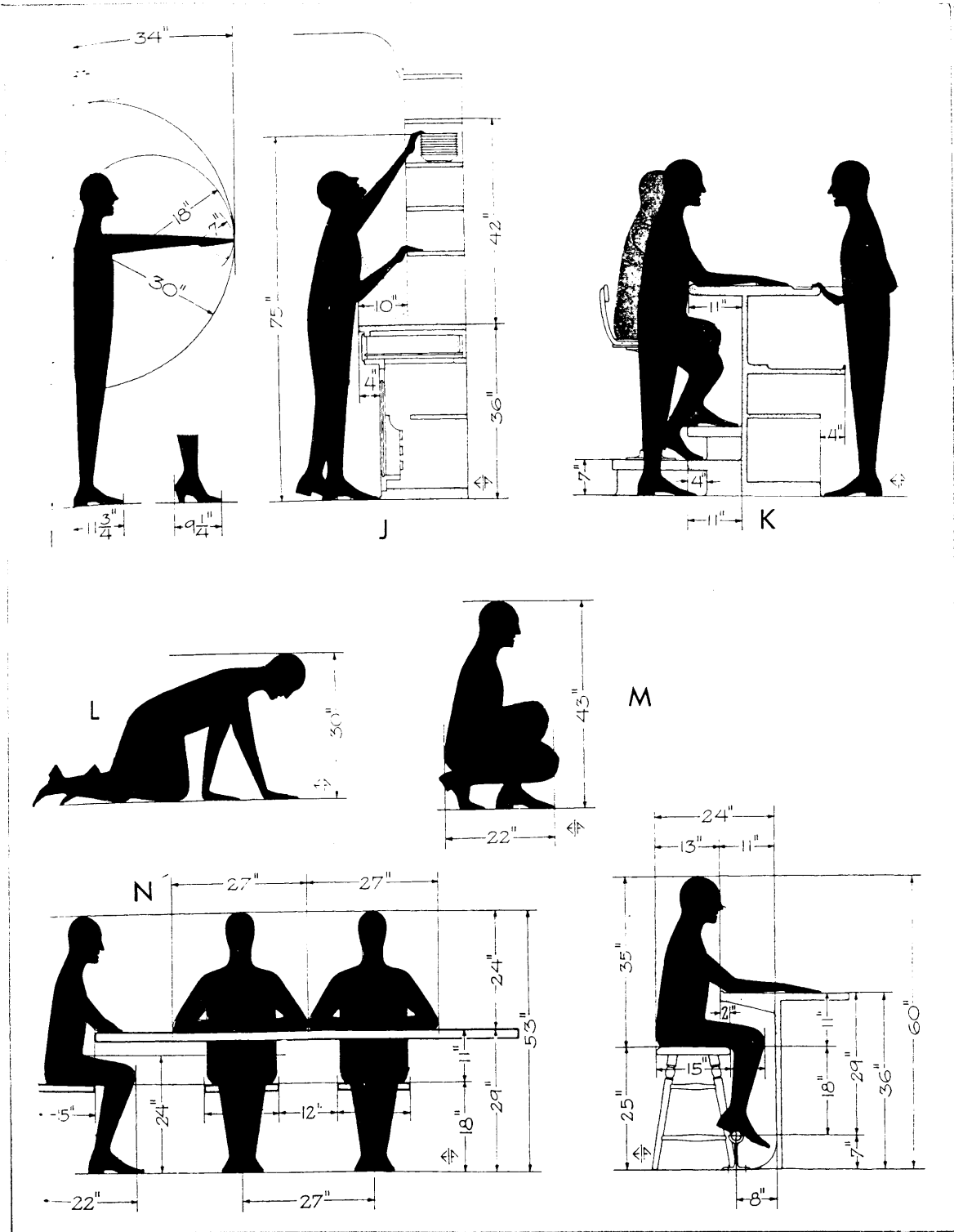
Design	Kitchen			Pantry	
	Width	Length	Sq. ft.	Width	Length
Wall	4'8"	8'3"	38.5		
	4'8"	8'	37.3		
	4'6"	9'	40.5		
	4'8"	9'3"	43.5		
	5'	9'6"	47.5		
Small Apartment	6'9"	7'	46.6		
	7'	8'6"	59.5		
	5'6"	7'	38.5		
Apartment or Small Single House	6'6"	8'6"	55.25		
	6'6"	8'	52.		
	6'8"	8'	53.3		
Larger One-Family House—no maid	6'6"	10'6"	68.25		
	7'	12'	84.		
Rural	9'	11'6"	103.5		
(With breakfast nook)	7'6"	18'	117.		
(With breakfast nook)	9'3"	20'	192.5		
Rural	7'6"	12'	90.		
With work room. Dimensions do not include workroom	8'6"	13'	110.5		
	9'	11'	99.		
	8'6"	11'	93.5		
Rural	7'	12'3"	85.75	6'	7'6"
Apartment (with maid)	7'	9'	63.	7'	8'
	7'	8'	56.	6'	7'
	7'	8'	56.	6'6"	8'
Detached House (with maid)	7'	8'	56.	4'9"	8'
	7'	12'	84.	6'	9'

TYPICAL KITCHENS AND SPACE REQUIREMENTS as listed by the Committee on Kitchens and Other Work Centers of The President's Conference on Home Building and Home Ownership.



KITCHEN UNIT

[ fig. 83 ] Lawrence Kocher and Albert Frey, page from "Dimensions," Architectural Record, Jan. 1932



[ fig. 84 ] Ernest Irving Freese, plate from "Geometry of the Human Figure," American Architect, July 1934

# BATHROOM PLANNING—ACCESSORIES

## PLANNING

Minimum sized bathrooms and toilets require special planning care to assure adequate wall space for essential accessories. In the accompanying drawings the recommended location of each major item of built-in equipment is shown in relation to the principal fixture it serves. The notes serve as a check list of items to be considered.

Towel bars should be ample in number and length to serve the needs of each member of the family regularly using the bathroom, or the number of guests likely to use its facilities before supplies can be replenished. For each person regularly using the bathroom there should be separate bar space for bath towel, face towel, and face cloth; plus an additional rack for guest towels.

Where a dental lavatory is included in the plan, transfer the tooth brush holder shown at the main lavatory and add a shelf and a small cabinet for dentifrices.

The medicine cabinet should be related in size to the type of bathroom or toilet. For guest baths or toilets space is needed only for dentifrices, shaving accessories, toilet preparations and a few simple remedies. A bath serving several bedrooms may require a complete supply of medicines in addition to the above. Every bathroom should have a storage closet for cleaning utensils and supplies and for reserve stocks of toilet paper, towels and sundries.

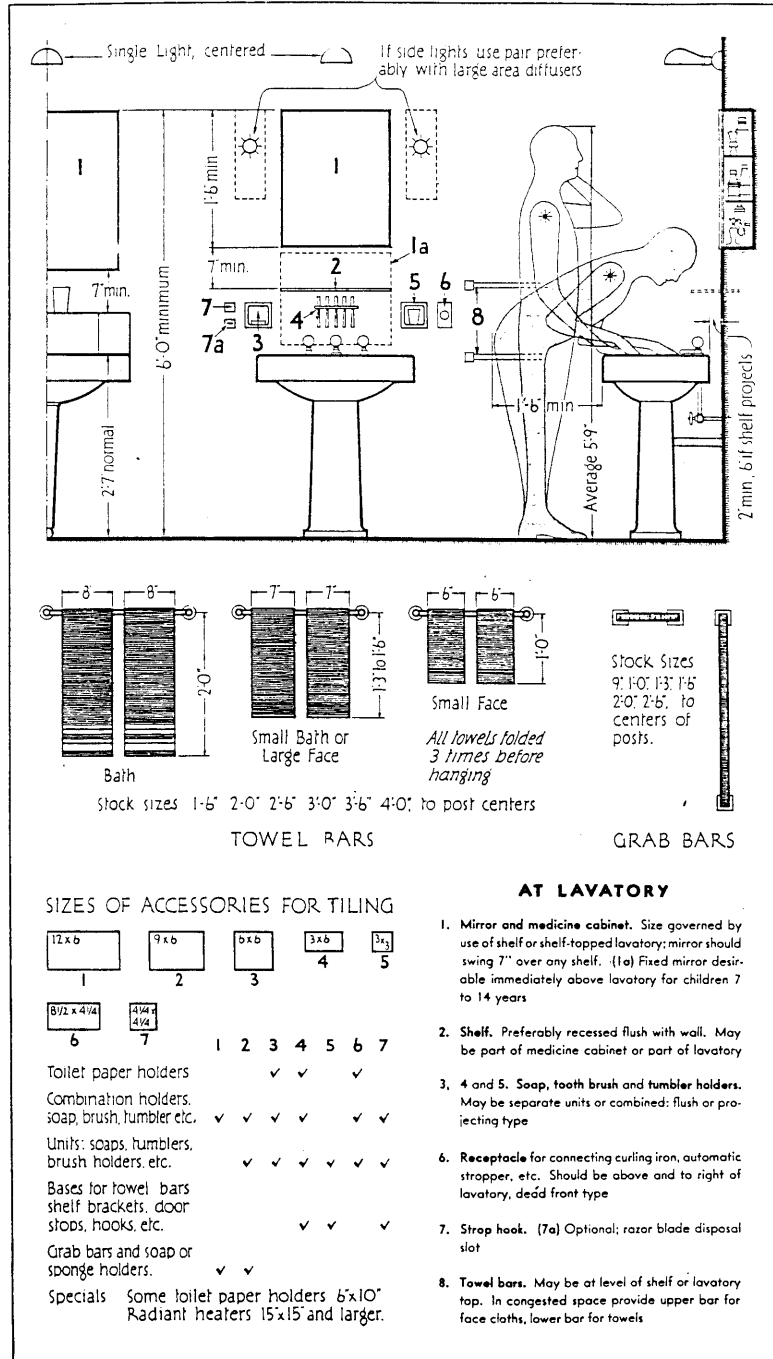
Floor space should be left in the plan of utility bathrooms for portable accessories desired by the owner or needed on occasion for the care of infants or invalids. Consider such items as: scales, stool or seat, infant's bath and dressing table (portable type requires about 3' x 4' of floor space in use) soiled linen hamper, exercise devices, dressing table or vanity with bench, ultra-violet radiation equipment, etc.

## MATERIALS

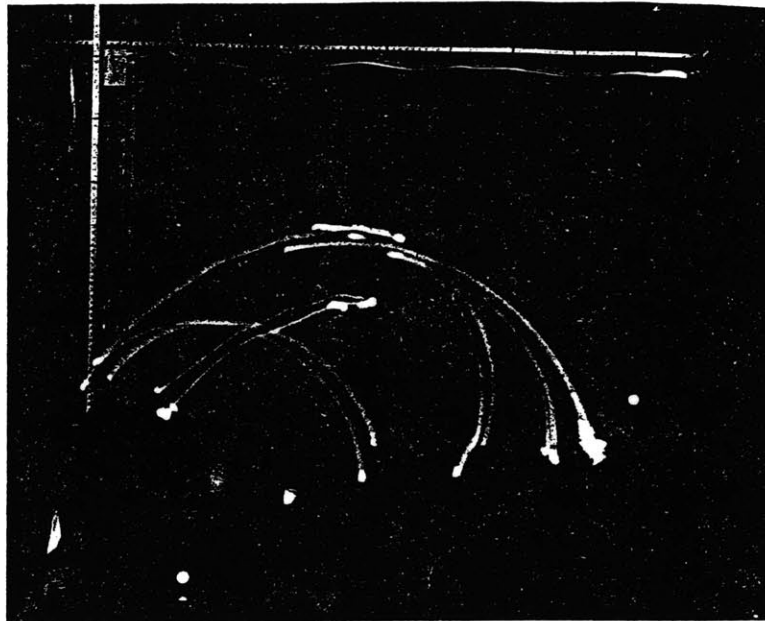
Accessories designed for use in tiled walls are made in tile sizes (basic units 3" x 3", 3" x 6" and 4 1/4" x 4 1/4") and in colors to match wall tiles. Include such units in the tile contract. Similar ceramic or metal units are available for surface attachment.

Towel and grab bars are available in: glass, clear, black, opal, crystal; wood, enameled or covered with pyralin or its equivalent in colors; metal, finished in nickel plate, chromium plate or enamel, or rubber covered.

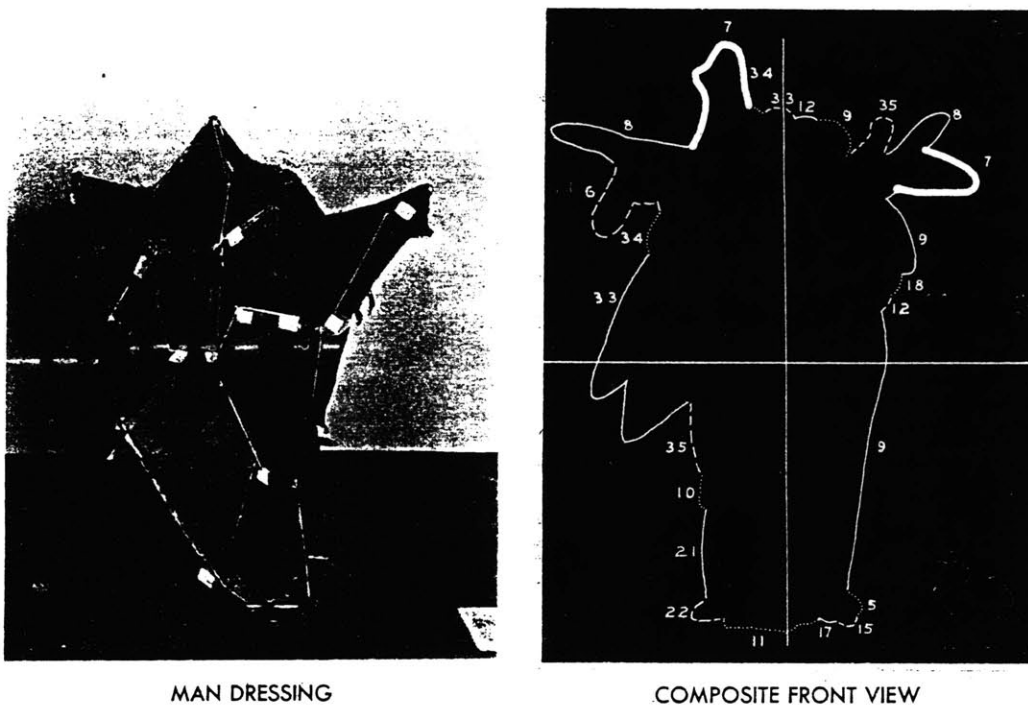
Shelves are available in clear, opaque, opal or crystal glass; also in metal, usually enameled in colors or black.



[ fig. 85 ] Plate of "Bathroom Planning," from Time Saver Standards, 1946, originally published in American Architect, Sept. 1935



[ fig. 86 ] Photographic measurement of "Headroom Above the Sleeping Surface," from Jane Callaghan and Catherine Palmer, "Measuring Space and Motion," 1943



MAN DRESSING

COMPOSITE FRONT VIEW

[ fig. 87 ] "Space shapes" of man dressing, from Jane Callaghan and Catherine Palmer, "Measuring Space and Motion," 1943



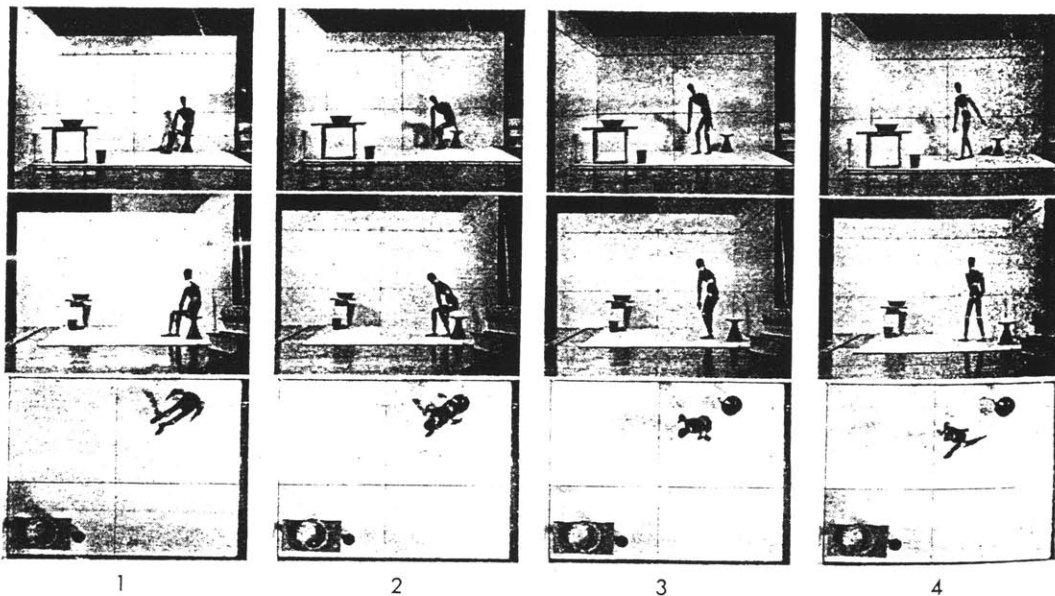
POSING THE MODEL  
Camera set for overhead shot

### TESTING THE NEW PHOTOGRAPHIC METHOD IN SMALL SCALE

As the plan called for a set-up of unusually large dimensions, it was first tested in small scale.

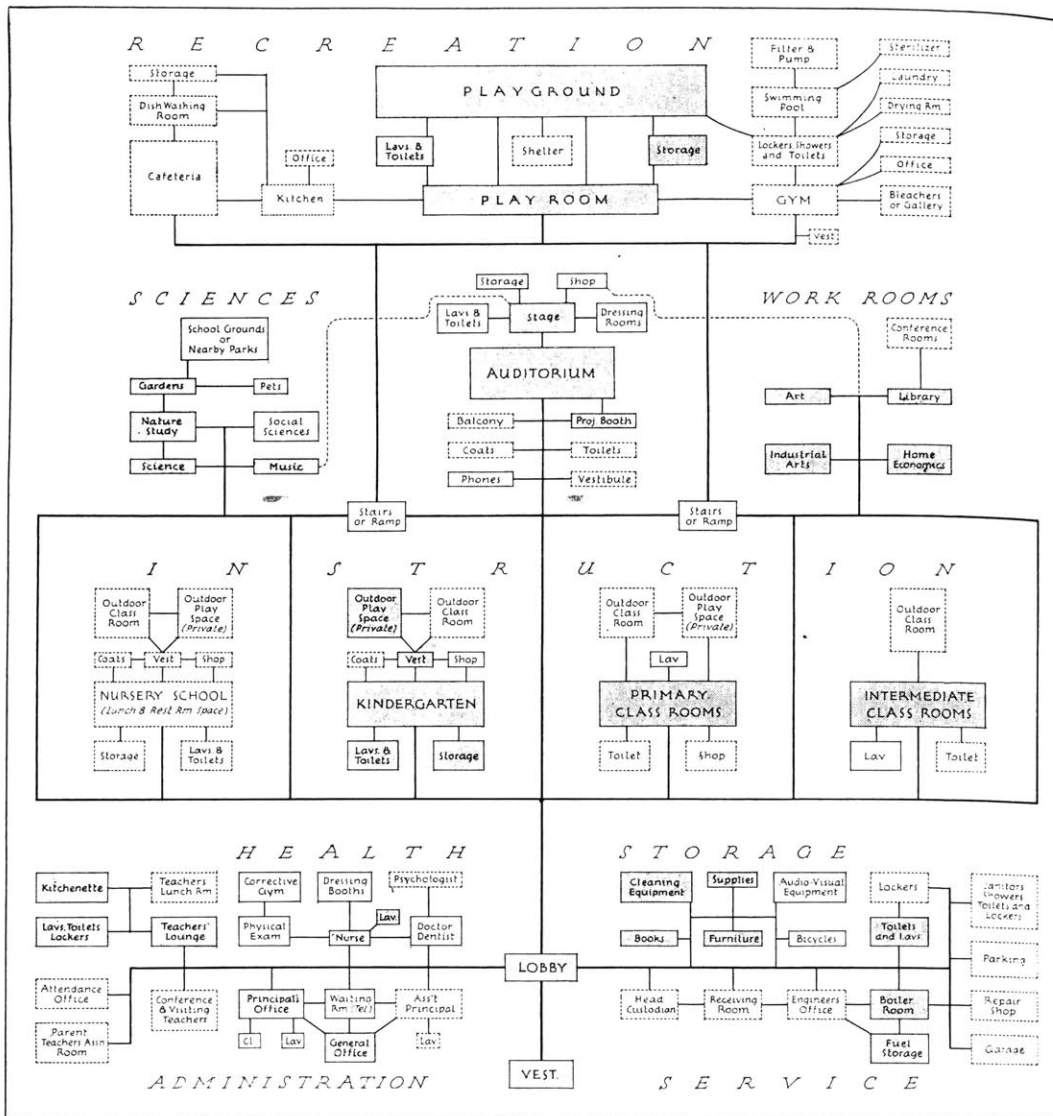
Diagonal action had proved the most difficult to measure in previous experiments. For this reason it was used to test the new technic. A small puppet walked diagonally across a miniature stage and each element of the motion was photographed—top, front and side.

The pictures were enlarged to make the figure 1/10 human size and from these prints two different types of models were made.



[ fig. 88 ] Photographic technique of recording a puppet walking diagonally across miniturized room, from Jane Callaghan and Catherine Palmer, "Measuring Space and Motion," 1943





FUNCTIONAL CHART FOR ELEMENTARY SCHOOLS

Based upon modern educational trends, with provisions for rooms and activities not found in schools of the older type, this chart serves as an outline for planning. Logical grouping of units, chosen in accordance with the specific needs of the community and its educational program and molded into a plan well oriented and flexible, is the theory of modern elementary school planning

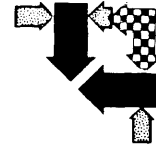
ods of modern educational theory. The former movement has resulted in standardizing the classroom to the most minute detail; the latter asks, "Are we sure that we need classrooms?"

Standardization has been an ideal of many leading educators and their unceasing efforts toward this end have produced results. New York City, for example, has adopted a number of type plans and

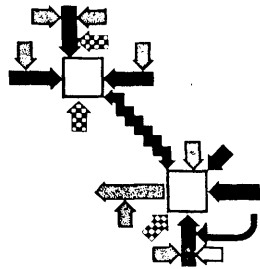
specifications, duplicated without change whenever possible, for all rooms, groups of rooms, equipment, as well as more than 300 construction details. The considerable saving in money and time and the guarantee that all schools shall be up to the required standard, are the obvious advantages. Under such conditions, the architect can be little more than an exterior decorator.

[ fig. 89 ] "Functional Chart for Elementary Schools," *Architectural Forum*, Dec. 1933

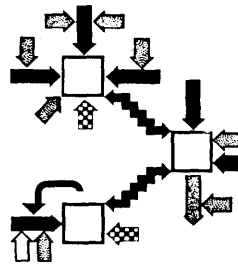
## VERTICAL CIRCULATION



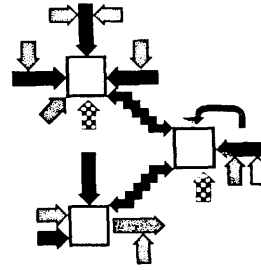
Stairs and stair halls should be clean, open, direct, and straight for comfort and safety--especially when moving around in the dark. There are three types of Vertical Circulation. Note: When entire house is on one level, living and sleeping sections are joined by a hall.



2 Floors



1 1/2 Floors (A)



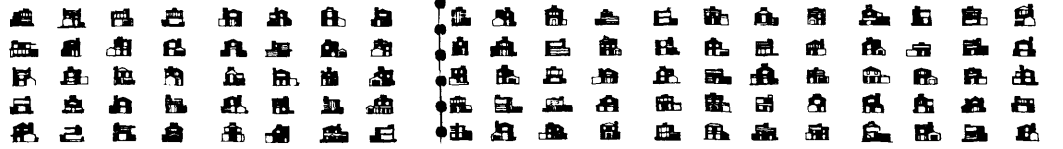
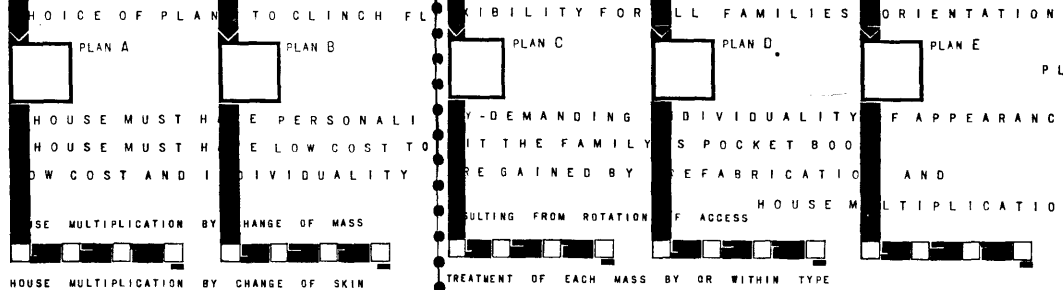
1 1/2 Floors (B)

## S U M M A T I O N

A HOUSE TO BE GOOD MERCHANDISE SHOULD HAVE A PLAN THAT GIVES BETTER LIVING FACILITIES FOR THESE ACTIVITIES



PLAN THAT ALGIVES BETTER LIVING FACILITIES BY THESE CHARACTERISTICS: FLEXIBILITY, CIRCULATION, ORIENTATION



[ fig. 90 ] Circulation diagram and summary chart in Allmon Fordyce and William I Hamby, "Small Houses for Civilized Americans," Architectural Forum, Jan. 1936

## TYPE OF ARCHITECTURE PREFERRED

CAPE COD AND MODERN LED IN THE 19,158 VOTES

CAPE COD **44.2%**



T 8,354 M 105

MODERN **31.0%**



T 30 M 5,904

RANCH HOUSE **12.8%**



T 480 M 1,979

DUTCH COLONIAL **6.0%**



T 1,039 M 115

In checking the type of architecture they liked best, the majority of the contestants who voted for the Cape Cod house in the overall vote (see pages 2-3) remained true to this style. When given an opportunity to vote on eight architectural styles, the Cape Cod house received 77.9% of their total vote. The nearest runner-up (with only 9.7% of the vote) was a similar style, the Dutch Colonial. The Georgian house, often very popular with the traditionalists, and other styles usually associated with large houses received few votes, again confirming the belief that people do not want large homes in these servantless days.

On the modern side where 70.0% of the contestants held to their decision for modern, 23.5% of those answering checked the ranch house as their favorite style of architecture. This latter group is probably composed of those who are still only "a little left of the center" and who prefer the ranch house because it is a transitional style with traditional details and is sympathetic to traditional furniture but which adjusts itself to such features of modern architecture as large windows and open planning as well as modern furniture.

NOTE: The total used in arriving at these percentages was 19,158 as some contestants, apparently planning to build two houses checked two styles of architecture. This accounts for the apparent discrepancies in totals.

OTHER TYPES **1.9%**

T 170 M 195

GEORGIAN **1.7%**



T 271 M 53

SOUTH COLONIAL **1.1%**



T 185 M 34

ENGLISH OR TUDOR **0.9%**



T 149 M 28

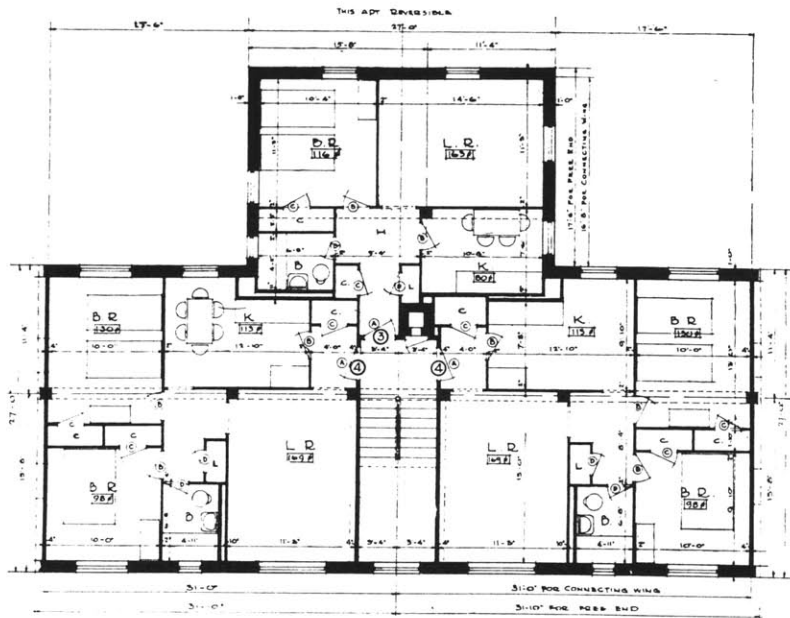
MONTEREY **0.4%**



T 41 M 26

NOTE: T— Traditional; M— Modern.

[ fig. 91 ] Result of 1943 McCall's survey of "Type of Architecture Preferred"

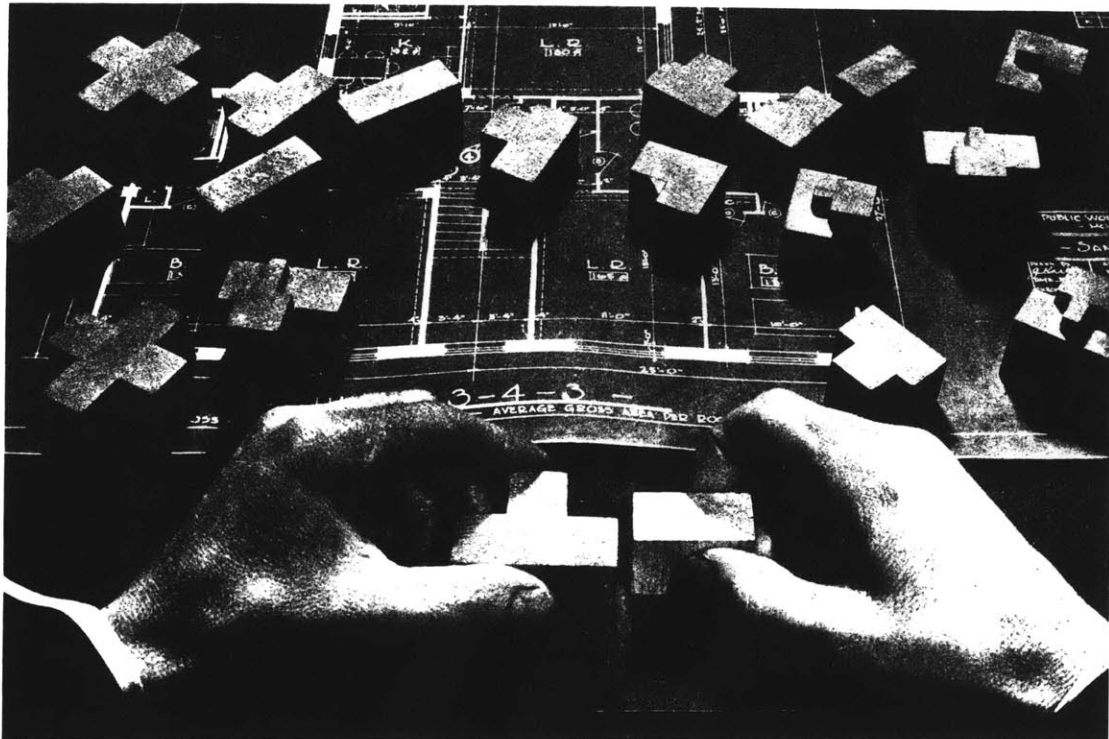


UNIT 4-3-4

TOTAL GROSS AREA PER UNIT: 2146 SQUARE FEET

AVERAGE GROSS AREA PER ROOM: 195 SQUARE FEET

OFF-CENTER COLUMNS



[ fig. 92 ] "T-plans" and method of design using unit plans, developed by the Housing Division of the Public Works Administration, illustrated in *Architectural Record*, March 1935

**NEIGHBORHOOD LOCATION**

EASY ACCESS TO SCHOOLS, CHURCHES, SHOPPING CENTERS AND TO PLACES OF ENTERTAINMENT.

REASONABLE DISTANCE FROM PLACE OF EMPLOYMENT.

TRANSPORT FACILITIES TO PLACE OF EMPLOYMENT.

NEIGHBORHOOD STORES IN CLOSE PROXIMITY AND IN A ZONED LOCALITY.

For each one thousand people there is needed about 300 feet of business frontage. This includes central shopping district and neighborhood store area.

APARTMENT OR HOUSE LOCATION PRIMARILY RESIDENTIAL, PROTECTED BY ZONING REGULATION.

It has been found generally necessary that zoning regulations be supplemented by deed restrictions. Deed restrictions should be carefully drawn and should apply to every lot, whether sold or unsold. (See Zoning Regulations, U. S. Department of Commerce.)

RESIDENTIAL LOTS SHOULD BE NOT LESS THAN 85 FEET IN DEPTH. ADJACENT PLAYGROUNDS FOR CHILDREN AND ADULTS. PARK WITHIN 5 MINUTE WALK.

TO SECURE MAXIMUM EFFICIENCY, NEIGHBORHOOD UNITS SHOULD NOT EXCEED 160 ACRES IN AREA NOR BE MUCH LESS THAN 100 ACRES.

PREFERRED STREETS RUN NORTHEAST BY SOUTHWEST AND SOUTHEAST BY NORTHWEST TO ATTAIN UTMOST ADVANTAGE OF SUNSHINE AND NO ROOMS OF DUE NORTH EXPOSURE.

ROOF TERRACE REACHED BY SUN'S RAYS BUT PROTECTED FROM CO.LD WINDS.

To encourage children, elderly people and the sick to get out-of-doors on sunny days in winter.

STREET TREES, GRASS STRIPS AND PARKS WITHIN THE HOUSING GROUP.

GROUNDS LANDSCAPED.

LOCATION ON MINOR SIDE STREET.

NO HOUSING SHOULD BE UNDULY NEAR RAILROAD TRACKS, AVIATION FIELDS, PUBLIC GARAGES, MARSHES OR NOXIOUS INDUSTRIES.

ELEMENTARY SCHOOLS WITHIN A RADIUS OF NOT MORE THAN 1/4 MILE.

STEEP SLOPES SHOULD BE AVOIDED AS ADDING UNDULY TO THE COST OF BUILDING AND DEVELOPMENT.

EXAMINE SUBSOIL TO DISCOVER EFFECT ON DRAINAGE, LIABILITY TO DAMPNES OF FOUNDATIONS.

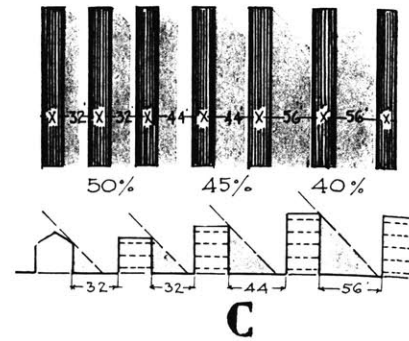
EXPOSURE TO PREVAILING WINDS OF SUMMER AND WINTER, CONSIDERED AS AFFECTING CLIMATIC AMENITIES.

Formerly the ground area not occupied by buildings (usually kept down to the minimum permitted by local building codes) consisted of backyards and courts; this, of course, meant that the buildings themselves used about eighty per cent of the land. In current project plans approximately 25 per cent of the land is built on. The other 75 per cent is used for lawns, gardens, play spaces and the like. Landscaping, therefore, is now an integral part of the entire scheme and must be studied with the same care given to the layout of the buildings.

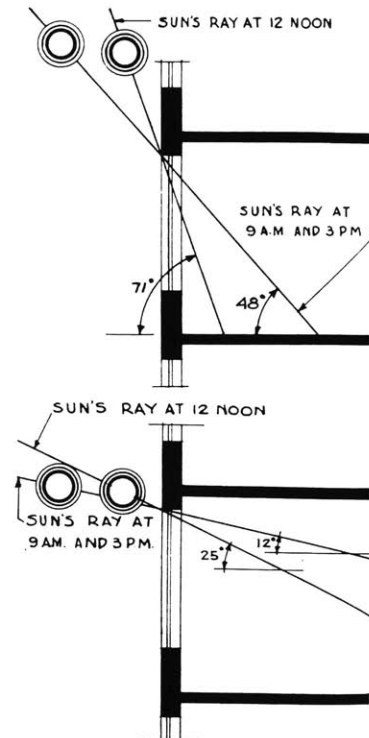
"There is a definite tendency to make individual blocks longer than formerly. Blocks up to 1,000 feet or more in length are now not uncommon. Pedestrian crossings are sometimes provided in the middle of long blocks on the principle that it is not inconvenient to drive all the way around, but that it may be a serious inconvenience to walk, particularly for school children."\*

SAFETY OF CHILDREN INSURED BY THE STREET PLAN THAT MAKES IT UNNECESSARY FOR A CHILD TO CROSS A STREET AT GRADE IN ORDER TO GET TO SCHOOL OR PLAYGROUND.

\* Planning for Residential Districts. The President's Conference on Home Building and Home Ownership. p. 55.

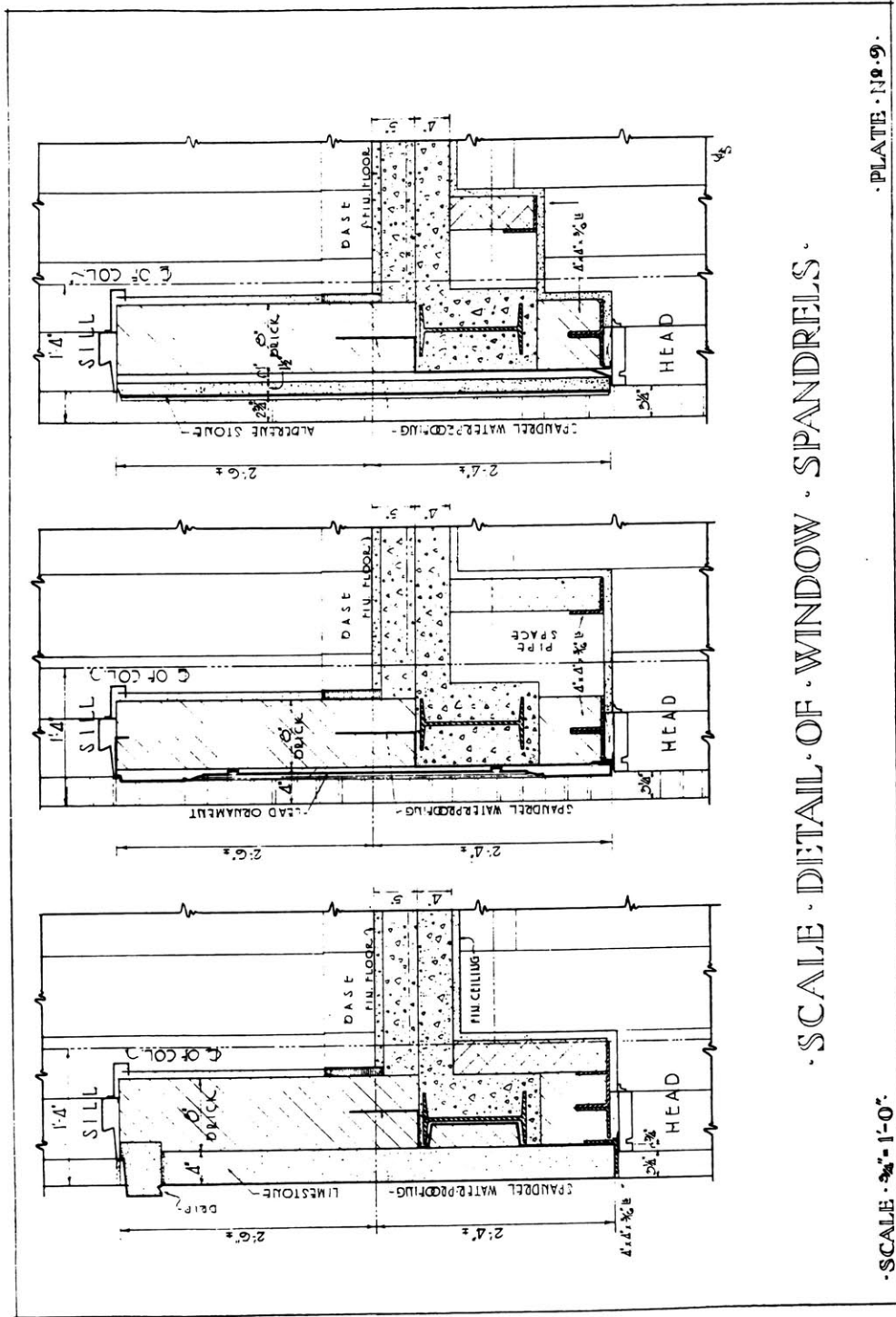


(A, B AND C) COMPARISON OF OLD AND NEW METHODS OF BLOCK DIVISION. (C) RELATIVE COVERAGES AND SUNLIGHT EXPOSURE FOR TWO-, THREE- AND FOUR-STORY DWELLINGS. SPACING IS INDICATED FOR DWELLINGS FACING SOUTH IN ORDER TO PROVIDE FULL SUNLIGHT AT 45 DEGREES. H. WRIGHT.



COMPARISON OF SUNLIGHT ENTERING A ROOM AT SUMMER AND WINTER SOLSTICE, DUE SOUTH EXPOSURE.

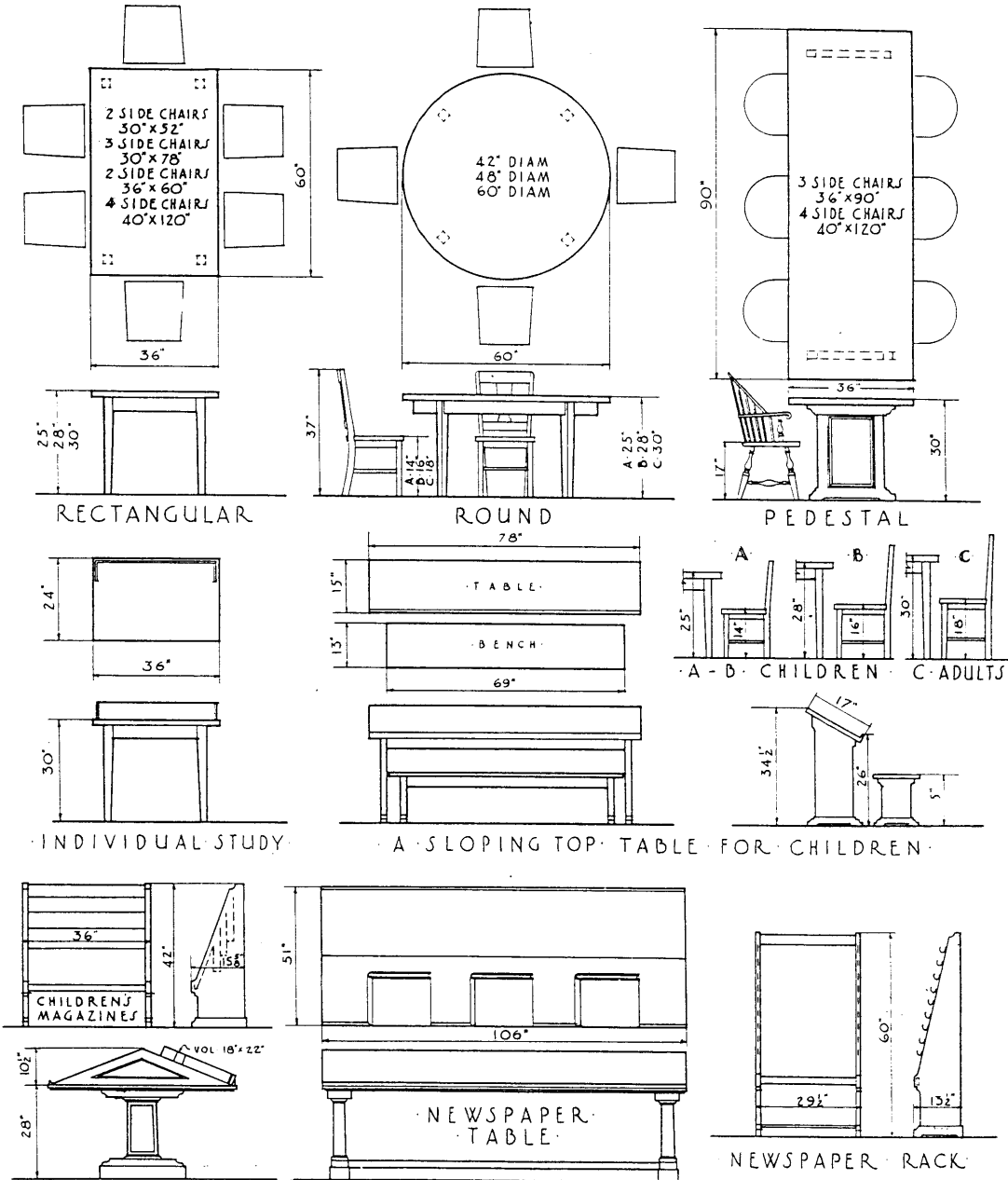
[ fig. 93 ] Page from "Apartment House Planning Requirements, Including Basic Dimensions" Architectural Record, March 1935



[ fig. 94 ] "Working Drawings: IX, Details of Window Spandrels," *Architecture*, Feb. 1931

# TABLES & CHAIRS

SCALE 0 1 2 3 4 5 6 7 8 9 10 FEET.



[ fig. 95 ] Plate on dimensions of furniture used in museums and libraries, from "Architectural Forum Data and Detail, Number 2," Architectural Forum, June 1932

# *Blue Book*

*is now in,*  
***Sweet's***  
***Architectural***  
***Catalogue***

COMPLETE specifications and details of Fenestra Residential, Architectural and Industrial Steel Windows, Operators, Doors and Partitions are now covered by an 82-Page Fenestra Blue Book in the 1927-28 Edition of Sweet's Architectural Catalogue. . . . Separately bound copies of the Fenestra Blue Book for drafting room use also may be obtained upon request. . . . Fenestra Designing, Detailing and Erection Organizations, located in principal cities of the country, are prepared to render special assistance whenever and wherever desired.

DETROIT STEEL PRODUCTS COMPANY, 2262 EAST GRAND BOULEVARD, DETROIT, MICHIGAN  
FACTORIES: DETROIT, MICH., AND OAKLAND, CALIF. CONVENIENT WAREHOUSE STOCKS

***Fenestra***  
**STEEL WINDOWS**

[ fig. 96 ] Advertisement by Fenestra Steel Windows of their 82 page cover catalogue in the 1927-28 edition of Sweet's Architectural Catalogue, in Architectural Forum, Dec. 1927



**THE DOVETAILED KEY INTERLOCKS THE PLASTER**  
**BISHOPRIC STUCCO AND PLASTER BASE**

**BISHOPRIC SUGGESTIONS:**  
 Showing Use Under Thatched Roof and Throughout Exterior and Interior

*Send for Special Loose-leaf Portfolio for Architects*  
 THE BISHOPRIC MANUFACTURING CO., 103 Este Avenue, Cincinnati, O.

**BISHOPRIC SHEATHING**—Strengthening, insulating, sound-deadening, weather-proofing unit; for exterior walls, sub-flooring and sub-roofing.  
**BISHOPRIC STUCCO AND PLASTER BASE**—Interlocking dovetailed key, insulating and waterproofing unit; creosote treated and not treated.

Scale 1 1/2 Inch Equals 1 Foot

**PER.SPECTIVE OF GABLE END AND VALLEY**

**SECTION THRU EAVE**

**TREATMENT FOR TILE INSERTS**

**SECTION THRU RIDGE**

**SECTION THRU EXTERIOR WALL**

**PER.SPECTIVE OF HIP AND DORMER**

**SKETCHES OF TYPICAL ROOF CONDITIONS BISHOPRIC SHEATHING READY TO RECEIVE SHINGLES**

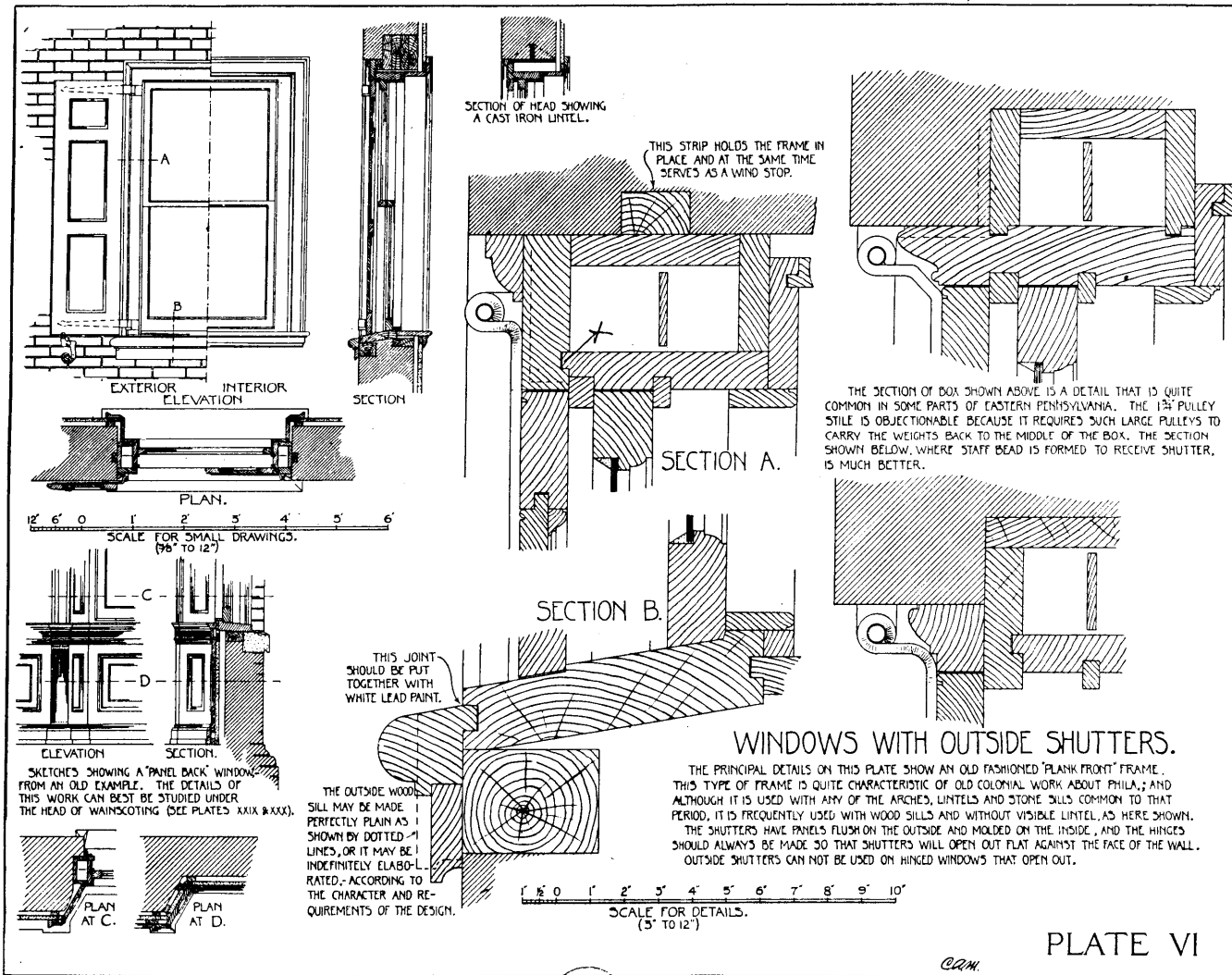
**TWO METHODS OF FRAMING AND FURRING VALLEYS**

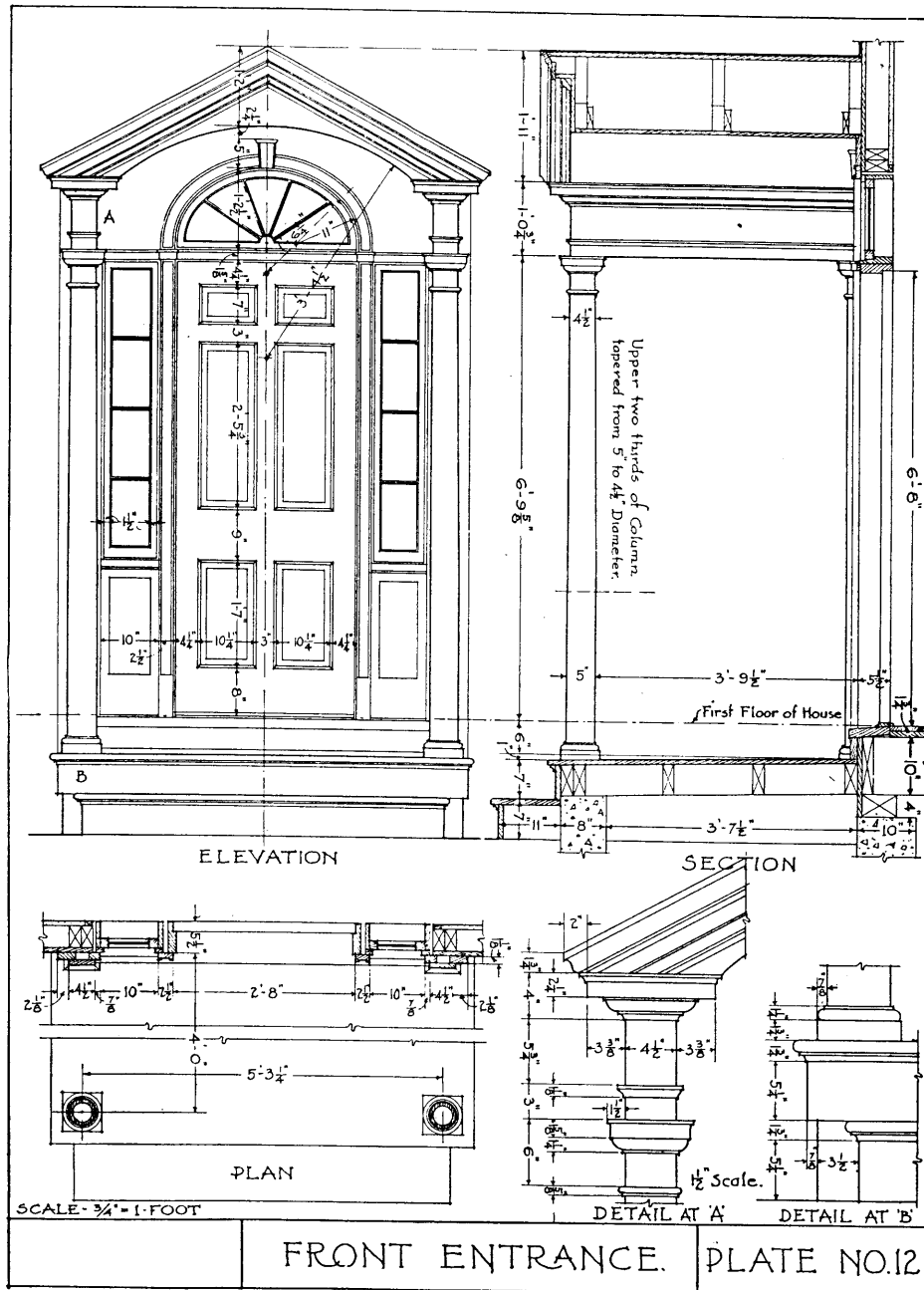
**TWO METHODS OF FRAMING AND FURRING HIPS**

Labels in diagrams include: HEAVY WEIGHT BISHOPRIC SHEATHING, DISHOPRIC INSULATING BOARD, Finished floor, HEAVY WEIGHT BISHOPRIC SHEATHING, Tile or Marble, Metal covered cap, RIBBON board, Fire stop, STUCCO BOARD, HEAVY WEIGHT BISHOPRIC SHEATHING, Blocking, Scale 1/2 Inch Equals 1 Foot.

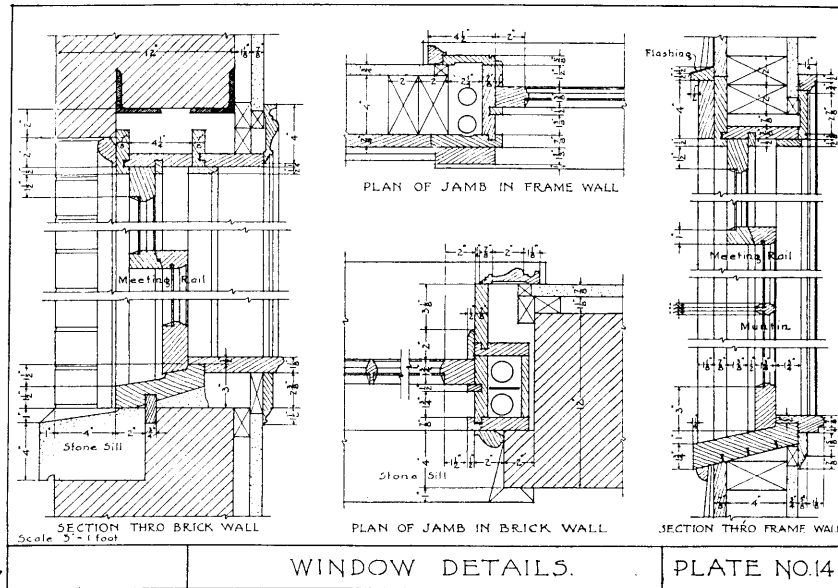
[ fig. 97 ] Advertising plate from "Special Loose Leaf Portfolio for Architects" by Bishopric Manufacturing Company, in *Architectural Forum* Sept. 1920

[ fig. 98 ] Plate from Clarence A. Martin, *Details of Building Construction*, 1899

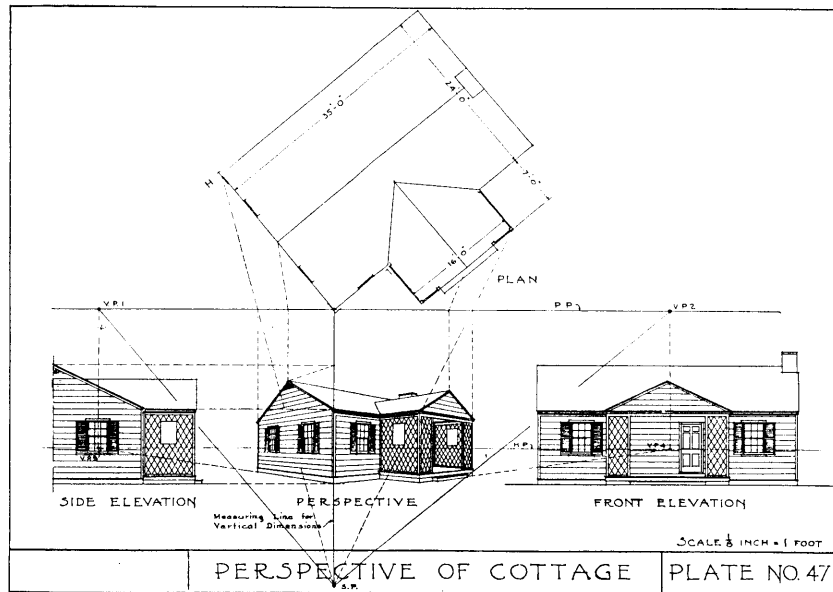




[ fig. 99 ] Plate of entrance doorway in Louis Rouillion and Charles G. Ramsey, Architectural Details, 1924, used as a standard design for the Curtis Company

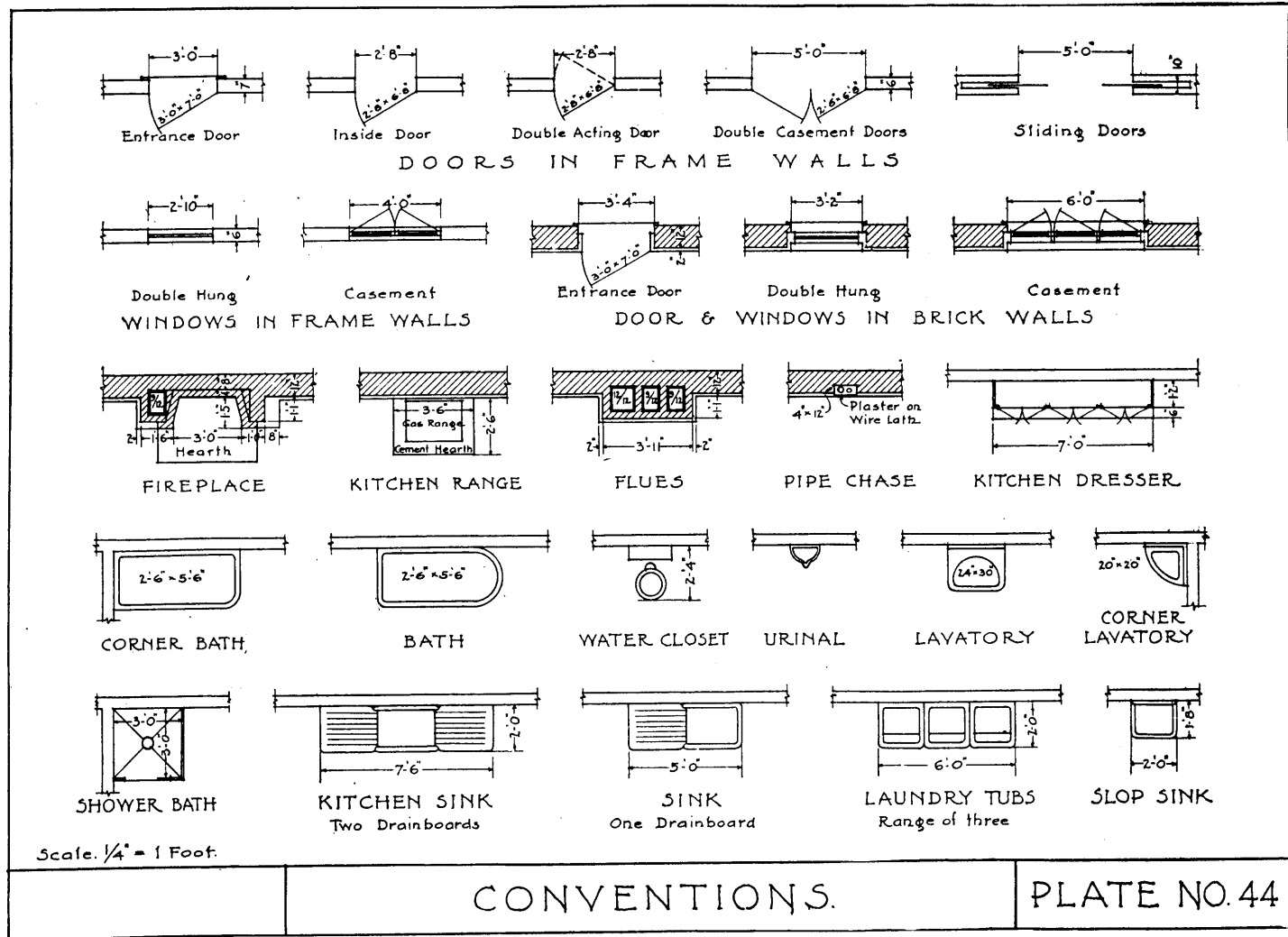


[ fig. 100 ] "Window Details," in Louis Rouillion and Charles G. Ramsey, Architectural Details, 1924



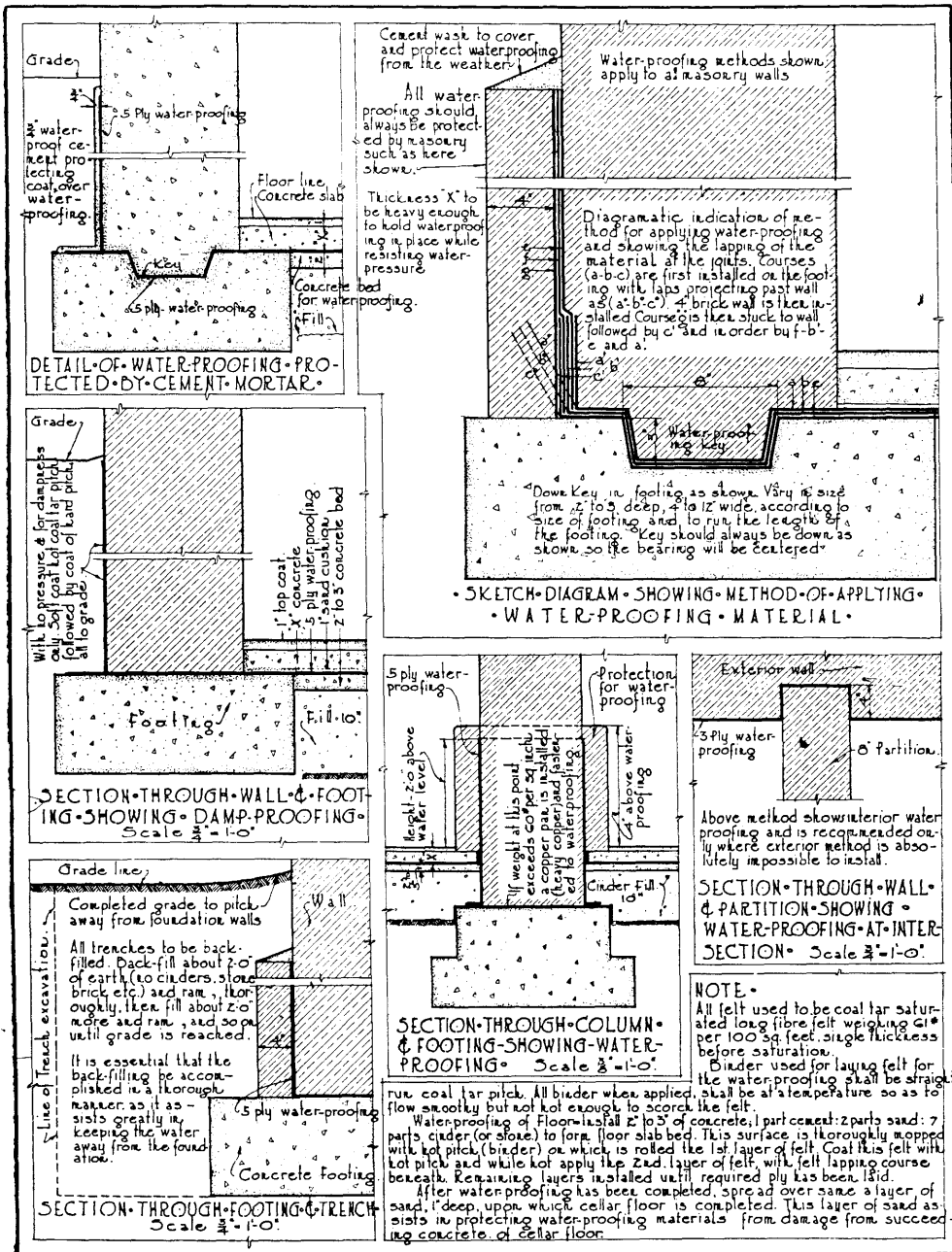
[ fig. 101 ] Plate illustrating perspective techniques from Louis Rouillion and Charles G. Ramsey, Architectural Details, 1924

[ Fig. 102 ] "Conventions," in Louis Rouillon and Charles G. Ramsey, *Architectural Details*, 1924, the only plate in the book dealing with standard dimensions



CONVENTIONS.

PLATE NO. 44

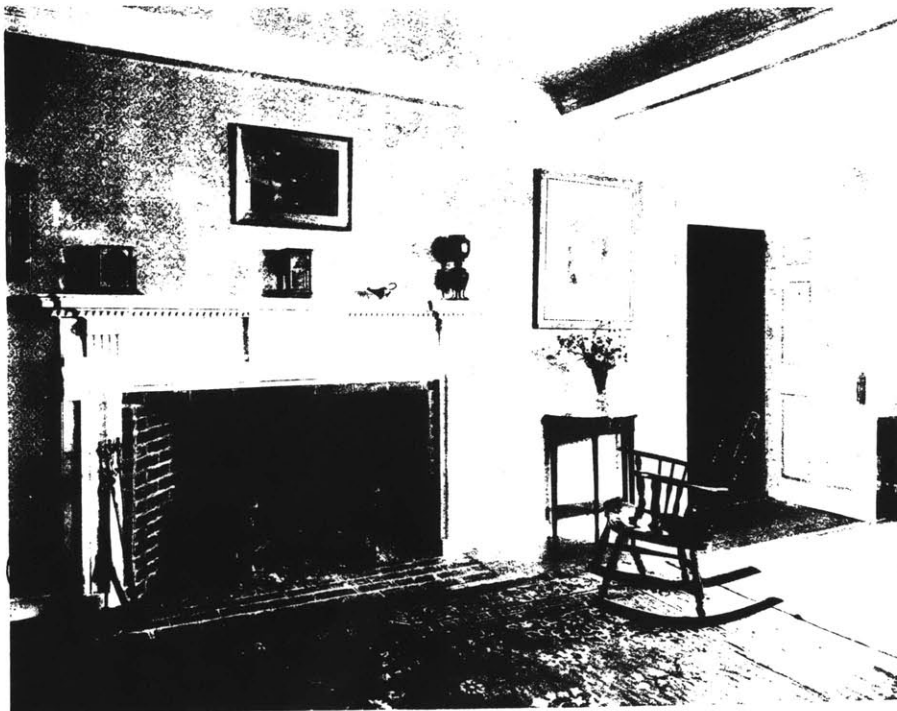


[ fig. 103 ] "Waterproofing, I," in Philip G. Knobloch, Good Practice in Construction, 1923



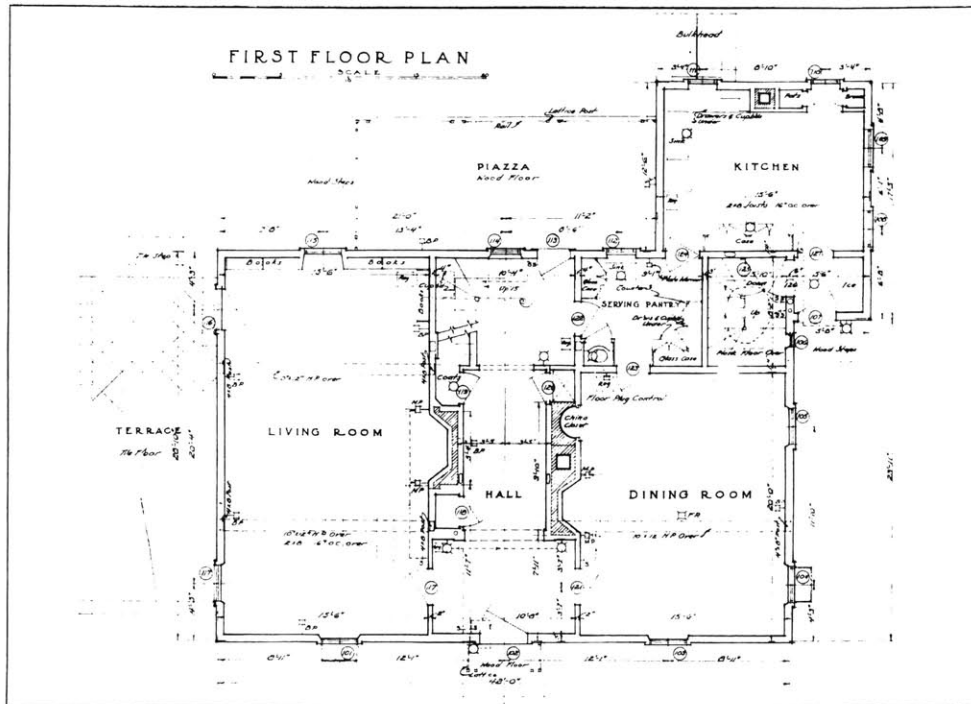


[ fig. 105 ] Photograph of cottage house exterior ( Plate 1 ) in Walter C. Voss and Ralph C. Henry, Architectural Construction, 1925, Vol. I

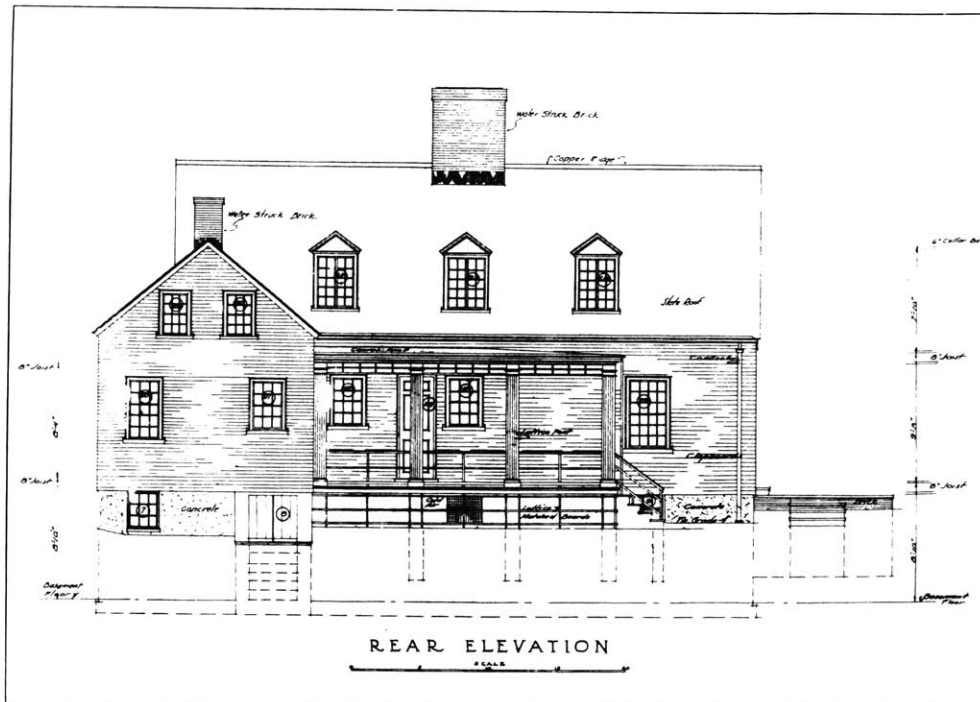


[ fig. 106 ] Photograph of living room ( Plate 8 ) in Walter C. Voss and Ralph C. Henry, Architectural Construction, 1925, Vol. I

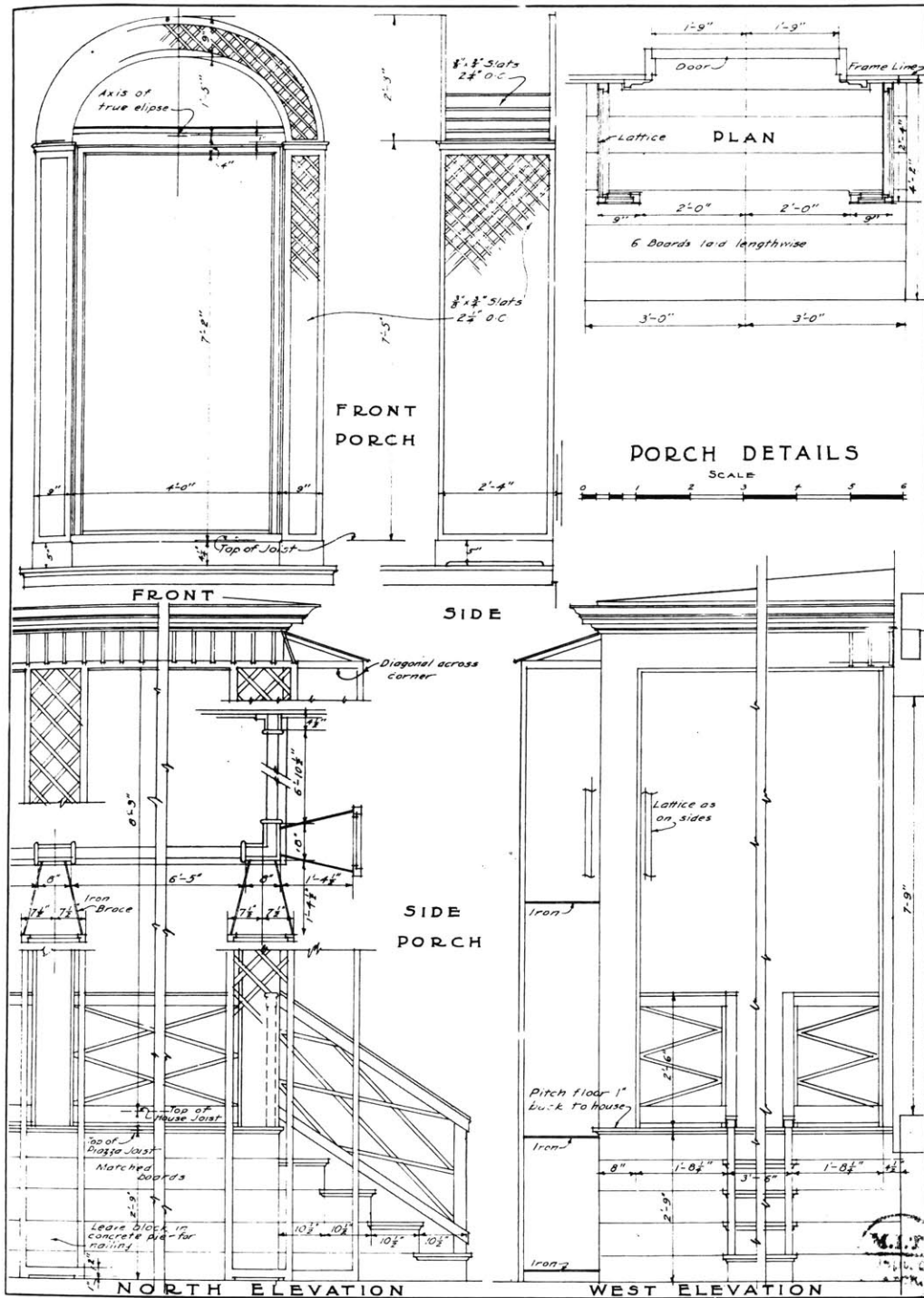




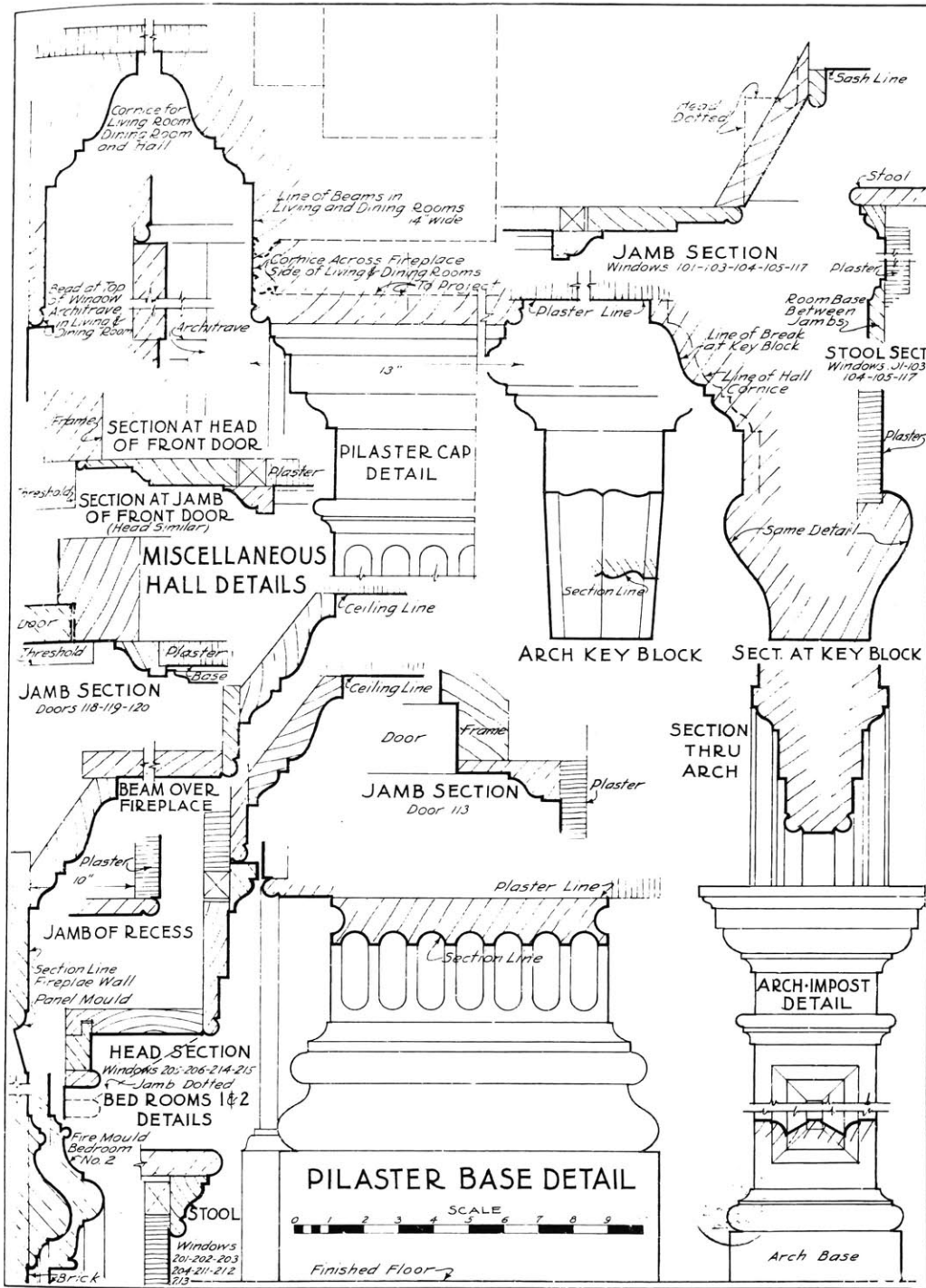
[ fig. 107 ] First floor plan ( Plate 12 ) in Walter C. Voss and Ralph C. Henry, Architectural Construction, 1925, Vol. I



[ fig. 108 ] Rear Elevation ( Plate 15 ) in Walter C. Voss and Ralph C. Henry, Architectural Construction, 1925, Vol. I



[ fig. 109 ] Construction detail of porch ( Plate 23 ) Walter C. Voss and Ralph C. Henry, *Architectural Construction*, 1925, Vol. I



[ fig. 110 ] Details of interior finish ( Plate 35 ) in Walter C. Voss and Ralph C. Henry, Architectural Construction, 1925, Vol. I

Serial No. 38  
**FEBRUARY 1936**

**Dimensions of the HUMAN FIGURE**

**PURPOSE**

These diagrams show the dimensions and clearances required by the normal adult human figure. They constitute the foundation for planning many elements of building and furnishings.

**NORMAL DIMENSIONS**

The dimensions given on this sheet are based upon the average or normal adult. They should be construed as minimum and should never be reduced. When permissible, the clearances indicated should be increased to allow comfortable accommodations for larger-than-normal persons.

The height of tables, desks, work tops and sewing counters deemed best for normal persons is subject to controversy. The height of table tops shown in these diagrams is 2' 5"; some authorities and many furniture manufacturers prefer 2' 6" or sometimes 2' 6½".

Since doorways and passage-ways must normally be dimensioned to permit the movement of furniture through them, they should seldom be designed merely on the needs of the normal adult. See Time-Saver Standards (to be issued) relating to furniture sizes.

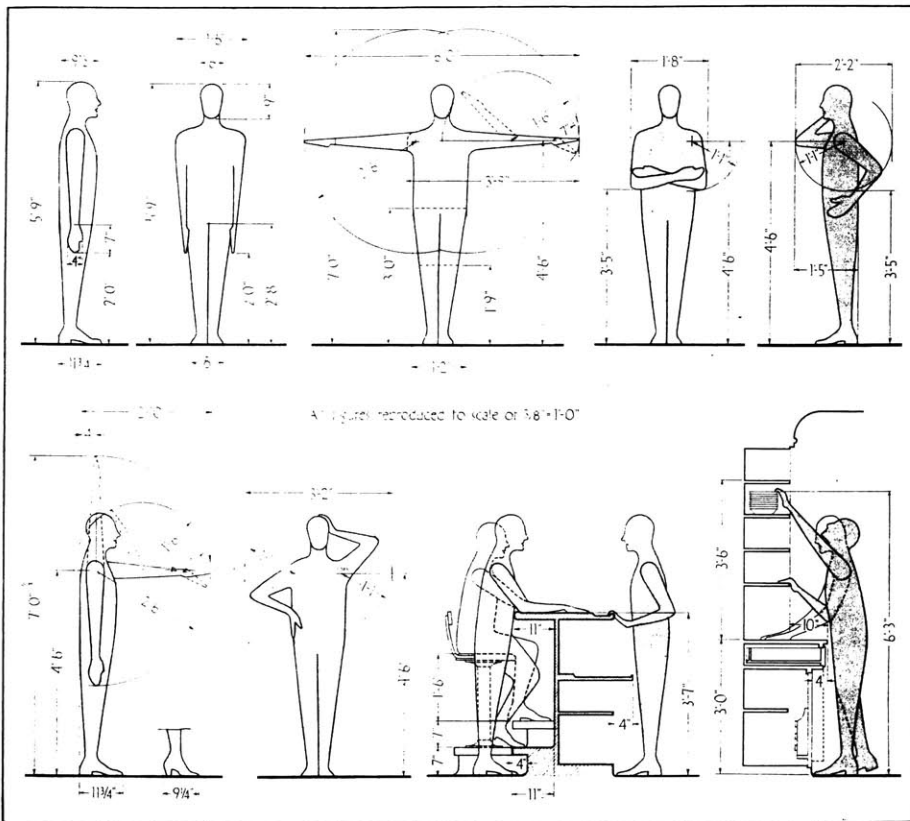
Children do not have the same bodily proportions as adults, especially during their early years, but an approximate indication of their space requirements can be gained from the accompanying table.

**SOURCES**

These diagrams are redrawn from "The Geometry of the Human Figure" by Ernest Irving Freese (American Architect, July 1934). Data on children's requirements are adapted from "Houses Are for Children, Too," by Ruth Leigh, Charles G. Ramsey and Harold R. Sleeper. (American Architect, Nov. 1932.)

AVERAGE HEIGHT OF CHILDREN				
Age in Years	Average Height	% of Normal Adult Height	Chair Heights*	Table and Desk Heights
3	3' 3"	56%	1' 0"	1' 10"
4	4' 0"	70%	1' 2"	2' 1"
5	4' 4"	75%	1' 3"	2' 2½"
6	4' 6"	81%	1' 4"	2' 4"
7	5' 0"	87%	1' 5"	2' 5" or 2' 6"
8	5' 4"	93%	1' 5"	2' 5" or 2' 6"
9	5' 7"	97%	1' 5"	2' 5" or 2' 6"

\* As approved for school use.

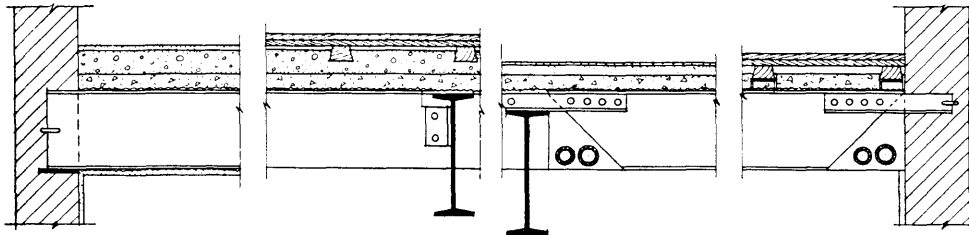


COPYRIGHT 1936 AMERICAN ARCHITECT

[ fig. 111 ] "Dimensions of the Human Figure," in Time Saver Standards, 1937

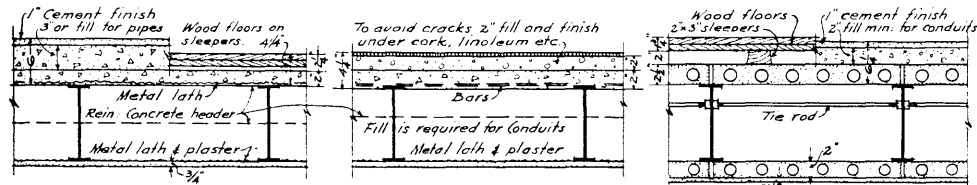


# FLOOR CONSTRUCTION-LIGHT ROLLED STEEL JOISTS



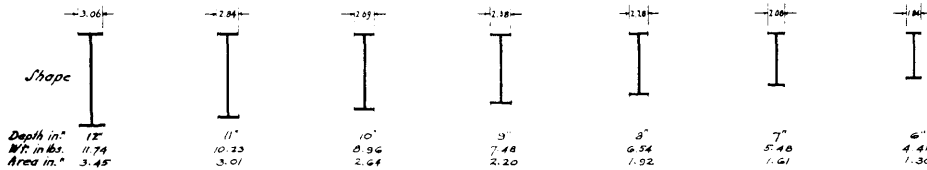
FULL WALL BEARING. CLIP ANGLE END CONNECTIONS ON STEEL. STANDARD END CONNECTION WALL B. STANDARD END CONNECTION WALL B.

TRANSVERSE SECTION-SLAB ON METAL LATH CENTERING. Showing types and space required for finish floors.  $\frac{3}{4}'' = 1.0''$



SLAB ON BACKED METAL LATH. SLAB ON REMOVABLE FORMS. PRECAST GYPSUM TOP & BOTTOM. 4 hour fire protection.

## CROSS SECTIONS OF SEVERAL SLAB TYPES



SIZES and DEPTHS of JUNIOR BEAMS. For comparison of cost & merits see sheets Numbers 80, 81.

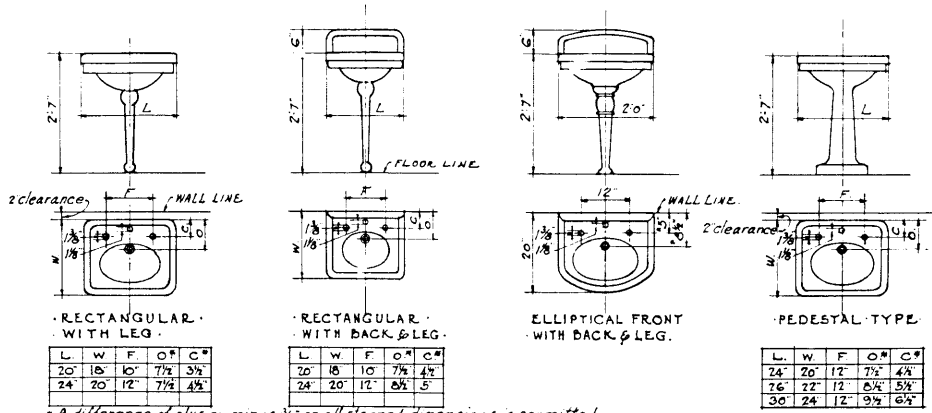
## DEPTH OF JOIST FOR PRELIMINARY ASSUMPTION

TYPE OF BUILDING	Live Load	Joist Spacing	Span in Feet					
			8	12	16	20	24	26
Residence or Apartment	40*	16"	-	-	-	9"	11"	12"
		20"	-	-	8"	9"	11"	12"
		24"	6"	6"	8"	10"	12"	-
Office Building*	60*	16"	-	-	8"	10"	12"	12"
		20"	-	7"	9"	10"	12"	-
		24"	6"	6"	8"	10"	12"	12"
Schools and Colleges*	60* & 75*	16"	-	-	8"	10"	12"	-
		20"	6"	7"	9"	10"	12"	-
		24"	6"	7"	10"	11"	-	-
Stores, Public Spaces*	100*	16"	-	7"	9"	11"	12"	-
		20"	6"	7"	10"	12"	-	-
		24"	6"	8"	10"	12"	-	-
Other Uses*	125*	16"	6"	7"	9"	11"	-	-
		20"	6"	8"	10"	12"	-	-
		24"	6"	9"	11"	-	-	-

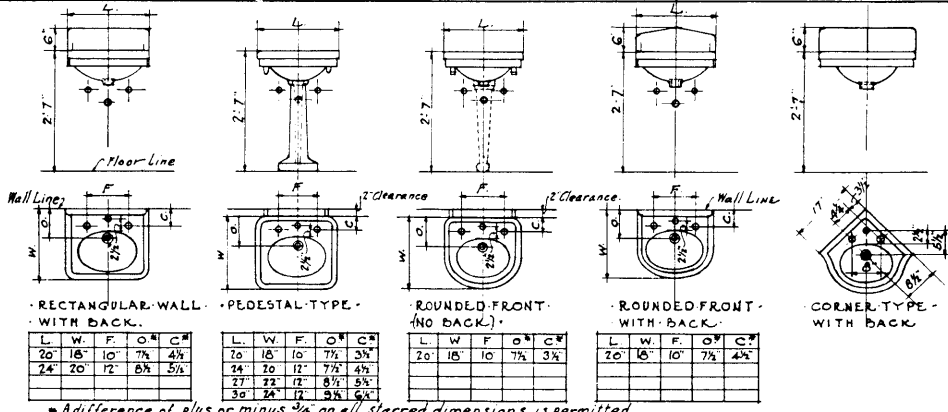
\* No account of possible loads from partitions has been taken except on building types starred. Data checked by Edwin E. Seelye Consulting Engineer.

[ fig. 113 ] "Floor Construction- Light Rolled Steel Joists," in Charles G. Ramsey and Harold R. Sleeper, Architectural Graphic Standards, 1st edition, 1932

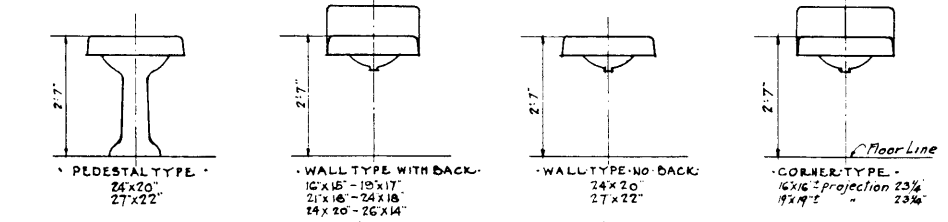
# PLUMBING FIXTURES



\* A difference of plus or minus 3/8" on all starred dimensions is permitted.  
 • PORCELAIN •  
 U.S. Dept. of Commerce simplified practice recommendation G.S. 2-29 "Staple Porcelain (All clay) Plumbing Fixtures."



\* A difference of plus or minus 1/4" on all starred dimensions is permitted.  
 • VITREOUS CHINA •  
 U.S. Dept. of Commerce simplified practice recommendation G.S. 20-30 "Staple Vitreous China Plumbing Fixtures."



• ENAMELED IRON •  
 \* Sizes given are not standard, but those generally used.  
 • PORCELAIN; VITREOUS CHINA & ENAMELED IRON LAVATORIES • SCALE 3/8" = 1'-0"

[ fig. 114 ] "Plumbing Fixtures," in Charles G. Ramsey and Harold R. Sleeper, Architectural Graphic Standards, 1st edition, 1932





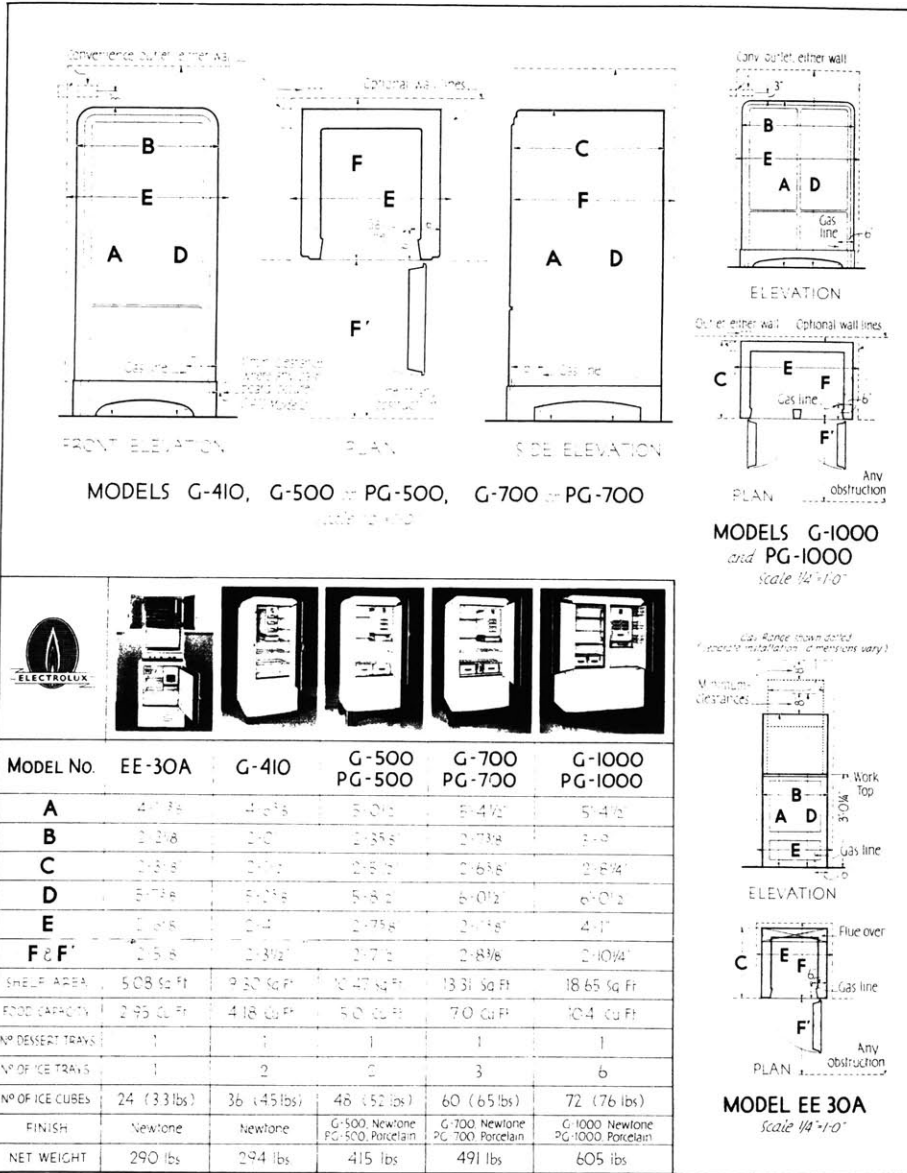
### C 6.3.1

A.I.A. FILE 32-C-3



Serial No. A4,1  
MARCH 1936

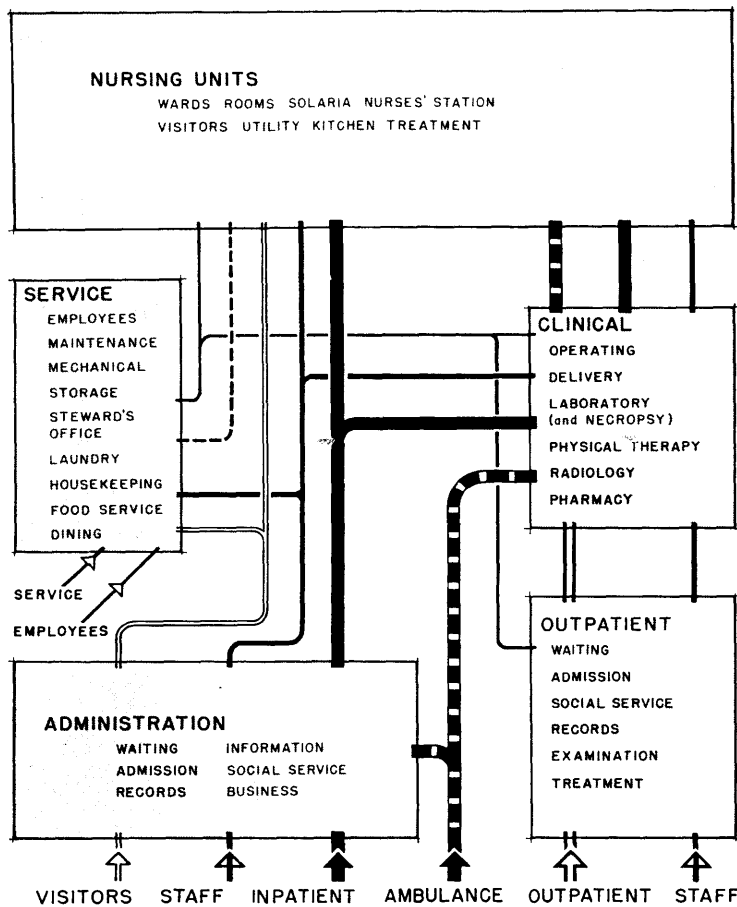
## ELECTROLUX (Gas) REFRIGERATORS



Copyright 1936 General Electric, Inc. Electrolux Refrigerator Sales Division

[ fig. 116 ] Time Saver Standards of Advertised Products plate of Electrolux refrigerators in Time Saver Standards, 1937

**GENERAL PROVISIONS (continued)**



The chart above, which indicates the broad, general pattern of organization of space and circulation within the average voluntary general hospital, reflects the increasing trend toward departmentalization in such institutions.

Of the five general divisions shown, the Outpatient Department is occasionally omitted; but with increasing development of social consciousness and recognition of social needs, facilities for outpatients are being incorporated in more and more hospitals.

The other four general types of hospital departments are universally necessary in modern voluntary general hospitals. The extent to which these are developed, and the number of subdivisions included, depend upon local needs, upon the requirements of the staff, and upon the existence or nonexistence of similar hospital facilities in the locality.

Circulation shown above does not include all the minor traffic which passes through the hospital. Only the principal arteries of human travel are indicated; these serve to demonstrate the great degree to which hospital departments are interdependent. Supplementary diagrams that similarly indicate relationships within each general area will be found under each of the five main headings.

In the following pages the main divisions, and departments contained in each, are discussed in turn. The tabulations of spaces and equipment, together with the brief descriptive comments, are pointed toward solving problems which arise in the design of small hospitals—those which contain from 50 to 200 beds. In no case are the data intended to become rigid specifications. Rather, all information is presented as constituting a useful guide to planning.

distances as well as from suburban communities, each of which may have its own hospital facilities, the determination is particularly complex. However, the Committee on Hospital Planning and Equipment of the American Hospital Association has recommended the following criteria: For large metropolitan centers with general multiple housing, extensive suburbs, and nationwide medical prestige—5 beds per 1,000 of population. For cities which serve as medical centers for extensive districts and suburbs not adequately self-hospitalized—4 to 5 beds per 1,000. For smaller cities—3 to 4 beds per 1,000. For rural districts—up to 1 bed per 1,000.

It is of course essential that these ratios be subject to modification as the needs of specific communities dictate.

There are several methods by which flexibility of planning may be achieved and the number of beds decreased. Accommodations provided by the use of small, modern wards designed primarily for four but large enough for five beds each, and private rooms sufficiently large to accommodate two beds, make it possible to expand capacity when needed, and to pool reserve beds among several departments.

It is necessary to maintain a certain proportion of reserve beds over and above those needed for normal use. These are for use in times of epidemics, emergencies, necessary repairs and maintenance, and seasonal or other peak loads. However, these peaks occur on an average of but 17.4 days per year. By pooling reserves, as noted in the preceding paragraph, provisions for peak loads may be held to a minimum of 25% of the normal hospital census; i.e., five beds may be maintained for every four patients in the average daily census. Otherwise, reserves may amount to 50% of the expected average occupancy.

Chronic and convalescent cases are preferably not cared for in voluntary general hospitals. The principal difference between provisions for recovery cases and for those who are acutely ill is in service. Recent trends indicate the desirability of providing special "acute" wards and rooms, grouped in one section, and equipped with special resources for intensive nursing, such as piped oxygen, suction outlets, acoustical treatment, numerous electric outlets, and air conditioning. Floor plans are not substantially affected by this arrangement.

[ fig. 117 ] "Key Diagram" of hospital organization and introductory text from "Planning the Small General Hospital," *Architectural Record*, Dec. 1939



William A. Ritzke

## ADMINISTRATIVE AREAS

IN ANY HOSPITAL, the administrative areas perform a double function. First they provide for an efficient control of hospital plant and activities through which business contacts are established and from which matters of policy and service operations are directed. In addition the administrative department serves as the hospital's introduction to the visitor or patient. Thus, from two points of view it must be considered an important point of the hospital design.

In a small hospital—particularly one in which the outpatient department is of minor importance—administrative activities are closely interrelated; the executive and business staff is small; and, therefore, centralized facilities are usually most efficient and economical. For example, private offices for superintendent, directress of nursing, staff director, general business and cashier's offices, and secretarial spaces, may be combined in a single section. Another may include public areas (lobbies, wait-

ing rooms, etc.) and information desk. Admissions and records may often be advantageously related to the administrative requirements of an outpatient department, from which access to the staff room, for consultation, is necessary. Staff and locker rooms, library, conference and board rooms form a fourth type of grouping within the administrative area. Rest and locker rooms for special nurses, technicians, clerks, male and female employees, are required and may be located either in administrative or service areas. Offices for purchasing agent, housekeeper, and plant engineer may be most efficiently located in close relation to areas and activities within their jurisdiction.

Whether administrative functions are housed on the main floor or in the service area, patients, visitors, and hospital personnel must be routed throughout the hospital without confusion or cross-traffic. The creation of an atmosphere

*(Continued on page 81)*

[ fig. 118 ] Introductory page for section on "Administrative Areas," *Architectural Record*, Dec. 1939

ADMINISTRATIVE  
AREAS

PLANNING DATA (continued)

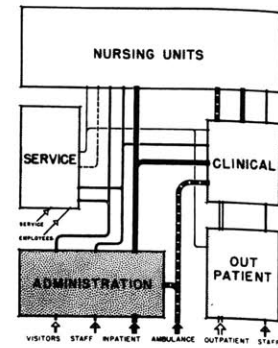
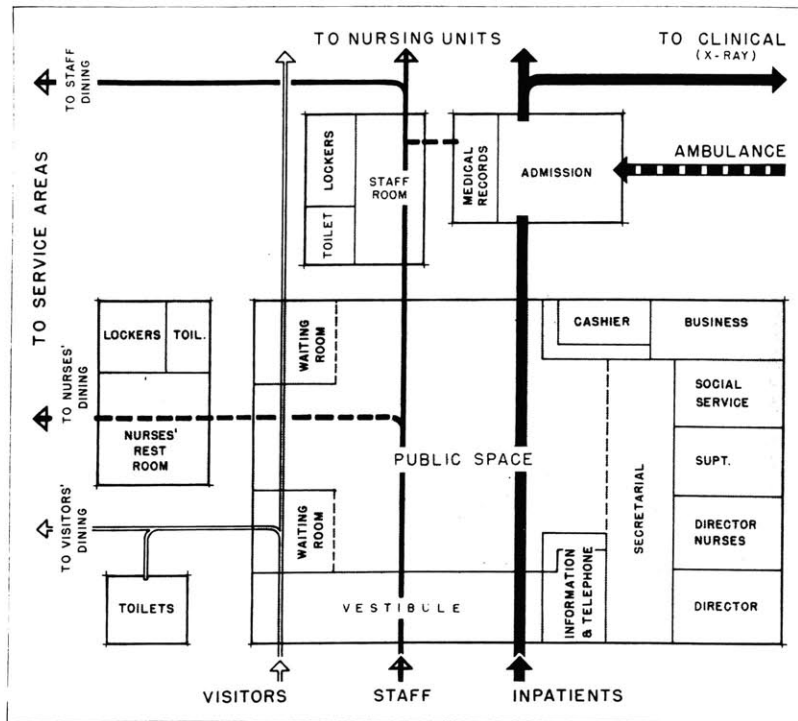
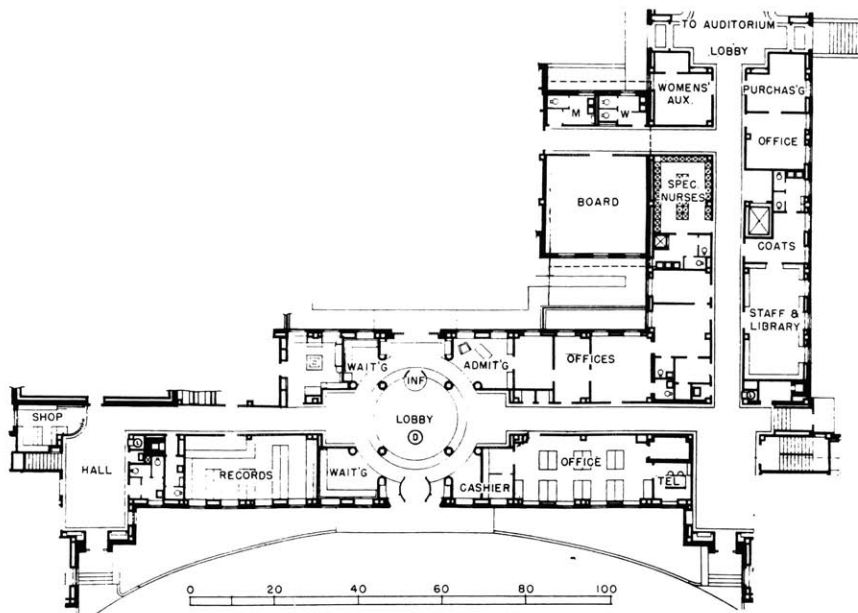


Chart at left details arrangement of necessary administrative spaces. As indicated, dining areas for visitors, nurses, and staff are closely associated. Above, key diagram which relates administrative space to remainder of hospital.



Administrative areas, first floor, White Plains Hospital, White Plains, N. Y.; Schultze and Weaver, architects.

[ fig. 119 ] Diagram and example plan for "Administrative Areas," *Architectural Record*, Dec. 1939

ADMINISTRATIVE SPACES ON MAIN FLOOR (areas in sq. ft.)				Special Structure, Finish, Equipment
Type of Space	50-bed Hosp.	100-bed Hosp.	200-bed Hosp.	
Lobby and waiting.	225	350	1200	With 2 or 3 120-ft. waiting alcoves partitioned off; acoustical treatment
Ward waiting*	150	300	300	Acoustical treatment
Information	100	100	150	Acoustical treatment; doctors' in-and-out register; telephone
Business office	200	250	500	Desks; vault (24 sq. ft.); business equipment
Cashier	150	150	150	Acoustical treatment; counter; desk; safe
Superintendent's office and committee room	180	300	450	Acoustical treatment; desk; files (long table; 8 chairs in 200-bed hosp.)
Secretary	150	150	150	Office furniture
Supt. nurses	150	150	150	Office furniture
Asst. supt. nurses	150	150	150	Office furniture
Purchasing agent	150	150	300	Office furniture
Registrar	150	150	150	Office furniture; acoustical treatment
Records	225	300	450	Office furniture; files
Record research	150	150	150	Office furniture
Social service	150	300	450	1 to 3 offices, each 150 sq. ft.; acoustical treatment
Staff lockers	180	225	300	Coat closet; toilet; lavatory; large table; 12 chairs; lockers

ADMINISTRATIVE SPACES ON MAIN FLOOR (areas in sq. ft.)				Special Structure, Finish, Equipment
Type of Space	50-bed Hosp.	100-bed Hosp.	200-bed Hosp.	
Staff lounge, library, board room	225	300	450	Coat closet; toilet; lavatory; large table; chairs; bookshelves; acoustical treatment
Patients' library	150	250	250	Bookshelves; table; easy chairs
Consultation	180	360	360	1 to 2 rooms, each 180 sq. ft.; scales; desk; 2 chairs; exam. table; storage cabinet; instrument sterilizer
Total sq. ft.	2235	3505	6060	

ADMINISTRATIVE SPACES NOT ON MAIN FLOOR (areas in sq. ft.)				Special Structure, Finish, Equipment
Type of Space	50-bed Hosp.	100-bed Hosp.	200-bed Hosp.	
Special nurses' lockers	225	300	400	Lockers; toilet; shower; lavatory
Special nurses' lounge	150	150	300	Easy chairs; couches; bookshelves
Technicians' lockers, lounge	225	300	300	Lockers; toilet; lavatory; easy chairs
History storage	180	300	450	Files
Central storeroom	1500	2500	4000	Shelves; bins; cabinets
Steward's office	150	150	250	Office furniture; files
Total sq. ft.	2055	3475	5700	

\*Sometimes included with other waiting space in small hospitals; preferably separate in larger institutions (200 or more beds).

(Continued from page 79)

of quiet and orderliness is paramount. This implies generous lobby spaces; main corridors 7 or 8 ft. wide—never less than 7; centrally placed information counters; and easy accessibility to cheerful, comfortable waiting rooms, toilets, telephone booths, and to whatever facilities for purchasing gifts or flowers may be established. Since these constitute public areas, some segregation from hospital traffic is desirable.

Provision of adequate parking space conveniently adjacent to the hospital cannot be ignored. Unless such provision is made, the institution will suffer from congestion and noise resulting from automobiles parked in undesirable locations. It is advantageous to locate the doctors' entrance in a spot accessible to both the parking space and the staff room. Separate parking spaces for staff and employees are advisable where land

costs permit or the size of the hospital demands.

*Finishes and equipment.* Wall, floor, and ceiling finishes in administrative areas should be of types which reduce noise and fatigue, and which impart a pleasant first impression to visitors and patients. Acoustic treatment, at least of ceilings, is imperative in all public spaces—particularly the corridors and lobbies. Colors and furnishings are preferably cheerful and reassuring.

Lighting of comparatively low intensities, from attractive sources, is suitable for all administrative spaces except those in which concentrated desk work, etc., demand high-intensity local lighting.

Some hospitals have public spaces which are designed to achieve a domestic atmosphere; this practice is in accord with the growing tendency to consider the patients' psychological well-being in addition to their physical condition.

[ fig. 120 ] Chart and concluding text for section on "Administrative Areas," *Architectural Record*, Dec. 1939

**FUNCTIONAL RELATIONSHIPS AND SPACE REQUIREMENTS**

**DOCTORS' OFFICES**

The following diagram shows elements and facilities for a doctor's office. Rule of thumb data is presented for:

1. Programming and schematic drawings
2. Preliminary sketches
3. Cost and cubage estimates

Heavy lines indicate primary functional relationships between the elements; dotted lines indicate secondary or access relationships.

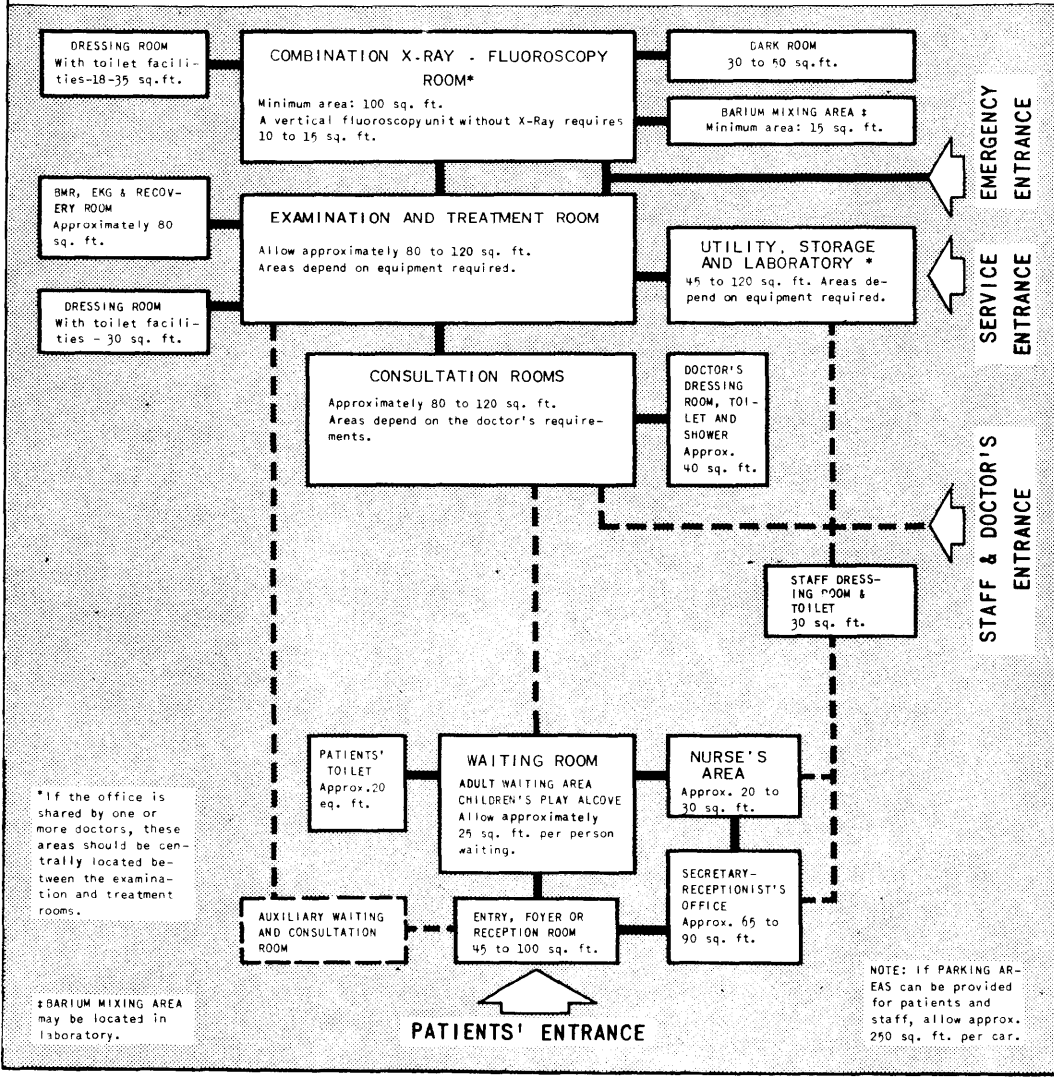
The office should be centrally located within the radius of practice and, where possible, should be easily accessible to transportation facilities.

Doctor's offices are divided into two classifications: General Practitioners and Specialists.

The following pages showing offices for the general practitioner are separated into three main areas:

1. Reception and Waiting Area
2. Examination and Treatment Area
3. Staff Working Areas, which are distributed throughout the office to best serve their function.

Hospitals, consultants, laboratory and other facilities should be fairly near so that the doctor may use special equipment and facilities too expensive or large for his private office.



[ fig. 121 ] "Functional Relationships and Space Requirements" in the Doctor's Office, from Harold R. Sleeper, *Building Planning and Design Standards*, 1955

**GENERAL INFORMATION AND  
DIAGRAM OF ELEMENTS**

**NURSING UNITS**

The "nursing unit is the part of a hospital where patients are housed and fed. It includes not only patients' rooms but also all service and auxiliary rooms necessary to care for patients. Facilities for patients' services should be so located as to require not more than 80 feet maximum travel within the nursing unit:

The size of the nursing unit depends on a number of factors:

1. quality of the nursing. Some authorities argue that efficient nursing makes possible a higher number of beds per unit.
2. condition of patient. For example, small units for contagious and pediatrics: 12-15 beds.
3. type of rooms. For example:
  - a. wards may have from 20-75 beds per nursing unit.
  - b. private rooms have recommended maximum of 30 beds per nursing unit since private rooms use more perimeter space, thus require a greater walking distance.
4. type of hospital. A convalescent hospital would allow larger nursing units than an acute hospital since patients would not require as much immediate individual attention from nurses.

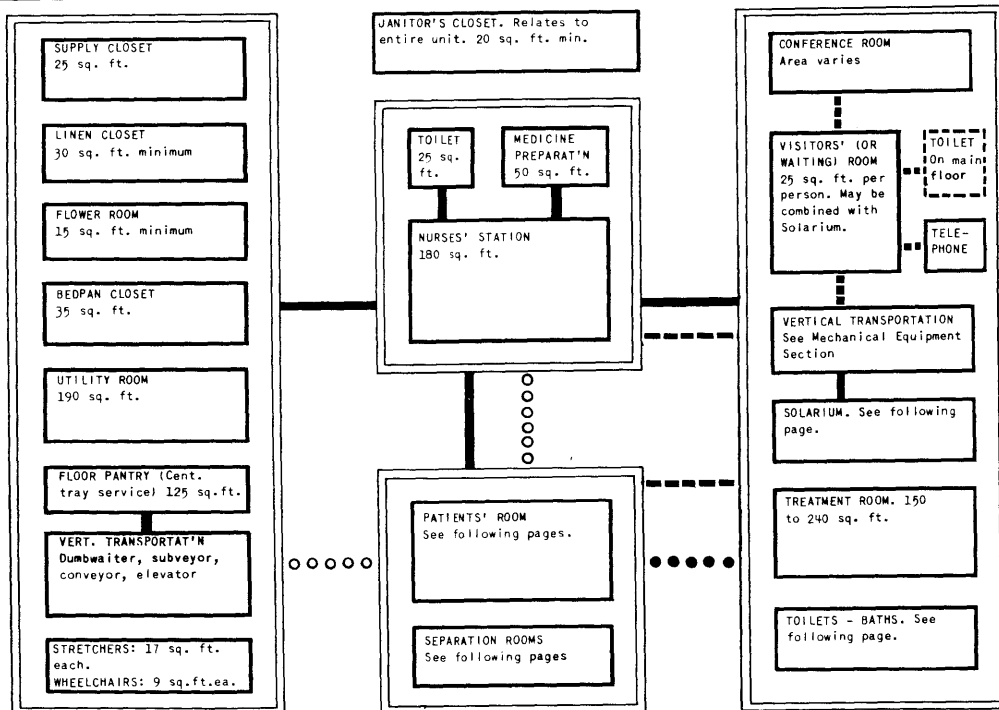
Usually, one may take 25 beds as the size of the average nursing unit, although the trend is to larger numbers (40-50) in larger hospitals. One-, two-, and four-bed rooms may be combined in the same nursing unit. Smaller accommodations give greater flexibility in assignment and care of patients by condition, age and sex. Obviously, however, it is financially unfeasible to have a large general hospital composed entirely of smaller accommodations, such as one- and two-bed rooms.

It may be roughly assumed that one-third of the beds in a general hospital may be in single rooms. There are three general types of single rooms:

1. private. For patient who can pay for these accommodations.
2. isolation. For segregation of contagion.
3. separation. For segregation of patient who is contagion suspect, dying, very sick, or whose condition may involve sounds or odors unpleasant to others. May function as isolation room.

The number of required separation rooms varies. One criterion is the type of hospital:

1. acute. One separation room for 12 beds.
2. chronic. One separation room for 12-16 beds.



The above diagram shows grouping of elements to give access patterns of staff, patients and visitors. It is not intended

to serve as a schematic layout. Given areas are for one nursing unit of 25 beds.

— Accessible to staff

- - - Accessible to visitors

•••• Accessible to patients

○ ○ ○ ○ Service to patients

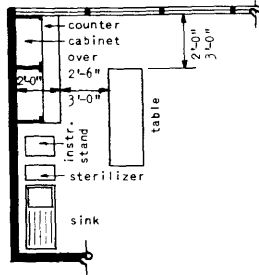
**DIAGRAM OF ELEMENTS**

Data checked by Addison Erdman, A.I.A., Hospital Consultant

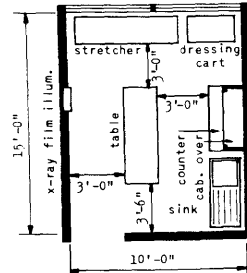
[ fig. 122 ] "General Information and Diagram of Elements " in Nursing Units from Harold R. Sleeper, Building Planning and Design Standards, 1955

# NURSING UNITS

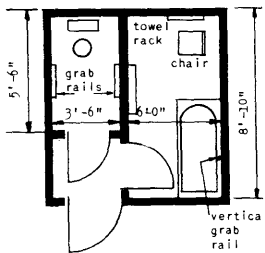
## ELEMENT LAYOUTS AND DATA



Treatment or examination of the patient can best be done in the treatment room rather than in a ward behind a curtain or screen. Moreover, use of a treatment room limits patient travel thru hospital. The treatment room is particularly desirable where medical teaching is done (should then be increased in size). It may also be fitted as a minor operating room. Equipment should include a supply cupboard, instrument cabinet, nurses' call, special lighting, combination instrument and scrub sink (with knee or elbow control), and examination table. The necessity of a sterilizer depends on the service from central sterilizing; one may be provided for general use, emergencies, etc. Treat room acoustically.



### TREATMENT ROOMS

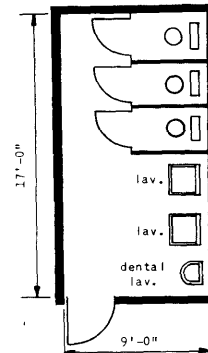


Locate baths and toilets centrally, except where provided in conjunction with the patient's room. (Where part of unit has own toilet for each room, congregate toilets need be located centrally only in relation to remainder of unit.) Toilet rooms should have doors opening out, and may be provided with a nurses' call button. Toilets should be provided in the proportion of one water closet per four beds. Provide lavatories with knee or elbow operated control. Where one lavatory is provided per room or ward, the congregate bath should have one lavatory per two water closets. A special dental lavatory is recommended. Do not install a shower over the bath tub. Provide one tub per 12 patients. Showers may be provided in all units and are required in maternity and isolation units.

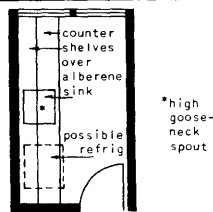
An acute general hospital has fewer ambulatory patients, and therefore fewer water closets and tubs per number of beds, than chronic hospitals. However, the trend is to getting all patients on their feet as soon as possible; with increase in number of ambulatory patients, bath and toilet room requirements will increase.

Acoustical treatment is recommended.

NOTE: Locating the water closet with each room means higher initial cost but possible lower long-term cost in view of reduced nursing service.



### BATH AND TOILET ROOMS



A flower room is desirable for reception, preparation, and temporary storage of floral gifts to patients. Work counter should be 36" high, with open shelves above and below for vase storage. Larger hospitals might also provide a refrigerator.

### FLOWER ROOM

### VISITORS' ROOM

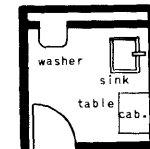
Should be located close to stairs and elevators, under control of the nurses' station. Treat acoustically. May be combined with the Solarium, rather than being a separate room. Toilet rooms are not necessary in each nursing unit visitor's room.

### SOLARIUM (OR DAY ROOM)

Functions as a social room. Size varies with the proportion of patients expected to be ambulant. Allow 25 sq. ft. (minimum) to 50 sq. ft. per ambulatory patient. Provide public telephones and dining facilities for ambulatory patient. Allow one solarium per nursing unit. May be arranged for use as bed space in emergency; include lavatory, nurse's call, and convenience outlets.

### CONSULTATION ROOM

May have only one per floor. Function varies from office for intern or resident physician to room for teaching or for conferences with patients, patients' families, etc. Provide desk, chairs, bookcase, locker, lavatory, house phone, blackboards, etc.



Provide a minimum of one bedpan unit per each nursing unit. Equipment should include a washer and disinfectant with hose spray, clinic service sink with knee or elbow control, recessed cabinet for specimen containers, and work counter or table. No rack need be included; individual bedpans and urinals are supplied to patients.

### BEDPAN CLOSET

Scale all drawings: 1/8" = 1'-0"

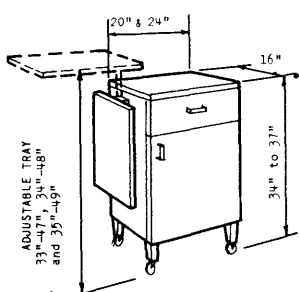
Data checked by Addison Erdman, A.I.A., Hospital Consultant

[ fig. 123 ] "Element Layouts and Data" in Nursing Units from Harold R. Sleeper, *Building Planning and Design Standards*, 1955

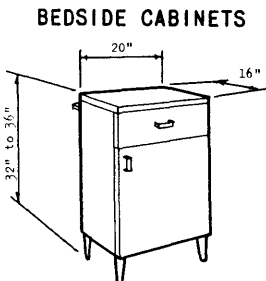


FURNITURE FOR BEDROOMS

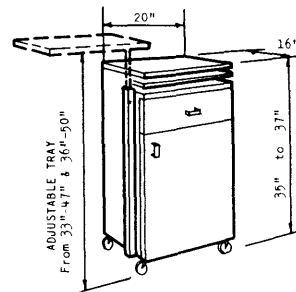
NURSING UNITS



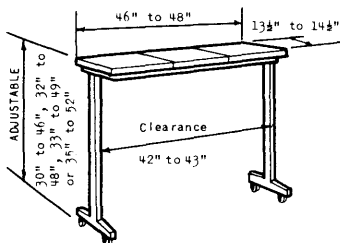
**CABINET WITH SWINGING TRAY**  
Available with or without casters and with tray attached to right, left, or rear of cabinet. Tray mechanism built-in or attached to regular cabinet.



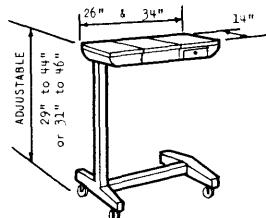
**REGULAR CABINET**  
Available with right or left hand door, various open shelf and drawer arrangements, with or without casters and with or without towel bar on back of cabinet.



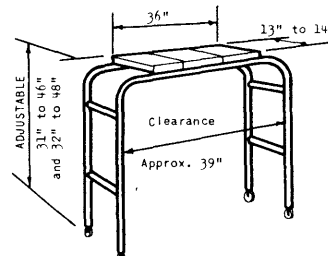
**CABINET WITH SWINGING TRAY**  
Available with tray swinging to either right or left, with or without casters. Also available with tray which slides horizontally.



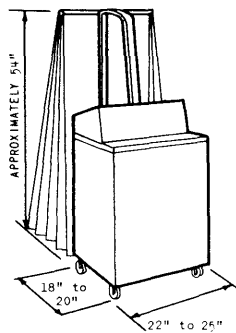
**2-LEG SUPPORT OVERBED TABLE**  
Center lifts to form book rack and/or vanity with mirror. Height is adjustable.



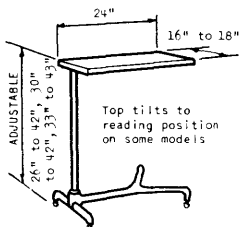
**CANTILEVERED OVERBED TABLE**  
Center lifts or pulls out to form book rack and/or vanity with mirror. Height is adjustable.



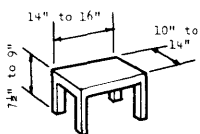
**TUBULAR METAL OVERBED TABLE**  
Center lifts to form book rack. Height is adjustable. Available in special non-adjustable design for psychiatric use.



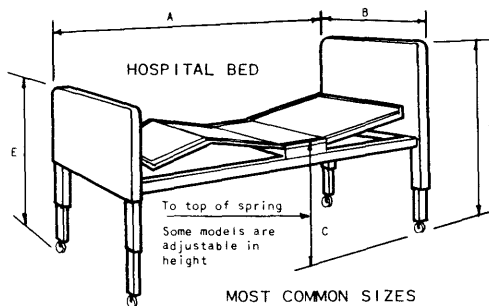
**OXYGEN UNIT**  
Used by bed and supplied either by piped-in oxygen or a portable tank unit.



**OVERBED TRAY TABLE**



**FOOT STOOL**



**HOSPITAL BED**

**MOST COMMON SIZES**

A	B	C	D	E
79"-80"	36"	27"	48"	38"
82"-83"	36"	27"	48"-50"	38"-40"
85"-87"	36"	27"	48"	38"
87"	36"	Adjustable 18"-27"	48"	38"

[ fig. 124 ] "Furniture for Bedrooms" in Nursing Units from Harold R. Sleeper, Building Planning and Design Standards, 1955

[ fig. 125 ] Double page layout from Benjamin Betts, "...And Still We Call It a Profession!," American Architect, Jan. 1931

DIPLOMAT • MECHANICAL & STRUCTURAL ENGINEER • OFFICE MANAGER • LAWYER



SOCIETY MAN • EMPLOYMENT MANAGER • INSURANCE BROKER • AUDITOR

POLITICIAN • RESEARCH ENGINEER • COST ACCOUNTANT • FINANCIER



BANKER • PUBLIC SPEAKER • PURCHASING AGENT • SALESMAN • JUDGE

WHO said that the practice of architecture is a profession? Who said that architects are not business men? They are business men. They are making a commodity—buildings. They have a service to offer that at times is highly personal in character. But fundamentally they differ little if any from any other manufacturer of a product.

Any argument that the architect is not a business man has no place in today's program. As soon as he leaves school and seeks a position as a draftsman he becomes a business man. He must sell his ability, in most cases to an employer who knows nothing about him or what he can do. If he isn't a business man he will in all probability remain a draftsman all his life. But assuming that he has initiative, and has passed through a reasonable period of gaining experience, if he is a normal individual he will set about to establish his own practice.

He seeks clients and finds himself a salesman. He takes on legal obligations; becomes involved in contracts and finds that he must be something of a lawyer, at times even an arbitrator who must have the wisdom of a judge. In keeping track of the cost of a job to prevent overpayment to the contractor, he becomes an auditor. In selecting the materials that go into a building, isn't he a purchasing agent? The architect incurs debts and the first thing he knows has people owing

him; he has become something of a banker. The office must be conducted on a business like basis and he assumes the role of an office manager. Draftsmen and others must be employed; the architect is an employment manager. On the average job he finds that he must be both a mechanical engineer and a structural engineer; out on the job as a construction superintendent—he must be a diplomat and a democratic "miser." At times he must be able to drink tea with the ladies and be a social light. At other times he must address a club or building committee and be a public speaker. At the building department he may find it necessary to be something of a politician. Nine times out of ten he is a research engineer. Again he is called upon to determine the investment value of a site and proposed building. He has entered the world of finance and economics. Even

Benjamin F. Betts, A. I. A., Architect, at the annual meeting of the Tennessee Chapter, A. I. A., and published here passed by that organization

insurance brokerage is not beyond his province. He must know what his office and job costs amount to. Isn't he then a cost accountant?

Who said that architects are not business men? In what other field of endeavor will you find men who must know all these things and be more versatile in their ability?

One might go on indefinitely with the problems that demonstrate all too well that the architect is a business man. It is no new discovery. It has always existed. What we are finding out is that the architect must become a BETTER business man if he is to survive. The profession's attitude toward business in the past has been such that it has not created a favorable impression on the public. The sooner we realize this and remedy it the better off we all shall be.

On a large project involving several millions of dollars, ten architects were called in for a preliminary discussion of the problem and its solution. An important phase of the problem involved the question of whether or not a business arcade should open on a main business thoroughfare. An architect of prominence with an air of finality said, "I think it would be more mysterious if it did not open on the main street." More mysterious just what did he mean? The question involved millions of dollars. It was purely a business situation! The man who told me this said, "What would you do in a case like that?" I facetiously replied, "I would hire an engineer." He said, "Well, that's what they did." The Daily News Building in New York was recently criticised to the effect that the stairs, elevators and lavatories were no doubt in the correct location and the space adequate for the publishing business but that it is not "ART." Mr. Hood aptly replies that if he were the owner of a building that fulfills its function so admirably he would be thankful that ART had been omitted.

I think something has been said to the effect that art and business do not mix. Certainly art that is impractical does not mix with business. But business will pay, and pay well for art that is practical.

Architects, entrusted with the expenditure of large sums of money, cannot afford to be poor business men. Some of them still cling to — (Continued on page 114)

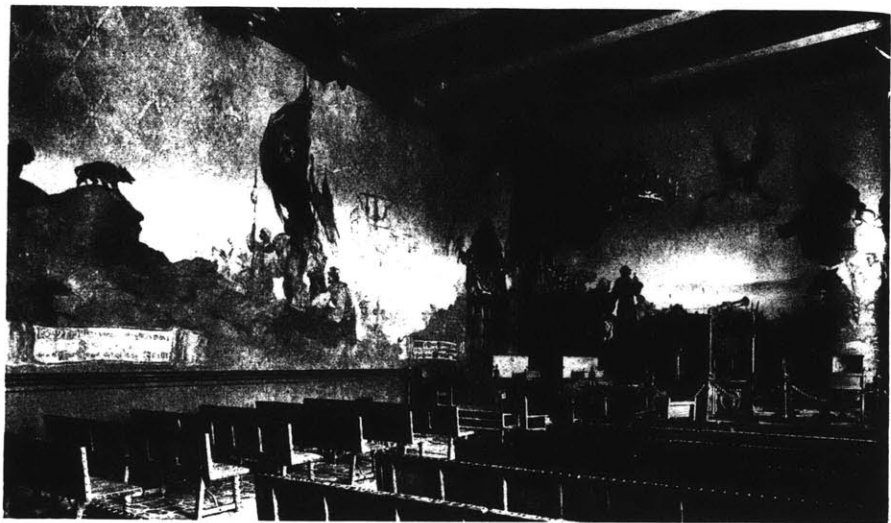
...and still we call it a profession!





Mott Photos

This new courthouse is expressive of Southern California in its dramatic design and precedent derived from Spain



The court room shows the Spanish influence in its heroic historical murals and the detail of architecture and furniture

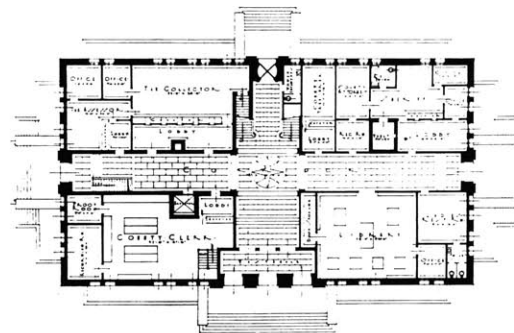
SANTA BARBARA COUNTY COURTHOUSE, SANTA BARBARA, CALIFORNIA  
WM. MOOSER CO., ARCHITECTS



174710

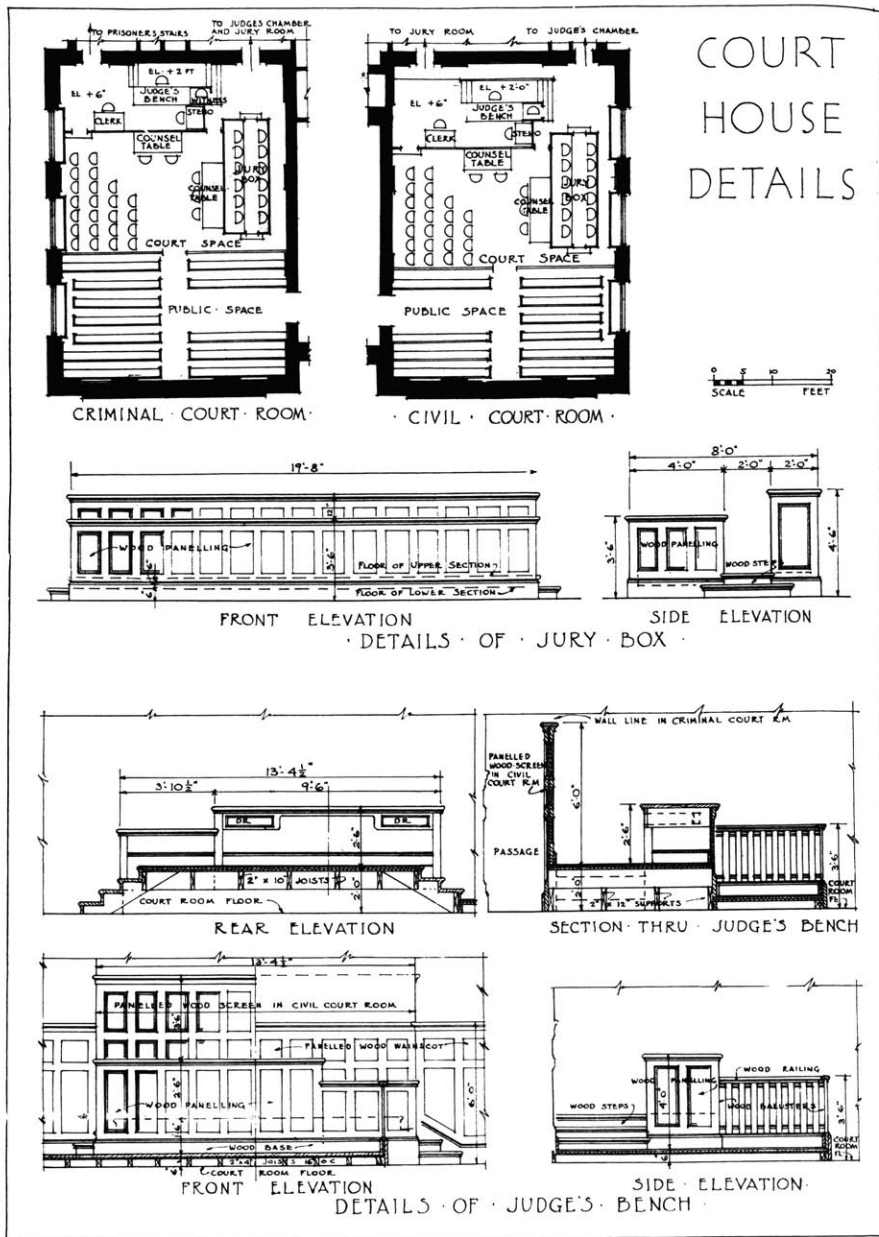
MIDLAND COUNTY COURTHOUSE, MIDLAND, TEXAS  
 VOELCKER & DIXON, INC., ARCHITECTS

Housing all county activities, including a prison, this court house contains 673,820 cu. ft., and cost \$300,000 to build or approximately 45 cents per cu. ft. It is of reinforced concrete construction, with exterior walls of limestone, steel windows, and cast iron spandrels painted in a verde copper effect to match the windows.



FIRST FLOOR

[ fig. 128 ] Illustrations for section on Courthouses, Midland County Courthouse, Architectural Forum, Sept. 1933



[ fig. 129 ] "Courthouse Details," Architectural Forum, Sept. 1933

# Hotel Retlaw

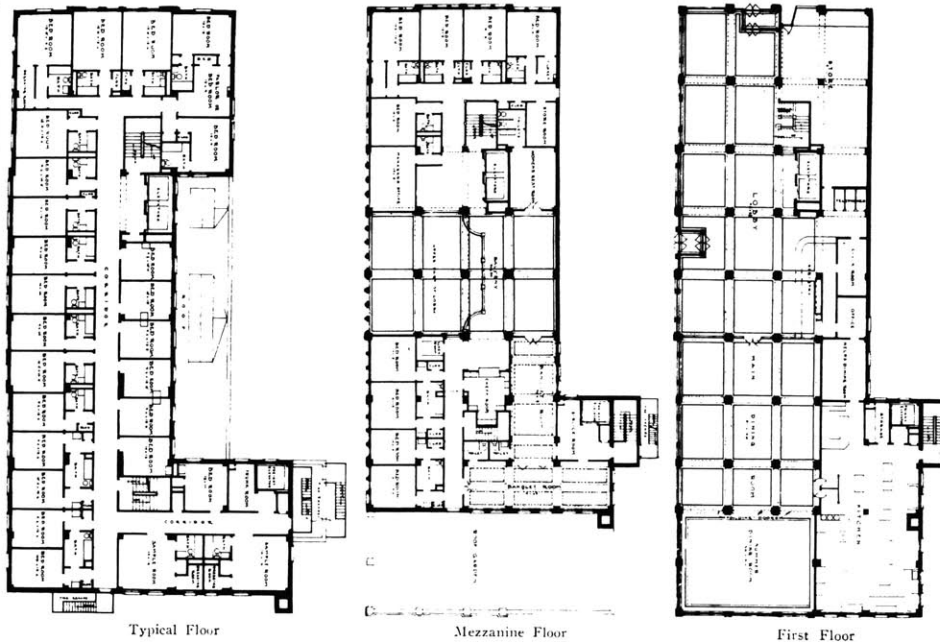
Fond du Lac, Wis.

*Martin Tullgren & Sons,  
Architects*

THIS hotel is of steel and concrete construction, having face brick exterior trimmed with stone. The planning problem here was simplified by the shape of the perimeter. The entire first floor is used for lobby, dining room, kitchen, etc., except for one large corner store. A two-story lobby is arranged to allow a mezzanine floor, where there is an interesting banquet room with check room and service room, and the balance of the space is given over to guest rooms. A typical floor plan shows an arrangement of two-room suites on corners and bedrooms having private baths or direct access to baths. Sample rooms are well arranged with concealed beds.



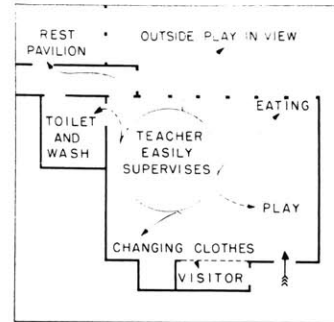
*The Furnishings and Equipment of the Hotel Retlaw were executed by the PICK-BARTH Companies.*



[ fig. 130 ] Illustration of Hotel Retlaw, Hotel Planning and Outfitting, 1928



DIAGRAM INTO PLAN



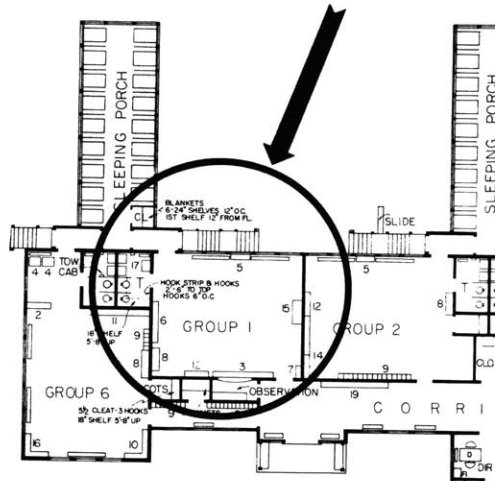
**Summary on School Organization**

A good nursery school will be organized around a series of rooms, each all-sufficient for the child's full day, with every facility either self-contained or in subsidiary areas opening directly out of the room. Such direct connection is valuable even in the playground.

From the child's standpoint, what is desired is a complete, compact environment, free of outside disturbances, and small enough so that the small child, to whom an ordinary room is already enormous, is not lost in it.

From the teacher's standpoint, the central problem is minimal motion, the least possible carrying of children or things, and easy supervision: therefore no need for frequent use of long stairs and halls.

Apart from the nursery rooms there are the following administrative requirements: 1. Reception space; 2. Office space; 3. Health examination room; 4. Isolation room for children needing quiet; this is by no means to be considered punitive; 5. Storage for extra cots, reserve supplies of clay and other craft materials, and teachers' belongings; 6. Cloak space, toilet, and if possible a small quiet room for the staff; 7. For food preparation, kitchen, though rarely a dining room; 8. Sanitation: broom closets, slop sinks on every floor.



Showing how a good nursery school plan such as that at Arthurdale, West Virginia, is composed of a series of self-contained nursery units. Fellheimer & Wagner, Architects.

Three degrees of openness in close conjunction. School Home for Small Children, Balbuena, Mexico City. Jose Villagran Garcia and Enrique de la Mora, Architects.



Esther Born

[ fig. 131 ] Page layout from Douglas Haskell, "The Modern Nursery School," Architectural Record, March 1938



ing, as a preliminary to his reception, and he must be taken upstairs at once. But, again, there are many patients who come to a hospital in an ambulance in such a filthy condition that it is out of the question to admit them to the clean hospital wards until some sort of effort has been made to free them at least from the vermin with which they are infested, and for that purpose there is a bathroom, just off the quiet room, where these patients can be bathed and reclothed with hospital garments; and, as with the other class of patients, the clothing

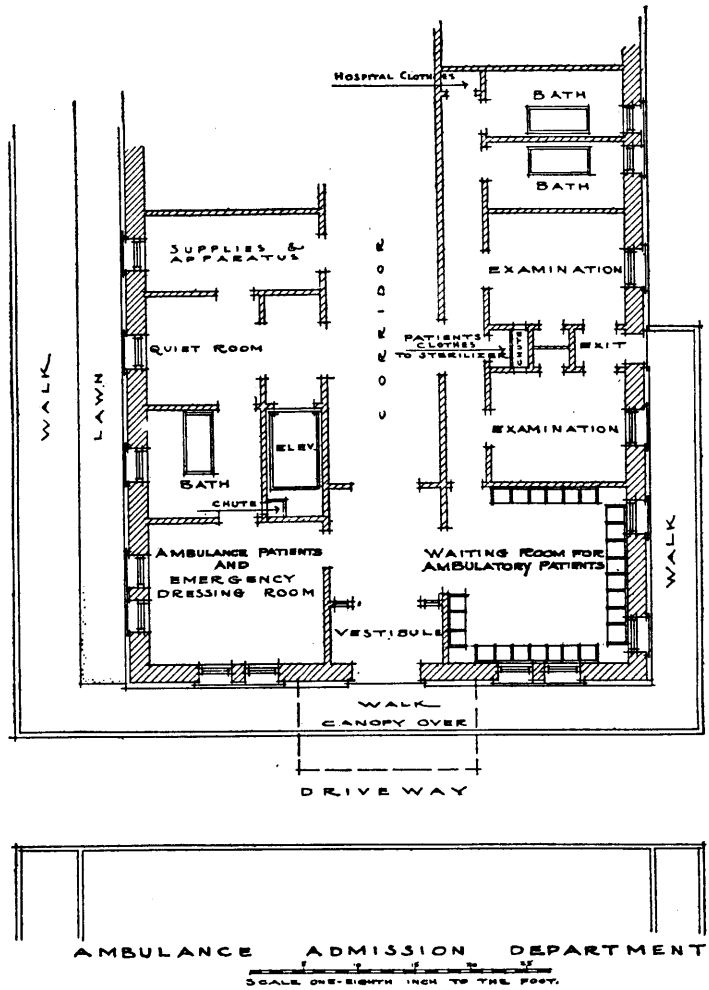


Fig. 4.

can be done up in bundles, labeled carefully, and thrown into the chute. The last room on this side of the corridor is reserved for stretchers, stores, and dressings.

In smaller institutions, or where the admission department is of small importance, there need be only one reception-room, and that can be used for both classes of patients, with the one examining-room off it, which may be used also for a quiet room. Under such conditions there can be one bath, one clothes closet, and one chute, through which to drop the patient's clothing to the sterilizing room, and thence to the lockers in the basement.

[ fig. 132 ] Plan of admission area from John A. Hornsby and Richard E. Schmidt, The Modern Hospital, 1913



California: Lilian J. Rice



California: Birge M. Clark

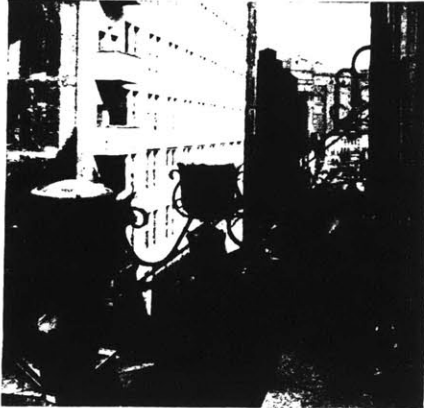
California: Masten & Hurd

California: Paul R. Williams



[ fig. 133 ] Portfolio of "Second-Story Porches," Architecture, Feb., 1931

## Modern Lighting



## For a Modern Building



and modern protection for the electric wires inside and outside. The Philadelphia Company Building, in Pittsburgh, used the original all-steel rigid conduit for lasting protection. Do you specify "Galvduct" and "Loricated"?

**Garland Mfg. Company**  
Pittsburgh Penna.



*One of the designs in "Small Homes of Distinction"*

## Small Homes of Architectural Distinction

*A book of suggested plans designed by The Architects' Small House Bureau, Inc.; Robert T. Jones, A.I.A., editor and technical director. Published by Harper & Bros., New York. Illustrated; 278 pages; size 8 1/2 x 12 1/2; price \$5.00*

THIS book contains sketches, photographs, and plans of houses designed for construction at prices ranging from \$3,000 to \$10,000 together with photographs and descriptions of finished dwellings and of construction details. It discusses the individual problems faced in the building of houses in popular architectural styles.

Each house is accompanied by descriptive text concerning the design and construction. Much of the latter is of the very latest type and presents ideas on low cost construction that will be of interest to many architects interested in this type of work.



*Proposed central riverfront development, St. Louis; a model by Victor Berlendis, architectural sculptor. From "Our Cities Today and Tomorrow"*

## Our Cities Today and Tomorrow

*By T. K. Hubbard and H. V. Hubbard. Published by the Harvard University Press, Cambridge, Mass. Illustrated; 389 pages; size 10 1/4 x 7; price \$5.00*

DURING 1928 and 1929 the authors conducted a field study of city planning progress in the United States, covering about 120 cities and regions in forty-two states. They did this under a grant (Continued on page 114)

# DESIGN TRENDS



Display is intended to express an idea—to make it "visual" so that it may be understood at a glance. See pages 52-59.



Lustrous sink and drain, ENDURO Stainless Steel handles, too, handles—are the pride and joy of housewives.



Tomlin Copper Mactherum fan resistor—insures long life and low cost for ducts and pipes.



Roofing, flashing, eave troughs, conductor pipes, etc., will last years longer when made of Tomlin Iron. See Sweet's.

● "Cherchez la femme"—and win her approval of your plans through the generous use of Republic ENDURO Stainless Steel.

Suggest a bright, cheerful kitchen with a lustrous sink and drain, work and back boards of clean, sanitary, stainless ENDURO. It will not cost as much as you or she might think—and, even though it does mean a few dollars more than the cost of less durable, less attractive materials, it will be more than worth it to the home owner and to you in the increased satisfaction produced.

ENDURO—the same perfected stainless steel that is being widely used throughout industry wherever sanitation, cleanliness, beauty and long life are desired—is available in a variety of products and shapes for building purposes. See Sweet's for detailed information and write us for names of fabricators and manufacturers.

\*Reg. U. S. Pat. Off.



Corporation

ARCHITECTURAL RECORD

Record

[fig. 135] Double page layout between advertising and Design Trends section in Architectural Record, Jan. 1937



## Another Byers Installation

THE Southwestern Bell Telephone Building, in St. Louis, is a new and marvelous conception of beauty in cold stone, designed by Mauran, Russell and Crowell, Architects.

Its architecture is a splendid example of the principle of the set back suggested by the New York Zoning law, and is inspired by the great temples of the Mayan Indians. Thus America has at last an architecture which is as beautiful as it is distinctively its own.

In such a building, which is to serve many generations yet unborn, the use of rust-resisting pipe is a wise precaution taken to avoid the excessive damage and replacement cost always attending pipe failures. True economy dictated the extensive use of genuine wrought iron pipe for the plumbing and heating systems. Thus Byers Pipe was chosen for cold water supply, drainage, waste and vent pipes, gas and fire lines, and installed by J. A. McBride Co., St. Louis.

In your home, factory, office or business, Byers Pipe will give the longest service at the most economical cost. More expensive pipe will not serve better; and cheaper pipe is of doubtful life. *Ask for literature.*

A. M. BYERS COMPANY

Established 1864

Pittsburgh, Pa.

the *Spiral Stripe*  
protects you against  
mistakes and substitution

# BYERS PIPE

GENUINE WROUGHT IRON

*Specifications of most products advertised in THE AMERICAN ARCHITECT appear in the Specification Manual*

[ fig. 136 ] Advertisement for Byers Pipe, *American Architect*, June 20, 1926

Progressive America drips off fatigue and recharges daily with tingling energy under the spurt-  
ing streams of thousands of  
showers. . . So the modern  
home, hotel or club is incom-  
plete without its shower bath  
equipment. Ask us to send you  
information about the range of  
types and styles in the Ampinco  
line.

*The American Pin Company*

*Division Scovill Mfg. Co.*

*Waterbury, Conn., U. S. A.*

Specifications of most products advertised in THE AMERICAN ARCHITECT appear in the Specification Manual

[ fig. 137 ] Advertisement for the American Pin Company, American Architect, June 20, 1926

OWNER

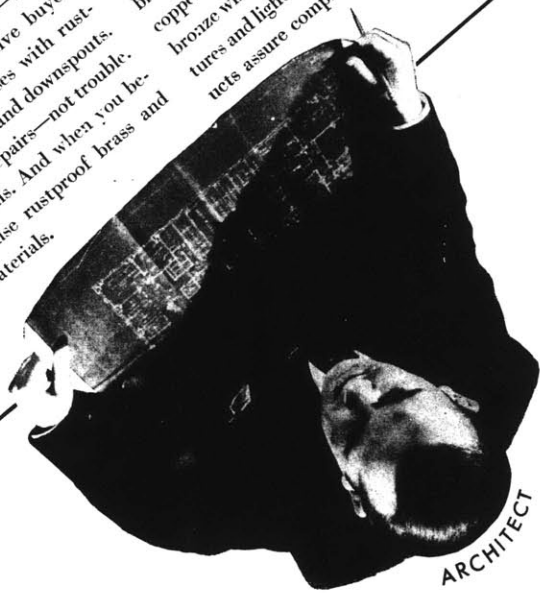


"What's the matter with those houses of mine? They're well built. Location's good. But they won't rent. What needs to be done?"

# "Rust never rented a house— Modernize with Brass and Copper"

Rust is a red-ink item for thousands of owners. For rust sends maintenance costs up—brings rents and profits down. Prospective buyers and tenants steer clear of houses with clogged pipes, rusted gutters and downspouts. They want freedom from repairs—not trouble. Owners should know this. And when you begin modernization, use rustproof brass and copper building materials.

Rustproof installations always pay their way—and will repay you too. For brass and copper installations save you from costly repairs and bring you better rentals. We recommend Chase brass and copper building products, brass and copper plumbing, copper leaders and gutters, bronze window screens, faucets and shower fixtures and lighting fixtures. Chase building products assure complete and lasting satisfaction.



ARCHITECT



**CHASE BRASS & COPPER CO.**

Waterbury Incorporated Connecticut  
Subsidiary of Kennecott Copper Corporation

**FREE!** Send for your copy of this valuable book. It is filled with practical information on renovation, repair and replacement. Write Dept. F-5.

[ fig. 138 ] Advertisement for Chase Brass and Copper Company, Architectural Forum May, 1935

MARCH, 1932

## THE TRAGEDY OF

### NAN -

# Domestic Hands

It had been a real love match, the marrying of Nan and John. It meant sacrificing luxuries she had taken for granted all her life. It meant doing without a car, even going without a maid.

And after a brief honeymoon she plunged into the mystery of housekeeping like a 24v. adventure.

She had abiding faith in John's cleverness. He was bound to succeed. It thrilled her to think she was playing an important part in his success.

Then suddenly without warning she began to change. From a vivacious, carefree bride she became tortive, self-conscious, shy.

She avoided all her old friends. She refused to go to parties. She even showed her resentment when John brought guests home to dinner.

Domestic Hands had given her an inferiority complex.

#### *A soothing, silky lotion that keeps hands lovely*

How foolish to let housework disfigure hands when there is a simple, inexpensive way to keep them soft and white and beautiful!

You need never suffer the embarrassment of Domestic Hands even though you have hard work to do. Just smooth Hinds Honey and Almond Cream into them two or three times each day.

Even poor, sadly-abused and neglected hands respond almost instantly.

#### *Avoid Lotions that May Harm Your Hands*

The delightful caressing texture of Hinds comes from the mildest and finest skin-softening emollients—a special secret of its half-century tested formula. Don't take chances with imitations, many of which simulate Hinds cream-like texture by the addition of gummy thickening agents that do not benefit the skin—in fact, may even do harm. Insist upon the original.

Get Hinds from your druggist today—your hands will show their appreciation. We'll gladly send a generous sample, free, if you will write the A. S. Hinds Co., Dept. B-11, Bloomfield, N. J.

# HINDS

*honey and almond*

# CREAM



A photographic representation of inferiority complex caused by Domestic Hands. Interpreted by Anton Bruehl

1932 ◀ MARCH ○ 1932

#### CHAPPED HANDS

Neither blustering winds nor dishes and housework can harm the loveliness of hands shielded by Hinds. It prevents chapping—keeps skin delightfully smooth and white.



#### FACES THAT REFLECT

### *Domestic Cares*

#### ARE TRAGIC, TOO

When days are full of household tasks that must be done, you have little time for expensive, complicated facial care. But even if Hinds devoted to do for you or face what they've always done for you, Hinds—make them smooth and lovely—with this simple, caressing treatment.

#### SPECIAL INTRODUCTORY OFFER!

To acquaint you with three very important Hinds beauty products, we are making this special introductory offer. For only 10¢ you will receive a 1-oz. jar of Hinds Tissue Cream, a 1-oz. jar of Hinds Gleansing Cream, and a 1-oz. jar of Hinds Toning Cleanser. The value of these three is usually 25¢.

**HINDS GLEANSING CREAM**—For softening, smoothing, and brightening the face. Leaves the face tender and smooth, and makes the skin soft and beautiful.

**HINDS TISSUE CREAM**—A rich, creamy, caressing cream which is ideal for the face and neck.

**HINDS TONING CLEANSER**—For removing all traces of dirt and makeup.

[ fig. 139 ] Anton Bruehl, "Domestic Hands" series for Hind Cream advertisements, 1932



## **Tables**

ARCHITECTURAL FORUM		
VOLUME XXVI	NUMBER 1	
CONTENTS for JANUARY 1917		
PLATE ILLUSTRATIONS		
	Architect	Plate
CERAMIC ENGINEERING BUILDING, UNIVERSITY OF ILLINOIS, CHAMPAIGN, ILL. <i>James B. Dibelka, State Architect; Prof. James M. White, Supervising Architect</i>		6, 7
CHURCH, SECOND UNITARIAN, BROOKLINE, MASS. .... <i>Edwin J. Lewis, Jr.</i>		4, 5
FRATERNITY HOUSE, ACACIA, HETH CHAPTER, UNIVERSITY OF ILLINOIS, CHAMPAIGN, ILL. .... <i>Frederick M. Mann</i>		9, 10
HOUSE, PHILIP R. MALLORY, ESQ., RYE, N. Y. .... <i>Hobart B. Upjohn</i>		11-14
HOUSE, ALEXANDER H. GUNN, ESQ., WELLESLEY, MASS. .... <i>Frank Chouteau Brown</i>		15, 16
HOUSE, J. L. SULLWOLD, ESQ., ST. PAUL, MINN. .... <i>H. A. Sullwold</i>		17, 18
HOUSES, GROUP OF, SALEM, MASS. .... <i>William G. Rantoul</i>		19, 20
LIBRARY, PUBLIC, GLEN ELLYN, ILL. .... <i>George Awsumb</i>		8
SCHOOL, TAFT, WATERTOWN, CONN. .... <i>Bertram Grosvenor Goodhue</i>		1-3
LETTERPRESS		
	Author	Page
RUINS OF THE CLOTH HALL AT YPRES, BELGIUM ..... <i>Frontispiece</i>		
<i>After an Etching by George T. Plowman</i>		
THE NEW ZONING ORDINANCE OF NEW YORK CITY ..... <i>Louis Graves</i>		1
<i>Restrictions that Mark America's Greatest Step in City Planning Are Now in Full Effect</i>		
THE GARDEN OF J. H. POOLE, ESQ., AT DETROIT, MICH. .... <i>7</i>		
<i>Chittenden &amp; Kottig, Architects</i>		
WALL FOUNTAIN ON ESTATE OF DR. ERNEST FAHNESTOCK, SHREWSBURY, N. J. .... <i>8</i>		
<i>Lewis Colt Albro, Architect</i>		
EARLY AMERICAN ARCHITECTURAL DETAILS XXXVI. Doorway of the Hamiston House, Hamden, Conn. .... <i>J. Frederick Kelly</i>		9
SMALL ENGLISH BUILDINGS OF THE LATE GEORGIAN PERIOD ..... <i>R. Randal Phillips</i>		11
<i>Illustrations from Photographs</i>		
THE USE OF CERAMIC PRODUCTS IN THE EMBELLISHMENT OF BUILDINGS ..... <i>Claude Bragdon</i>		17
PRATT STATION POST OFFICE, BROOKLYN, N. Y. .... <i>20</i>		
<i>Shampan &amp; Shampan, Architects</i>		
DETAILS OF ITALIAN RENAISSANCE ARCHITECTURE ..... <i>Maurice P. Meade</i>		21
<i>Illustrations from Photographs and Measured Drawings by the Author</i>		
PLATE DESCRIPTION ..... <i>25</i>		
EDITORIAL COMMENT AND NOTES FOR THE MONTH ..... <i>26</i>		
INDEX TO ADVERTISING ANNOUNCEMENTS ..... <i>24</i>		
<p>Published Monthly by  <b>ROGERS AND MANSON COMPANY</b>  85 Water Street, Boston, Mass.  Advertising Department, 42 West 39th Street, New York</p> <p>Yearly Subscription, payable in advance, U. S. A., Insular Possessions and Cuba \$5.00  Canada ..... \$5.50 Foreign Countries in the Postal Union 6.00  Single Copies ..... 50 cents All Copies Mailed Flat</p> <p>Trade Supplied by the American News Company and its Branches. Entered as Second Class Matter, March 12, 1892, at the Post Office at Boston, Mass.  Copyright, 1917, by Rogers and Manson Company</p>		

[ table 1 ] Content table of Architectural Forum, Jan. 1917

THE AMERICAN ARCHITECT	
WITH WHICH IS CONSOLIDATED THE ARCHITECTURAL REVIEW	
VOLUME CXXXII	DECEMBER 5, 1927
NUMBER 2534	
<b>TEXT MATERIAL</b>	
WHAT THE PAST FIFTEEN YEARS HAVE TAUGHT US IN HOSPITAL CONSTRUCTION AND DESIGN	Edward F. Stevens, F. A. I. A. . . . . 701
GERMAN MUNICIPAL ARCHITECTURE	Alfred C. Bosson, F. R. I. B. A. . . . . 709
EDITORIAL COMMENT	. . . . . 731
BANK INTERIORS	. . . . . 733
THE SOUTHOLD SAVINGS BANK, SOUTHOLD, L. I., N. Y.	Francisco & Jacobus . . . . . 747
BANK VAULT CONSTRUCTION	C. W. Rolf . . . . . 763
DOG KENNELS AT RIDGEFIELD, CONN.	Robert J. Reiley . . . . . 769
<b>PLATES</b>	
TOPICAL ARCHITECTURE—EARLY AMERICAN DOORWAYS	Insert
PROVIDENCE LYING-IN HOSPITAL, PROVIDENCE, R. I.	Stevens & Lee . . . . . Frontispiece
HOUSE OF FRANK R. WATSON, CHESTNUT HILL, PHILADELPHIA, PA.	Frank R. Watson, Edkins & Thompson . . . . . 2 Plates
HOUSE OF JOSEPH L. WERNER, ST. LOUIS, MO.	Hellmuth & Hellmuth . . . . . 2 Plates
DESIGN AWARDED FIRST PRIZE IN MILWAUKEE COUNTY COURT HOUSE COMPETITION	Albert R. Ross . . . . . 1 Plate
FIRST NATIONAL BANK, TAMPA, FLA.	Holmes & Winslow . . . . . 1 Plate
TWO BANKS IN CALIFORNIA	Marston, Van Pelt & Maybury . . . . . 2 Plates
A GROUP OF BUILDINGS OF MODERATE COST	. . . . . 8 Plates
OWNED AND PUBLISHED BY	
<b>THE ARCHITECTURAL AND BUILDING PRESS, INC.</b>	
E. J. ROSECRANS <i>President and Treasurer</i>	WALTER C. HOWEY <i>Vice-President</i>
	VERNE H. PORTER <i>Secretary</i>
FREDERICK S. SLY, <i>General Manager</i>	
PUBLICATION, EDITORIAL AND ADVERTISING OFFICES: 501 FIFTH AVENUE, AT 42ND STREET, NEW YORK CITY	
<b>EDITORIAL DEPARTMENT</b>	
WILLIAM H. CROCKER, <i>Editor</i>	
BENJAMIN FRANKLIN BETTS, A. I. A., <i>Associate Editor</i>	
R. W. SEXTON, <i>Associate Editor, Department of Interior Architecture</i>	
E. K. BRUNNER, <i>Editorial Associate</i>	
<i>Contributing Editors</i>	
SAMUEL CHAMBERLAIN      C. H. BLACKALL, F. A. I. A.	
WESTERN OFFICE: First National Bank Building, Chicago, PAGE A. ROBINSON, <i>Manager</i>	
LONDON OFFICE: DORLAND HOUSE, 14 Regent Street, S. W. 1.	
Yearly Subscription in the United States and Possessions, Canada, Mexico and Cuba, Six Dollars. Other Countries, Eight Dollars, Payable in New York Funds. Single copies (Regular Issues) 50 cents.	

[ table 2 ] Content Table of American Architect, Dec. 5, 1927

"A COLONIAL INSTITUTE" Program by E. L. Masqueray

To be located in Washington, on a lot 800' x 1200' with streets all around, and the long exposure to the north and south. Graduated students of Colonial College would meet there prominent men of this country during their postgraduate course, and would get familiar with the institutions and characteristics of the country. At the same time, people of the United States would get acquainted with the representative people of the tropical dependencies, understand them, and by that mutual acquaintance develop feelings of esteem and friendship so necessary to harmonious and progressive relations.

This institute would consist of three distinct groups of buildings, not necessarily disconnected.

1st—*The Administration*. Residence for President and family. Lodging for two Secretaries. Residence should be large and afford ample room for the accommodation of a few invited guests. The office building should consist of rooms for Secretaries' offices, Information Bureau, Record Rooms, Janitor, one Committee Room, etc.

2nd—*Library-Museum*. Large library room, beautifully decorated; four private studies; two galleries (rooms) to show, in elaborated glass cases, minerals, precious stones, resources of Colonial countries, the walls decorated with tropical views. One large lecture room, seating 1200, to be used also for graduating exercises, etc. Small dressing room for lecturer.

All this part of the Institute to be treated monumentally and so arranged that it could be thrown into one on important occasions.

3rd—*Botanical Garden*, where would be shown plants of the United States, which could be introduced in the Colonies, and large green-houses where tropical plants could be kept and studied. Small aquarium in them for the study of fish. Six class rooms of studies adjoining. The garden does not necessarily need to be a motif by itself. It could be arranged as a setting to the buildings of the institution.

The arrangement of stories, one or several in each part of the institute, is left to the judgment of the competitors. Toilet rooms should be provided where needed. In some prominent location, court or garden, a monument or fountain to "Civilization bringing peace to uncivilized countries" will be located.

For the esquisse give a general plan at 1/64" scale. Facade and Section at the same scale. The esquisse must be done in ink.

For the finished drawings give two plans at 1st and 2nd floors, one main facade, one side facade, and one longitudinal section, all at 1/16' scale; and a detail of the facade at 1/2" scale to make a drawing about 3' x 4'.

[ table 3 ] "A Colonial Institute," Program by E.L. Masqueray, 1904 ( Source: Joseph Esherick, "Architectural Education in the Thirties and Seventies," in Spiro Kostof, ed., The Architect, 1977. )

## Preliminary Analysis of the Commercial Hotel Project

THE tabulation shown below indicates various important points which should be given consideration before preliminary plans are drawn for any commercial hotel project. A schedule of this kind should be drawn up as *the first step*, adding any points peculiar to the individual project.

### *Conditions of Site* (Physical characteristics only)

1. Suitability of perimeter shape for type of plan most practical from operator's viewpoint.
2. Excavation and Foundation conditions.
3. Conditions and protection for light and air.
4. Requirements for future expansion.

### *Economics of Site*

1. Practicability of location in relation to
  - (a) transportation facilities
  - (b) business centers
  - (c) amusement and shopping centers
  - (d) neighborhood trends
  - (e) type of surrounding buildings.
2. Cost of site as related to the total cost of entire project.
3. Sub-rental possibilities.
4. Trend of realty values.
5. Careful search and insurance of title.

### *Professional Advice* (should be brought in during early stages)

1. Realty expert on land and rental values.
2. Engineer for survey and examination of site to determine excavation conditions, etc.
3. Architect selected on basis of experience and ability (rather than low fee basis).
4. Engineers for complicated structural or mechanical problems.
5. Equipment engineers for kitchen, laundry and special hotel service layouts.
6. Experienced hotel man (preferably future manager) to introduce operating viewpoint.
7. Experienced hotel accountants to set up logical earning power and criticize plans and financing.

### *Financial Schedule*

1. Establish approximate total budget of investment
  - (a) in land and improvements
  - (b) in building and equipment
  - (c) in food service equipment
  - (d) in furniture and decorations.

2. Arrange tentative financing schedule.

### *Plan Requirements*

The following elements should be determined in approximate size and type so that the architect can fit them into the first tentative plans:

### *Guest Rooms*

1. Approximate number required
  - (a) with and without bath
  - (b) sample rooms
  - (c) suites.
2. Corridor sizes.

### *Public Rooms*

- (a) General size and character.
- (b) Approximate relative location.

### *Food Service*

- (a) Approximate size and character of restaurants.
- (b) Requisite size and relative location for kitchens and service space.
- (c) Approximate kitchen equipment.

### *Sub-Rentals and Concessions*

- (a) Probable types and locations in the building.
- (b) Approximate sizes of stores, shops and stands.

### *Mechanical and Service Equipment*

- Determine tentatively the requirements of the management as to
- (a) power and heating
  - (b) elevators
  - (c) laundry, location and size
  - (d) ventilation
  - (e) storage rooms, linen rooms, etc.
  - (f) employes quarters
  - (g) repair shops, etc.

### *Furniture and Decoration*

- (a) Approximate allowance for furnishing typical guest room.
- (b) Approximate allowance for furnishing and equipping restaurants.
- (c) Approximate allowance for furnishing and decoration of public space.

[ table 4 ] "Preliminary Analysis of the Commercial Project" in Hotel Planning and Outfitting, 1928

## Functional Plan Analysis (Typical for a Commercial Hotel)

This is an example of a typical functional plan analysis which should be drawn up before any plans are made. The use of such an analysis practically insures not only a great saving in time but a definite increase in the efficiency of the plans.

### GUEST ROOMS AND FLOORS

*Guest Rooms.* Number required approximately 200—190 with baths.  
 16 single rooms located on 2nd and 3rd floors, 220 sq. ft. average size, each equipped with bathroom, closet and door-bed.  
 74 Single rooms with bath (24 with showers), each room approximately 120 sq. ft.  
 90 double rooms with bath (all tubs), each approximately 150-180 sq. ft.  
 20 Rooms arranged in 2-room suites, door beds in each parlor, 300 sq. ft. to a suite.  
 Room heights to be 8 ft., 6 in. clear.  
*Corridors.* Minimum width 7 feet.  
*Linon Room.* 2 on each floor, 70 sq. ft. each.

### PUBLIC AND SEMI-PUBLIC SPACE

To be provided in logical locations on basement, first and mezzanine floors.  
*Lobby.* 40 ft. x 60 ft., main entrance on S. Street, front office 300 sq. ft., checkroom 150 sq. ft., porter's desk, news and cigar stand, telegraph and telephone desks; mezzanine.  
*Lounge.* Allow 1500 sq. ft.  
*Writing Room.* Approximately 12x20 feet.  
*Public Lavatories, Restrooms, etc.* Men, 4 stalls, 5 toilets, 5 wash-basins. Women, 4 toilets, 4 wash-basins, rest room.  
*Ballroom.* For conventions and entertainment, 40x70 ft. stage.  
*Club Rooms.* One 25x60 ft., one 20x40 ft.  
*Private Offices.* On mezzanine, 4 approximately 180 sq. ft. each.  
*Sub-Rental Space.* 2000 sq. ft., 6 or 7 stores, outside and lobby entrances.  
*Barber Shop.* (6 chair) and *Beauty Parlor*, 12x24 ft.

### FOOD PREPARATION AND SERVICE

*Main Dining Room.* To seat about 300, area approximately 4500 sq. ft. (dance floor and orchestra stage extra.)  
*Kitchen.* For above, area approximately 3000 sq. ft., including storerooms.  
*Lanchroom.* Seating about 100, area approximately 2750 sq. ft., including kitchen.  
*Banquet Service Pantry.* For Ballrooms, area approximately 700 sq. ft.  
*Private Dining Rooms.* 3—each about 250 sq. ft.

### GENERAL PLAN DATA FOR ARCHITECT

*Construction.* Reinforced concrete, fire-proof building, brick and terra cotta walls on hollow tile.  
*Heating & Power.* Low pressure steam system, isolated plant, live steam for kitchen, ventilation for all public space and for all inside bathrooms, oil to be used for fuel.  
*Elevators.* 3 Passenger.—2 Service.

## The Practical Apportioning of Public Space

The purpose of the figures is to indicate the number of square feet in average use for the parts of the hotel plan indicated. These figures are for preliminary planning and checking purposes

	Normal Maximum in Square Feet and % of Total Area		
	75 Rooms (Sq. Ft.)	150 Rooms (Sq. Ft.)	225 Rooms (Sq. Ft.)
Ladies' Parlor.....	150	275	300
Lounges.....	600	1500	2500
Writing Room.....	None	650	1000
Lobby.....	1000	2800	4000
Basement Lobby.....	250	400	500
Main Dining Room.....	1500	3000	4250
Coffee Shop.....	700	1150	1350
Small Dining Room.....	None	None	2000
Ballroom.....	None	4500	4500
Ballroom and Dining Room Foyers.....	450	750	1000
Total Square Feet.....	4650	15,025	21,400
Percent of Area.....	17%	28%	35%

NOTE: In addition add 8% for kitchens, mechanical plant and service for 75 room hotel and 12% for 150 to 225 room hotels.

[ table 5 ] Example of "Functional Plan" and distribution of public space in Hotel Planning and Outfitting, 1928

# GARAGES

(Standards for Design and Construction)

Compiled by the Editorial Staff of The Architectural Record, with collaboration from E. P. Goodrich, consulting engineer; G. W. Rand, engineer for Ramp Building Corporation; H. L. Woolfenden, mechanical engineer; Horace L. Smith, Jr., engineer Auto Ramps Corporation of Richmond; Arthur Brace, Construction Engineering Department of the Tide Water Oil Co. and others.

*The appropriate and characteristic expression for garage design will be attained by architects without conscious effort. Ferro-concrete construction with the demarcation of floor levels, steel sash and the omission of cornice and base will endow the garage with frankness and modernity.*

*There should be no applied ornament and the surface treatment where concrete is used should be no other than that suggested by the nature of the material.*

*The garage may well attain a new and distinctly expressive form, indicating its practical function. "Modern architecture of our time seeks to devise form and motives from purpose, construction and materials. If it is to give clear expression to our feelings, it must also be as simple as possible."*

## COMMERCIAL GARAGES

### I. INDEPENDENT COMMERCIAL GARAGES

#### (A.) ECONOMIC FACTORS.

The commercial success of the public garage depends upon proper balance between construction cost and efficiency of layout. To aid in determining this relationship and to ascertain other factors which will influence the design, the architect should first make an analysis of the conditions in the district where it is proposed that the garage be built. The "Outline for Garage Survey" indicates the scope of such a study.

The effects on design, of the facts brought out by this survey, are discussed below.

##### 1. LOT COST IN RELATION TO BUILDING HEIGHT.

To show a normal profit on the investment, for buildings up to and including 6 stories in height, the lot cost should not exceed cost of building. (This is a rule of thumb and serves only as an approximate basis for analysis.) The relation of lot cost to cost of building may be expressed in the form of an equation in which

L = cost of lot in dollars per square foot.

B = cost of building in dollars per square foot per floor.

X = minimum number of stories for reasonable profit.

For buildings up to and including six stories, the items above when reduced to a formula are

$$\frac{L}{B} = X$$

For buildings in excess of 6 stories in height the following equation is used:

$$\frac{L - (B \times 6)}{B \div 2} + 6 = X$$

To illustrate the use of these formulae, assume cost of lots at \$7.50, \$12, and \$25 per square foot. Also assume a construction cost of \$2.50 per square foot of floor. The minimum height of the building will be found as follows:

$\frac{\$7.50}{\$2.50} = X$  Since the value of X is found to be 3, therefore 3 stories is the minimum height for garage with the land cost indicated.

$\frac{\$12}{\$2.50} = X$  The value of X is 4.8. Therefore 5 stories is the minimum height for garage with this land cost.

$\frac{\$25}{\$2.50} = X$  The value of X is 10 which is in excess of the story height that can be figured with this formula. The other equation should therefore be used.

$\frac{\$25 - (\$2.50 \times 6)}{\$2.50 \div 2} + 6 = X$  Value of X is 14, therefore, this is the minimum height for a garage with this land cost.

2. PEAK LOAD. Sixty per cent of total capacity of a garage may arrive within a half hour in the morning or in the evening at theatre time. Speed in handling cars as they enter the garage during the rush period is of the utmost importance. (A delay of five or ten minutes may cause the client to use another garage (possibly less centrally located) provided the additional walking time is less than the waiting time at the garage with inadequate arrangement and facilities.)

The first floor checking and the interfloor method of travel (ramp or elevator) must be capable of handling the probable peak, as shown in survey, without delay.

A one-way ramp system with easy grade and turns will care for 20 to 30 cars a minute. An elevator of average speed will complete an up and down trip in

[ 178 ]

[ table 6 ] "Garages," in Technical News and Research, Architectural Record, Feb. 1929.

# THE ARCHITECTURAL RECORD

179

## GARAGE SURVEY\*

This analysis of an architectural problem should be made by the architect in order to determine those economic factors that govern garage design in a specific locality. This study should determine the type of building, number of stories, and character of design.

Cost of Land per Square Foot \$ ..... Building Cost per Square Foot \$ .....

TYPE OF STORAGE	PROBABLE AVERAGE NUMBER CARS PER DAY				RENTAL RATE	DRIVEN BY		CLASS OF RENTALS		
	Day	Night	Peak Load 1/2 Hour Period	During 1/2 Hour Morning Peak A.M. to A.M.		Owner	Chauf-feur	Mini-mum	Average	Luxury
a. Monthly day storage from offices and stores.										
b. Monthly twenty-four hour storage from apartments and permanent residents in hotels, apartment houses and private residents.										
c. Monthly night storage of salesmen's cars, commercial cars and trucks.										
d. Transient day storage from stores, office buildings, hotels, lunch clubs and theatres.										
e. Transient evening storage from hotels, theatres and public halls.										
f. Overnight storage from hotels and commuters.										
g. Dead storage in off-season. *(Trucks not included in this study.)										
Totals .....										

NOTE: Many parking garages have a twenty-four hour turnover of from two to four times the total capacity of the garage, while subsidized garages having free parking space will sometimes have a turnover of from six to eight times their total capacity.

from one to three minutes, depending on height of building, method of parking, etc.

3. NUMBER OF CHAUFFEUR-DRIVEN CARS. It is now necessary in large city garages to provide a lounging room for chauffeurs, equipped with games and with reading tables. The number of chauffeur-driven cars will indicate the size and character of chauffeur quarters.

A call system should be installed in waiting rooms and parking floors in order that chauffeurs may receive communications from owners.

4. CLASS OF RENTALS. The survey should indicate whether the minimum rental with some slight inconvenience will be preferable, in the client's opinion, to average rental with greater convenience, or higher rental with luxury features. The class of clients catered to will influence:

a. The Maximum Height of Garage in which a ramp system may be profitably operated. For example, two ten-story ramp garages were erected in different districts in Chicago. In both cases, for owner-driven cars, the rent on the tenth floor was \$11 per month, as compared with \$22 on the second floor. In one district the upper floors rented quickly on account of the lower rent-paying ability of clients. In the other district, however, clients preferred lower floors at the higher rate.

b. The Choice of Ramp Systems. Interfloor travel systems separated from the parking aisles, such as the elliptical system in the Commodore-Biltmore Garage, New York City, and in the Fisher Building, Detroit, require more space than does the *d'Humy* staggered floor ramp system. The use of the former may be justified where low rents are of minor importance. In the double spiral ramp system of Richmond, the entire separation of ramp and parking aisles permits greater safety, speed and convenience of interfloor travel and lessens the distance to be traveled by at least 50 per cent as compared with straight or staggered floor ramps.

c. The Width of Parking Space. This should be 6 feet 9 inches wide for average rental, and 7 feet for dependent garages providing free short time parking. Size of columns on lowest floors may make it advisable to reduce this width, but in no case should parking spaces be less than 6 feet 8 inches. Width in excess of 7 feet is a luxury and should not be considered unless there is indication that patrons will be willing to pay for such additional space.

d. Depth of Parking Space. A 15 foot deep parking space and 20 foot aisle are sufficient for most cars, but for the more wealthy clientele a deeper space should be provided, at least on some floors.

e. Enclosed Stalls. Completely enclosed, individ-

[ table 7 ] "Garages," in Technical News and Research, *Architectural Record*, Feb. 1929.



## CONTENTS

PART	PAGE
I. PRELIMINARY CONSIDERATIONS.....	1
II. THE COTTAGE.....	11
III. THE SUBURBAN HOUSE.....	143
IV. LANDSCAPE WORK.....	225
V. THE COUNTRY HOUSE.....	269
VI. THE CITY HOUSE.....	311
VII. THE SCHOOL.....	457
VIII. THE CHURCH.....	611
IX. THE OFFICE BUILDING.....	717
X. ADDITIONAL DETAILS OF CONSTRUCTION.....	811
XI. SERVICE EQUIPMENT.....	883
XII. BUILDING MATERIALS.....	983
APPENDICES A TO E.....	1171

[ table 8 ] Content table of Walter C. Voss and Ralph C. Henry, Architectural Construction, 1925, Vol. I

Volume CXXXVI  
Number 2576

# The AMERICAN ARCHITECT

OCTOBER  
1929

FOUNDED 1876



Ernest Born

THE illustration on the cover is a reproduction of a drawing by Ernest Born. This unusual view of the Ponte Vecchio at Florence was captured from a boat anchored in the Arno during the late spring season when the river was low. The original drawing was more or less accurately traced out as an outline composition in charcoal. A brush and India ink was used to make the drawing, over which washes of Sable Laque and four gouaches were applied.

Mr. Born, a native of San Francisco, studied and worked with John Alden Hebard. Several years spent in Vienna, France and France committed him to develop an individual style of drawing and painting. Mr. Born is at present connected with the office of Gilbert and Ross, New York City.

## Next Month

**DOORWAYS**—34 old Times are seen by an artist who takes the far away places of the world. Pictures and an interesting story.

**The Better Handling of Ornament** with illustrations of the work of sculptors.

**Terra Cotta Details**—A section of selected photographs.

BENJAMIN FRANKLIN BETTS, A.I.A.  
Editor  
ERNEST EBERHARD  
Managing Editor

## In This Issue

Ponte Vecchio, Florence <i>By Ernest Born</i> .....	Cover
The "Stock Plan" House Has No Soul <i>By Benjamin F. Betts</i> .....	19
The Bremen Advances the Cause of the Modernists <i>By R. W. Sexton</i> .....	20
Architects Must Study Building Economics <i>By A. T. North</i> .....	28
An Architect's Own House <i>Charles W. Oliver, Architect</i> .....	30
Designing Garages for Service and Income <i>By Harry T. Warren</i> .....	34
Impressions of Provincetown and Cape Cod <i>By William H. Schuchart</i> .....	36
Packard Motor Car Co. Service Building, New York <i>Liberi Kahn, Inc., Architect; Frank S. Parker, Associate Architect</i> .....	40
A Country Club in the Dutch Colonial of Northern New Jersey <i>Clifford C. Wendchack, Architect</i> .....	42
Are Architects so Very "Queer"? <i>By Foster Gunnison</i> .....	46
Two Sketches by Ernest Born <i>St. Nicholas du Chardonnet, Paris, Notre Dame, Dijon</i> .....	48
As It Looks to the Editors.....	50
Wrought Ironwork.....	52
The Underwater Lighting of Swimming Pools <i>By E. W. Betts</i> .....	60
What Architects Are Talking About.....	62
"No, No, I Can't Do That," Said the Lawyer.....	64
Books.....	70
How Much Is \$100,000? <i>By George F. Kaber</i> .....	72
New Materials and Equipment.....	74
New Catalogs.....	78
Scaffolding Goes Modern.....	76
And Abroad.....	80

E. J. LEFFINGWELL  
Advertising Manager

PAUL A. ROBINSON, Western Manager  
333 North Michigan Ave., Chicago

THE AMERICAN ARCHITECT, Published monthly by INTERNATIONAL PUBLICATIONS, INC.,  
Fifty-seventh Street at Eighth Avenue, New York, N. Y.

WALTER RAY, President; JAMES J. LANE, Vice-President; THOMAS J. WHITE, Vice-President; ARTHUR S. MOORE, Secretary; AUSTIN W. CLARK, Treasurer. Copyright, 1929, by International Publications, Inc. Trademark registered. Single copies, 50 cents. Subscription price: Three Dollars per Annum, \$5.00 per year, \$7.00 for two years, Canada, \$1.00 extra; foreign countries, \$3.00 extra. Entered as second-class matter April 3, 1906, at the Post Office at New York, N. Y., under the act of March 3, 1879. THE AMERICAN ARCHITECT is fully protected by copyright and nothing that appears in it may be reproduced either wholly or in part without permission.

OCTOBER 1929

17

# THE ARCHITECTURAL FORUM

VOLUME LVIII

NUMBER ONE

## CONTENTS FOR JANUARY 1933

Frontispiece: A Detail of Remodeling "Abbeville," Residence of C. Dudley Armstrong, Jr.  
*From a photograph by Rùlasse*

ARTICLES	AUTHOR	PAGE
The Meaning of Modernizing	Frederick M. Feiker	1
Modernizing the Small House: Check List and Suggestions	Frederic Arden Pavley	3

PLATE ILLUSTRATIONS	ARCHITECT	PAGE
A Before and After Folio:		
House of Mr. and Mrs. Richard D. Currier	Joseph B. Wertz	10
"The Homestead"	W. S. Corkran	11
House of Robert J. Bender	Donald G. Tarpley	13
House of Frederick Mygatt	Waldron Faulkner	15
House of Mrs. William H. Good	Edwin Denby	16
House of Dr. Jerome Wagner	G. Harmon Gurney	17
House of Fred E. Eriksen	Herbst & Kuenzli	18
House of Lucile Short Stinson	John Gray	19
House of Thomas D. Sheerin	Lee Burns & Edward James	20
House of Dr. C. V. Calvin	Cameron Clark	21
House of John R. Montgomery	W. S. Corkran	22
House of H. C. Bell	W. S. Corkran	23
House of W. A. Baldwin	Donald G. Tarpley	25
House of Hoffman Phillips	John J. Whelan	27
House of T. H. B. McKnight	John J. Whelan	28

KENNETH KINGSLEY STOWELL, A.I.A.  
*Editor*

ROGER WADE SHERMAN  
*Managing Editor*

JOHN CUSHMAN FISTERE  
*Associate Editor*

HEYWORTH CAMPBELL  
*Format*

CONTRIBUTING EDITORS

Kenneth M. Murbison  
Alexander B. Trowbridge  
Charles G. Loring  
Harvey Wiley Corbett  
Rexford Newcomb  
Aymar Embury II

THE ARCHITECTURAL FORUM is published monthly by Rogers and Manson Corporation, Howard Myers, President; Publication Office, 10 Ferry Street, Concord, N. H. Executive, Editorial and Advertising Offices 220 East 42nd Street, New York. Advertising Manager, George P. Shutt. Production Manager, Ruth H. Goodhue, Business Manager, W. W. Commons. Subscription Office, 350 East 22nd Street, Chicago, Illinois. Yearly Subscription, Payable in Advance, U. S. A., \$8.00. Canadian duty 60c. Foreign Countries in the Postal Union, \$9.00. Quarterly Reference Numbers, \$3.00; Regular Issues, \$1.00. All Copies Mailed Flat. Trade Supplied by American News Company and its Branches. Copyright 1933, Rogers and Manson Corporation.

ARTICLES	PAGE
Modernizing Methods for Hotels and Apartments	29
Notes on Office Buildings	41

PLATE ILLUSTRATIONS	ARCHITECT	PAGE
Seventeen Examples of Successful Modernizing:		
Richard E. Byrd School	Adams & Prentice	46
Doctors' Office Building	Harold E. Paddon, Associate Architect	48
Orange New Church	T. Worth Jamison, Jr.	49
Johnson Memorial Park Pavilion	Taylor & Mosley	51
Onondaga County Savings Bank	Frank J. Hoffman	52
N. Y. Life Insurance Building	Hulsey, McCormack & Helmer, Inc.	55
Children's Hospital	Toltz, King & Day	56
Ansley Park Golf Club	Huntley Ward Davis	57
1735 Sanson Street, Philadelphia	William J. J. Chase	60
New Jersey Law School	Simon & Simon	61
Remodeled Store Buildings, Cleveland, O.	Joseph B. Wertz	63
Remodeled Store Buildings, Chicago, Ill.	Walker & Weeks	65
Rogers Building	Holabird & Root	66
Store for Richman Brothers Co.	Soule, Murphy & Hastings	67
Store for J. Lechin & Company	Larson & McLaren	67
	Morgan, Dillon & Lewis	68

ARTICLES	AUTHOR	PAGE
Shops and Stores for Modern Merchandising	Vahan Hagopian	69
Modernization Increases Restaurant Profits	J. O. Dahl	73
The Economics of Modernization	Louis C. Stone	80
Regarding Housing	Eugene H. Klaber	17
Correspondence		6
The Editor's Forum		10
Editorial Advisory Committee		12
Forum of Events		18

[ table 10 ] Content table of Architectural Forum, Jan. 1933

# ARCHITECTURAL FORUM

## CONTENTS FOR SEPTEMBER 1933

Frontispiece: Work . . . . .	<i>From a photograph by Browning Studios</i>	
ARTICLES AND PLATE ILLUSTRATIONS	AUTHOR OR ARCHITECT	PAGE
Public Works in the New Deal . . . . .	<i>Secretary Harold L. Ickes</i>	151
The Gist of the Act . . . . .		152
Special Board: Federal Dept. Chart . . . . .		153
NRA Administration Chart . . . . .		154
Who's Who . . . . .		155
State Engineers List . . . . .		156
The Planning Board . . . . .		158
The Housing Board . . . . .		159
Housing Circular No. 4 . . . . .		160
Public Works — or Bust . . . . .	<i>David Cushman Coyle</i>	162
Planning the Project . . . . .		164
<b>Courthouses:</b> Ramsey County Courthouse and St. Paul City Hall. <i>Ellerbe &amp; Co.,</i>	<i>Archts., Holabird &amp; Root, Associate Architects</i>	165
Chart and Text . . . . .		166
Santa Barbara County Courthouse . . . . .	<i>William Mooser Co.</i>	168
Midland County Courthouse . . . . .	<i>Voelcker &amp; Dixon, Inc.</i>	169
Cochise County Courthouse . . . . .	<i>Roy Place</i>	171
Jackson County Courthouse . . . . .	<i>Keene &amp; Simpson, Wight &amp; Wright,</i>	
<i>Frederick C. Gunn, Associated Architects, Edward F. Neill, Consulting Architect</i>		173
Courthouse Details . . . . .		174
<b>Office Buildings:</b> Westchester County Office Building . . . . .	<i>Morris &amp; O'Connor</i>	175
Baltimore Municipal Office Building . . . . .	<i>William H. Emory, Jr.</i>	179
<b>City and Town Halls:</b> Chart and Text . . . . .		180
Beverly Hills City Hall . . . . .	<i>Koerner &amp; Gage, Architects</i>	182
	<i>Austin &amp; Ashley, Consulting Architects</i>	
Bryan Memorial Town Hall . . . . .	<i>Cameron Clark</i>	185
Glen Ridge Municipal Building . . . . .	<i>W. Orrin Bartlett</i>	187
Memorial Municipal Building . . . . .	<i>Granville W. Dexter</i>	189
<b>Police Stations:</b> Chart and Text . . . . .		190
Hollywood Police Station and Branch Hospital . . . . .	<i>Board of Public Works</i>	193
Troop K Barracks . . . . .	<i>William E. Haugaard</i>	195
New York Training School for Boys . . . . .	<i>William E. Haugaard</i>	197
Police Station Details . . . . .		198
<b>Fire Stations:</b> Chart and Text . . . . .		199
Washington Fire Station . . . . .	<i>Cameron Clark</i>	202
East Orange Fire Headquarters . . . . .	<i>W. Frank Bower, Jr.</i>	203
Residential District Fire Station, Los Angeles . . . . .	<i>Board of Public Works</i>	205
Belvedere Fire Station . . . . .	<i>Board of Public Works</i>	206
Fire House Details . . . . .		207
<b>Airports:</b> Chart and Text . . . . .		208
Administration Building, Randolph Field . . . . .	<i>Allee B. and Robert M. Ayres</i>	211
Roosevelt Field Hangar, and Restaurant . . . . .	<i>Kenneth Franzheim</i>	212
Mines Field Municipal Airport . . . . .	<i>Board of Public Works</i>	213
<b>Power Houses and Dams:</b> Southern California Edison Co. . . . .		214
Central Maine Power Co., Lewiston Plant . . . . .		214
Lake Springfield Power Plant . . . . .		214
Eagle Pass Hydro-Plant . . . . .		215
Susquehanna Power Co., Conowingo Station . . . . .		215
Rock Island Development . . . . .		215
<b>Waterworks Buildings:</b> Erie, Pa. . . . .		216
Sewickley, Pa. . . . .		216
Portland, Me. . . . .	<i>John Cabin Stevens</i>	216
York, Pa. . . . .	<i>Palmer &amp; Landin</i>	217
<b>Recreational Projects:</b> Wannsee Bathing Beach . . . . .	<i>Franz Wagner</i>	218
Westchester County Park System . . . . .	<i>C. F. Loyd, Designer</i>	219
	<i>Gilmore D. Clark, Landscape Architect</i>	
Brookline Municipal Golf Course . . . . .	<i>Kilham, Hopkins &amp; Greeley</i>	220
Saxon Woods Golf Course . . . . .	<i>C. F. Loyd, Designer</i>	221
"Hors de Concours" . . . . .	<i>Kenneth Murchison</i>	222
<b>Post Offices:</b> Chart and Text . . . . .		223
Hartford Post Office . . . . .	<i>Malmfeldt, Adams &amp; Prentice</i>	224
Stockton Post Office . . . . .	<i>Bliss &amp; Fairweather, Architects</i>	226
	<i>Haward G. Bissell, Associate Architect</i>	
Erie Post Office . . . . .	<i>Office of Superintending Architect</i>	227
Federal Building, Boston . . . . .	<i>Cram &amp; Ferguson</i>	228
New York Parcel Post Building . . . . .	<i>Office of Superintending Architect</i>	229
Salem Post Office . . . . .	<i>Office of Superintending Architect</i>	230



KENNETH KINGSLEY STOWELL, A.I.A.  
*Editor*

JOHN CUSHMAN FISTERE

RUTH GOODHUE

WASHINGTON DODGE, II

*Building Money*

MAX FORESTER

HEYWORTH CAMPBELL

*Format*

CONTRIBUTING EDITORS

Kenneth M. Murchison  
Alexander B. Trowbridge  
Charles G. Loring  
Harvey Wiley Corbett  
Rexford Newcomb  
Aymar Embury II

THE ARCHITECTURAL FORUM is published monthly by Rogers and Manson Corporation, Howard Myers, President; Publication Office, 10 Ferry Street, Concord, N. H. Executive, Editorial and Advertising Offices, 220 East 42nd Street, New York. Advertising Manager, George P. Shutt, Business Manager, W. W. Commons. Subscription Office, 350 East 22nd Street, Chicago, Illinois. Address all editorial correspondence to 220 East 42nd Street, New York. Yearly Subscription, Payable in Advance, U. S. A., Insular Possessions and Cuba, \$7.00. Canada, \$8.00. Canadian duty 60c. Foreign Countries in the Postal Union, \$9.00. Single issues, including Reference Numbers, \$1.00. All copies Mailed Flat. Trade Supplied by American News Company and its Branches. Copyright 1933, Rogers and Manson Corporation.

### BUILDING MONEY

*Detailed Contents on Page 231*

Correspondence . . . . .	16
Editor's Forum . . . . .	29
Forum of Events . . . . .	43

VOLUME LIX NUMBER THREE

[ table 11 ] Content table of Architectural Forum, Sept. 1933