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ENTRANCE TO LADIES' ROOM—FIFTH AVENUE GUARANTY
BUILDING, NEW YORK. CROSS & CROSS, ARCHITECTS.

THE ARCHITECTURAL RECORD

VOLUME XLIX



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THE FIFTH AVENUE GUARANTY BUILDING



NEW YORK

CROSS & CROSS, ARCHITECTS
for ALTERATIONS & ADDITIONS

BY

JOHN TAYLOR BOYD, J^r

THE new quarters of the Guaranty Trust Company's Fifth Avenue Office, at Forty-fourth Street, New York, are an interesting variation of the typical banking plan. The architects, Cross & Cross, have planned them to serve the needs of a metropolitan shopping district, and, in so doing, have effected a noteworthy alteration of a building in itself distinctive as a work of Stanford White. The remodeled building is expressive of the most recent development in the tradition of American bank architecture, a tradition now firmly established, although it is scarcely twenty-five years old.

The modern conception of a bank, as everyone knows, is that of a monumental structure of perfected design in opulent

materials, and the center of interest is the imposing banking hall, where the public comes to transact most of its business with the bank. There is, however, a conflict of opinion in the matter of how this conception should be realized. Some artists who are not architects hold that bank architecture is too bookish, that it follows the formula of the Greek temple, which is not a suitable home for a twentieth century business organization. That instances of such formalism are found is indeed true, but they are not the rule. Many of our finest banks are not in any sense Greek temples. Whatever Greek forms they display are chiefly motives of detail, which cannot be condemned until "modern" forms develop to supplant them. But it is a long process of art to

develop new forms. Such a development may be discerned in our small town architecture. There the evolution is gradual and sound, nor does it depart radically from tradition. Above all, it offers none of those startling theatrical effects which the extreme group of moderns seem to think alone are art.

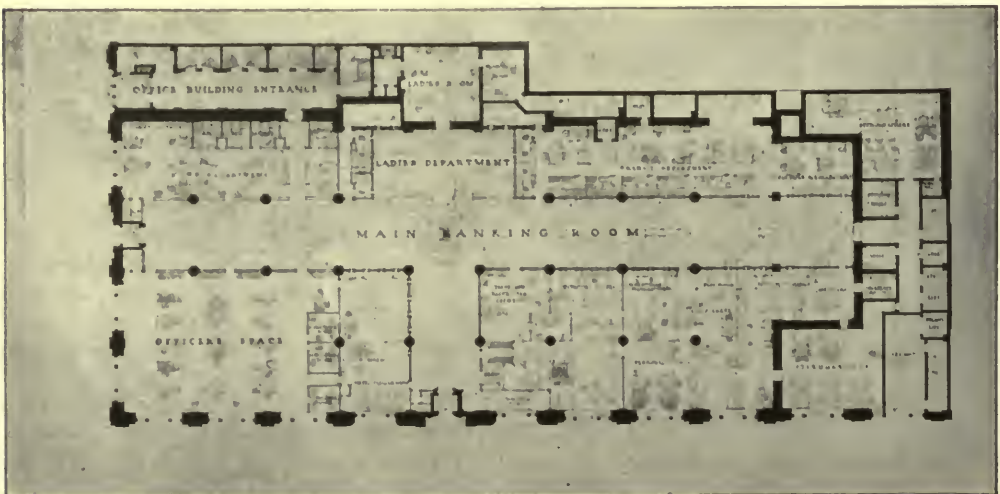
This native development of styles has yet to make its way into our cities. The cities are still too formless, too lacking in a settled atmosphere and in acknowledged traditions, to furnish a setting favorable to a native art. But there are signs that even in the cities a native spirit in architecture is arising. However this may be, it will be a long while, indeed, before classic details will be eliminated. In general character the change may not be great, because the classic spirit seems pertinent to our architecture of bright sunlight, and a trace of its influence is no more to be regretted in architecture than in literature.

The Fifth Avenue Guaranty Building, besides being fine architecture, is an interesting alteration of an unusual building. "Sherry's" was itself a distinctive structure, one of Stanford White's best known designs. On the whole, it had more imposing scale than many of his other works, such as the Presbyterian Church on Madison Square, New York,

now demolished. Inside, Sherry's was rarely successful. Architecture and decoration were perfect. Monumental, brilliant, gay in appearance, ornate, with marble and plaster decoration, and color and gilt—all somewhat French in influence—it was a fit expression of a place of public entertainment. It radiated the idea of festivity. Yet, with all this lavishness, the taste was of the truest and recalled the best continental hotels which, public and ornate as they often are, nevertheless possess charm, refinement and an atmosphere of personality and good manners. Too often modern hotels are correct enough in architecture, but insipid and standardized, products of the Main Streets of our modern industrial cities. One of the most difficult qualities to obtain in monumental architecture is the element of charm, of flavor—the personal touch; and Sherry's was one of the great achievements of McKim, Mead & White.

The Guaranty Trust Company acquired the Sherry property in order to provide room for its Fifth Avenue branch, which had outgrown its quarters in the Postal Life Building.

Rapid growth is not infrequent among New York banks. The swift development of the business and shopping center around the Grand Central Terminal



PLAN OF BANKING ROOM—FIFTH AVENUE GUARANTY BUILDING
NEW YORK. CROSS & CROSS, ARCHITECTS.

requires the services of large banks. But there is another cause of rapid growth. The metropolitan banks have been taking on new functions, and are today complex business organizations with many departments, each a fair-sized busi-

Nevertheless, the great banking hall remains the fundamental feature of the bank. Except for changes in detail, the modification occurs principally in the space for clerical offices. Where formerly the bank found a mezzanine floor



FORTY-FOURTH STREET ENTRANCE—FIFTH AVENUE GUARANTY BUILDING, NEW YORK.

ness in itself. The personnel numbers hundreds of clerks working under the direction of a large staff of officers and executives, and morale is cultivated, as in a regiment, partly through clubs, athletics, entertainments and other recreational activities. Stores and lunch rooms are added, and a newspaper is published.

All this expansion in the functions of a bank appears reflected in its architecture.

opening off the banking room sufficient, now it requires additional floors of offices. In the Fifth Avenue Guaranty Building the basement, first, mezzanine and second floors are occupied by the bank, and the top floor is given up to lunch rooms, kitchen service, clubrooms, a small store where goods, chiefly household supplies, are sold at cost to employes. The rooms of secondary archi-



FIFTH AVENUE GUARANTY BUILDING, NEW YORK. CROSS
& CROSS, ARCHITECTS FOR ALTERATIONS AND ADDITIONS.



FIFTH AVENUE ENTRANCE—FIFTH AVENUE GUARANTY BUILDING, NEW YORK. CROSS & CROSS, ARCHITECTS.



MAIN AXIS OF BANKING ROOM — FIFTH AVENUE GUARANTY BUILDING, NEW YORK. CROSS & CROSS, ARCHITECTS.



BANKING ROOM, LOOKING TOWARD LADIES' ROOM (OPPOSITE FORTY-FOURTH STREET ENTRANCE)—FIFTH AVENUE GUARANTY BUILDING, NEW YORK. CROSS & CROSS, ARCHITECTS.



GALLERY AROUND COURT IN BANKING ROOM
—FIFTH AVENUE GUARANTY BUILDING, NEW
YORK. CROSS & CROSS, ARCHITECTS.



LADIES' ROOM—FIFTH AVENUE GUARANTY BUILDING, NEW YORK. CROSS & CROSS, ARCHITECTS.



REAR END OF BANKING ROOM, MAIN AXIS—FIFTH AVENUE GUARANTY BUILDING, NEW YORK. CROSS & CROSS, ARCHITECTS.

tectural interest remain, as always: the president's room and the directors' rooms. On the main banking floor a variation is noted, due chiefly to the location of the bank in a shopping district; the public space is exceptionally commodious. A broad aisle follows the axis of the Fifth Avenue entrance and another crosses it from the Forty-fourth Street entrance. The latter aisle leads to the section of the bank given over to women, and the unusual provisions for their convenience make this the characteristic feature of the bank. It is almost a small bank in itself, with its own open space, its tellers and a separate elevator down to the vaults and the coupon booths adjacent. There is included also a complete retiring suite, notably a fine room of paneled oak walls, in a light finish and furnished in excellent taste. This section is very near the Forty-fourth Street entrance, which can be used as an automobile entrance.

The building, it must be remembered, is an alteration. An architect knows that

it is not easy to change a building which has been carefully designed for one organization and make it fit another. None of the rooms on the ground floor of Sherry's was large enough to offer space for a banking hall. The difficulty was solved by tearing out the bottom story of an interior light court which began at the fourth floor level of the building. This operation allowed a two-story hall to be developed in the center of the bank, providing the needed spaciousness and height and daylight. This court was then developed like the galleried courts of the early Italian Renaissance palaces. With such a hall, one does not notice the lower effect of the banking spaces. As a further aid in overcoming the low effect, the Roman Doric columns encasing the structural supports have no entablature above them, and instead carry a very light, delicately detailed, plaster beam. The beams, not being deep, do not obstruct either the light or the view. In a few cases where the bottom flanges of the steel girders came a few inches below the ceiling, the



PRESIDENT'S OFFICE—FIFTH AVENUE GUARANTY BUILDING,
NEW YORK. CROSS & CROSS, ARCHITECTS.



FORTY-FOURTH STREET ENTRANCE—FIFTH AVENUE GUARANTY
BUILDING, NEW YORK. CROSS & CROSS, ARCHITECTS.



ENTRANCE TO VAULT—FIFTH AVENUE GUARANTY BUILDING, NEW YORK.
Cross & Cross, Architects.



BASEMENT FLOOR—FIFTH AVENUE GUARANTY BUILDING, NEW YORK.
Cross & Cross, Architects.

beams were allowed to run into the capitals of the columns, but the effect is hardly noticed. Altogether, the difficult problems of alteration have been most successfully solved.

The effect of spaciousness is apparent, not only in the architecture, but in the ample floor area that is given over to public circulation. In planning banks there is often too small provision for future growth, and in this particular case the result shows foresight, because the ample space allowed is already coming into use. Other details to be noted are the lightness of the grilles or "cages"; the use of Hauteville marble and of Euville stone from France, which harmonizes with it; and the Tennessee marble for floors. The ceiling and upper decorations are plaster work, except for the marble columns and balustrade of the open gallery. The design of the interior is excellent, with an effect of lightness of color and fine surfaces, although the gallery around the court may be thought too fine in scale and too thin in relief for the architecture below it.

At the rear of the bank are separate elevators for the use of the personnel in going to the clerical floor above and to the recreation and lunch room floor on the top of the building.

The basement is of technical interest. It contains the largest bank vault among private banks in the world, entered through two compartments with barred doors and surrounded by a great number of coupon booths. On the second floor the chief architectural feature is the president's room, located on the Fifth Avenue front, well designed on early American lines, with white paneled walls and ma-

hogany furniture. The upper floors of the building are rented as business offices.

This finishes the description of the interior in its main features and a word remains for the alterations to the exterior. The original building which Louis Sherry had occupied was increased on both Fifth Avenue and Forty-fourth Street, with benefit to the mass of the building, particularly in view of the addition of a top story. A new cornice crowns the whole. The rest of the building was left almost unchanged, except for important alterations on the ground floor. There every other column of the ordonnance was taken out, and large round-arched windows—more typical of a bank—were inserted. This change has improved the building, since it provides a more solid base. Then two entrance doorways were installed, one on each front, in carved granite, with bronze doors. The bronze doors are perhaps the finest details in the bank, with splendidly modeled relief. The relief is real, and derives much character from the play of sunlight on it, in contrast with the extreme flatness of similar doors whose pattern seems not to be modeled at all but merely incised. The granite work of the doorways shows the skilful undercutting now possible with improved tooling methods on such hard stone, although the ornament is not so fine as the doors. The Forty-fourth Street entrance seems too delicate in scale, both for granite and the rest of the exterior.

Altogether, the difficult task of alteration has been carried out, both inside and outside, in a manner which maintains the splendid standards of our banking architecture.



VILLA CORSINI,
CASCADE, ROME.



The
VILLA CORSINI CASCADE
ROME

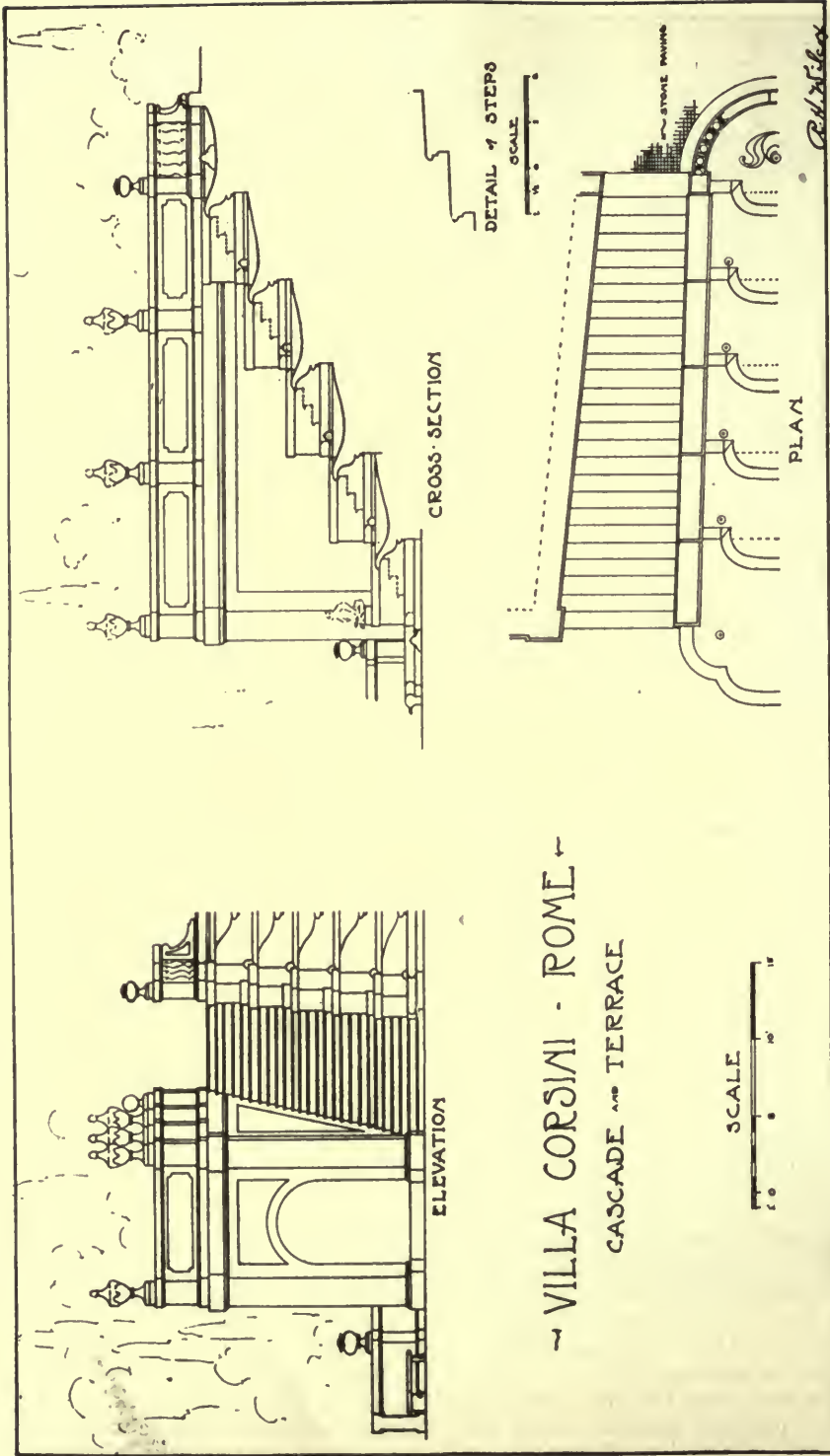
By R. H. Wilcox

THE Villa Corsini, in Rome, is located on the Vicolo Corsini, in the western quarter of the city. The grounds have no present connection with the palace and are now used as a botanical garden. Permission to visit it can be obtained from the *Direttore* of the Royal Institute and Orto Botanico di Roma, via Panisperna 89-B, in case admittance is refused at the entrance gate.

The one remaining feature of this once beautifully designed garden is the cascade, with its succession of stone basins

flanked by steps leading to an upper terrace and grotto. This construction is on the slope at the end of the central walk, forming the main axis with the garden façade of the palace. As is true in most of the Italian gardens, the importance of a vista has been realized and its emphasis brought about by the architectural feature herein described.

The material used in construction is stone and stucco over brick. The paving on the terraces is for the most part made up of small stone blocks with some vari-

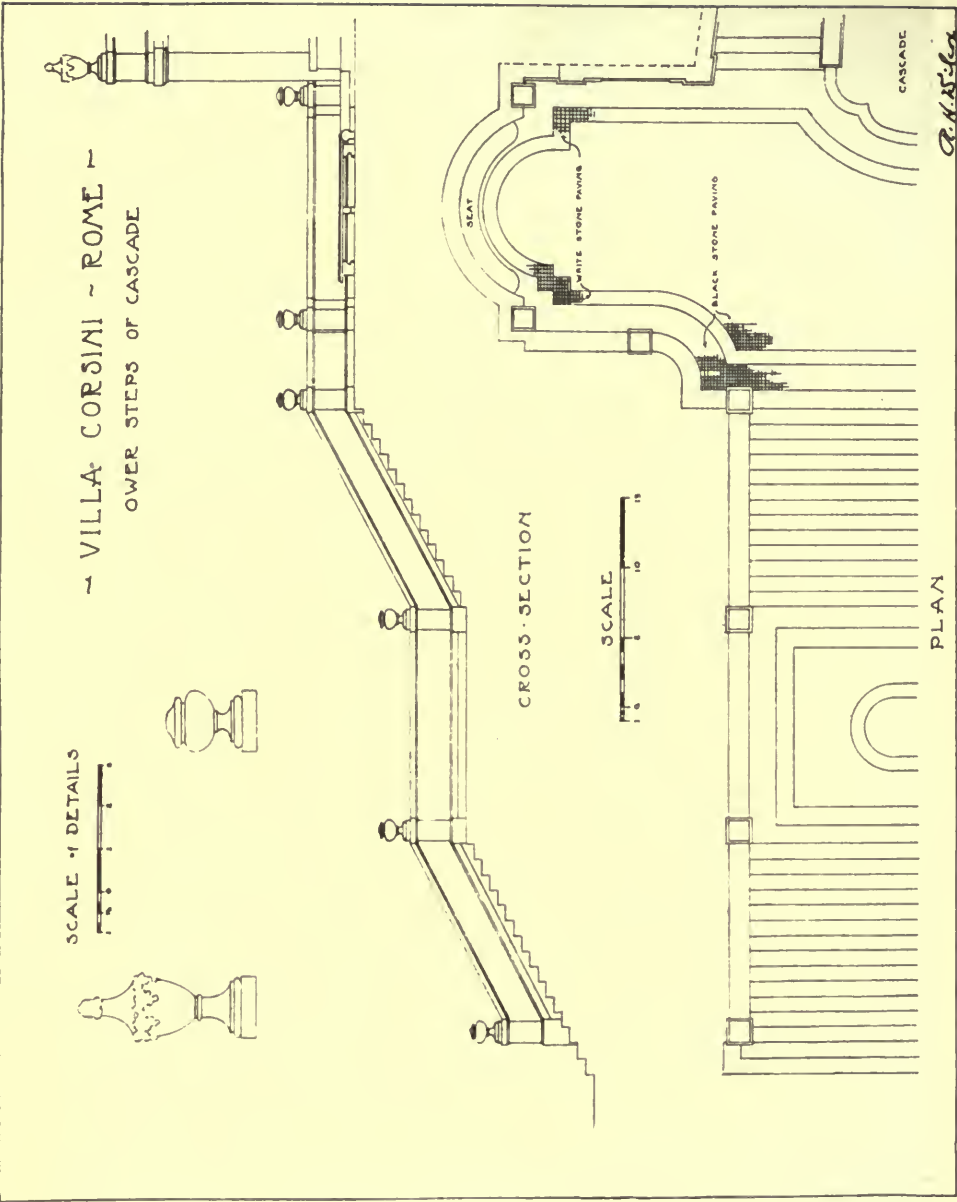


VILLA CORSINI - ROME -
 CASCADE AND TERRACE

VILLA CORSINI,
 CASCADE, ROME.



VILLA CORSINI
CASCADE, ROME.



ance of color to aid the design. The wall surfaces were kept very plain, with but little decoration, placing the emphasis on mass and not detail. By reference to the accompanying sketches, it will be seen that there are a number of deviations from symmetry and rectangularity, which is also true and equally interesting in the plans of many other Italian villas. The converging of the lines of the upper steps is an obvious intention on the part of the designer, not in order to adapt the scheme to practical limitations, but to create greater interest in the succession of water basins and, at the same time, lend distance to the vista. In this case, the accomplishment of the false perspective is successful, in that many observers fail to detect it on the ground.

The chief reasons for the introduction of water cascades into the design of Italian gardens is to bring the beauty of moving and still water within the boundaries of the estate, and to provide through evaporation a lower atmospheric temperature, so essential to comfort during the hot summer months. There is also a psychological suggestion of coolness, which should not be overlooked. The basins, in this case, have been designed large enough to allow a quantity of water to be retained, counting on separate pools in the sense that they have depth and repose necessary for the

growth of water plants, and expanse sufficient for reflection and deep shadow. The water traveling from one basin down to another affords the active water display, supplemented in turn by a number of spouts which throw the water in a series of arcs from each basin to the next higher one. The sparkle and sound coming from this water in motion contributes materially to the delight and interest of the observer.

Much of the charm of this cascade may rightfully be attributed to the immediate vegetation. The location of the trees, with their dense enframing foliage, mark and emphasize the boundaries of the vista, serve as a partial canopy, and introduce a great amount of interest in the texture of its varied foliage. The smaller undergrowth assists in tying this piece of architecture to the ground. The overhanging vines are of such character as to serve not only as decoration but to bring about that proper balance between nature and man-made construction so necessary to good composition.

The greater number of cascades in Italian gardens are built on a much grander scale and are more elaborate in design. But, in contrast, the size and simplicity of the Villa Corsini cascade seem to the writer to be of consequent importance and worthy of careful study.



THE FRONT ENTRY, WITH MISS ANNIE BONNEY, OF SCITUATE, A MAYFLOWER DESCENDANT, DRESSED AS A PILGRIM MAIDEN—THE ALDEN HOUSE, DUXBURY, MASS.



THE ALDEN HOUSE AT DUXBURY, MASS.



By
Sylvester Baxter

THE only existing house that was the home of one of the Pilgrims of the Mayflower is the Alden homestead at Duxbury. As such it is the most important of the historic buildings of the Old Colony—the designation by which the land of the Pilgrims, the former colony of Plymouth (comprising the existing three Massachusetts counties of Plymouth, Bristol, Barnstable, and a small portion of Norfolk) is familiarly differentiated from the Colony of Massachusetts Bay. As an admirable specimen of dwelling-construction in the early colonial period, as well as for the interest attaching to its association with two of the most celebrated of the Mayflower's passengers, it will repay the visits to the second oldest of the Plymouth Colony towns which thousands of twentieth-century Pilgrims will make in this tercentennial period.

It is commonly called the "John Alden House." But this is not wholly correct. John Alden lived here, and so did his wife Priscilla, in their later years; he, and probably she, died here. But they lived with their son Jonathan, their oldest, who built the house in 1653. And most remarkably, from then till now, it has been owned by Aldens—handed down from father to son until it was bought by John T. Alden of St. Louis; from him it was purchased by Charles L. Alden of Boston, by whom it was recently transferred to its present owners, the Alden kindred of America.

All the Pilgrims, and their fellow colonists, the other forefathers, as they who came over to Plymouth in the first three ships were called, did not long remain in Plymouth. The will to migrate made itself felt at a very early day. Better lands, more room to spread out, soon attracted them to other places; the spirit of unrest that has steadily opened up the

whole continent and made the spirit of the Pilgrims the most potent force in our New World democracy. So it was that in 1627—only seven years after the landing and three years before Boston was founded—the Aldens left Plymouth to settle in Duxbury, near by, with seven others.

The house is typical of its class. With its sensibly plain exterior, its rectangular plan, its big central chimney, it reproduced in terms of wood the brick or stone house of the prosperous English yeoman or farmer. In its size, its look of dignity, its spacious rooms, its evidences of old-fashioned comfort, it tells of the conditions of affluence to which the leading members of the colony must have risen not many years after enduring the privations and struggles for existence that marked the start of their New World life. The Aldens, probably in common with the greater number of the forefathers in general, quite naturally took rank as the gentry of the colony, standing materially higher in the social scale than would have been their lot had they stayed at home; enjoying in their new environment, as they must have, the respect, deference, privileges and opportunities commonly accorded to first-comers in a newly settled land. The appearance of their home and its continued possession in the family speak of this quite convincingly. Other Alden homes, built in early days, tell a like story. In Little Compton, Rhode Island, whither one of the Aldens went to settle before the seventeenth century had passed, going with other families from the adjacent Plymouth Colony, the writer has had the pleasure of visiting a fascinating example of this fact.

The house, both without and within, probably looks today much as it did when built. Since shingled exteriors came af-

ter those of clapboard in Colonial construction, probably the house was originally clapboarded. The present condition and aspect of the house are due to its last individual owner, who, acting in behalf of the Alden kindred, devoted himself to the task as a labor of love, giving it most painstaking attention. Mr. Alden says that he has not "restored" it in the common acceptance of the term, for there were no wornout elements to be reproduced. There has been no necessity for anything of the sort, for the house remained in extraordinarily good condition; like the usual run of old New England houses of its class and its day it was admirably built of substantial and lasting materials, and kept in repair by its owners from the beginning to this day. Hence depreciation has been slight. One of the best of expert examiners went through it thoroughly; he reported that he could not find the least evidence of decay or wearing out, saying he knew of no reason why it should not stand in good shape for at least 200 years to come.

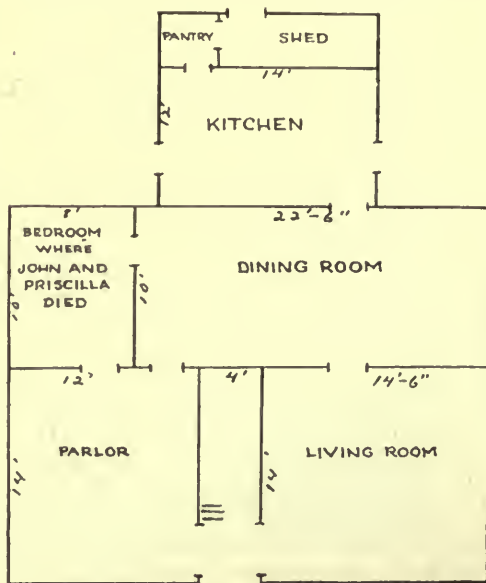
No attempt was made by Mr. Alden to make the house represent, in its interior, what it probably looked like in its first year. In wall-paper, furnishing, and various other things, it frankly shows itself in the fashion an old house would naturally assume under continual inhabitation by well-to-do persons, their standards of taste and comfort adapting themselves to their wants as the years passed; persons going out into the world and bringing back tokens of their travels in the shape of choice China, attractive furniture and the best sort of wall-paper of their day. So all that was needed to do to the house was to preserve the old-time aspect of things, make needful repairs, select appropriate wall-papers of suitably old-fashioned designs, and choose the sort of old furniture that characterized former days.

Mr. Alden had the fortune to obtain the help of an excellent carpenter trained in the traditions of the New England school that ruled when mechanics did first-class jobs because they took just pride in their work. This man added to the house only one feature that it did not

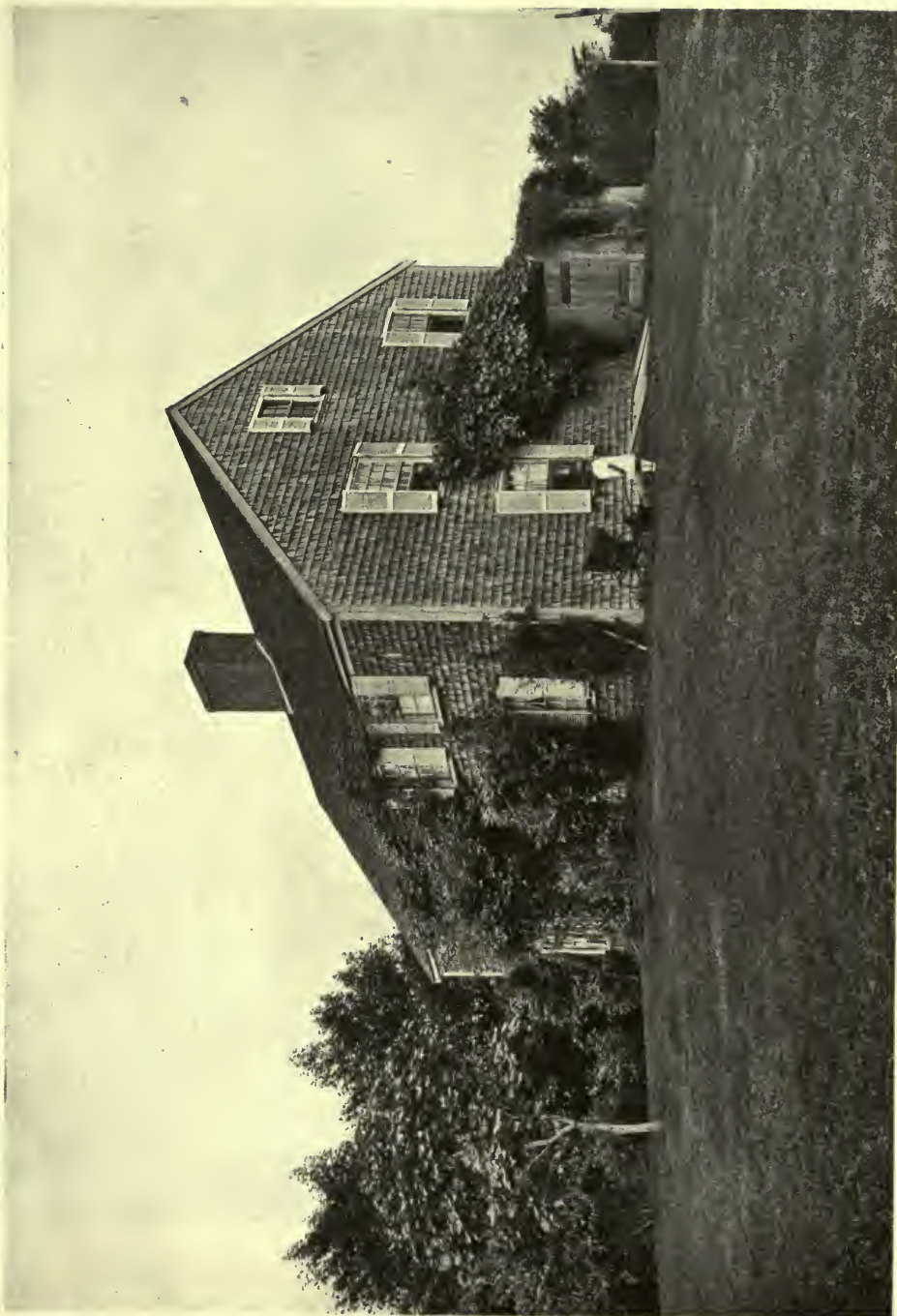
have as it stood. The pantry was too dark, so it was desirable to light it from the outside. So, just as Mr. Alden directed the change to be made—in such a way that nobody would suspect any alteration, using nothing new, whether board, shingle or nail—an old window of just the kind wanted was installed.

A striking token of the unsettled conditions of the young colony in the days when the house was built—wars with the Indians, dangers of invasion, witchcraft, and perhaps forebodings as to possible oppressions and persecutions of the sort that sent the Pilgrims across the Atlantic—lies in certain secret passages and hidden stairs whose existence would never be suspected. It doubtless seemed a wise precaution to provide opportunities for concealment and escape should an emergency arise.

When a place or a building is associated with notable happenings or distinguished personalities legends and myths are apt to arise. In Verona there is the house of Juliet; on Boston Common tourists are taken to see the bench where Howells' "Lemuel Barker" sat; perhaps by this time even the home of "Bromfield Corey" has been located. But



FIRST FLOOR PLAN—THE ALDEN HOUSE, DUXBURY, MASS.



Photos by Burr E. Church

THE ALDEN HOUSE, DUXBURY, MASS.
BUILT BY JONATHAN ALDEN IN 1653.



CUPBOARD IN THE LIVING ROOM—
THE ALDEN HOUSE, DUXBURY, MASS.



LIVING ROOM—THE ALDEN HOUSE, DUXBURY, MASS.

a better sanction exists for showing the small bedchamber opening out of the living-room as the scene of John Alden's death. The original home of John Alden and Priscilla in Duxbury stood on a knoll not far from the house of their oldest son, both houses standing on land sold to John Alden by Experience Mitchell, who as a forefather came on the *Anne*, one of the three first ships, including the *Mayflower*, and was an ancestor of the many Mitchells who lived and in numbers yet live in Plymouth Colony and thence spread over New England. Quite naturally, this small chamber, being on the ground floor and convenient to get about from, warmed from the living-room with its great open fire of blazing logs, would be just the place for an old man. There is also excellent testimony for this assumption: Mr. Charles L. Alden was told by an aged man, whose grandfather had told him, that the death of John Al-

den in 1687 took place in that room. There was a gap of only 29 years between John Alden's death and the birth of that man's grandfather. Hence the information may easily have come from a contemporary of John Alden who had first-hand knowledge of the fact.

Most attractive features of the house are the fittings and furniture, selected and installed with scrupulous care so as to enhance the old-time aspect of the rooms, so quiet and dignified in their excellent design, by expressing the well-being of a typical family of the upper middle class in the early days. These rooms illustrate in a notable degree the social history of the Pilgrims and their descendants, indicating the deserved prosperity that the colony soon rose to: comfortable living served by a plain domestic beauty conspicuously higher than what later periods had to show before modernity had entered upon its esthetic phases.



DINING ROOM—THE ALDEN HOUSE, DUXBURY, MASS.

The collection of old-time furniture that gives the various rooms their perfect aspect of colonial interiors is of uncommon quality. Both in character and arrangement this feature also is due to the man who brought the house into such prime condition. Mr. Alden has long been an enthusiastic collector of antiques; so, beside the fine examples owned by the Alden kindred and permanently installed in the house, there are representative loans from his own rich collection. That part of it now in the Alden house has been estimated to represent a value of at least fourteen thousand dollars.

In arranging the different rooms, the intention has been to give the effect of a home that from the first has been inhabited by successive generations of the same family. The characteristic furnishings of each room thus appear to represent the best of what a continuing family of well-to-do people have accumulated

in the course of the three and a half centuries during which they have lived there. Nowhere in these rooms is there any of the effect of what may be called the inanimate self-consciousness that belongs to things merely placed on show. There is nothing of the ostentatious in the effect produced; nothing of the superfluous or excessive. Many of these things belonged to different generations of the Aldens and are therefore of particular interest. But much the greater part simply represents the best craftsmanship known by the ten successive generations of the family that has always owned the house.

A remarkable thing about the Aldens of America is the fact that John Alden appears to have been the only man of his family name that ever crossed the ocean to settle in the New World. Hence the American Aldens are essentially a generic unit. The most competent authorities have declared that no person in America



PARLOR, WITH DOORWAY (AT THE LEFT) TO BEDROOM WHERE JOHN AND PRISCILLA ALDEN DIED, AND DOORWAY TO KITCHEN—THE ALDEN HOUSE, DUXBURY, MASS.



LARGE CHAMBER IN SECOND STORY—THE ALDEN HOUSE, DUXBURY, MASS.



ANOTHER VIEW OF LARGE CHAMBER IN SECOND STORY—THE ALDEN HOUSE, DUXBURY, MASS.

who rightfully bears the name by virtue of paternity has yet been found who is not a direct descendant of John Alden. The same holds true of the Alden blood that flows along female lines. The family would, therefore, seem to be an appropriate subject for investigation by students of eugenics.

As to the personality of John Alden and that of Priscilla Mullins, who became his wife, little is actually known. The atmosphere of poetry with which Longfellow has surrounded them has set them apart from their fellow Pilgrims. Yet there is little to indicate that there was anything at all more romantic about John and Priscilla than about any others of the company beyond the circumstance that they were both youthful and became lovers in their new life as pioneers. The celebrated episodes that give color to their story appear to be apocryphal. John Alden was a young cooper when he joined the Mayflower company at Southampton, perhaps impelled by the adventurous spirit of youth. Possibly he found a lucrative field for his trade in the New World. So his fortune may have been built on barrels!

Ten Alden names stand in the latest edition of "Who's Who." Two are women, one of whom bears the name by marriage. Their callings are as follows: lawyers, two; one of them also a lecturer; university professor, one; geologist, one; educator, one; four are authors, journalists, editors. Then, also there are hundreds of Aldens who have achieved prominence in the business world.

The Alden most eminent in letters was the late Henry M. Alden, originally a Congregational minister; becoming the

editor of Harper's Magazine, he was the man who did the most to form its distinctive character. He was one of the greatest American magazine editors, peculiarly beloved among his contributors. He wrote two celebrated books, ethical and philosophical in nature: "God in His World" and "A Study of Death."

John Berry Alden of New York, editor, author and publisher, is another man of fine and generous nature, quietly helpful to others in various ways; the American pioneer in the publication of cheap editions of high-class works.

The late W. L. Alden (William Livingstone) was an author loved by boys because of his delightful adventure tales; he was also a journalist, prominent as an editorial writer for New York newspapers.

John Alden is another prominent journalist and writer of newspaper verse; his newspaper life dates back more than 40 years, spent on the editorial staff of the Brooklyn Eagle. He stands high as a "newspaper poet." During more than sixteen years he has written about 5,000 poems, appearing daily in the Eagle; their outlook upon the bright side of life harmonizes with the circumstance that their author founded, more than 24 years ago, the International Sunshine Society.

Raymond Macdonald Alden, professor at Leland Stanford, Jr., University is a poet, dramatist, and writer of short stories; he has also written able books on literary subjects.

This list by no means exhausts the subject, for the Alden name has long been numerous prominent in law, medicine and other professions.



CORNICE DETAIL—WILLIAM MACLAY
MANSION, HARRISBURG, PA., 1790.

The EARLY ARCHITECTURE of PENNSYLVANIA

PART VI - CORNICES



By A LAWRENCE KOCHER

IN the fourth of the *Ten Books on Architecture* written by Vitruvius, it is set down that the cornice is the "ornament" of a building. It is known technically as the crowning member of an entablature—the projecting set of molds at the top of a wall. Its purpose is twofold: to throw off the rain water from the roof beyond the face of the building, and to add a touch of attractiveness to the roof edge. Its origin is to be found in the projection formed by the meeting of roof rafters and ceiling beams. In this sense it was at first structural, but like so many other devices of construction the original purpose was forgotten and it soon lapsed into a decorative feature alone.

The classical cornice of the Greeks and the Romans offered the prototype for Renaissance architecture and proved the inspiration for most modern cornices. It consisted of three parts; first, the uppermost crown molding; second, the broadly projecting square-edged member which serves as a drip and casts a wide expanse of shadow (one of the most important decorative effects of a cornice); and, third, the group of moldings supporting the shelf-like overhang, known as the bed-molds. The cross section of a classical cornice is not unlike the section of a Roman Doric capital. In fact, in each the parts reveal a similarity of function. Both are transitional features and both terminate the upward rise of a wall or of a support. Because, in either case, the parts which compose them are frankly and simply chosen shapes that serve definite ends, they became fixed and regular and what may almost be termed standardized. They lent themselves to few variations other than enrichment of surfaces.

The size of the Greek cornice was de-

termined by the height and the nature of the order that accompanied it. In the Italian Renaissance times a new idea was introduced, in that the cornice was generally proportioned to the height of the wall; and it was known as the *cornicione*. This came about through the frequent instances of walls in which no order was employed. In this way the wall cornice may be said to have been borrowed from the order, and it has always retained the classical turn of molds which its original use prescribed. As a crowning feature of a wall, the cornice may or may not include the frieze and the lower part of the entablature, the architrave. With the Italian palaces, such as the Riccardi, the Strozzi and the Pitti, these parts are dispensed with. In some cases, even where orders are included, as in the admirable Library of St. Mark's, in Venice, the uppermost entablature is greatly enlarged from its traditional proportion to conform to the total height of the building and not to the order of the second story.

It would be preposterous to attempt to link the cornice of Colonial America to these heroic endeavors of the first rank which come from classical antiquity and Renaissance times, were it not for a certain high achievement of our early builders in this direction, a well-merited prominence which gives distinction to the Colonial style. The American craftsmen continued the precepts of tradition, but in addition they reshaped the orders, varied the treatment of moldings and altered the conventional relations which exist, or are thought to exist, between the parts or the whole of an order. These modifications were based on reason and common sense, and were made to suit the materials at hand and the strange circumstances of an isolated land.

Mr. John T. Boyd, in discussing Colonial moldings says: "No artists in the world have better used wood out of doors than Americans. Our early craftsmen developed a series of wood forms that are thoroughly functional, an organic expression of the construction in the simplest, most direct way. They also modeled them to make the most of sunlight. In the North the hard, cold light brings out every form and line of detail with uncomfortable distinctness. This fact led the old craftsmen-carpenters to make their details very simple and delicate and fine in scale, using rounder moldings to soften the edges, avoiding a machine-like appearance; while to the South, where the light is warmer, mellow and vibrating with color, it does not accent edges, hence the craftsmen used heavier and bolder detail, with rich decoration in the luminous shadows." This sympathetic and thoughtful variation of moldings, this ready shaping of parts, the better to produce a play of light and shade, was made possible by the choice of wood as the material from which cornices and other exterior trim were formed. The cornices were essentially wood in construction and in design, not a construction borrowed from stone or metal.

It was not only the influence of materials that was potent in giving form to the cornice; even more, it was the abnormal

and preternatural conditions surrounding the building craft, the primal isolation, and the absence of tangible guides to show the way, that left a stamp of individualism upon the local style.

The early joiners were forced by the urge of circumstances and by a woefully insufficient building knowledge to devise new ways of construction. These ways were kept within certain bounds so that a distinct and unified style resulted, yet the builders carefully avoided any exact repetition of design or of molding. It was in the variety and in the individuality of handling that we discover virility, originality of flavor, charm and unflinching appropriateness.

Viollet-le-Duc has pointed out that all worth-while achievement in architecture has been produced under similar separated and detached conditions. "If a varied and precise acquaintance with precedent in all preceding styles of architecture," he says, "was an advantage to the architect in enabling him to see how others have proceeded before him, it is sometimes a serious embarrassment to him. It is apt to encumber his imagination with a thousand forms, all, it may be, excellent in themselves, but in any combination mutually detrimental; and, not being able to apply them to his purpose without change, he is forced to such compromises that his design must inevit-



CORNICE DETAIL OF CHURCH (NOW DEMOLISHED), YORK, PA. IN OFFICE OF MR. R. DEMPWOLF.



CORNICE DETAIL, ROXBOROUGH, PHILADELPHIA.

ably lose character. I am far from lamenting that we have this extensive knowledge of precedent, but that it is so difficult for the architect to prevent this knowledge from becoming his master. The more extensive and exact his archeological information, and the more sensitive his artistic instinct is to the beautiful features of preceding styles, the more self denial, firmness and strength of mind are required to enable him to subordinate this information and sensitiveness to his better judgment."

The cornice commonly adopted in Pennsylvania was but rarely accompanied by the frieze and architrave. It consisted of the simple cymatium mold, surmounting a square projecting corona, which, in turn, was upheld by bold architectural bed-moldings. A necessary attraction was contributed by subtlety of contour and by a rhythmical contrast of pleasing curve and flat-faced surfaces. The cornice of Wyck is selected as char-

acteristic of the earlier type. Here the cornice is in its simplest terms. There is nothing pompous and finikin in the treatment, nor is there conscious striving for effect; there is rather a modesty and an unerring good taste.

In some cornices the bed-molds were omitted and in their place was substituted a large cove of plaster separated from the wall of brick or plaster or stone by an astragal. Hope Lodge illustrates such a treatment. With the cornice of the Letitia Penn house in Fairmount Park, a cove of wood occurs instead of plaster. This sort of cornice would seem to be particularly appropriate when in conjunction with walls of stucco, but there is an undeniable charm in the contrast of materials as appears at Hope Lodge.

A restraint and an unchanging uniformity prevails in the treatment of crown molds which, in general, were seen beneath the bright light of the sun, while the supporting moldings in shadow were



CORNICE OF THE HETHERINGTON
HOUSE, MILTON, PA., 1803.



CORNICE AND DORMER — HOPE
LODGE, WHITEMARSH, PA., 1723.



CORNICE DETAIL — WEST WING OF THE
PENNSYLVANIA HOSPITAL, PHILADELPHIA.

constantly varied and appear to have been the subject of repeated experiment. A variety was attained by ornamentation consisting of the Greek fret in all of its interpretations, gouge and chisel decoration, and by a limited carving in wood.

The cornice of the William Maclay mansion on Front street, Harrisburg, is a most successful example, showing freshness of concept and boldness of outline well suited to the rough-faced ashlar wall. The supports of the overhang have concave sides that are an effective variation of the bracket. They fulfill the function of the bracket in a direct and original fashion. It was the prevalent custom of the eighteenth century artisans to depart from traditional forms and to seek new arrangements, as was done here. Ruskin has well said "that great art . . . does not say the same thing over and over again; that the

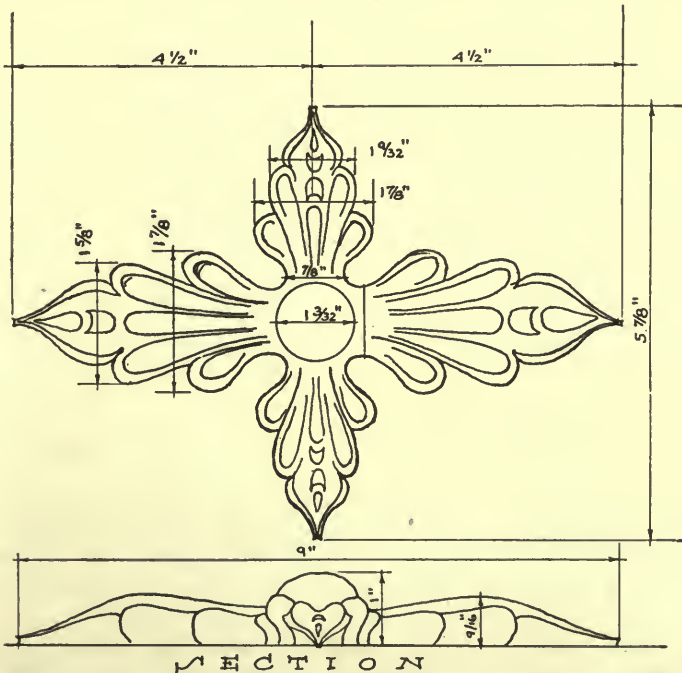


CORNICE ORNAMENT—MACLAY MANSION, HARRISBURG, PA.

merit of architectural as of every other art, consists in its saying new and different things . . . and that we may, without offending any laws of good taste, require of an architect, as we do of a novelist, that he should be not only correct, but entertaining." Variety is the spice of architecture as of life, but only when variety is seasoned with reason and good taste, or when coupled with mind

acting properly upon materials. The successful monuments of these craftsmen are proof enough of the soundness of their judgment. That they were not unmindful of classical models is evidenced by a close adherence to the antique in instances where correctness was deemed a necessity. No one would find fault with this particular cornice on account of the contour of its moldings, nor with the propriety of using the wedge shaped guttæ as a means of decoration.

The quatrefoil ornaments are simply shaped with gouge and cutting knife and were probably carpenter made. Their rudeness would scarcely permit them to

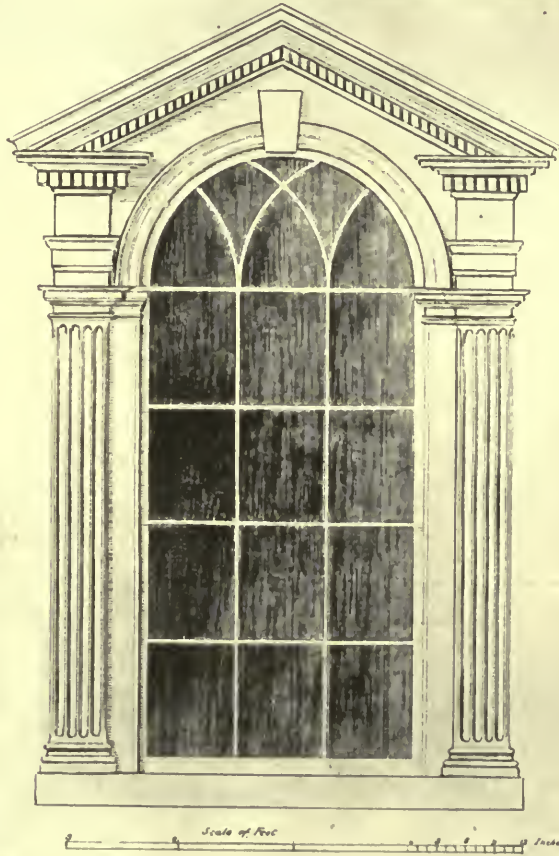


SECTION
CORNICE ORNAMENT
MACLAY MANSION HARRISBURG, PA.

be classified as examples of the art of the wood carver. The evidence of gouge work is of very great interest, as it marks an early stage in the development of decoration in the Colonies.

The cornice of the Withington house,

tion of the dentil course. The diminutive frieze is scribed and modeled with the oval spider web motif and has overlapping curves which give a satisfactory continuity and serve to bind the entire design together. The same character of



DORMER FROM HANDBOOK PUBLISHED IN PHILADELPHIA IN 1805.

at 136 Queen Street, Northumberland, holds an interest for us in that here again attempts were made in carving. In this example the enrichment appears on the base of the crown molds in the form of twisted rope and small triangular wood blocks, as well as beneath the over-hanging cornice where there is a band of lace-like ornament occupying the usual loca-

tion occurs within the house, appearing on door trim and mantels, showing that in some instances the same artisans were responsible for the design and execution of the entire building.

The foregoing examples appear on barnhouses and lesser dwellings and are all more or less domestic in quality. A more formal cornice was demanded for

such buildings as the old State House in Philadelphia, the Pennsylvania Hospital of the same city, and for the strictly Georgian mansions. The Corinthian cornice, with modillions or brackets, was well suited to such formal usages. The

Independence Hall stands as the most pleasingly proportioned cornice of this class.

We turn to the dormer as a feature which is closely akin to the cornice and the doorway. All parts of the external



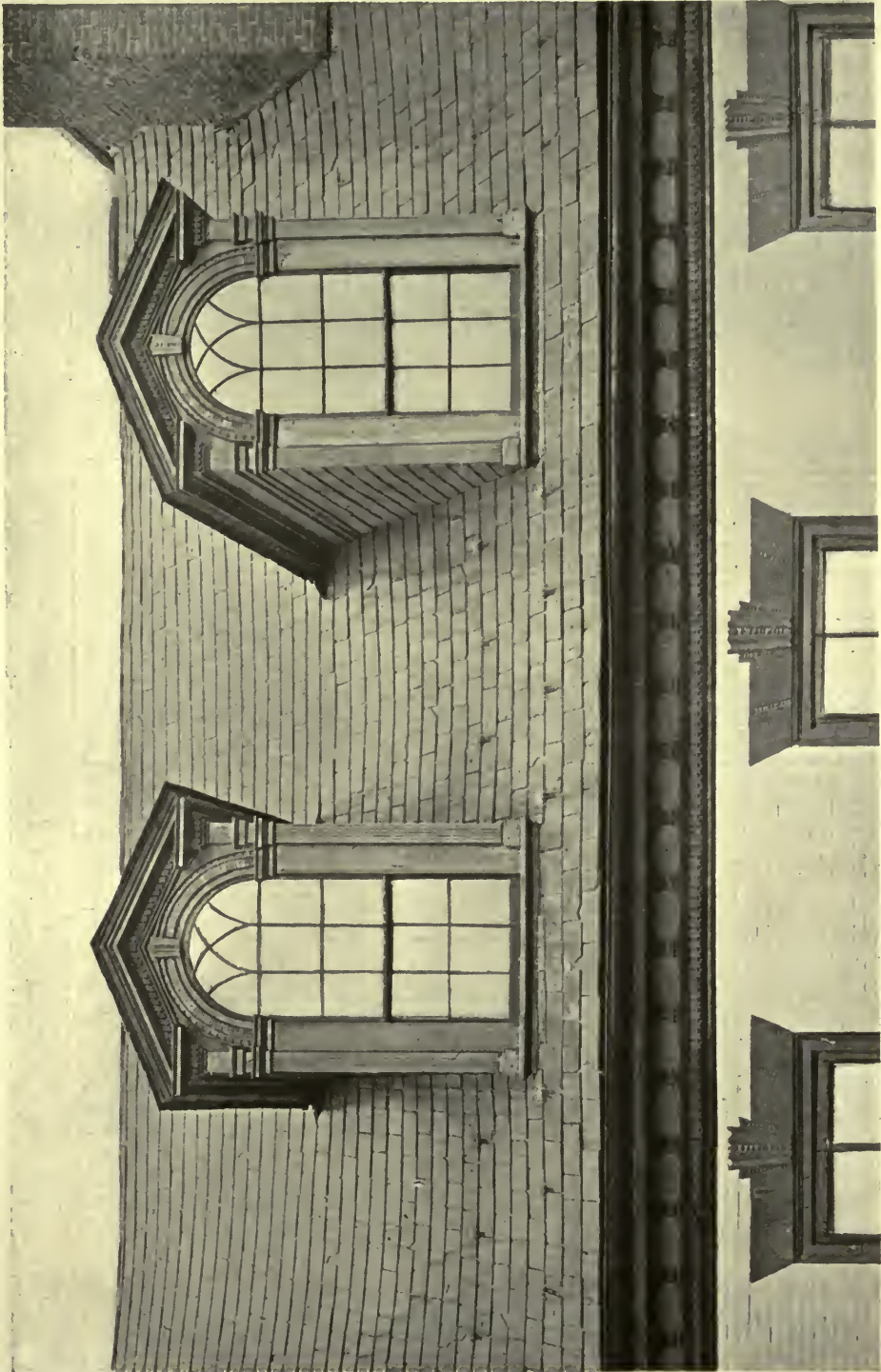
CORNICE AND DORMER, LANCASTER, PA.

need for brackets was felt because the buildings were larger in size and on account of the increased scale of the component parts. With the greater height of cornice, the ornamented bands would not appear to advantage and, besides, the time-honored Corinthian cornice discloses a fine dignity and formality which we connect in our minds with state houses and town halls. The north façade of

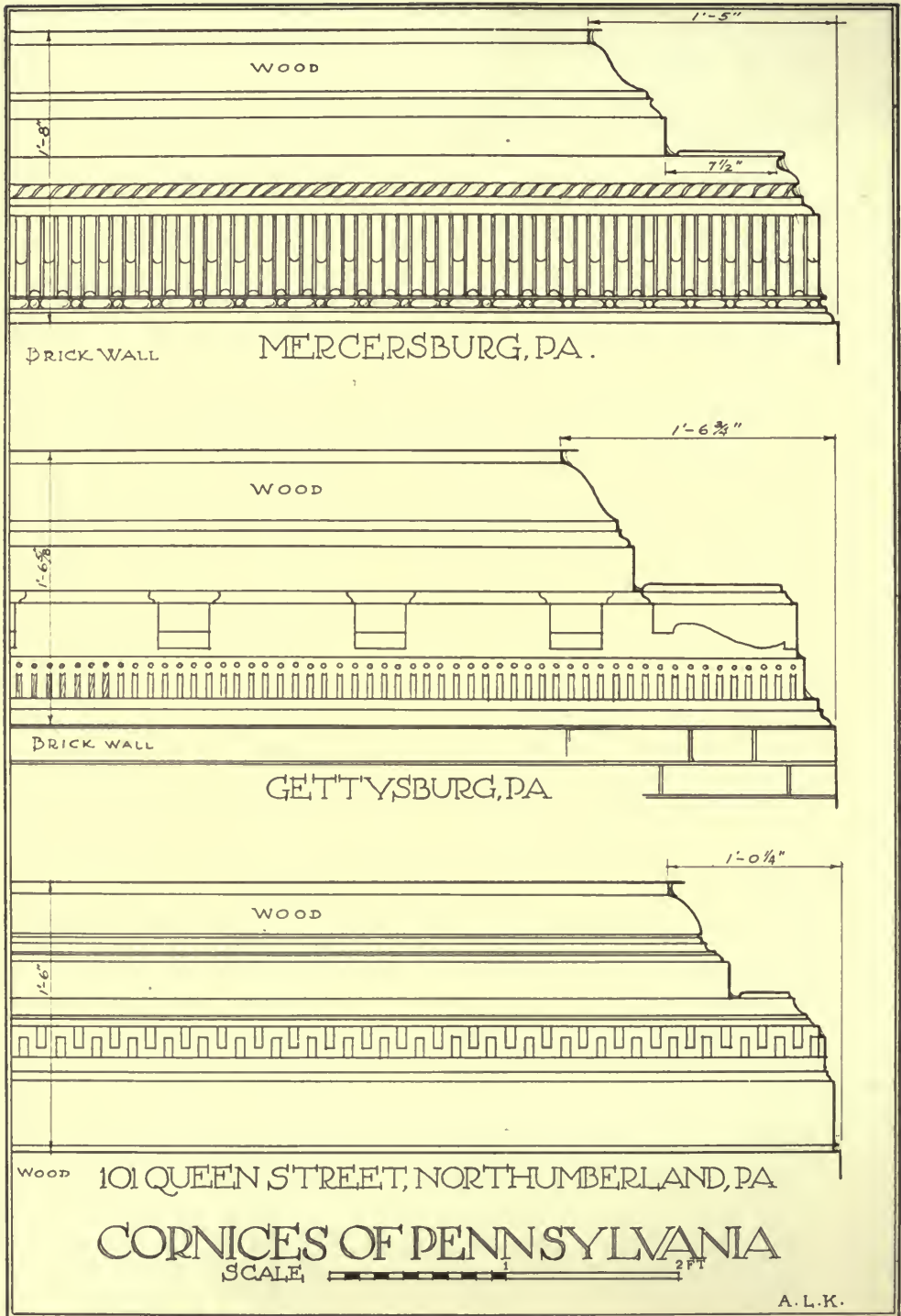
design are, in fact, of one piece, having a likeness in shape and ornament. One could reasonably suppose that if any part of the Colonial house were to receive sparing attention it would be the dormer, for it was of an utilitarian nature and it frequently is proved to have been an afterthought. The wide variety of dormer forms and the uniformly attractive results would belie such a supposition.

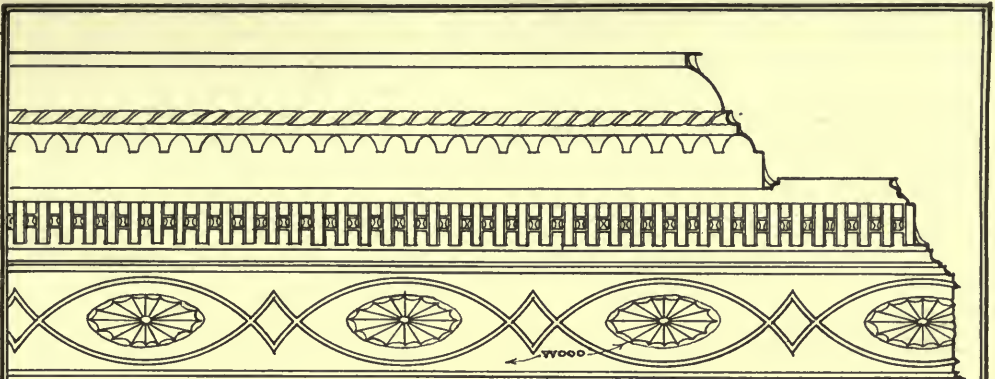


DORMER DETAIL, YORK, PA. PHOTO
BY COURTESY OF R. DEMPWOLF.



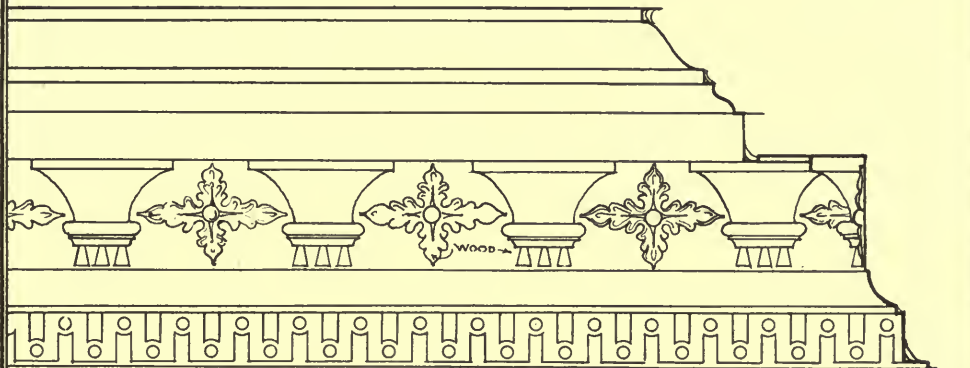
CORNICE AND DORMERS,
LANCASTER, PA.





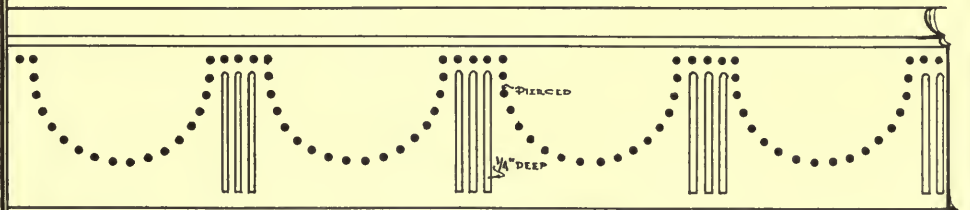
BRICK

136 QUEEN STREET,
NORTHUMBERLAND, PENN.



STONE

MACLAY MANSION,
HARRISBURG, PENN.



WOOD

CORNER KING & QUEEN ST'S.,
NORTHUMBERLAND, PENN.

CORNICES OF PENNSYLVANIA

SCALE 1 FT

A. L. K.

The typical dormer of the central colony is arch-headed, the arch being fitted within the sloping planes of the pointed roof. A treatise on architecture published in Philadelphia* sets forth certain regulations to govern the design of the dormer. It stipulates that "if fluting or dentils are to be used for dormers, they should be larger in their proportions than in common work, and the pitch of the pediment should be rather steeper than in frontispieces (doorways) as the height will take off something from the pitch." The specimens of the simpler square windowed dormer are found on Stenton and the Morris house of Philadelphia. Grumblethorpe, in Germantown, adopted the segmental curved head with adjoining pilasters. Choice was made of the so-called Gothic sash with the circular part above for the Stocker house at 402 Front Street, Philadelphia, and for the Chew mansion in Germantown.

Our architectural heritage finds no

*The Young Carpenter's Assistant, or A System of Architecture Adapted to the Style of Building in the United States. By Owen Biddle, Philadelphia, 1805.

freer expression than in the cornice of the eighteenth century in America; in no single instance of embodying thought in woodwork do we discover more of diversity, or more of the virility of a living and growing architecture, than in this single feature. Time has been more considerate of the roof edge than elsewhere, thanks to the inaccessible location and to the thoroughness of craftsmanship of the pioneer woodworkers. There is scarcely a city or town in the commonwealth of Pennsylvania with a history dating back to the Revolution that does not offer at least one and perhaps several examples of the wood cornice that will delight by the grace of its proportions and the originality of its execution. At the present time, when the lure of the past and when our regard for the architectural attainments of our country were never in higher favor, the architect and draftsman could not do better than to study the fascinating and fruitful field of Pennsylvania for models to guide and to inspire.



Sculpture in the Garden

— A —
Portfolio of Photographs
by Antoinette Perrett





FIGURE BY RICHARD H. RECCHIO—
GARDENS OF GARDINER MARTIN LANE,
ESQ., MANCHESTER-BY-THE-SEA, MASS.



FIGURE BY CHARLES CARY RUMSEY—GARDENS OF PAYNE WHITNEY, ESQ., MANHASSET, L. I.



FIGURE BY CHARLES CARY RUM-
SEY-GARDENS OF JOHN T.
PRATT, ESQ., GLEN COVE, L. I.



BRONZE FIGURE OF YOUNG GIRL BY CHARLES CARY RUMSEY—GARDENS OF JOHN T. PRATT, ESQ., GLEN COVE, L. I.



FIGURE BY PAUL MANSHIP IN NICHE
OF GARDEN WALL—ESTATE OF HER-
BERT L. PRATT, ESQ., GLEN COVE, L. I.



SUNDIAL BY GAIL SHERMAN CORBETT ON
LOWER TERRACE—ESTATE OF GEORGE
D. PRATT, ESQ., GLEN COVE, L. I.



FIGURE BY JOHN GREGORY IN
STUDIO GARDEN OF MRS. PAYNE
WHITNEY, AT MANHASSET, L. I.



POOL, WITH RELIEF BY MAHONRI YOUNG, IN CHIMNEY PIECE—COUNTRY HOME OF CHARLES CARY RUMSEY, ESQ., WHEATLEY HILLS, L. I.



GROUP BY JAMES EARLE FRASER
FOR GALLERIED COURT AT ARDEN
HOUSE, THE HOME OF MRS. E.
H. HARRIMAN AT ARDEN, N. Y.

— THE BUILDING PROSPECT —

*A Study of the Major Economic Factors
Bearing on Present & Future Costs, Future
Income and the Demand for Buildings*

By

WILLFORD I. KING, Ph. D.

PART II ~ RENTS & VALUES

THE problem of determining upon the best time for building has lost none of its interest since the last article of this series appeared. Building material prices have, as predicted, continued their descent, and the steepness of the decline does not forecast an upturn for several months to come. Interest rates are on the down grade and the recent survey made by the Fidelity and Deposit Company of Maryland shows that labor conditions have become materially more favorable to the employers in nearly all sections of the United States. The opportunities for building with profit are, then, distinctly improving from the standpoint of construction costs.

But satisfactory cost conditions are not alone sufficient to insure profit. It is essential that the outlook for a satisfactory income from the enterprise shall also be auspicious; in other words, the altitude and probable trend of rents in the future is a question of the first moment.

Strangely enough, however, much less attention has been given to this phase of the problem than to the cost side. Most architects and contractors are experts in estimating costs, but many of them have only the haziest of ideas as to the relationship existing between the net income and the real value of a piece of property. Even the most successful builders are too frequently guided rather by general impressions than by any precisely reasoned analysis of the facts or laws involved. Intuition developed through long experience is often a most satisfactory basis for success in business, but it rarely can be depended upon either as a foundation for generalizations or as a guide to public policy.

A good illustration of this fact is found

in the bill introduced recently in the New York legislature at the request of the Real Estate Investors of New York, Inc. According to the newspaper account, "it is provided that the actual value of the property shall be the basis on which rent is fixed."

This same idea was evidently in the mind of a prominent business man who recently wrote an article in which he contended that because a certain group of stocks which he had studied yielded on the average twelve per cent. on the market price, therefore rents should be so regulated as to produce a like return on the value of the real estate.

These instances both indicate that the public is still clinging tenaciously to two ancient fallacies: first, that there is an "ought-to-be" rate of rent, which should be established by law; and second, that this rate should be based upon the cost of production. The hopelessness of trying to determine a "fair" price was brought out in the last chapter. The idea of using costs or selling values as a basis for the legal fixation of rents is clearly a case of circular reasoning arising from lack of knowledge of the interrelationship of value and rent. Once it is clearly understood that value must necessarily be itself merely a reflector of rent, the absurdity of such a proposition becomes evident.

Could the public be made not only to understand vaguely but really to comprehend thoroughly the true connection between rent and value such "isms" as the Single Tax would lose most of their strength and the general plane of discussion concerning realty problems would be greatly elevated. Because of the urgent necessity of clarifying public thinking in

this regard, it seems worth while at this point to set forth in some detail the basic principles involved.

We may well begin by considering why the suggestion of basing rents upon costs of construction is not sound in principle. One of the first obstacles to the success of this mode of procedure is found in the fact that rents are paid as much for the use and location of the site as for the shelter which the building affords. Were rents based upon construction costs alone, the land, having no cost of production, could evidently be allowed no return whatsoever.

In order to avoid this difficulty, the sponsors of this course of action will presumably propose to use the price for which the land last sold as a basis for rent fixing. This plan, however, leads at once to new pitfalls for, after a period of rising prices, such as we experienced not long since, the land rent, as determined by this method, would vary inversely with the length of time which had elapsed since the last transfer.

The obvious way to avoid this difficulty is to base all rents upon present assessed values, but this is merely shifting the difficulty to the shoulders of the assessors. How are they to fix the values? It will be explained that this is easy—they can observe the sales that are occurring and use those as a basis of valuation. But why is the land selling at its present price? Here we reach the end of the chain of evasions and it is necessary to face the facts. There can be only one answer. The land has value simply because of the prospect that it will yield valuable services, and the prices of these services are known as rents.

If, then, it is impossible to escape the conclusion that selling values are themselves based upon rents, it is evidently absurd to base rents upon selling values. Such a policy resembles that of the gunner who timed the firing of the noon gun by his watch, which in turn was synchronized with the jeweler's clock, who set his clock by the gun fired at noon.

It is, then, impossible to overemphasize the fact that values are based upon prospective future rents and not rents upon

values. This truth applies not only to the land but also to the building as well. It often thrusts itself painfully upon the investor who has erected an expensive structure which is found to be unsuited to its location. The building yields only a fraction of the rent expected and the fact that it has cost a large sum of money to build absolutely fails to call forth a buyer who will pay anything like enough to cover the cost of construction.

Another man who learns to his sorrow that costs do not determine values is the owner of a stately mansion located in the path of a slowly advancing business or manufacturing district, the smoke from which casts a heavy pall over the entire section of the city. As the wealthy residents desert the neighborhood, demand for elegant homes disappears, rents shrink to absurdly low figures, and fine mansions are a drug on the market and sell at figures representing but a small fraction of what it would cost to reproduce them. Were rents based upon costs of construction, such evidently could not be the case.

It is clear, then, that a shrinking demand for a given type of housing may cause a fall in rents and selling prices, even when building costs are unchanged. A proposition complementary to the one just demonstrated can also be established, namely, that increases in construction costs are not necessarily followed soon by corresponding increases in rents. During the period 1914 to 1920, for instance, rentals did not rise in anything like the proportion that construction costs did. In a country like pre-war France, having a stationary population fairly completely housed in dwellings of a durable character, an immense rise in the cost of materials would, for a long time, have practically no effect on either the supply of or the demand for houses, and hence the average rental rate would not be appreciably affected. Values of dwellings might tend to rise somewhat more noticeably than the rents, for long-headed individuals would foresee the day when, owing to the forces of deterioration and the demands for more modern structures, satisfactory dwellings would be scarce, and hence rents would become high; and the demand

of such far-seeing individuals would tend to raise the present market price. However, persons of this type are so few and the prospects of higher rents are so distant that the effect, even on the *values* of buildings, would presumably be but slight.

It is important, then, that the fact should always be kept firmly in mind that building costs affect the values of buildings already constructed in one way only; namely, building values cannot go much above the cost of producing other similar buildings, because such an excess of value over costs will immediately lead to the construction of new buildings, and this increase in supply will lower rents and hence lower the values of the old buildings. There is, however, as previously pointed out, nothing whatever to hinder building values from remaining for long periods of time far below the cost of replacing the buildings. Laws fixing rents below the competitive level naturally bring about this situation. Such legislation, unless offset by bonuses paid to builders, is certain to result in a housing shortage increasing in severity as population grows.

We have been emphasizing the fundamental importance of remembering that real estate values must always depend upon rents, while rents cannot depend upon real estate values. This general principle, however, while true, is far from being definite enough to answer many of the questions arising in connection with the problem. Some of the most obvious queries are: If values depend upon rents, what is the relationship between them? Is one a simple multiple of the other?

The latter question must evidently be answered by a decided negative. The rent of Iowa farms, for example, commonly amounts to but two or three per cent. of the current price of the land. Does this mean that money in Iowa loans for a similar rate? By no means. It may, at the same time, be worth six to ten per cent. This circumstance has given rise to some peculiar problems in regard to farm accounting. If, on a farmer's books, his business is charged with six per cent. of the value of his investment, the high value of the land often makes the interest allowance so high that the farmer apparently

makes nothing whatsoever by his farming operations. When such a state of affairs is found to be widespread, one is forced to conclude that the failure is in the accounting system rather than in the mode of conducting farming operations. As a matter of fact, the error arises from charging interest on the investment rather than rent on the property used. This error has its origin in the faulty assumption that the ratio of real estate rents to real estate values is approximately equal to current interest rates.

That such a relationship occasionally holds true, no one can deny, but such instances must be regarded rather as the exception than as the rule.

The value of a vacant city lot, if dependent upon its present rental, would probably be zero and yet, in fact, it may sell for many thousands of dollars. Evidently the relationship of value to rent cannot always be explained by such an ultra simple formula.

At this point, it may be well to state the somewhat startling but nevertheless easily demonstrated proposition that values depend wholly upon beliefs and expectations and never upon facts. The only way that facts have a bearing upon values is that our anticipations are based upon the events that have actually happened and facts as they exist. A building is destined to burn tomorrow. It is worth none the less today, for no one knows that the fire is going to occur. It is because values are based upon beliefs and feelings that they change so rapidly. Sugar is as sweet today as a year ago; neither its supply nor its costs of production have changed radically; nevertheless, its value has diminished by over two-thirds. The thing that has changed is the opinions of planters, traders, refiners, and consumers concerning the probable future changes in supply and demand. If, then, we are to study values, whether of sugar or of real estate, we must study men's minds.

The only way to accomplish this end and to gain even a half way insight into the origin of realty values is to make use of mathematics. Lest the reader who has long eschewed this dreadful science turn aside at this point in despair, it may

be well to explain that the important principles involved may be elucidated with relative ease.

Most business men have in mind a distinct concept of what money is worth to them. Jones, for example, believes he can make eight per cent. on an additional investment. He, therefore, considers a dollar today worth \$1.08 a year hence. At the end of a year, he thinks he could invest the \$1.08 and have eight per cent. profit on his new investment by the end of the second year. Evidently, he would then have $\$1.08 \times \1.08 , or $(\$1.08)^2$ or \$1.1664. Similarly, at the end of three years, the dollar of today would be worth $(\$1.08)^3$, at the end of four years $(\$1.08)^4$, etc.

Now let us reverse this process. To Jones, a dollar today is evidently worth a dollar; but the present worth of a dollar received a year from now would only be

$\frac{\$1.00}{(\$1.08)}$, or \$0.926; a dollar two years

hence would today be worth but $\frac{\$1.00}{(\$1.08)^2}$

or \$0.857; a dollar due three years from

date would now be valued at $\frac{\$1.00}{(\$1.08)^3}$,

or \$0.794, etc. Evidently, as a dollar gets further away into the future, its present worth grows rapidly smaller in Jones's mind.

From the facts just stated, it follows that if Jones has a piece of realty which he expects to rent for \$1,000 net every year he will today value this year's rent at \$1,000, next year's at \$926, the third year's at \$857, and the fourth year's at \$794. Evidently, when his subjective interest rate is as high as eight per cent., the estimated present value of a rent payment diminishes very rapidly indeed as it fades into the future. Were his subjective interest rate only four per cent., the diminution of values due to delay in the time of payment, would be much less marked.

It can be easily proved by a process which it is not necessary to present here that if Jones added together the \$1,000, the \$926, the \$857, the \$794, and all the

other sums which he would obtain by such a discounting process continued to infinity, he would arrive at exactly \$12,500. But we obtain this same sum if we divide \$1,000 by 0.08.

If Jones invested or loaned the \$12,500 at 8 per cent. he would receive therefore \$1,000 each year indefinitely into the future. It is evident, then, that in Jones's mind the real estate is worth exactly \$12,500.

But Smith has a different view about the same piece of property. He believes that, since construction costs are high and immigrants are coming at a very rapid rate, rents must go up sharply. He reasons that the rent this year will be \$1,000, next year, \$1,200, the third year, \$1,400, the fourth, \$1,600, and so on. If money is worth 8 per cent. to him also, the present worth of a year's rent paid now is \$1,000, of next year's rent

$\frac{\$1,200}{(\$1.08)}$ or \$1,111, of the third year's

rent $\frac{\$1,400}{(\$1.08)^2}$ or \$1,200, of the fourth

year's rent $\frac{\$1,600}{(\$1.08)^3}$ or \$1,270, and so

on. He would figure the first four years' rent at \$4,581 against Jones's estimate of \$3,577 for the same period, or an excess of \$1,004. This differential would be very greatly increased if the process were continued by including the estimates of the present worths for the more distant years.

As a matter of fact, according to Smith's mode of reckoning, the value of the property is \$46,250,* an amount nearly four times as great as what Jones believes it to be worth.

But Brown is less optimistic. He sees ahead a declining price level and stronger and stronger tendencies to force down rents by legislative act. To his mind,

* The formula is

Let R = Present net rent.

A = Annual anticipated increase in rent.

i = Subjective interest rate of person interested in property.

V = His estimate of present worth of property.

$$\text{Then } V = \frac{R}{i} + \frac{A(1+i)}{i^2}$$

each future year may see the rent one-tenth less than it was in the year immediately preceding; in other words, he expects the figures to run about as follows: \$1,000, \$900, \$810, 729, etc. Furthermore, he may figure that money is to him worth 10 per cent. According to such calculations, the rents of the next four years would today have a value to him

$$\text{of } \$1,000 + \frac{\$900}{(\$1.10)} + \frac{\$810}{(\$1.10)^2} + \frac{\$729}{(\$1.10)^3} \text{ or } \$1,000 + \$818 + \$669 + \$548.$$

It can be shown mathematically† that if Brown's beliefs are correct, the property is worth only \$5,500.

For almost any kind of belief concerning the course which the rent will follow in the future, it is possible to derive a formula and, by its aid, to compute the value of the property, and from the instances just stated, it is easy to see that an apparently small divergence in views as to the future outlook leads to radical differences in the valuation placed upon the property at the present time.

It goes without saying that few indeed of the prospective buyers or sellers estimate the value of a piece of property on the mathematical basis here set forth, but all approximate it in some rough and ready fashion. The average man's ideas concerning prevailing interest rates are usually rather definite and each one has firm convictions that rents are going to rise or fall. With these figures in mind, the first step each normally takes is to divide the current rent rate by his subjective interest rate in order to arrive at a basic estimate of value. To this preliminary figure, each one will add or subtract some more or less arbitrary amount which he believes represents future prospects. In this way, those interested in the property arrive at subjective values approximating more or less closely those

which might be calculated more exactly by the method described.

Granted, then, that, by some such process, each of a dozen men has come to some definite conclusion concerning what a piece of real estate is worth, how do these opinions react upon each other to establish a definite market price at which the property is likely to be bought or sold? The answer to this question is best given by presenting a brief table, showing the manner of determining the approximate market price of a group of *exactly similar* properties. The method here shown most closely approximates the truth in a market in which prospective buyers and sellers are congregated and where open bidding is the rule. However, it is also reasonably typical in those instances in which all parties are familiar with the general situation and are looking for the best bargain available.

HOW SUBJECTIVE VALUES ARE TRANSFORMED INTO MARKET PRICES.

Prospective Purchaser.		Prospective Seller.	
Name	Highest Limit He Will Pay.	Name	Lowest Price He Will Take.
Smith	\$46,250	Brown	\$5,500
Clark	30,000	Cross	6,000
Davis	25,000	Green	7,000
Baker	20,000	White	9,000
Barry	18,000	Dix	10,000
Atkins	*12,500	Jones	*12,500
Avery	10,000	Evans	13,000
Adams	8,000	Ellis	14,000
Bliss	7,500	Fox	18,000
Camp	7,000	Ford	19,000

If, in the particular market outlined, in which all houses are exactly alike, each prospective seller has but one house to sell, and each prospective purchaser desires to buy only one house, and if there is a sufficient amount of bargaining, the result will be that Brown, Cross, Green, White, Dix and Jones will be able to dispose of their houses and Smith, Clark, Davis, Baker, Barry and Atkins will each secure a residence. It is probable that all the houses will be sold at prices close to \$12,500, since this is the point at which the market is said to clear—in other words, the one point at which demand and supply are exactly equal.

It must not be inferred that Brown will actually receive a lower price than Jones or that Smith will pay more than Atkins. Of course, they will not make their thoughts public, and hence, if good bar-

† Let f = fraction of decrease in rent expected annually.

Let other letters represent the same concepts as in the preceding formula.

Then $V = \frac{R(1+i)}{f+i}$

gainers, they will sell or buy on the same terms as their neighbors who have different subjective values. Again, assuming that competition is keen, it is probable that Avery, Adams, Bliss and Camp will fail to secure a house while Evans, Ellis, Fox and Ford will not be able to sell.

The table given shows how the subjective values, even though they exist only in men's minds, fix the prices at which properties actually change hands. It does not, however, necessarily follow that, because the market value represents a sort of composite view of the future outlook, it is an accurate gauge of the present worth of the future income of the property. In a boom time, for example, a sort of contagious optimism leads both buyers and sellers to picture the future in too roseate terms, with the result that market values soar far above the bounds dictated by calm reason. On the other hand, rents may advance much faster than the majority of interested persons expect.

In the imaginary situation discussed above, for example, it may be that Smith's prognostications are correct. If so, the man who buys property at the market price is destined to secure a large margin of profit if he holds it for a few years. On the other hand, if Brown's opinions should prove to be accurate, those purchasing at the market price are likely to incur very heavy loss. Possibilities of profit from investments or speculation require, therefore, an ability to guess future prospects more accurately than can the majority of the persons dealing in the market.

Since correct anticipations of the future course of rents mean so much to investors it is worth while to study briefly the present outlook for building rents.

The accompanying chart shows that the rise in rents since 1913 has been trivial as compared to the increase in wholesale prices during the same period; hence, it is improbable that they will fall in any such striking manner as the latter have already done. Rent rates are fixed so largely by custom and contract that changes tend in general to follow rather than to accompany those in the wholesale market. We need not be sur-

prised, therefore, if rents are somewhat lower during the next year, but, in view of the apparent housing shortage and the huge volume of immigration, it seems improbable that they will fall to any considerable extent.

In New York, the legal restrictions placed upon rent have tended to discourage investors from entering the building field. Such a force naturally tends to create a housing shortage and keeps rents high. On the other hand, the exemption of new houses from taxation is a stimulus to building, which tends to make rents lower.

The two most potent forces affecting the outlook for rents are the existing building shortage and the probable trend of the price level. There seems no reason to doubt that construction work during the last four years has failed to keep pace with the growth of population. Until this shortage is remedied, it will exert a powerful resistance against any decline in the rent level. However, if deflation is to force all prices back to pre-war levels, rents must eventually follow in similar fashion. Under these circumstances, the builder must needs reap his profits quickly if at all. If he builds at present costs and fails to sell soon, he is almost certain to lose money.

But all this is on the assumption that prices are to drift steadily downward. As was shown in the Architectural Record for January, this assumption is probably contrary to fact. The monetary legislation which made for inflation is still part of the statutes; business men are as anxious as ever for profits; business is certain to boom again; and there is every probability that the price level will once more rise sharply. Even when we consider the effect of the outflow of gold to Europe which is likely to occur in time, there seems little prospect of the price level going much lower than at present for a number of years to come, and just now, the indices of rent and wholesale prices are not far apart, if the figures presented by either the National Industrial Conference Board or the United States Bureau of Labor Statistics are to be trusted.

If events pursue their normal course.



ONE OF THE EXECUTIVE OFFICES—NEW YORK
QUEBRACHO EXTRACT COMPANY, NEW YORK
CITY. BENJAMIN WISTAR MORRIS, ARCHITECT.

PORTFOLIO
OF
CURRENT
ARCHITECTURE



DIRECTORS' ROOM—NEW YORK
QUEBRACHO EXTRACT COMPANY,
NEW YORK CITY. BENJAMIN
WISTAR MORRIS, ARCHITECT.



ONE OF THE EXECUTIVE OFFICES— AMERICAN DYEWOOD COMPANY, NEW YORK CITY.
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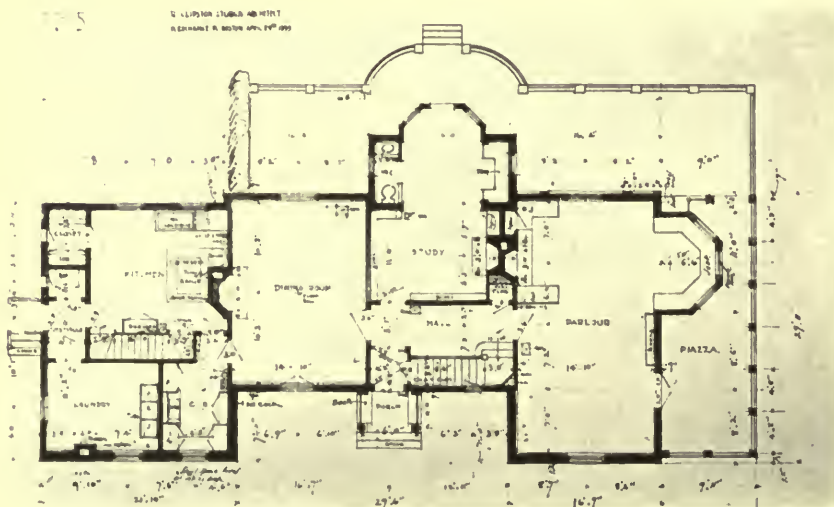
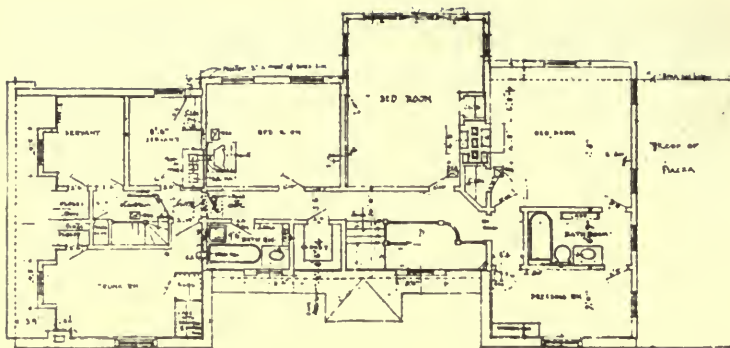
EXECUTIVE OFFICES—NEW YORK QUEBRACHO
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BENJAMIN WISTAR MORRIS, ARCHITECT.



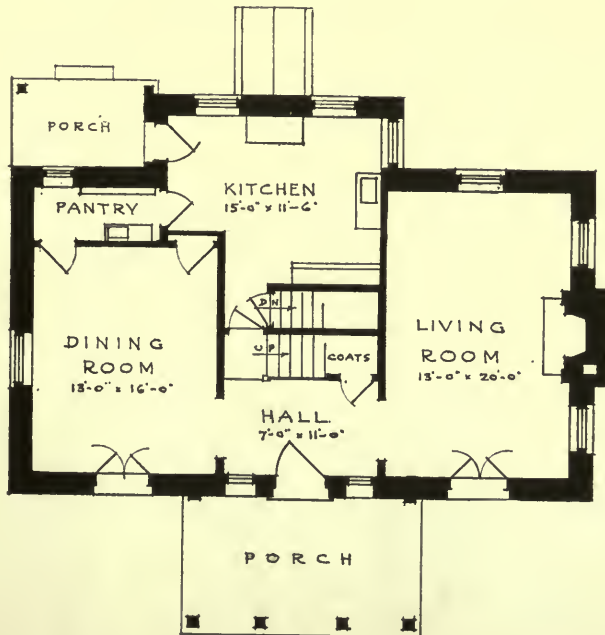
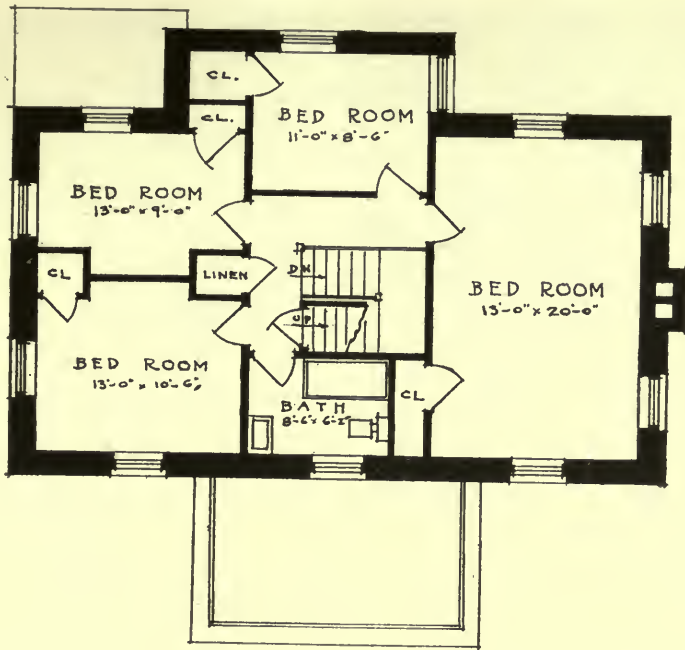
FRONT VIEW—MASTER'S HOUSE AT GROTON,
MASS. R. CLIPSTON STURGIS, ARCHITECT.



REAR VIEW—MASTER'S HOUSE AT GROTON,
MASS. R. CLIPSTON STURGIS, ARCHITECT.



FIRST AND SECOND FLOOR PLANS—
 MASTER'S HOUSE AT GROTON, MASS.
 R. CLIPSTON STURGIS, ARCHITECT.



FIRST AND SECOND FLOOR PLANS —
 HOUSE AT ARONIMINK, PA. EDWARD
 F. HOFFMAN, JR., ARCHITECT.



REAR VIEW—HOUSE AT ARONIMINK, PA.
Edward F. Hoffman, Jr., Architect.



FRONT VIEW—HOUSE AT ARONIMINK, PA.
Edward F. Hoffman, Jr., Architect.



STAIR—HOUSE AT ARONIMINK, PA.
EDWARD F. HOFFMAN, JR., ARCHITECT.



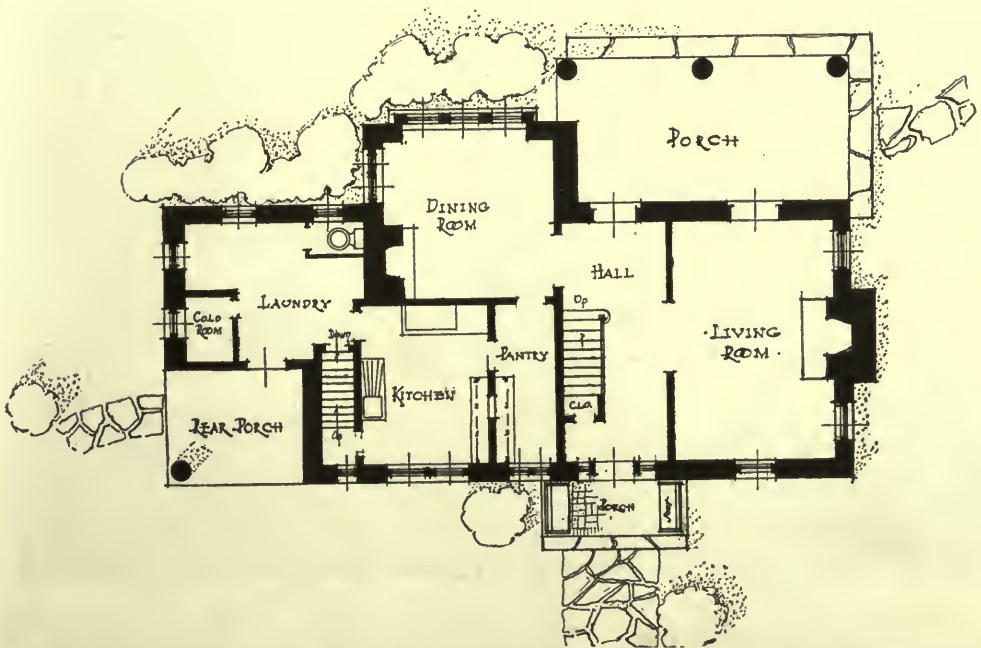
NORTH FRONT—RESIDENCE OF MRS. JOSHUA L. SMITH, GERMANTOWN, PHILADELPHIA.
Duhring, Okie & Ziegler, Architects.



WEST FRONT—RESIDENCE OF MRS. JOSHUA L. SMITH, GERMANTOWN, PHILADELPHIA.
Duhring, Okie & Ziegler, Architects.



SOUTH FRONT—RESIDENCE OF MRS. JOSHUA L. SMITH, GERMANTOWN, PHILADELPHIA.
 Duhring, Okie & Ziegler, Architects.



FIRST FLOOR PLAN—RESIDENCE OF MRS. JOSHUA L. SMITH, GERMANTOWN, PHILADELPHIA.
 Duhring, Okie & Ziegler, Architects.



HALL AND STAIR—RESIDENCE OF MRS. JOSHUA
L. SMITH, GERMANTOWN, PHILADELPHIA.
DUHRING, OKIE & ZIEGLER, ARCHITECTS.



DINING ROOM—RESIDENCE OF MRS. JOSHUA
L. SMITH, GERMANTOWN, PHILADELPHIA.
DUHRING, OKIE & ZIEGLER, ARCHITECTS.

ECONOMIES IN DESIGN AND CONSTRUCTION

BY C. C. NATHAN

[Ordinarily the work of the construction department of an architectural office begins where the work of the design department ends. Its chief customary function is to carry out the design—to write specifications, let contracts and oversee the job. In the present economic conditions, however, the work of the construction department begins before the building is designed. The design department and the construction department pool their resources to overcome prohibitive construction costs. The former makes a local investigation of the supply and prices of materials and of the supply and wages of labor; the latter thereupon creates a design adapted to the combination of materials and labor which happens to be most economical. If the bids are found to be needlessly high, either because the contractors cannot buy advantageously on credit or because they demand too much for "overhead," the construction department may suggest that it be allowed to buy for cash on behalf of the owner or that it be allowed to carry out the job, wholly or in part, without contractors. This very intimate collaboration between design departments and construction departments accounts in some measure for the fair volume of construction now under way, and is of importance also because it makes for progress in design. Mr. Nathan's article describes the newer functions of the construction department of a well-organized architectural office—that of William Lawrence Bottomley and Arthur Paul Hess.—Editor.]

UNDER the pressure of high cost of building construction, the architect is forced to pay greater attention than ever to the construction department of his office. Briefly, the aims of this department are: (1) to obtain reliable estimates and information as to lowest prices; (2) to save expense in design by advising as to the most economical construction; and (3) to eliminate commissions, profits, etc., on the actual construction itself.

To accomplish these objects, it is evident that an efficient, experienced organization is required. It must combine a knowledge of both architecture and general contracting. The contracting side covers principally the drawing of the contracts, estimating, buying and superintendence of construction. Records, particularly statistics of costs of labor and materials, are of course essential. This organization works in intimate cooperation with the design department throughout the progress of the design of a particular building, beginning with the very first inception of the work and continuing until the structure is completed and delivered to the owner.

In the beginning of the design—the steps leading to the preparation of

sketches—the function of the construction department is largely advisory. The design is studied from every point of view, estimates of cost are furnished for different combinations of materials and labor and methods of construction. This service is invaluable to designers, provided the construction men understand the aims of the designers enough to aid them in carrying out their ideas.

The advantage of basing a design on exact information of costs over the older practice of seeking information from sources more or less irresponsible, is evident. Examples of this may be cited. In one operation we found that local labor conditions made the use of concrete blocks more economical for small house construction, although thirty miles away concrete was cheaper. Often economy is possible when wood construction is used. Wood floor construction should be compared with fireproof construction, and roofing should be studied in the same manner. In interior finish, where possible, windows and interior doors are made of stock design and sizes. In one case we were able to avail ourselves of a large stock of doors and windows which a mill disposed of to us at less than the market price. Designs are made to meet

such conditions. For example, kitchens are laid out to accommodate stock sizes of dressers, and construction details are drawn to fit stock doors and windows.

An item of importance is insurance rates, which enter into our computations of cost; and still another factor is maintenance. Sometimes we find a more expensive construction or material to be really cheaper, because it is nearly permanent, carries low insurance, and costs little to maintain over a period of years. By such means, before the 1/4-inch scale drawings are completed, the owner has a proper and accurate knowledge of the type of building which his appropriation will allow him to build.

When the design has been completed and the specifications prepared, a list of the quantities is made covering all the items in the building. Estimates based on these quantities are obtained from contractors and material dealers. Our knowledge of current costs permit us to check all estimates received, by making comparisons with our figures. A tabulation of all proposals is then made, somewhat as follows:

	Lowest Bid	Our Estimate
Excavation	\$5000	\$4000
Masonry, inc. founda- tions, etc.....	26000	22000
Carpentry, inc. labor and rough lumber...	16000	14000
Mill work	6000	6000
Totals	\$53,000	\$46,000

This detailed study permits us to buy the various items advantageously. Take, for instance, the discrepancy between our own figures and those of our contractors on an item such as excavation. We can have the excavator bring his quantity sheets into our office for comparison with our estimates. In this way we can discover whether our drawings have been misinterpreted, whether any errors have been made, whether the unit prices are proper, whether something is included which is not desired, or whether something has been omitted altogether; we either convince the contractor that his figure is higher than it should be or we

discover that our allowance is not large enough. We have seldom compared estimates with contractors in this manner without making a saving for our clients.

If we are convinced that the contractors are asking much higher prices than they should, we recommend to the owner that he do the work with our own field organization. For instance, in the masonry items of the above table there is a difference of \$4,000 in favor of our own estimate, and we discover it is because the contractor figures \$60 per thousand for brick instead of \$50 per thousand. If our knowledge of existing prices convinces us that a man can profitably do the job for \$50 per thousand we do not hesitate to recommend having the work done by the owner under the direction of our superintendent.

All the branches of the structure are handled for purchasing in this manner, the contracts being closed in the proper sequence and at such times as are appropriate. The forms of contracts are thoroughly investigated and are drawn so as to cover the usual building construction requirements as well as the unusual ones created by handling the work in our office.

Our contracts are studied in order to embody in them terms which bind our drawings and specifications; and it is stipulated that each contractor agrees to co-operate with the other contractors engaged on the job. This secures harmony between all parties and expedites the work.

Before commencing the actual construction, a time schedule is prepared showing the dates of completion of the various portions of the building, thus establishing the dates of delivery of materials and of completion of the various contracts. Such co-ordination makes the trades dovetail into one another so that no delays occur.

A superintendent from our own organization is placed in the field in charge of the operation as the owner's representative. Usually, he employs no labor except a small force to keep the building free from rubbish and the walks and the other parts of the premises clean. How-

ever, sometimes a part of the work is carried out on direct payroll, in which case the superintendent undertakes it; and when this occurs he is furnished with such additional assistance for time-keeping, accounting, etc., as is necessary.

Supervision and follow-up work from the architect's office is indispensable. In the first place, the time schedule is constantly consulted to make sure that it is being followed. Delays are foreseen as far as possible and avoided. In this connection the routing of materials is traced. Our experience has been that costly delays are avoided by keeping in touch with the manufacturers of materials to make sure that there are no delays in the shops. Transportation, also, is a factor, because much telephoning and telegraphing is necessary to prevent shipments from becoming "lost" in transit.

As a final step in the construction process, surveys are made when a building approaches completion; and the little details coming to the surface—the uncompleted items—are noted and the contractors advised, so that this trying period of a job is passed as amicably as possible for all concerned. It is a time when the owner is impatient to take possession, or when threatened loss of rentals because the building cannot be occupied is apt to be serious.

I have thus described the chief advantages which such a construction department renders to the architect, and through him, to his client. As a result of its operation, reliable information about costs are available from the very inception of the design. The design is implied and made more economical without sacrificing good architecture.

Its great advantage, however, is on the side of lower costs. The building operation, always so complicated, becomes more direct, and this is a real saving. Commissions and intermediate profits, particularly those of the general contractor, are much reduced or eliminated altogether. When the architect deals directly with the various trades—and does

it capably—everybody is better satisfied with the arrangement. The vexing problem of credits is made easier. Dealings on behalf of the owner are direct with sub-contractors and with material dealers and manufacturers. The material men consider the owner a good credit risk and they are glad to give him the benefit of cash and trade discounts which otherwise would not revert to his benefit.

With such a system the architect, without departing from his true function as designer and without prejudicing his professional status, may attain a fuller control over the fundamental problem of costs than is possible when he depends exclusively on contractors.

This service is entirely optional with clients, but its success after two years of operation now seems assured. The charges for the service are made at cost, with a small commission for profit. The following comparison made recently on the construction of a mausoleum designed in marble, granite and bronze will show in a concrete way the saving to the owner:

Cost of building complete as estimated	
by a reliable contractor.....	\$32,000
Contractor's profit, 15%.....	4,800
	<hr/>
	\$36,800
Architect's commission, 10%.....	3,680
	<hr/>
Total	\$40,480

Cost of subletting all contracts separately, including excavation, concrete foundations and brick work and setting marble and granite, bronze work and glass, field supervision, compensation insurance, charges of the estimating and construction departments, including overhead charges	\$30,000
Architect's commission, 12%..	3,600
	<hr/>
	33,600
	<hr/>
	\$6,880

This brings the price down to the level of cost of a similar mausoleum built in 1916, thus effecting a saving of \$6,880, or nearly 7 per cent. on the cost of the work to the owner.